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RISK ADJUSTED PERFORMANCE OF PAKISTANI ISLAMIC MUTUAL FUNDS

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ABSTRACT

The mutual funds are the most important pillar of financial sector which can be used to attract new investors to the market. The existing work has been conducted to evaluate the risk adjusted performance of Mutual Funds. The study has been carried out in the Islamic Mutual Funds sector of Pakistan. There are 18 total Islamic funds working in Pakistani market and due to the lower number, the study has included whole Islamic mutual funds in the sample of the study. The study has collected historical NAVs from 2011 to July 2020. The study has used beta for the measurement of risk but also the standard deviation for the estimation of systematic risk. The paper has included Sharpe ratio, Tryenor Ratio and Jensen Alpha for the performance evaluation of Pakistani Islamic Mutual Funds. The findings shows that the majority of the funds shows positive Sharpe Ratio which shows the satisfactory performance while the value of Jensen shows that the maximum number of funds are having positive Jensen Alpha. The results of beta shows that the larger number of funds are having lower and average risk and having positive return which means that the risk adjusted performance of the Islamic Mutual funds are satisfactory. The study has recommends that government should support mutual fund sector which can increase the trust of investors. The study has contributed about the specifically risk adjusted performance of Islamic Mutual funds performance in Pakistani market.

INTRODUCTION

In the financial markets, the investment has been considered as the vital factor which has been collected from the individuals who have surplus funds for the objective of getting extra revenue or earnings. The studies have been conducted on considering different factors while making the investment decisions in the markets which includes, the taxation policy, risk linked with the investments, marketability and liquidity of the funds. The mutual funds are the option for the investors who can take decision while investing in the different classes of mutual funds i.e. real estate, equity, gold, debt etc. the investors who are interested in getting investment in the financial markets then the mutual funds are the best option for investment in securities. Due to the fact that the mutual funds provide most liquidity and flexibility in investments to get higher revenue from the market (Naveed and Farooq, 2018).

The mutual funds have been described as the combination or portfolio of securities. It has been considered as money pooled contributed by huge number of investors which makes the pool of mutual

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funds. The money pool has been managed by expert or manager, who utilizes his managerial expertise to take the investment decisions in different securities for the purpose of getting higher income. In return, the shareholders become the owners of these securities on the basis of funds in which they invested. The increase in the value of securities has been considered as the final output of the investment decisions in the markets. The investors always prefer to invest in the market not as in single security but they always try to invest in the multiple funds to share the risk of loss and increase the chances of getting higher revenue. Unlike other investments, the investments in mutual funds have been considered risky sometimes but the value of funds has been increased with the increase in the value of investments (Agarwal and Mirza, 2017).

Some of the studies argued that the mutual funds can be considered as collective funds taken from the investors who have excess funds who make the investing pool and trying to invest in most profitable securities i.e. bonds, stocks and money market instruments etc. There are two types of funds i.e. open and closed ended funds. Open ended funds are those funds that can create new securities whenever the demand increases in the market for the investors. This concept called as unit trusts. The investors are always interested in evaluating the prices of NAVs in the market as they are the indicators of increasing prices which means more income and the decreasing sometimes show the risky investments. The investor always tries to get new NAVs in IPOs (Naveed and Farooq, 2018).

After evaluating literature different studies have been conducted in Pakistani market for risk adjusted performance. The study of Naveed and Farooq (2018) conducted in conventional mutual funds and missed the direction of Islamic mutual funds. Rehman and Baloch (2016) also evaluated the performance of mutual funds and conducted their work on open ended funds. The literature highlighted the gap of conducting study for risk adjusted performance for Islamic mutual funds.

Objectives:

The major objective of study was to explore the risk adjusted performance of Pakistani Islamic mutual funds.

LITERATURE REVIEW

The study of Naveed & Farooq (2018) conducted their study on the performance evaluation of Pakistani mutual funds. The mutual funds are the firms who are collected funds from the different sources for the arrangement or purchase of securities from the secondary markets. The investors who are invested in NAVs of mutual funds are the shareholders of these funds. There are total of 119 mutual funds registered but on the basis of availability of data, 89 were selected in the study sample scope. The data has been collected from the historical prices of funds NAVs and annual reports of these mutual funds, State Bank of Pakistan and Mutual funds association of Pakistan for the sample time period from 1962 to 2015. The paper has included CAPM model for the performance of the mutual funds. The findings of the study

argued that the Sharia, Money Market, Equity are showing insignificant effects while balanced funds, income market, assets allocation and closed ended funds are showing significant effects.

The study conducted by Aggerwal and Mirza (2017) argued that the concept of investment through mutual funds are getting popularity among the investors and getting higher risk adjusted return to these investors. The mutual funds in Indian market are getting higher growth rate in last a few years. The Indian market is consists of more than 2000 funds scheme registered and ever fund is getting higher premium as compared to their peers. It is the most significant responsibility of investors to evaluate the best performance of these funds before making investment decisions and before designing the portfolio of investment for the mutual funds. But this has been argued that the past best performance of funds does not guarantee the future best performance of the funds, this is the most effective decision of mutual funds experts' to makes the appropriate decisions to get higher level of performance. This concept includes the estimation of risk of these funds on the basis of beta and standard deviation and then compares the performance with the benchmark and market return and to see the best performance of the funds to compare with the benchmark.

The study of Rehman and Baloch (2016) examined the performance of mutual funds as the best choice for the small investors who are interested in taking investments decisions in the capital markets by having higher professional management. The study has included the Capital Assets Pricing Model and also the 3 factors model of Fama and French and its estimation of the evaluation of mutual funds performance in the Pakistani market. The data in the study has been on month basis for 100 open ended mutual funds schemes for the sample time period of 2009 to 2015 by taking their different portfolios. The findings of the model argued that the higher portfolio in sizes is having poor performance as compared to the smaller portfolios. The Fama and French model results show that the findings for the firm value and firm size has been found poor and insignificant in Pakistan market however, the market factors has shown the most significant coefficient for the models. The findings of CAPM model argued that the said model has been found significant in estimating the best performance.

Hussain et al., (2016), Mutual funds are decent tools to encourage savings and investments, especially in developing nations like Pakistan which rely heavily on foreign aids. This study explores the mutual fund performance in Pakistan by using seven different performance measures, i.e. Sharpe, Treynor, Sortino, Information, Jensen Alpha, M2/RAP, Fama decomposition measures. This study covers a period ranging from July 2005 to June 2013 and includes 27 mutual fund schemes out of which 20 funds are open ended while 07 funds are closed ended. Results prove underperformance on the part of all the mutual funds and the whole industry was found weak on the part of the selection abilities of the fund managers and the portfolios were found less diversified. However, it was noticed that closed ended funds are better performers as compared to the open ended funds. Results were also inconsistent for the performance of individual funds as none of the funds had the same rankings with respect to all the measures used.

According to Hussain et al., (2016) who concluded that the mutual funds schemes are the most updated and effective tool to attract more investors and encourage them to bring their money to markets. The role of mutual funds is found more important in the developing countries like Pakistan as compared to developed countries. The study has examined the performance of Pakistani mutual funds on the basis of seven different parameters i.e. Jensen Alpha, Fama and French, Sharpe Ratio, M2/RAP, Treynor, Information and Sortino. The data has been collected from 2005 to 2013 on the monthly basis for 27 different schemes. This sample size has included about 20 open ended and 7 closed ended funds.

MATERIAL AND METHODS

The study explored the concept of risk adjusted performance of Mutual funds in Pakistan. Previous studies conducted on risk adjusted performance were conducted on conventional mutual funds and no separate study has been found on Islamic funds. Therefore, Islamic funds only were selected in the study scope.

Sample determination

There are different categories of mutual funds listed in Mutual Funds Association and by taking the gap from the literature only listed Islamic funds were taken in the study scope. Due to the lower number of funds, the whole Islamic mutual funds sector was included in the sample size. According to Rafay (2013) when the study has been taken on Islamic funds, then it is important that whole section should be selected. This study was considered as the first comprehensive study which has been conducted on Islamic funds only.

Data Collection

The study has included historical NAVs data which has been collected from the official website of Mutual Funds Association of Pakistan. Historical NAVs have been collected for the selected Islamic mutual funds from January 2011 to July 30th 2020. Daily basis data for the funds have been collected and then average annual values have been extracted.

Data Analysis

Return

The study has used excess/actual return of the fund as the selected parameter. The purpose of selecting the return of the funds is that it has been compared with the benchmark performance also calculation has been done with the risk free return and other parameters.

$$\boldsymbol{R_{pt}} = \frac{\mathrm{NAV_t - NAV_{t-1}}}{\mathrm{NAV_{t-1}}} \quad (1)$$

$$Rp = \sum_{t=1}^{n} \mathrm{Rpt/n} \quad (1.1)$$

R_p showing the funds average annual return for the sample period. The calculated value of this factor is the average return of mutual funds portfolio. The market return for the portfolio has been calculated by:

$$\boldsymbol{R_{mt}} = \frac{\mathrm{Index_t - Index_{t-1}}}{\mathrm{Index_{t-1}}} \quad \ldots\ldots\ldots\ldots\ldots\ldots 1.2$$

While,

R_{mt} expressing market based average return of the funds which has been taken from Pakistan stock Exchange for daily basis and then converted to average annual values. The market return (average) has been estimated by:

$$Rm = \sum_{t=1}^{n} \text{Rmt/n} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \; 1.3$$

Measurement of Risk

Standard Deviation

The major and prime objective of the study was to evaluate the risk adjusted performance and risk is the most important parameter in this concept. The risk has been calculated by taking the measurement of standard deviation:

Standard deviation has been expressed by using sigma (σ) and it has been calculated by taking square root of variance(R):

$$\sigma = \sqrt{Var(R)} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots. \; (2)$$

Beta

The study has also used the other method of risk i.e. beta which is the most popular parameter especially in the case of mutual funds. The study has taken different levels of beta or risk and then compare it with the average annual income of the fund to compare the income level with the associated risk involve in that particular fund:

$$R_p - R_f = \alpha + \beta(R_m - R_f) + \epsilon_p \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \; (3)$$

Sharpe's Ratio

Majority of the studies have recommended that Sharpe measure is the most suitable and significant technique which can be found effective for the performance. According to Nazir et al., (2009) and Naveed & Farooq, (2018) they consider Sharpe ratio as the most effective tool for mutual funds performance.

$$Sharpe\ ratio = \frac{R_p - R_f}{\sigma_p} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \; (4)$$

Treynor's Measure

The paper has also included the Treynor ratio for the performance estimation as well. According to Nauman and Shah (2012) and Naveed & Farooq (2018) have used the same ratio in the mutual funds performance evaluation.

$$Treynorratio = \frac{R_p - R_f}{\beta_p} \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots.. \; (5)$$

Jensen Alpha

According to Naveed & Farooq (2018) argued that Jensen Alpha can be found significant as the positive alpha can be considered as good performance while negative alpha is the no good performance for

investors. The Jensen Alpha has been calculated by CAPM model:

$$E(R_p) = R_f + \beta_p(R_m - R_f) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (6)$$

The difference between the expected return and actual return is shown α_p by:

$$\alpha_p = R_p - E(R_p) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (6.1)$$

$$= R_p - \{R_f + \beta_p * (R_M - R_f)\} \ldots\ldots\ldots\ldots\ldots\ldots \quad (6.2)$$

RESULTS

Category	**No**	**Excess return over benchmark (%)**	**Excess return over Risk free (%)**	**Std dev**	**Beta**
Al Meezan Mutual Funds	03	0.165	0.0134	0.023	0.2941
Alfalah GHP Islamic Fund	01	0.017	0.0012	0.017	0.2861
Atlas Islamic Income Funds	02	0.192	0.0014	0.019	0.0310
JS Islamic Fund	01	0.264	0.0971	0.023	0.3791
KASB Islamic Fund	01	-0.032	-0.0076	0.005	0.0360
MCB Islamic Funds	01	-0.117	-0.0091	0.013	0.0671
Pakistan Int'l Element Islamic Asset Allocation Fund	01	0.112	0.064	0.017	0.2916
NAFA Islamic Funds	02	0.0164	0.0075	0.007	0.0716
Pak Oman Islamic Funds	01	-0.017	-0.0027	0.034	0.0017
UBL Islamic Funds	02	0.210	0.0781	0.028	0.391
United Islamic Funds	02	-0.127	-0.0081	0.076	0.0651

Table 1 shows the findings of performance of Islamic mutual funds. The table included the results of excess return, excess return over risk free return, and standard deviation beta of the funds. The findings show that the Atlas Islamic funds are having positive excess return but having lower risk while Meezan and Alfalah funds are having significant return but they are having average risk. The findings of table shows that majority of the funds are having positive return with beta level of risk is average level which confirms the satisfactory performance of mutual funds.

Category	No	Sharpe	Treynor	Jensen
Al Meezan Mutual Funds	03	3.15	0.216	0.219
Alfalah GHP Islamic Fund	01	0.17	0.394	0.034
Atlas Islamic Income Funds	02	2.36	-0.231	-0.179
JS Islamic Fund	01	-4.19	1.391	-0.221
KASB Islamic Fund	01	7.03	7.912	0.164
MCB Islamic Funds	01	-6.13	-1.378	0.170

Pakistan Int'l Element Islamic Asset Allocation Fund	01	3.19	1.118	0.097
NAFA Islamic Funds	02	1.42	1.097	-0.036
Pak Oman Islamic Funds	01	-4.39	-0.679	0.247
UBL Islamic Funds	02	0.33	0.517	0.116
United Islamic Funds	02	2.78	0.449	-0.236

Table 2 shows the findings of average Sharpe ratio, Treynor ratio and Jesnsen Alpha for the selected Islamic mutual funds. The findings suggested that Sharpe ratio of Meezan funds, Atlas funds, KASB funds and United Islamic funds have been found positive and more than 1 which confirms best performance of these funds. Treynor ratio of majority of the funds are positive except Atlas funds, MCB funds and Pak Oman funds who are having negative average values. The Jensen alpha results show that Atlas funds, JS funds, NAFA funds and United funds are maintaining negative Jensen Alpha value which is not a good indicator for the investors.

Risk of Funds (Beta Wise)

Risk annual return (%)	Low risk < 0.2	Below avg 0.30 to 0.50	Avg risk 0.6 to 0.75	Above avg 0.76 to 0.90	High risk Above 0.91	Total
< 0	6	0	1	0	1	8
0 to 0.30	1	3	0	1	0	5
0.31 – 0.45	4	0	0	0	0	4
0.46 – 0.65	0	0	0	0	0	0
0.66 – 0.85	0	0	0	0	0	0
0.86 – 1.10	0	0	1	0	0	1
1.11 – 2.00	0	0	0	0	0	0
Above 2.00	0	0	0	0	0	0
Total	11	3	1	1	2	18

Table 3 is the result of risk measurement by beta for the selected Islamic mutual funds. The results concluded that 6 funds are having lower level of risk while they are having less than 0 of annual positive return. 4 funds are having low and below average risk while they are having income up .30. 4 other Islamic funds are having average return up to .45 while they are at lower risk. The findings suggested that majority of the funds are having low risk or below average risk while they are having income from 0 to .45.

Systematic Risk Measurement

Table 4.4 Risk related performance on the basis of standard deviation

Risk annual return (%)	Low risk $\sigma < 0.0009$	Below avg $0.0009 > \sigma < 0.0015$	Avg risk $0.0015 > \sigma < 0.0022$	Above avg $0.0022 > \sigma < 0.0036$	High risk $0.0036 >$	Total
< 0	8	1	0	1	1	11
0 to 0.2	2	0	1	0	1	4
0.21 – 0.40	1	0	0	0	0	1
0.41 – 0.60	0	1	0	0	0	1

0.61 – 0.80	0	0	0	0	0	0
0.80 – 1.0	0	0	0	1	0	1
1.0 – 1.86	0	0	0	0	0	0
1.87 – 2.00	0	0	0	0	0	0
2.01 – 4.0	0	0	0	0	0	0
Total	11	2	1	2	2	18

Table 4 shows the results of risk measurement by standard deviation for the selected Islamic mutual funds. The results suggested that 8 Islamic funds are having lower annual return but they are also having lower systematic risk. 2 funds are having above average and higher level of risk with lower income than 0. The results concluded that majority of the funds are having low level of systematic risk and having lower income as well.

Jensen Alpha

Table 4.5 Portfolio performance on Jensen Alpha basis

Category	Jensen alpha	Negative	Positive
Islamic Equity	0.210	1	6
Islamic Income	-0.0178	2	3
Islamic assets allocation	0.1946	0	1
Islamic aggressive income	0.00791	2	2
Islamic balanced funds	0.1923	0	1
Total		5	13

Table 5 is the average estimation of Jensen Alpha for the selected Islamic mutual funds on the basis of their nature and category. The results suggested that Islamic equity funds are having positive Jensen Alpha while 6 funds are having positive value. While Islamic income funds are having negative Jensen Alpha while three funds are having positive alpha. If Jensen Alpha has been taken as the standard then majority of the funds will have positive performance.

One Sample t-test

Table 4.6 Risk adjusted performance: Mutual funds vs benchmark portfolio

		Mutual Funds Values		
Measure	**Test value**	**Mean**	**t-value**	**Sig**
Sharpe Ratio	.00	-1.239	-5.984	.0000*
Treynor ratio	.00	-.659	-1.136	.1896

Table 6 shows the findings of one sample t-test which has been used to check the risk adjusted performance over bench mark performance on the basis of Sharpe ratio and Treynor ratio. The findings of Sharpe ratio argued that the bench mark performances of Islamic mutual funds are superior as compared to the mutual funds' performance. Therefore, the null hypotheses cannot be accepted for the Islamic

mutual funds risk adjusted performance on the basis for Sharpe ratio.

CONCLUSION

The existing study has been carried out in the Mutual funds association of Pakistan. Large number of studies has been conducted about the risk adjusted performance of mutual funds around the world but no specific study can be seen for the Islamic Mutual funds, therefore the study has taken this sector. The findings of Sharpe ratio shows the positive and satisfactory performance for the investors which means that the investors who have invested in Islamic mutual funds are having some portion of income generating from this sector. In case of Sharpe measure, it has been confirm that the Sharpe ratio can be found as effective method to check the performance of mutual funds. The Jensen Alpha shows that the funds are giving good investment environment for the investors which confirms from the positive Jensen value of most of the funds. The government should support incentives and benefits to the market investors and motivate them to invest in the Islamic mutual funds.

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