

Performance Assessment of Pakistani Islamic Mutual Funds

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Abstract:

The objective of the paper is to explore the performance of funds especially during crisis time period, impact of fund size on performance and rank funds on the basis of performance. For this reason, this study was conducted on Pakistan and Malaysia and performance is compared in both markets. Time span for the study is from January 2007 to December 2015. This whole time period covers global financial crisis as well, so performance was analyzed in bull and bear market. For performance measure, five different ratios are employed namely Sharpe ratio, Treynor ratio, Jensen Alpha, Sortino ratio, and Information ratio and for finding the link between fund size and fund performance, Pearson Correlation is employed and ranking of the markets is done by employing TOPSIS method. It is found that crisis is having direct impact on fund performance and that fund managers in both markets are risk averse most of the time, they are not performing well in comparison of market and performance in comparison of risk free securities is good in both countries and a negative link is found between fund size and fund performance. This study is contributive on literature on Islamic financing and is beneficial for the Muslim investors who don't prefer conventional financial products due to religious reasons.

Keywords:

Performance, Islamic Mutual Funds, Pakistan.

1. Introduction:

A financial instrument that pays profit to investors based on their respective investments is known as a mutual fund. These funds are regulated by an operation policy that guides the management of funds in making their investment decision (Sakakibaraa, Matsuib, Mutoha, & Inuzuka, 2015).

The type of investment that is made in accord to the Shari'ah-Islamic law, is known as Islamic finance. It focuses more on carrying out the instructions of the

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Quran rather than maximizing the returns (Hayat & Kraeussl, 2011). The Islamic financial system rested on key principles, namely the forbidding of interest-riba, uncontrolled uncertainty-gharar, speculation-maysir, the forbidding of investing in immoral industries and encouraging risk and return sharing. These guidelines are having far reaching outcomes for Muslim investors as they indicate that Muslims are forbidden from investing in futures, options and other speculative type derivatives. Islamic guidelines also put a limit on many other structured financial products (Rania & Ezzedine, 2015); (Shanmugam & Zahari, 2009). However, in Islamic finance, it is legitimate to take entrepreneurial risk and profit. This means that financing in financial instruments is permitted, provided that they cling to the key Islamic finance codes (Hayat & Kraeussl, 2011).

According to a study anticipated 72 % of people residing in Muslim-majority countries are not users of conventional financial products (Honohon, 2007) that's why a keen interest in Islamic financing can be seen world wide from the Muslim majority countries. This is the reason of the growth of this industry.

In spite of the astounding growth of Islamic finance, there are no studies that have compared Islamic mutual funds across countries. The main objective of the paper is to explore the performance of funds especially during crisis time period, impact of fund size on performance and rank funds on the basis of performance. This study is covering Malaysian and Pakistani Islamic mutual fund industry. The reasons for choosing such markets are several. Both these markets are emerging by nature and Islamic countries by nature but if we look at operations of Islamic financing, Malaysia is considered as a hub of Islamic financing. It has held Islamic financing since 1983 and soon after first Islamic bank it offered first sukuk in 1990. Shariah advisors in the form of Commission Malaysia and Bank Nagara and Malaysian International Islamic Financial Center based in the Kingdom of Saudi Arabia also exists there. There, a full fledged Islamic market exists of Islamic funds and Shairah based index as well national and international (Raslan, 2008). This indicates that Malaysia is in a stronger position in terms of Islamic financing.

When we look at Pakistani Islamic mutual fund market, this market seems to be in its early stages. It commenced its operations in 1995 when Al Meezan Investment Management Limited was founded. Since then, a number of Islamic products kept on increasing but still a gap exists in many dimensions, such as Pakistan is not having any Islamic based index and treasury bills. But from many existing studies sign of hope can be seen (e.g. (Shah & Hijazi, 2005); (Zaheer, Mir, & A., 2011). For this reason, in this study, it is focused to compare the

performance of a developed Islamic financial market with a developing Islamic market.

In order to achieve the objective, analysis is done at three levels, at first performance is accessed using different ratios, then correlation is found and last but not the least, funds are ranked on the basis of performance. Use of ratios for performance analysis is widely applied, same is true for the correlation, for ranking purpose TOPSIS is applied, it's a decision criteria method, considered as the most reliable and feasible method (Lootsma, 1999). Among numerous multiple-criteria decision analysis (MCDA) or multiple criteria decision making (MCDM) methods developed to solve real-world decision problems, Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) continues to work satisfactorily in diverse application areas.

Results indicate that there is not any substantial difference between risk and return in both markets. A negative relation is found between fund performance and size and in the results for ranking Pakistan is ranked higher than Malaysia.

This paper adds to the work on Islamic finance in several ways. First, a brief summary on the nature of Islamic investing by debating the characteristics of Islamic investment is provided. Second, analysis is done in a thorough empirical way for finding the performance and risk-return characteristics of Islamic Mutual funds over the period January 2007 to December 2015. Thirdly, link between fund size and performance is also under consideration and the impact of recent financial crisis is checked also. Lastly, ranking of funds is done on the basis of performance. This study will be helpful for all those investors who don't invest in traditional investment avenues due to religious reasons and also for the researchers who are working on Islamic financing.

The rest of the paper is organized as follows: Section 2 provides a brief overview of the literature available on mutual funds. Section 3 describes the method and data followed by analysis in section 4 and finally Section 5 covers conclusion and discussion of this paper.

2. Literature Review:

Literature of mutual funds is very vast. Researchers have done a lot of work for unfolding the risk and return characteristics from different angles. Studies specific on countries majorly have analyzed market at national level and analyzed performance of fund. Such as Annuar (1997) with his colleagues examined the

performance of Malaysian mutual funds and found that funds outperformed the Kuala Lumpur Composite Index (KLCI) and fund managers are having poor market timing ability. Ahmad (2001) presented a survey in his study without any empirical analysis that Islamic funds are performing better than market. Zaher and Hassan (2001) also conducted a similar study and concluded that return on ethical investments are better than conventional mutual funds. Abdullah (2007) and his colleagues found that conventional funds perform well in bear market and Islamic funds during bull market.

Studies on Pakistani markets are very rare. The few those are available covering very short time span and short sample in study as Ali et.al, (2012) studies fifteen mutual funds from 2005 to 2009 and concluded that performance of mutual funds is not up to the mark in Pakistan. Zaheer et. al. (2011) in their study concluded that persistency exists in performance of conventional funds not in case of Islamic funds. Shah et.al, (2005) after analyzing Pakistani mutual fund industry concluded that this industry is having very little stake in comparison of the whole financial industry and performance of this sector is satisfactory.

3. Method & Data:

In this paper, empirical analysis of the mutual funds in Malaysia and Pakistan has been carried out. Time span is from January 2007 till December 2015 that covers 108 observations in total. Data on Pakistani mutual funds is downloaded from mutual funds association of Pakistan, on market and of 12 month T-bills from statistical bulletin of the State Bank of Pakistan. In case of Malaysia, data on funds and 12-month treasury bills is collected from Bursa Malaysia and on market from international monetary funds (IMF).

Data is converted into return using the following formula:

$$R_t = P_t - P_{t-1}/P_{t-1} \quad (\text{Eq. 1})$$

3.1 Test of Stationary:

The unit root test is applied to find out whether time series are stationary or not. In this study, Dickey-Fuller and Augmented Dickey Fuller test is employed. Eviews is employed for this purpose. Both series are stationary.

3.2 Sharpe Measure:

This is developed by the Nobel laureate William F. Sharpe in 1966. It is used for finding risk-adjusted performance (Sharpe, 1994). The Sharpe ratio formula is:

$$\text{sharpe ratio} = (r_p - r_f) / \sigma \quad (\text{Eq.2})$$

Where,

r_p = portfolio return,

r_f = risk free rate,

σ = standard deviation.

Higher Sharpe ratio is desirable; it indicates that the fund is performing well. Ratio more than one indicates that portfolio is producing very high return and having very low volatility.

3.3 Treynor Measure:

This measure was developed by Jack Treynor, very similar to Sharpe ratio, also known as reward to volatility ratio (French, 2003).

$$\text{Treynor Measure} = (r_p - r_f) / \beta \quad (\text{Eq. 3})$$

Where,

r_p = portfolio return,

r_f = risk free rate,

β = beta.

Treynor ratio measures the additional probable return of a portfolio in comparison to systematic risk (George & Ferson, 2006). Treynor in combination of Sharpe ratio present the ability of managers in diversifying of portfolio (Lalith & Tanweer, 2005).

3.4 Jensen Differential Measure:

Jensen's measure was developed by Michael Jensen in 1967 and is used for finding the difference of portfolio return from the return predicted by Capital Asset Pricing Model (CAMP) (Jensen, 1967). It estimates the ability of fund managers in forecasting the fund's return (Shahid, 2007). Its formula is as follows:

$$\alpha = r_p - [r_f + \beta_p(r_m - r_f)] \quad (\text{Eq. 4})$$

Where,

r_p = expected total portfolio return,

r_f = risk free rate,

β_p = beta of the portfolio,

r_m = expected market return.

3.5 Sortino Ratio:

This was introduced by Frank Sortino in 1944 presented as modified form of Sharpe ratio. It employs downside risk for finding the fund performance (Nafees et al., 2011). The formula of Sortino measure is as follows:

$$\text{Sortino ratio} = (r_p - r_f) / \text{DR} \quad (\text{Eq. 5})$$

Where,

r_p = portfolio return,

r_f = risk free rate,

DR = downside risk.

3.6 Information Ratio:

This is also known as Appraisal ratio. This ratio uses Jensen' alpha and unsystematic risk of a managed portfolio for evaluation (George & Ferson, 2006). Information measure was introduced by Thomas Goodwin in 1998. Formally, the information ratio (IR) is calculated as:

$$\text{Information ratio} = (r_p - r_m) / \sigma \quad (\text{Eq. 6})$$

Where,

r_p = portfolio return,

r_m = market return,

σ = standard deviation.

3.7 Pearson Correlation Coefficient:

It is the standard measure for finding the degree of association between variables. It is calculated by using the following formula.

$$r = \Sigma x_{i1}x_{i2} / nS_1S_2 \quad (\text{Eq. 7})$$

3.8 Technique for Order Preference by Similarity of Ideal Solution (TOPSIS):

This technique was developed by Hwang and Yoon (1981), used for ranking purpose. This method attempts to choose alternatives that have the shortest distance from Positive Ideal Solution and the farthest distance from negative ideal solution (Chen et.al, 2006). To use this technique, characteristic values need to be numeric. Its steps are as follows:

Step 1: construct normalized decision matrix

$$r_{ij} = x_{ij} / \sqrt{(\Sigma x_{ij}^2)} \quad (\text{Eq. 8})$$

where

r_{ij} & x_{ij} = original and normalized score of decision matrix, respectively.

Step 2: construct the weighted normalized decision matrix

$$v_{ij} = w_j r_{ij} \quad (\text{Eq. 9})$$

where

w_j = weight of the criteria

step 3: determine the positive ideal and negative ideal solutions

Positive Ideal Solution

$$a^* = [v_1^*, \dots, v_n^*] \quad (\text{Eq. 10})$$

where

$$v_i^* = [\max(v_{ij}) \text{ if } j \in J; \min(v_{ij}) \text{ if } j \in J']$$

Negative Ideal Solution

$$a' = [v'_1, \dots, v'_n] \quad (\text{Eq. 11})$$

where

$$v'_i = [\min(v_{ij}) \text{ if } j \in J; \max(v_{ij}) \text{ if } j \in J']$$

step 4: calculate the separation measures for each alternative

the separation from positive ideal solution

$$S_i^* = \frac{[\sum(v_i^* - v_{ij})^2]^{1/2}}{2} \quad (\text{Eq. 12})$$

the separation from negative ideal solution

$$S_i' = \frac{[\sum(v_i' - v_{ij})^2]^{1/2}}{2} \quad (\text{Eq. 13})$$

step 5: calculate the relative closeness to the ideal solution

$$C_i^* = S_i' / (S_i^* + S_i') \quad (\text{Eq. 14})$$

step 6: rank alternatives

$$0 < C_i^* < 1$$

select the alternative with C_i^* closet to 1.

4. Analysis:

In this paper, analysis starts with the return calculation, followed by ratio calculation than correlation and finally calculation of rank. For analyzing, Eviews and excel is employed. Figure 1 and 2 show the descriptive statistics of Pakistan and Malaysia respectively.

Figure 1. Descriptive Statistics of Malaysian NAVs

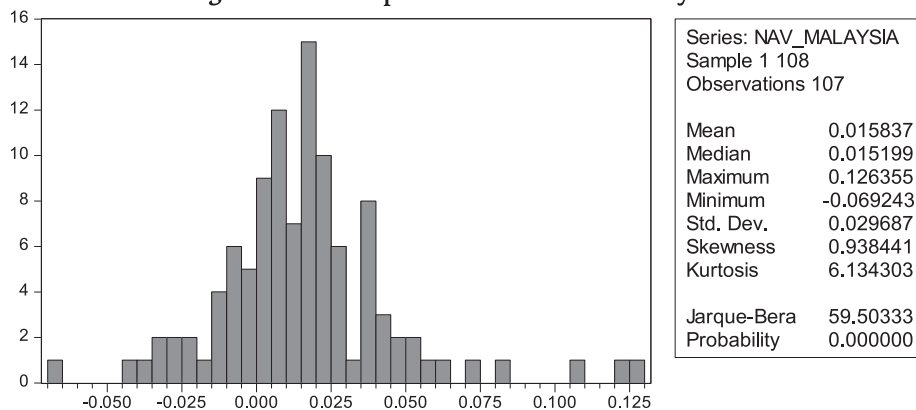
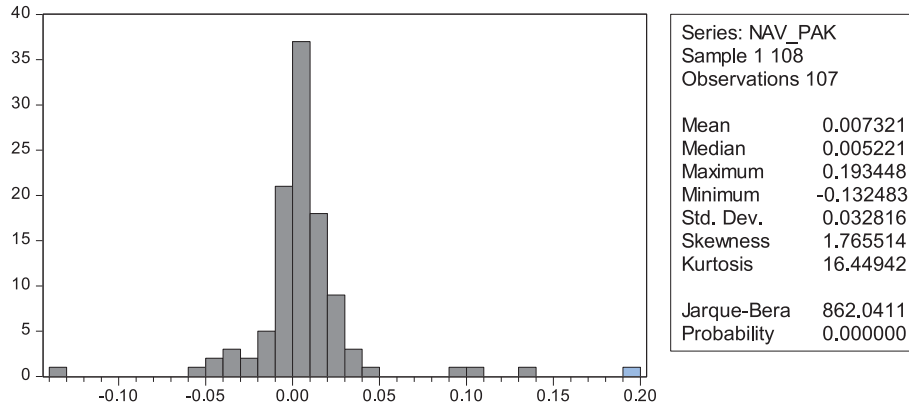
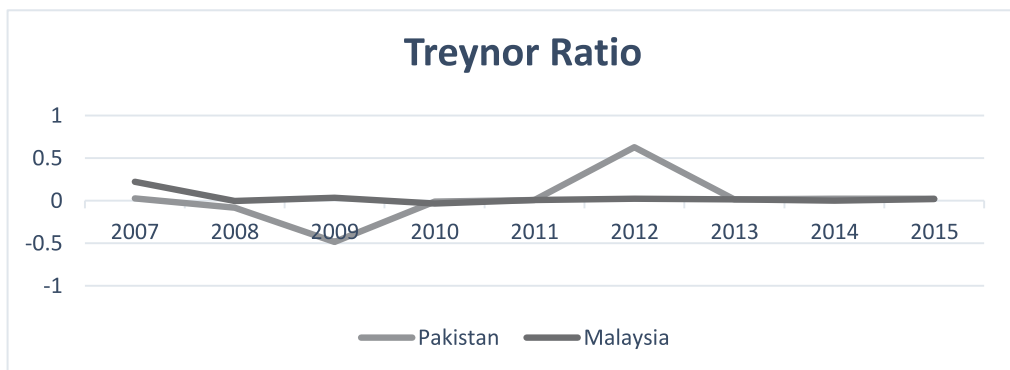


Figure 2. Descriptive Statistics of Pakistani NAVs



Sharpe ratio or risk adjusted performance of Pakistan is having mixed trend in the overall time period. Starting from 2007, it is low indicating impact of global crisis 2007. It's been negative during and after crisis time indicating direct impact but very good condition start to happen except in the year 2013, indicating a strong risk adjustment of funds. Performance of Malaysia is not so much outstanding in comparison of Pakistan. Impact of crisis can also be seen here. But its intensity is low in starting but it become severe right after crisis. After that strong position is showing except the year 2014. So in comparison it can be said that risk adjusted performance is not very different in both cases. Same direction exists for both economies.

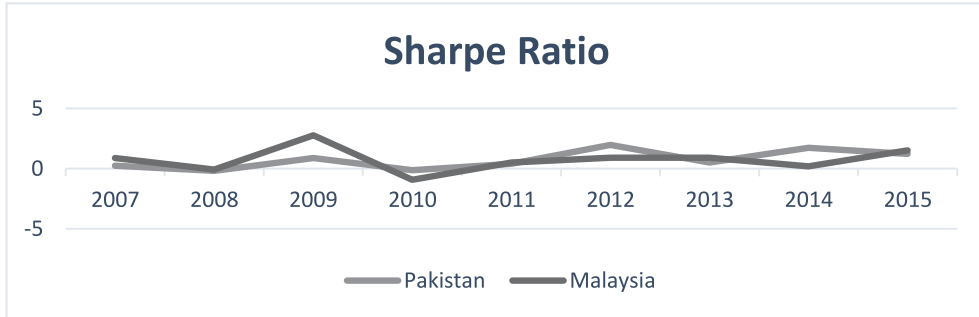
Figure 3



Treynor ratio or risk adjusted performance of funds over per unit of systematic risk or reward to volatility ratio have not been much high in both markets indicating a risk averse strategy of fund manager. During crisis, it's been negative

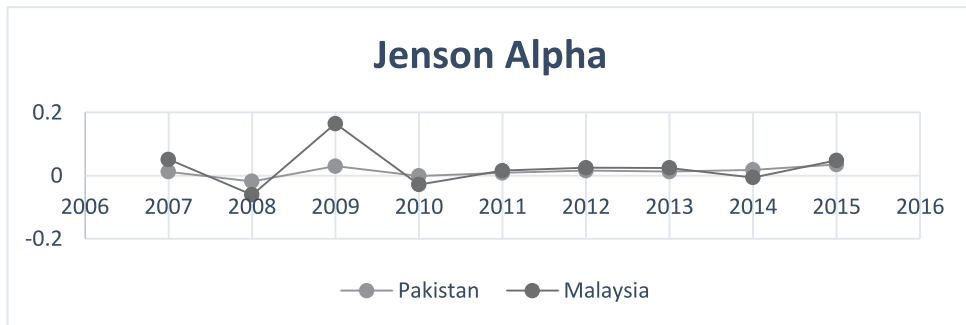
and an interesting point is that this is slightly better in case of Pakistan indicating a good position of Pak funds in comparison of the market.

Figure 4



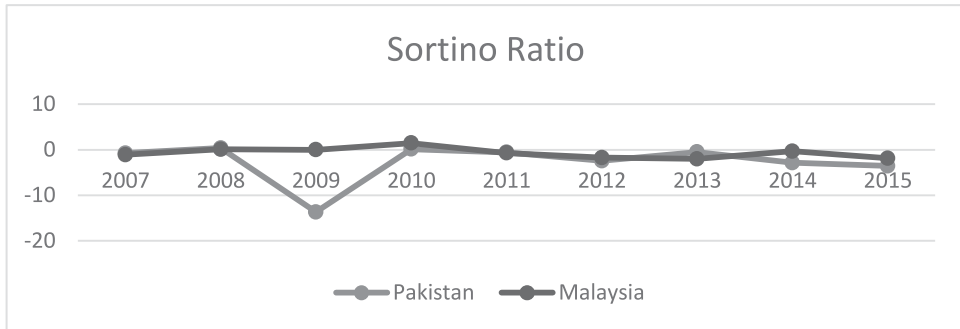
Jensen alpha results indicate that by comparing the expected return of managed portfolio with benchmarked portfolio, position is not different than Treynor ratio. It's been negative or very low during the study time period, showing that manager's forecasting ability is not very good. During crisis time period, it may attribute to global downturn of economies but later on, it's very low in both economies, indicating weak performance of funds in comparison of benchmark portfolio.

Figure 5



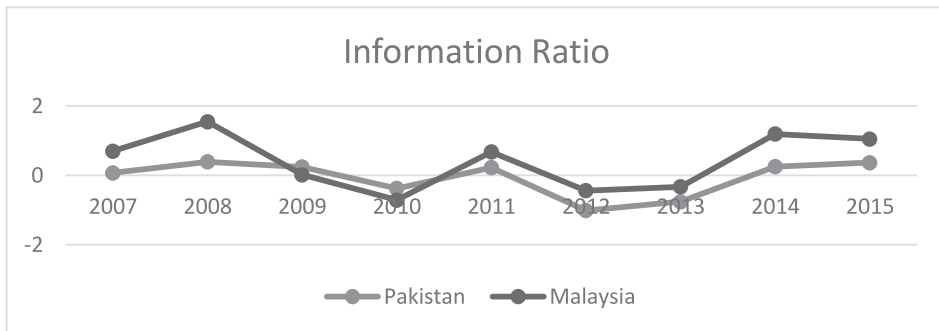
Sortino ratio or downside risk adjustment of both markets is negative most of the time, showing bad risk adjustment of funds. Sortino ratio has reverse link in both causes. Here, the condition of Malaysia is better than Pakistan.

Figure 6



Information ratio or appraisal performance is not much high in both economies, indicating that funds do not capture information of the market properly. That's why it is not working in line with market during crisis time period, in normal time period, its normal.

Figure 7



In comparison of market, information ratio is having negative link and Jensen and Treynor direct and moderate link, in case of Pakistan. While in case of Malaysia, negative link exists in all performing ratios except information ratio. Overall analysis indicates that at some instant regardless of crisis, performance is negative. No doubt, crises are having an impact on performance but fund managers are risk averse. That's why, return for most of the time is not very much good.

Results of Pearson correlation coefficient indicates moderate link between fund size and risk adjusted performance and negative link is found between fund size and performance of Islamic mutual funds (refer table 1 & 2).

Table 1: Pearson Correlation Analysis of Pakistani Islamic Mutual Funds

	Information	Jenson	Net Assets	Sharpe	Sortino	Treynor
Information	1					
Jenson	0.041589	1				
Net Assets	(0.137335)	0.581605	1			
Sharpe	(0.230198)	0.662019	0.666449	1		
Sortino	(0.228198)	(0.633313)	(0.021533)	(0.347673)	1	
Treynor	(0.651488)	(0.084173)	0.292014	0.456828	0.535123	1

Table 2: Pearson Correlation Analysis of Malaysian Islamic Mutual Funds

	Information	Jenson	Net Assets	Sharpe	Sortino	Treynor
Information	1					
Jenson	(0.4804575)	1				
Net Assets	0.24630833	(0.0548437)	1			
Sharpe	(0.1694591)	0.92177761	0.08090421	1		
Sortino	(0.4244242)	(0.2310988)	(0.4852366)	(0.4682407)	1	
Treynor	0.13767887	0.3397332	(0.4155014)	0.29495005	(0.3092589)	1

TOPSIS method is applied on average values of the ratios. Results indicate that Pakistan is at higher rank. In this, equal weight is given to all the performance measures and results show that during the period under study as a whole Pakistan is ranked higher than Malaysia.

Table 3: TOPSIS Results

	Sharpe Ratio	Treynor Ratio	Jenson Ratio	Sortino Ratio	Information Ratio	ci	Rank
Pakistan	0.746781803	0.033087505	0.025839853	-0.694060171	0.476738417	0.5	1
Malaysia	0.744030321	0.017511469	0.012610207	2.653922544	0.067256299	0	2

5. Conclusion & Discussion:

A great deal of interest can be seen in Islamic finance but academic research on this area is very limited specially on Islamic equity investment like mutual funds. The objective of this study was to access the performance of Islamic mutual funds

and compare cross country wise. In order to achieve this objective, this study was conducted on Malaysia and Pakistan covering time span of 2007 till 2015. The reason for choosing Malaysia for comparison purpose is that it is considered as the financial hub of Islamic unit trust (Raslan, 2008).

As a result of comparison, it is found that there is not any significant difference between risk and return of funds in both markets. In year to year analysis, Pakistan's position is better than Malaysia in the year 2007. In 2008, funds in Pakistan indicated downward trend while an upward trend is witnessed in case of Malaysia. It was 26.8% of its total financial industry (FMUTM, 2008); this growth factor is visible in performance. This trend of growth continued in the year 2009 with registered growth of 27% (FIMM.2009) and persistency of a downward trend remains in case of Pakistan. This indicates that crisis were having an impact of fund performance but it works differently across the countries. In Pakistan, funds showed a downward trend while for the Malaysian market crisis served as a blessing. After 2009 and the year to come, Pakistani funds performed better than Malaysia and in normal time a stagnant factor of performance is observed in case of Malaysia. Fund managers in both markets are seen risk averse most of the time that's a major contributive factor of low performance of funds.

Further, analysis of the link between fund size and performance was done. As a result, a negative link is seen in fund size and performance. In the end, fund markets are ranked on performance basis. Result of TOPSIS technique rank Pakistan higher than Malaysia.

This study adds to the literature on Islamic financing in many ways. It compares different Islamic markets by using its Islamic financing, sheds light not only on the behavior of fund managers but also the link between fund size and performance and lastly, rank markets on the basis of performance. This study covers different aspects of performance of Islamic financing. The findings of this study are helpful for all the researchers and practitioners working on Islamic financing and the ones who want to know more on performance aspects of Islamic financing.

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