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Research

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## LUCRATIVENESS OF ISLAMIC VS CONVENTIONAL MUTUAL FUNDS IN PAKISTAN

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### Abstract

*The purpose of this study is to conduct a comparative risk adjusted performance, selectivity skills and market timing abilities analysis of Islamic and Conventional mutual funds in Pakistan. The study utilizes various risk-adjusted performance measures to evaluate risk and return characteristics. The study also used technique proposed by (Treyner and Mazuy 1966) and (Henriksson and Merton 1981) to appraise selectivity skills and timing abilities on the data set ranging 2009-2013 of Islamic and Conventional mutual funds. In this study, four categories Aggressive Fixed Income, Asset Allocation, Equity and Balanced open end mutual funds are analysed. On the basis of evidences found, only few mutual fund managers from Islamic and Conventional mutual funds hold better stock picking skills. The mutual fund managers of both Islamic and conventional mutual funds are found to be a poor market timer in Pakistan. Islamic mutual funds have earned better returns than conventional mutual funds. Therefore, risk adjusted performance of Islamic mutual funds is better than conventional mutual funds.*

**Keywords:** Mutual Funds, Conventional, Islamic, Skills and Risk Adjusted Performance

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### **Introduction**

In Pakistan, Islamic mutual funds industry has grown up by leaps and bounds. Islamic mutual funds are making a move towards maturity. Islamic mutual funds are different from conventional mutual funds because Islamic mutual funds follow Islamic Sharia rules. Islamic mutual funds have to work in accordance with stringent Islamic screening principles. Therefore, investment mechanism used to invest by Islamic mutual funds is different from conventional counterparts. Islamic mutual funds have attracted a lot of investment because of impressive performance, especially in Islamic countries. Islamic mutual funds are also operative in Pakistan. The history of Islamic mutual funds started off from the mid off the 1990's decade.

Despite of tough challenges to the economy of Pakistan conventional mutual funds have also shown tremendous growth over the last few years. The conventional mutual funds operating in Pakistan have grabbed significant attention amongst the top mutual funds of the world. The conventional mutual funds are the major contestant of the Islamic mutual funds. The mutual funds industry of Pakistan has been proceeding towards maturity after passing through evolutionary phase. In terms of returns, it has been claimed in a report published in 2012 that amongst top hundred equity mutual funds twenty mutual funds belongs to the mutual funds industry of Pakistan<sup>1</sup>. Amongst these twenty mutual funds the highest and lowest return is 105.29% realized by Golden Arrow Selected Stock Fund, having the 5th ranking worldwide and 74.23% realized by Safeway Mutual Fund having 20th ranking worldwide. This performance is for only a single financial year. It is difficult to generalize the ex-ante and ex-post performance without evaluating risk adjusted performance, selectivity skills and market timing abilities. Therefore, it is necessary to check whether mutual fund managers have consistently added value to make better the performance of mutual funds or not.

In spite of profitability and economic growth benefits and greater volatility, there are multiple benefits reported by different studies to invest in emerging markets. Emerging markets continually provide high return due to less volatility and performance benefits in terms of diversification (Barry, Peavy III et al. 1998). Investors can

avail benefits by focusing on limited set of emerging capital markets (Buchanan, English II et al. 2011).

It is importance to know the insight of Islamic mutual funds because Islamic mutual funds have grown at more rapid paste than conventional mutual funds. The main objective of this study is to assess whether Islamic funds are more lucrative or conventional mutual funds. Therefore, to the best of author's knowledge, this paper fills the gap in literature with the help of methodology that have never been applied on the sample taken.

The rest of the paper is organized as, section two is about review of previous studies, section three is about research methodology used and section four is about results and discussion and the section five is about concluding remarks of the findings.

### **Literature Review**

In Sweden, small size, low fund fee and active involvement in trading plays vital role to enhance the performance of equity mutual funds comparatively (Dahlquist, Engström et al. 2000). Mutual fund managers have been unable to beat the market performance because of a lack of superior market timing and stock selection skills to pick under value stocks (Filippas and Psoma 2001). The selection of the benchmark has great importance while evaluating the performance of mutual funds. Therefore, some mutual funds show positive timing abilities with the use of S&P500 index as benchmark. On the other hand, with the use of alternative benchmark Dow Jones subgroup index, many mutual funds reveal positive timing abilities (Dellva, DeMaskey et al. 2001). In Europe, the performance of large portfolio holder equity mutual funds is better. But, this performance is not better than mutual funds of the U.S (Otten and Schweitzer 2002).

There exist insignificant difference between performance of Islamic and conventional mutual funds only some of Shariah complaint mutual funds have outperformed than conventional mutual funds (Elfakhani, Hassan et al. 2005). The performance of mutual funds is negative using both EMAS (Exchange Market all Shares) index and KLCI (Kuala Lumpur Composite Index) as benchmark. The poor timing

ability is the main cause of this negative performance (Low 2007). In Malaysia, during bearish and bullish trend performance of Islamic and conventional mutual funds differ. Therefore, during bearish economic trend the performance of Islamic mutual funds is better. On the other hand, conventional mutual funds performed better than Islamic counterparts during bullish economic trend (Abdullah, Hassan et al. 2007). In Hong Kong, mutual fund managers have been unable to beat the capital market because of poor selectivity skills and timing abilities (Abdel-Kader and Qing 2007). Performance of Islamic mutual funds have been poor against benchmark indices. Selectivity skills of mutual fund managers are also poor. The poor performance of Islamic mutual funds is due to lower diversification (Abderrezak 2008). The relationship between Islamic and conventional mutual funds is strong that indicates the importance of Islamic mutual funds. Islamic mutual funds are growing at a rapid pace than conventional mutual funds. The size of Islamic mutual funds is lesser than conventional mutual funds (Mansor and Bhatti 2009). Islamic equity mutual funds under performed than the Islamic as well as conventional benchmark around the world. Further, Islamic mutual fund managers are found to be bad market timer (Hayat and Kraeussl 2011). Around the globe, Islamic mutual funds have focused on growth oriented stocks and reflect small cap preferences (Hoepner, Rammal et al. 2011). The performance of mutual funds industry is below the capital market portfolio in Pakistan (Nafees, Shah et al. 2011).

No significant statistical difference in the performance of Islamic and convention market indices existed during 1999-2005 in Malaysia (Albaity and Ahmad 2008). Positive insignificant selectivity skills and no evidence regarding timing abilities of mutual fund managers are found in Poland (Swinkels and Rzezniczak 2009). In Saudi Arabia during 2003 to 2010, Islamic mutual funds underperformed than conventional mutual funds. Same results have been found during bullish trends (Merdad, Hassan et al. 2010).

During the recent financial crisis of 2008, some funds focused on concave and some funds focused on convex sensitivity to returns of emerging market index. Therefore, some manager possess positive and some possess negative market timing abilities. (Cave, Hubner et al. 2011). In Taiwan, continuity of previous trend in the performance has been observed. Further, size and length of fund history is negatively related to the timing performance. (Hou 2012). Specific

country characteristics are vital for better performance of mutual funds. Therefore, performance of mutual funds is better in such countries where capital markets liquidity is high with strong legal institutions (Ferreira, Keswani et al. 2013). In Croatia, the timing abilities of mutual fund managers are not found (Škrinjarica 2013).

### Research Methodology

This study utilize measures to appraise the selectivity skills and market timing abilities along with traditional measures of risk adjusted performance. Jensen (1968) developed a model that is also known as Jensen Alpha. This model is based on the CAPM (Capital Asset Pricing Model). CAPM assumes that the expected return of any security is linearly dependent on relative risk of the security with the capital market and risk premium. The model proposed by Jensen Alpha is given below:

$$R_{i,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + \epsilon_{i,t} \dots \dots \dots (1)$$

Further,  $R_{i,t}$  represents the return of analysed  $I_{t}$  mutual fund in given time  $t$ ,  $R_{f,t}$  represents the return with no risk of portfolio.  $\alpha$  (Alpha), it represents the Jensen Alpha value.  $\beta$  (Beta) is the coefficient of capital market premium calculated using  $(R_{m,t} - R_{f,t})$ , which is, also known as risk premium and  $m, t$  is the return of market in time  $t$ .  $\epsilon_{i,t}$  represents error term of the equation. Alpha is the measure that is used to assess the selectivity skills of mutual fund managers.

The previous model does not take into account the timing abilities of the mutual fund managers while moving in and out from the capital market based on investment decision. Treynor and Mazuy (1966) proposed a model that can be used to assess both timing and selectivity skills simultaneously of mutual fund managers. As, mutual fund managers are expert of the industry therefore have some additional information relating to the sign and size of the market. Thus, the basic assumptions used by Treynor and Mazuy are size and sign of the market movement. The proposed model is given below in equation form

$$R_{i,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + \tau_{TM}(R_{m,t} - R_{f,t})^2 + \epsilon_{i,t} \dots \dots \dots (2)$$

The timing abilities of mutual fund managers can be measured  $\tau_{TM}$  coefficient of  $(R_{m,t} - R_{f,t})^2$ . It is the additional reward caused by additional information.  $\alpha$ , represent selectivity skills.

Henriksson and Merton (1981) developed a model. This model takes into account that mutual fund managers have information about the direction of market return movement as well.

$$R_{i,t} - R_f = \alpha + \beta(R_{m,t} - R_f) + \tau_{TM} * I\{R_{m,t} > R_f\} * (R_{m,t} - R_f) + \epsilon_{i,t} \dots \dots \dots (3)$$

In the above equation, coefficient  $\tau_{TM}$  represents market timing abilities of mutual fund managers,  $I\{R_{m,t} > R_f\}$  means that it will take value 1 only if the return of market is above the risk free rate otherwise zero.  $I\{R_{m,t} > R_f\} * (R_{m,t} - R_f)$ , the whole expression would be used to assess the timing abilities of mutual fund managers.  $\alpha$ , represent selectivity skills.

The MM measure is the extended form of sortino measure developed by Modigliani and Modigliani (1997). This measure effectively explains the difference between the returns of portfolio and capital market. The MM measure defines difference of performance from basis points. If the difference becomes positive then the fund has outperformed the capital market. If the difference is negative then the fund has underperformed the capital market. The MM measurement is presented below:

$$MM = (SM_p - SM_m) \sigma_m \dots \dots \dots (4)$$

Where,  $SR_p$  represents the sharpe measure of portfolio and  $SR_m$  represents the Sharpe measure of market portfolio.  $\sigma_m$  is standard deviation of market returns.

TT Measure is also extended form like MM, developed by (Bodie, Kane et al. 2005). It is simply the difference between Treynor measure and average market premium. If the answer of TT measure is

positive and greater than one then mutual fund has earned more than per unit of risk and above than market risk premium.

$$TT = TR - (AvR_m - AvR_f) \dots (5)$$

Where, TR stands for Treynor Measure,  $AvR_m$  and  $AvR_f$  is average return of market and average risk free rate of return.

Sharpe measure was developed by (Sharpe 1966). This risk adjusted performance measure is being widely used by investors to evaluate risk adjusted performance of mutual funds. This measure evaluate excess return earned by portfolio over per unit of absolute risk. The formula of this measure is given below.

$$SM_i = \frac{\frac{1}{N} \sum_{i=1}^n R_{i,t} - R_f}{\sqrt{\frac{1}{N} \sum_{i=1}^n (R_{i,t} - \frac{1}{T} \sum_{i=1}^n R_{i,t})^2}} \dots \dots \dots (6)$$

Sortino measure was developed by Fran A Sortino in 1944. In this measure only down risk is used. it is the only difference between sharpe and sortino measure. So, this measure determine the excess return over per unit of downside risk. The downside risk is of more importance because it ensures that risk has been taken into account more realistically to measure the performance. The formula of sortino measure is given below.

$$SR_i = \frac{\frac{1}{N} \sum_{i=1}^n R_{i,t} - R_f}{\sqrt{\frac{1}{N} \sum_{i=-\infty}^n (R_{i,t} - \frac{1}{T} \sum_{i=1}^n R_{i,t})^2}} \dots \dots \dots (7)$$

Treynor measure was developed by (Treynor 1964). This measure consider relative risk of mutual fund with the capital market. These measures determine that how much excess return from benchmark has been realized over each unit of relative risk. This risk is also known as systematic or un-diversifiable risk. The formula of Treynor measure is given below.

$$TR_i = \frac{\frac{1}{T} \sum_{i=1}^n R_{i,t} - R_f}{\beta} \dots \dots \dots (8)$$

$$\beta = \frac{\sum (r_m - r_f) * (r_i - r_f) n * \sum \frac{(r_m - r_f)}{n} * \sum \frac{(r_i - r_f)}{n}}{\sum (r_m - r_f)^2 - n * (\sum (r_m - r_f) / n)^2} \dots \dots \dots (8.1)$$

Where,  $r_m$  = market return,  $r_i$  = portfolio return,  $r_f$  = risk free return, n = number of observations. If managers are able to outperform the capital market then investors would be more willing to invest in such mutual funds.

**Sample Construction**

This research focuses on the mutual funds industry of Pakistan. The sample set inherits some characteristics. The mutual funds data taken for the study is post financial crisis. Four categories of mutual funds are selected because of data constraint. KMI30 (KSE Meezan Index) and KSE100 (Karachi Stock Exchange) index are used as benchmark for Islamic and conventional mutual funds respectively. Values of Indexes are obtained from website of Karachi Stock Exchange. The data is obtained from the respective websites of mutual funds over the period of 2009 to 2013. Risk free rate is taken from SBP (State Bank of Pakistan) data warehouse.

Category	No of Funds	Benchmark
<b>Panel A</b>		
<b>(Conventional Mutual Funds)</b>		
Aggressive Fixed Income	7	KSE100 Index
Asset Allocation	4	
Equity Fund	16	
Balanced Fund	4	
<b>Panel B</b>		
<b>Islamic Mutual Funds</b>		
Islamic Aggressive Fixed Income	3	KMI30 Index
Islamic Asset Allocation	3	
Islamic Equity	10	
Islamic Balanced Fund	2	

Table 1 shows the description of the sample. Total numbers of conventional and Islamic mutual funds are thirty one and eighteen respectively. The detail of all mutual funds is provided in the appendix. Further, sample is almost fifty percent of population of open end mutual funds. The others categories have not been included because of non-availability of appropriate benchmark in Pakistan.



### Results and Interpretation

First of all mutual fund managers skills are empirically analyzed with the help of Jensen Alpha, Treynor Mazuy and Merton-Henriksson model. Results of estimated parameters are reported on mean average basis. Jensen alpha results are reported in table 2. Only asset allocation category has significant positive alpha value thus asset allocation managers have been able to beat the capital market as compare to other fund categories of conventional mutual funds. Whereas, in Islamic mutual funds, asset allocation category has positive but insignificant alpha value. All others categories of both conventional and Islamic mutual funds has negative and significant alpha value. Hence, the mutual fund managers have not been able to beat the market apart from asset allocation category from conventional and Islamic mutual funds.

Table 2

Jensen Alpha Measure		
	$\alpha$	$\alpha$ t-Value
<b>Panel A</b>		
<b>Conventional Mutual Funds Using KSE100 Benchmark</b>		
Aggressive Fixed Income	-8.74	3.03
Asset Allocation	1.51	1.94
Equity Fund	-26.37	2.17
Balanced Fund	-2.30	1.75
<b>Panel B</b>		
<b>Islamic Mutual Funds Using KMI30 Benchmark</b>		
Islamic Aggressive Fixed Income	-8.17	2.49
Islamic Asset Allocation	5.20	0.96
Islamic Equity & Income	-10.25	2.68
Islamic Balanced Fund	-8.65	3.52

Notes: The table contains the results of Jensen alpha measure obtained through,  $R_{i,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + \epsilon_{i,t}$ . Where,  $R_{i,t} - R_{f,t}$  is the excess return of portfolio  $i$  from the risk free benchmark i.e. T-bills rate obtained from SBP (State Bank of Pakistan) data ware house.  $\alpha$  is the alpha value of regression.  $\beta$  is the coefficient of risk premium of market.  $(R_{m,t} - R_{f,t})$  is market risk premium.  $\epsilon_{i,t}$  is the error term of regression. First, of panel A and B contains the categories of mutual funds. Second and third column of both panels contains alpha value and t-test value of alpha value. For convention and Islamic mutual funds KSE (Karachi Stock Exchange) 100 and KMI (KSE Meehan Index) 30 returns are used as benchmark value.

In Table 3 results of Treynor and Mazuy (1966) model are reported. As far as conventional mutual funds are concerned, Aggressive Fixed Income and Balanced mutual fund managers exhibit positive significant market timing abilities. Asset Allocation mutual funds possess positive but insignificant market timing abilities. Whereas, amongst Islamic mutual funds, Aggressive Fixed Income

and Equity & Income mutual fund managers exhibit positive and negative insignificant timing abilities respectively. Whereas, Asset Allocation and Balanced Mutual fund manager exhibit positive and negative significant market timing abilities. Therefore, conventional mutual fund managers have better market timing abilities than Islamic mutual fund managers. These managers might be better aware of about sign and size of capital market.

Table 3

	Treynor Mazuy					
	$\alpha$	$\alpha$ t-Value	$\beta$	$\beta$ Value	TIM	TIM t-Value
<b>Panel A</b>						
<b>Conventional Mutual Funds Using KSE100 Benchmark</b>						
Aggressive Fixed Income	-11.67	3.20	0.06	2.01	0.00	2.31
Asset Allocation	-6.13	1.40	0.08	1.46	0.01	1.50
Equity Fund	-5.33	0.81	1.19	7.21	-0.02	5.01
Balanced Fund	-3.14	0.78	0.45	3.62	0.00	2.69
<b>Panel B</b>						
<b>Islamic Mutual Funds Using KMI30 Benchmark</b>						
Islamic Aggressive Fixed Income	-10.08	2.18	-0.02	0.87	0.01	0.8
Islamic Asset Allocation	-0.40	1.29	-0.43	1.88	0.02	2.5
Islamic Equity & Income	-0.01	0.94	-0.01	0.94	-0.01	0.5
Islamic Balanced Fund	-3.94	1.52	0.84	4.01	-0.01	1.8

Notes: The above contains results of model proposed by (Treynor and Mazuy 1966). The mathematical modeling is  $R_{i,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + \tau_{TM}(R_{m,t} - R_{f,t})^2 + \epsilon_{i,t}$ . The rest of the equation is same as explained in notes of Table 1 except  $\tau_{TM}$  and  $(R_{m,t} - R_{f,t})^2$ .  $\tau_{TM}$ , which is coefficient of Using the model total forty nine number of regression are applied to obtain required values of parameter.

Table 4 contains the results of Henriksson and Merton (1981) model. This model helps to empirically analyse the ability of manager to select stocks providing more returns with minimum possible risk and moving in and out from the capital market at suitable time. Therefore, it is very important characteristics while analysing the performance of mutual funds. These results are different from the results of Treynor Mazuy model. Aggressive Fixed Income and Asset Allocation from conventional mutual fund managers exhibits positive significant and insignificant market timing abilities respectively. Conventional Equity and Balanced mutual fund managers exhibits negative significant market timing abilities. Amongst Islamic equity mutual funds, Aggressive fixed income and Asset Allocation mutual fund managers possess positive insignificant timing abilities. Whereas, Equity & Income and Balance mutual fund managers possess significant negative timing abilities of mutual fund manager.

The probable reason of poor timing abilities of Islamic mutual fund managers might be the limited availability of Islamic financial products. Another reason is that conventional mutual fund managers had superior information about sign of capital market returns than

Islamic mutual fund managers. The results on average are consistent with Treynor and Mazuy that conventional mutual fund managers are better market timer.

Table 4

	Merton-Henriksson					
	$\alpha$	$\alpha$ t-Value	$\beta$	$\beta$ t-Value	$\tau_{TM}$	$\tau_{TM}$ t-Value
<b>Panel A</b>						
<b>Conventional Mutual Funds Using KSE100 Benchmark</b>						
Aggressive Fixed Income	-11.01	3.55	-0.04	6.76	0.16	4.29
Asset Allocation	-7.36	1.03	-0.28	1.87	0.63	1.19
Equity Fund	-0.33	0.46	2.06	9.90	-1.84	4.39
Balanced Fund	-1.94	0.62	0.45	6.68	-0.02	3.32
<b>Panel B</b>						
<b>Islamic Mutual Funds Using KMI30 Benchmark</b>						
Islamic Aggressive Fixed Income	-12.07	2.58	-0.28	0.92	0.53	1.08
Islamic Asset Allocation	-2.44	0.82	-0.85	0.88	1.04	1.01
Islamic Equity & Income	-4.91	1.72	1.10	4.99	-0.51	2.52
Islamic Balanced Fund	-2.12	2.90	1.37	10.98	-1.1	6.79

Notes: The table contains results of model developed by (Henriksson and Merton 1981). The mathematical modeling is  $R_{it} - R_{ft} = \alpha + \beta(R_{m,t} - R_{ft}) + \tau_{TM} * I(R_{m,t} > R_{ft}) * (R_{m,t} - R_{ft}) + \epsilon_{it}$ . The parameters of the model are explained in notes of Table1 except  $\tau_{TM}$  and  $I(R_{m,t} > R_{ft}) * (R_{m,t} - R_{ft})$ .  $\tau_{TM}$  which is coefficient helps to measure the timing ability of mutual fund managers.  $I(R_{m,t} > R_{ft}) * (R_{m,t} - R_{ft})$  the whole expression is used to calculate value of timing ability and it takes value 1 if the market premium is positive otherwise zero value. Total forty nine regressions are applied for each mutual fund to obtain parameters of the model. Separate benchmark is used for both conventional and Islamic mutual funds.

In Table 5 results obtained by applying (Modigliani and Modigliani 1997) model are reported. All the Islamic and conventional mutual funds have underperformed because of negative MM measure. On average, the MM Measure result of conventional and Islamic mutual funds are -37.24 and -20.24 respectively. Conventional mutual funds have underperformed by -37.20 if conventional mutual funds and capital market have identical risk. Similarly, Islamic mutual funds have underperformed by -20.24.

TT measure results are reported in Table 6. According to results, the performance of conventional mutual fund is worse than the Islamic mutual funds. Only Islamic Asset Allocation funds have earned greater than one unit of risk and above market risk premium.

In Table 7, results of Sharpe measure are displayed. Asset Allocation mutual fund in both conventional and Islamic categories have earned highest average and average excess returns followed by KSE 100 and KMI30 index respectively. Risk adjusted performance of Islamic mutual funds is better than conventional mutual funds. Islamic balanced mutual funds earned positive average excess returns. But, it is less than the risk taken. The mutual funds have earned less than one unit return over per unit of risk this is true for all those mutual funds who have earned positive excess return. Therefore, none of the mutual fund have been able to beat the capital market performance.

Table 5

	MM Measure			MM Measure
	SM <sub>p</sub>	SM <sub>m</sub>	σ <sub>m</sub>	
<b>Panel A</b>				
<b>Conventional Mutual Funds Using KSE100 Benchmark</b>				
Aggressive Fixed Income	-0.88	0.71	36.77	-58.54
Asset Allocation	0.08	0.71	36.77	-23.13
Equity Fund	-0.39	0.71	36.77	-40.61
Balanced Fund	-0.01	0.71	36.77	-26.68
<b>Panel B</b>				
<b>Islamic Mutual Funds Using KMI30 Benchmark</b>				
Islamic Aggressive Fixed Income	-1.03	0.79	20.19	-36.73
Islamic Asset Allocation	0.36	0.79	20.19	-8.70
Islamic Equity & Income	-0.21	0.79	20.19	-20.12
Islamic Balanced Fund	0.03	0.79	20.19	-15.42

Notes: The table shows results of MM Measure propose by (Modigliani and Modigliani 1997). The formula of is  $MM = (SM_p - SM_m)\sigma_m$ .  $SM_p$  is sharpe measure of given portfolio,  $SM_m$  is the Sharpe Measure of market portfolios calculated using different benchmark indices. Using this formula, the difference of Sharpe Measure of portfolio and Sharpe Measure of Market is taken to multiply it with standard deviation of market.

Table 6

	TT Measure			TT Measure
	T.M <sub>p</sub>	Av. R <sub>m</sub>	Av. R <sub>f</sub>	
<b>Panel A</b>				
<b>Conventional Mutual Funds Using KSE100 Benchmark</b>				
Aggressive Fixed Income	-4115.88	17.04	11.72	-4110.55
Asset Allocation	-27.20	17.04	11.72	-32.52
Equity Fund	-15.37	17.04	11.72	-20.69
Balanced Fund	-0.85	17.04	11.72	-6.18
<b>Panel B</b>				
<b>Islamic Mutual Funds Using KMI30 Benchmark</b>				
Islamic Aggressive Fixed Income	-94.75	17.04	11.72	-89.43
Islamic Asset Allocation	60.73	17.04	11.72	55.41
Islamic Equity & Income	-34.89	17.04	11.72	-40.21
Islamic Balanced Fund	3.64	17.04	11.72	-1.68

Notes: In the above table results of TT Measure developed by (Bodie, Kane et al. 2005) are reported. The formula of TT measure is  $TT = TR - (AvR_m - AvR_f)$ . In which  $TR$ , is the Treynor Ratio of given portfolio,  $AvR_m$  is the average of market returns and  $AvR_f$  is the average risk free returns. Using this formula the difference of market and risk free average returns is taken to subtract the difference from Treynor measure.

The formula to calculate results is  $SM_i = \frac{\sum_{t=1}^n (R_{i,t} - R_{f,t})}{\sqrt{\sum_{t=1}^n (R_{i,t} - R_{f,t})^2}}$ .

Table 7

	Sharpe Measure			Sharpe Measure
	Av. R <sub>p</sub>	Av. ER <sub>p</sub>	S.D	
<b>Panel A</b>				
<b>Conventional Mutual Funds Using KSE100 Benchmark</b>				
Aggressive Fixed Income	3.09	-8.63	9.81	-0.88
Asset Allocation	13.08	1.37	16.51	0.08
Equity Fund	-7.61	-20.54	52.32	-0.39
Balanced Fund	11.76	-0.36	26.36	-0.01
KSE 100 Index	17.04	5.32	36.77	0.14
<b>Panel B</b>				
<b>Islamic Mutual Funds Using KMI30 Benchmark</b>				
Islamic Aggressive Fixed Income	4.54	-7.18	6.97	-1.03
Islamic Asset Allocation	15.26	3.55	9.90	0.36
Islamic Equity & Income	8.79	-3.14	15.18	-0.21
Islamic Balanced Fund	12.13	0.41	15.90	0.03
KMI30 Index	23.76	12.04	20.19	0.59

Notes: The results of Sharpe Measure are displayed in the above table. This measure is developed by (Sharpe 1966).

The first, second and third columns contain results of average return, average excess returns from the benchmark and standard deviation of portfolio returns. Using sharpe measure excess returns of portfolio is divide by standard deviation of returns. Sortino measure results are reported in table 8. According to the results, Islamic mutual funds have less down side risk as compare to conventional mutual funds. Equity mutual funds have more downward volatility than other categories in both conventional and Islamic mutual funds.

Performance of Asset Allocation mutual funds is better than mutual funds of other categories. Islamic Asset Allocation mutual funds have earned more than one unit over per unit of down side risk. Islamic Balanced funds also have earned positive excess return but it is less than over per unit of down side risk. Therefore, the down side risk adjusted performance of Islamic mutual funds is better than conventional mutual funds.

In Table 9, results of treynor measure are reported. Amongst conventional mutual fund, Aggressive Fixed Income and Asset Allocation mutual funds have inverse movement with capital market movement because of negative value of relative risk. Although Equity and Balanced Mutual funds have same directional movement with the capital market but due to negative excess returns the overall performance is negative over per unit of relative risk. Only Islamic Aggressive Fixed Income mutual funds have inverse relationship with the capital market movement. Treynor measure results revealed that relative risk adjusted performance of Islamic mutual funds is better than conventional mutual funds.

Table 8

	Sortino Measure			
	Av. R <sub>p</sub>	Av. ER <sub>p</sub>	D.S. R <sub>p</sub>	Sortino Measure
<b>Panel A</b>				
<b>Conventional Mutual Funds Using KSE100 Benchmark</b>				
Aggressive Fixed Income	3.09	-8.63	4.01	-2.15
Asset Allocation	13.08	1.37	3.32	0.41
Equity Fund	-7.61	-20.54	8.76	-2.34
Balanced Fund	11.76	-0.36	4.83	-0.07
KSE 100 Index	17.04	5.32	3.82	1.40
<b>Panel B</b>				
<b>Islamic Mutual Funds Using KMI30 Benchmark</b>				
Islamic Aggressive Fixed Income	4.54	-7.18	3.67	-1.95
Islamic Asset Allocation	15.26	3.55	2.38	1.49
Islamic Equity & Income	8.79	-3.14	4.19	-0.75
Islamic Balanced Fund	12.13	0.41	4.06	0.10
KMI30 Index	23.76	12.05	3.25	3.71

Notes: In the above table results sortino measure are displayed developed by Fran A Sortino in 1944. The formula is  $SM_i = \frac{\frac{1}{N} \sum_{t=1}^N R_{i,t} - R_f}{\sqrt{\frac{1}{N} \sum_{t=1}^N (R_{i,t} - \bar{R}_i)^2}}$ . In this measure, the excess return of portfolio is divided by the downside volatility of return. Down side volatility is standard deviation of only negative returns of portfolio.

Table 9

	Treynor Measure			
	Av. R <sub>p</sub>	Av. ER <sub>p</sub>	Slope	Treynor Measure
<b>Panel A</b>				
<b>Conventional Mutual Funds Using KSE100 Benchmark</b>				
Aggressive Fixed Income	3.09	-8.63	-0.0021	-4115.88
Asset Allocation	13.08	1.37	-0.05	-27.20
Equity Fund	-7.61	-20.54	1.33	-15.37
Balanced Fund	11.76	-0.36	0.42	-0.85
KSE 100 Index	17.04	5.32	1.00	5.32
<b>Panel B</b>				
<b>Islamic Mutual Funds Using KMI30 Benchmark</b>				
Islamic Aggressive Fixed Income	4.54	-7.18	-0.07	-94.75
Islamic Asset Allocation	15.26	3.55	0.05	60.73
Islamic Equity & Income	8.79	-3.14	0.09	-34.89
Islamic Balanced Fund	12.13	0.41	0.11	3.64
KMI30 Index	23.76	12.05	1.00	12.05

Notes: Table 9 displayed the results of measure developed by (Treynor 1964). The formula of treynor measure is  $TR_i = \frac{\sum_{t=1}^n R_{it} - R_{ft}}{\beta}$ . To calculate treynor measure results the average excess returns of portfolio is divided by relative risk mutual fund portfolio with market. For conventional and Islamic mutual funds relative risk KSE100 index is used because it is the biggest and index of capital market.

### Conclusion

In this study, comparative lucrativeness of conventional VS Islamic mutual funds have been empirically analysed through well documented techniques to assess the managerial skills and risk adjusted performance of mutual funds fund managers. Empirical analysis is performed on four categories of conventional and Islamic mutual funds. It is found that conventional mutual exhibited better timing abilities than Islamic mutual funds. The selectivity skills of both conventional and Islamic mutual funds is poor. Overall mutual fund managers in Pakistan are poor timer of the capital market. The risk adjusted performance analyses were also performed. As per results of MM measure, the conventional and Islamic mutual funds have unperformed. Only Islamic asset allocation mutual funds have performed better according to the results calculated by TT measure. Further, results obtained through Sharpe, Sortino and Treynor measure revealed that Islamic mutual funds portfolio have earned better average return as well as average excess return than conventional mutual funds. Therefore, it can be inferred that Islamic mutual funds have performed better than conventional mutual funds comparatively. Islamic mutual funds are new in Pakistan. Limited Islamic financial products are available to invest with limited investors. The authorities need to introduce more products to enhance investor base, liquidity in accordance with sharia compliance to accelerate the growth of Islamic mutual funds in Pakistan.

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### Annexure I

	Name	Type
<b>Conventional Mutual Funds</b>	<b>Islamic Mutual Funds</b>	
AKD Aggressive Income Fund (Formerly: AKD Income Fund)	KASB Islamic Income Opportunity Fund	Aggressive F
Alfalah GHP Income Multiplier Fund	NAFA Islamic Aggressive Income Fund (Formerly: NAFA Islamic Income Fund)	Aggressive F
Askari High Yield Scheme	United Islamic Income Fund	Aggressive F
BMA Chundigar Road Savings Fund		Aggressive F
Faysal Income & Growth Fund		Aggressive F
KASB Income Opportunity Fund		Aggressive F
United Growth & Income Fund		Aggressive F
Alfalah GHP Value Fund	Alfalah GHP Islamic Fund	Asset Allocat
Askari Asset Allocation Fund	Pakistan Int'l Element Islamic Asset Allocation Fund	Asset Allocat
KASB Asset Allocation Fund	Pak Oman Islamic Asset Allocation Fund	Asset Allocat
MCB Dynamic Allocation Fund		Asset Allocat
AKD Opportunity Fund	Al Meezan Mutual Fund	Equity & Inc
Alfalah GHP Alpha Fund	Meezan Islamic Fund	Equity & Inc
Atlas Stock Market Fund	Atlas Islamic Stock Fund	Equity & Inc
First Capital Mutual Fund	JS Islamic Fund	Equity & Inc
HBL Stock Fund	UBL Shariah Stock Fund (Formerly: United Composite Islamic Fund)	Equity & Inc
Crosby Dragon Fund	Meezan Islamic Income Fund	Equity & Inc
MCB Dynamic Stock Fund	Askari Islamic Income Fund	Equity & Inc
Pakistan Premier Fund	Atlas Islamic Income Fund	Equity & Inc
Pakistan Stock Market Fund	IGI Islamic Income Fund	Equity & Inc
Pakistan Strategic Allocation Fund	Pak Oman Advantage Islamic Income Fund	Equity & Inc
National Investment Unit Trust		Equity & Inc
NAFA Stock Fund		Equity & Inc
PICIC Energy Fund		Equity & Inc
Asian Stocks Fund		Equity & Inc
Safeway Mutual Fund		Equity & Inc
United Stock Advantage Fund		Equity & Inc
Faysal Balanced Growth Fund	Meezan Balanced Fund	Balanced
HBL Multi Asset Fund	NAFA Islamic Multi Asset Fund	Balanced
Pakistan Capital Market Fund		Balanced
NAFA Multi Asset Fund		Balanced