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Survivorship-Biased Free Mutual Funds in Pakistan

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Abstract

The study investigates the performance of closed-ended mutual funds in Pakistan as compare to stock market. The sample consists of sixteen closed-ended mutual funds having minimum of 24 months life-span. Karachi Stock Exchange 100 index was used as benchmark and 12-month Treasury Bills rate was used for risk free rate (RFR). Sharpe, Treynor, Sartino and Jensen's alpha were used along with diversification and net selectivity for performance measurement. Overall performance of mutual funds was compared with the stock market. Furthermore, the mutual funds were ranked on the basis of risk adjustment according to their respective models. Overall performance of mutual funds was observed better than the market. It was further observed that Asian Stock Fund and PICIC Energy Fund have a positive net selectivity and performed better than other funds in the market. All other funds have a negative net selectivity which means a weaker performance in the market. This weak performance is a result of low stock selection ability of fund manager. The results also show that all funds have positive diversification except Asian Stock Fund which represents the extra return the portfolio is not earning well. And also it shows that portfolio is not completely diversified and it contains unsystematic risk. Finally, it can be concluded that investors should be careful in investing in mutual funds while choosing and investing in mutual funds due to market instability.

Introduction

Development of mutual funds has evolved over the years and appeared as something very interesting for all the investors of the world. Globally mutual funds have gained increased importance as vehicles for investment for both individuals and institutions. Because mutual funds generally provide several benefits to their investors. Advantages behind investing in mutual funds are that funds provide investors with portfolio management expertise, risk diversification, stability to stock market, mobilizes savings by attracting funds from small investors, and holds the benefit of economies of scale and convenient processing. The principle idea behind the mutual fund is that individual investors generally lack the time, the inclination or the skills to manage their own investments. Therefore investors depend on professional managers to manage the investments for the benefit of their investors in return for a management fee. Each investor owns shares, which represent a portion of the holdings of the fund. Despite tremendous interest in mutual funds worldwide, mutual funds did not manage to catch the fancy of Pakistani investors until recently. Since then the Pakistani mutual funds industry is growing at an unprecedented rate as reflected by the rising number of new asset management companies. The

level of competency has also increased with new research companies and large banking institutions entering the asset management business.

This study is important especially in Pakistan where individuals have the basic needs that are health safety, education, life standard, comfortable and safe retirement. In Pakistan where people are religious minded, mostly they avoid bank options for investing, if they are provided an investment opportunity which conform their religion, we can easily mobilize savings from general public and it will help economic prosperity. This can be achieved by introducing different species of mutual funds and their performance evaluation.

Literature Review

Ajay and Susan (1994) studied the performance of 11 mutual fund schemes in India. Sharpe, Treynor and Jensen's Alpha models were used for evaluation. Market prices were taken and weekly returns computed for mutual funds. They concluded none of the sample schemes earned superior returns than the market due to very high risk and inadequate diversification.

Shah and Hijazi (2005) studied survivorship biased fourteen mutual fund in Pakistan for the period of 1997 to 2004. Study concluded that mutual fund industry was in growing stage. After deducting costs, equity funds outperformed the market and result in positive return. The funds also have the potential to add value due to present lack of diversification indicated by the difference in Treynor and Sharpe measures.

Sipra (2006) studied 33 mutual funds of Pakistan from January 2005 to December 2004. Sharpe, Treynor and Jensen model were used for analysis and found that the proportion of fund which was able to beat the market in a given time period was low and no fund was able to beat the market consistently which indicated the semi strong form of market efficiency. Index funds were able to beat the market by 100-200 basis points than the actively managed funds.

Khan (2008) studied eight income funds in Pakistan from July 2004 to December 2007. The variables for the evaluation of the performance of the fund were net asset value, monthly return, beta of the funds return with the market, return on market, return of risk free assets and risk adjusted performance. The methods used for the evaluation of the performance were Sharpe, Jensen's Alpha and Treynor ratio. The study concluded that a return of the funds was not the true measure of their performance unless risk factors were accounted for in the returns. The investors should look for funds which have highest return with lowest risks to maximize their gain. The returns of the funds over three years depicted the fact that their performance in one year do not indicate that they will perform the same in next period..

Afza and Rauf (2009) studied forty three open-ended mutual funds in Pakistan for the period 1999 to 2006. The study used the regression model of Philpot *et al.* (1998). Eight variables tested that included return, assets, expenses, turnover, load, 12 B1 (dummy variable), age, liquidity and return $t-1$. Sharpe ratio was used as dependent variable and lagged Sharpe ratio, log of fund assets, quarterly expense ratio, portfolio turnover rate, load, 12B- 1, cash and age of the fund used as independent variables. This study concluded that mutual fund risk-adjusted return was positively related to expenses, turnover and Age however, they are statistically insignificant. The results indicated that among various funds attributes lagged return, liquidity and 12B-1 had significant impact on fund performance.

Merdad, Hassan and Alhenawi (2010) studied 28 survivorship biased free Islamic versus conventional mutual funds performance that was managed by fourth largest fund manager HSBC in Saudi Arabia for the period of January 2003 to January 2010. Information on these funds was obtained from two main sources: 1) the official site of the Saudi Stock Exchange (Tadawul) and the official site of HSBC Saudi Arabia Limited. Therefore the studied sample contains 12 Islamic funds and 16 non-Islamic funds in which seven funds were dead funds. The study examined their risk-return behavior by employing a number of performance measures such as Sharpe, Treynor, Jensen Alpha and M2 measure. In this study sample period was divided in four segments such as full period, bull period,

bearish period and financial crisis period to analyze further if these two funds performance differ from each other. The study also examined the market timing and selectivity. It was observed that Islamic funds underperform conventional funds during bull period and bullish period, but they outperformed conventional funds during bearish and financial crisis period. Such results were consistent with prior studies with other Islamic and conventional mutual funds. HSBC managers observed good at showing timing and selectivity for Islamic funds during bearish period, and for conventional funds during bullish period. One important portfolio lesson from this case study was observed that Islamic mutual funds do offer hedging opportunity for investors during economic downturns because of the restrictions that Islamic law imposes on portfolio selection.

Data Description and Methodology

The study examined the performance of close-ended mutual funds in Pakistan for the period of five years April 2005 to May 2010. The study included sixteen survivorship biased-free funds. Data regarding monthly NAV of closed-ended mutual funds was collected from various sources. These include Securities and Exchange Commission of Pakistan, Islamabad Stock Exchange, Asset Management Companies of the funds, Business Recorder Newspaper and website of concerned funds. Treasury Bills Rate was used as risk-free rate. Twelve month treasury bills rate were collected from quad pro que of Muslim Commercial Bank Website and Statistical Bulletins of State Bank of Pakistan. Karachi Stock Exchange 100 Index used as benchmark and end of the month value is taken. Data for this benchmark is collected from the KSE 100 Index yahoo finance. To check the behavior of portfolio and market index descriptive statistics was used. It shows the overall risk taking behavior and monthly mean return trend. It also describes about series whether these are normally distributed or not. Models used in this study are the following:

Sharpe Ratio

William F. Sharpe started his work on portfolio theory in 1960. He introduced the concept of risk free asset. Sharpe ratio describes how much excess return is receiving for the extra volatility that investors survive for holding a riskier asset. The ratio is a risk-adjusted measure of return that is often used to evaluate the performance of a portfolio. Sharpe Ratio measures the total risk of the portfolio by including the standard deviation of returns rather than considering systematic risk which is the result of beta. The Sharpe measure of portfolio performance is stated as follows:

$$S(X) = (R_x - R_f) / SD_p$$

Treynor Ratio

This ratio is a measure of possible excess returns on investment if more market risk is assumed. Treynor ratio is the difference of the average return of a portfolio and the average return of a risk-free rate, divided by the beta of the portfolio. The beta of the portfolio is a measure of the volatility of a given investment measured against the overall market. A beta below a value of one is less volatile. Treynor ratio is measured as:

$$T = [R_p - RFR] / \beta$$

Sartino Ratio

Sortino and Price introduced the Sortino Ratio in 1994. According to this ratio, standard deviation is replaced by downside deviation in the denominator. Thus the Sortino Ratio is calculated by subtracting the risk-free rate from the return of the portfolio and then dividing by the downside deviation This ratio allows investors to assess risk in a better manner than simply looking at excess returns to total volatility. A large Sortino ratio indicates low risk of large losses occurring. Sartino ratio was calculated as below:

$$S = [R_p - RFR] / SV$$

Jensen's Alpha

Jensen measure is based on CAPM. Jensen's Alpha is the portfolio performance calculated as the difference between portfolio return and return predicted by the CAPM. The higher the ratio, the better the risk-adjusted returns. If alpha is significantly positive, this is the evidence of superior performance. If alpha is significantly negative, this is evidence of inferior performance. If alpha is insignificantly different from zero, this is evidence that the portfolio manager matched the market on a risk-adjusted basis. The expected one-period return of portfolio or for any security is given as:

$$\alpha = R_p - [RFR + \beta (R_m - RFR)]$$

Whereas R_p is the return of Portfolio, RFR is the risk-free rate, β is a measure of systematic risk and $R_m - RFR$ is risk Premium. Return on the portfolio is calculated return of current month divided by return of previous month minus one.

Fama's Performance Measures

The Fama model is an extension of Jensen model. This model compares the performance, measured in terms of returns, of a fund with the required return commensurate with the total risk associated with it. The difference between these two is taken as a measure of the performance of the fund and is called net selectivity measured as:

$$\text{Net Selectivity} = [R_a - R_x(\beta_a)] - [R_x(\hat{\alpha}_a) - R_x(\beta_a)]$$

Whereas:

$R_a - R_x(\beta_a)$ is the measure of Selectivity

$[R_x(\hat{\alpha}_a) - R_x(\beta_a)]$ is the measure of Diversification

Diversification is the difference between the return corresponding to the beta implied by the total risk of the portfolio and the return corresponding to this actual beta (systematic risk). This FAMA's measures evaluate funds with selectivity and diversification component, rather than looking at Sharpe, Treynor or Sartino's risk adjusted models. Net selectivity measures the portion of the return from selectivity in excess of that provided by the "diversification" component.

Results and Findings

As shown in Table 1 (a) Al-Meezan Mutual Fund and Meezan Mutual Fund offered highest mean return in previous five years with 0.2% monthly mean return. The overall high risk taking behavior observed in PICIC Growth Fund and Asian Stock Fund that was 0.118 and 0.102 with monthly negative mean return of -.005 and -.006 respectively. Kurtosis shows the normality of data or series. It showed that series are not normally distributed because kurtosis should be equal to 3 for normally distributed series. As shown in Table 1 (b) that the values of Skewness are negatively skewed. Which shows that trend of monthly mean return is mostly negative. Minimum value shows that fund earn minimum monthly mean return and maximum mean return shows that fund earn maximum monthly mean during the five years of research. As shown in Table 1(b) all values are less than significant level of .05 which shows all close ended mutual funds have significant results during the five year.

According to Table 2, the Sharpe ratio of First Dawood Mutual Fund indicates the lowest risk premium return per unit of total risk. As shown in Table 4, according to Sharpe Ratio no funds outperform the market during the five year of observance. PICIC Energy Fund, First Capital Mutual Fund, Al-Meezan Mutual Fund, Meezan Balance Fund and Pakistan Strategic Allocation Fund are the only funds that perform better than the aggregate funds comparatively in market but it also underperforms the market. First Dawood Mutual Fund performs worst comparatively in the market.

As shown in Table 2 according to Treynor ratio PICIC Energy Fund not only ranked the highest of the other close-ended mutual funds but also outperform the market as shown in Table 4. Because higher portfolio value than the market portfolio shows superior risk-adjusted performance. Asian Stock

Fund and First Dawood Mutual Fund fall at lowest ranking and also underperform the market. As shown in Table 2, PICIC Energy Fund, Meezan Balance Fund, Meezan Balance Fund, First Capital Mutual Fund, Al-Meezan Mutual Fund, Pakistan Strategic Allocation Fund and Golden Arrow Fund perform best than comparatively.

As shown in Table 2 according to Sartino ratio PICIC energy fund, al-Meezan mutual fund and Pakistan strategic allocation fund perform best comparatively but not well-managed as their negative sign shows. As shown in Table 4, Al-Meezan mutual fund and Pakistan strategic allocation fund underperform the market index but PICIC energy fund outperform as compare to other funds. According to Sartino Ratio theory, these three funds have low risk of large loss occurring comparatively. Asian Stock Fund, Meezan Balance Fund and First Dawood Mutual Fund perform worst in the market and fall at lowest ranking and have a chance of large loss occurring as compare to other funds.

As shown in Table 2 according to Jensen's Alpha, all the funds have a negative alpha which shows inferior performance according to Jensen's measure. PICIC Investment Fund, PICIC Energy Fund and First Capital Mutual Fund perform best as compare to other funds. Pakistan Premier Fund, Meezan Balance Fund and First Dawood Mutual Fund fall at lowest ranking and perform not well than other funds in the market.

As shown in Table 3, overall best performance observed in PICIC Energy Fund, Meezan Balance Fund, First Capital Mutual Fund, Al-Meezan Mutual Fund, Pakistan Strategic Allocation Fund and Golden Arrow Fund respectively. All remaining funds have negative value which shows the mismanagement and market downturn or short term market shock. As shown in Table 3, only two funds namely Asian Stock Fund and PICIC Energy Fund have a positive net selectivity and perform better than other funds and fund manager has earned returns well above the return commensurate with the level of risk taken by him. All other funds have a negative net selectivity that means low performance in stock selection ability. Diversification indicates the extent to which the portfolio may not have been completely diversified. Diversification reduces the variability of returns around the expected return. For well diversified portfolio diversification value should be zero having no unsystematic risk. As shown in Table 3, except Asian Stock Fund all funds have positive diversification which represents the extra return that the portfolio should earn for not being completely diversified. And also it shows that portfolio is not completely diversified and it contains unsystematic risk.

Conclusion

This study has investigated the performance of close-ended mutual funds in Pakistan for the period of April 2005 to May 2010. This study included survivorship-bias free sixteen close-ended mutual funds and included which have minimum of 24 months of life-span. Month ended value was taken of Net Asset Value (NAV) and 12-month T-Bills rate was used as risk free rate (RFR). Monthly data used Different models were used in analysis namely; Sharpe, Treynor, Sartino and Jensen's Alpha. This study also measured the net selectivity and diversification effect to cover the previous shortfall in the evaluation of close-ended mutual funds in Pakistan. It was found that overall performance of PICIC Energy Fund, First Capital Mutual Fund, Al-Meezan Mutual Fund, Meezan Balance Fund and Pakistan Strategic Allocation Fund performed observed best in the market. Atlas Fund of Funds, PICIC Growth Fund, JS Growth Fund, Asian Stock Fund, and First Dawood Mutual Fund performed worst in the market. It was observed different ranking of different funds which shows the market crash and distortion in research period. Because the results show that all funds have positive diversification except Asian Stock Fund which represents the extra return the portfolio is not earning well. It shows that portfolio is not completely diversified and it contains unsystematic risk. The overall high risk taking behavior observed in PICIC Growth Fund and Asian Stock Fund that was 0.118 and 0.102 with monthly negative mean return of -.005 and -.006 respectively. As shown in Table 1(b) that series are not normally distributed because kurtosis should be equal to 3 for normally distributed series. And it

was observed that the values of Skewness are negatively skewed. This shows that monthly mean return is mostly negative trend. As shown in Table 1(b) all values are less than significant level of .05 which shows all close ended mutual funds have significant results during the five year. As shown in Table 3, overall performance of the funds observed best but negative value showed that mismanagement issue observed in mutual fund. As shown in Table 3, only two funds namely Asian Stock Fund and PICIC Energy Fund have a positive net selectivity and perform better than other funds and fund manager has earned returns well above the return commensurate with the level of risk taken by him. All other funds have a negative net selectivity that means low performance was observed in stock selection ability of fund manager. As shown in Table 3, except Asian Stock Fund all funds have positive diversification which represents the extra return that the portfolio should earn for not being completely diversified. And also it shows that portfolio is not completely diversified and it contains unsystematic risk. Finally on the basis of above conclusions, it can be concluded that investors should be careful in investing in mutual funds while choosing and investing in mutual funds due to market.

Table 1 (a): Descriptive Statistics

S.No	Close-Ended Mutual Funds	Mean	Median	STDEV	Kurtosis
1	Al-Meezan Mutual Fund	0.002	0.013	0.092	5.780
2	Meezan Mutual Fund	0.002	0.008	0.055	1.511
3	Atlas Fund of Funds	-0.004	0.011	0.077	7.701
4	First Capital Mutual Fund	0.002	0.002	0.086	5.147
5	Pakistan Premier Fund	-0.003	0.009	0.089	3.477
6	Pakistan Strategic Allocation Fund	0.001	0.013	0.087	4.130
7	JS Value Fund	-0.001	0.010	0.074	2.463
8	Golden Arrow Fund	0.001	0.008	0.081	2.100
9	JS Large Cap Fund	-0.001	0.001	0.082	3.290
10	First Dawood Mutual Fund	-0.012	0.001	0.044	0.807
11	PICIC Growth Fund	-0.005	0.003	0.118	3.463
12	PICIC Investment Fund	-0.002	0.002	0.094	4.319
13	Asian Stock Fund	-0.006	-0.001	0.102	0.812
14	PICIC Energy Fund	0.003	0.005	0.091	5.118
15	JS Growth Fund	-0.006	-0.002	0.089	4.615
16	NAMCO Balance Fund	-0.003	0.008	0.071	4.470

Table 1 (b): Descriptive Statistics

S.No.	Close-Ended Mutual Funds	Skewness	Range	Min.	Max.	At 95%
1	Al-Meezan Mutual Fund	-1.571	0.636	-0.401	0.235	0.024
2	Meezan Mutual Fund	-0.741	0.309	-0.157	0.153	0.014
3	Atlas Fund of Funds	-1.984	0.529	-0.358	0.171	0.020
4	First Capital Mutual Fund	-1.273	0.585	-0.358	0.228	0.022
5	Pakistan Premier Fund	-1.616	0.490	-0.316	0.173	0.023
6	Pakistan St. Allocation Fund	-1.680	0.506	-0.309	0.196	0.023
7	JS Value Fund	-1.427	0.371	-0.244	0.127	0.019
8	Golden Arrow Fund	-1.169	0.406	-0.263	0.143	0.021
9	JS Large Cap Fund	-1.510	0.455	-0.308	0.147	0.021
10	First Dawood Mutual Fund	-0.939	0.193	-0.125	0.068	0.015
11	PICIC Growth Fund	-0.222	0.753	-0.371	0.382	0.032
12	PICIC Investment Fund	-1.075	0.630	-0.360	0.270	0.025
13	Asian Stock Fund	-0.351	0.421	-0.224	0.197	0.042
14	PICIC Energy Fund	-0.836	0.625	-0.350	0.274	0.026
15	JS Growth Fund	-1.461	0.540	-0.352	0.189	0.026
16	NAMCO Balance Fund	-1.643	0.407	-0.270	0.137	0.023

Table 2:

S.No.	Close-Ended Mutual Funds	Sharpe Ratio	Treynor Ratio	Sartino Ratio	Jensen Alpha
1	PICIC Energy Fund	0.0023 (1)	0.0030 (1)	-0.0038 (1)	-0.0130 (2)
2	First Capital Mutual Fund	0.0009 (2)	0.0018 (3)	-0.0074 (4)	-0.0192 (3)
3	Al-Meezan Mutual Fund	0.0008 (3)	0.0016 (4)	-0.0042 (2)	-0.0232 (8)
4	Meezan Balance Fund	0.0008 (4)	0.0022 (2)	-0.0150(15)	-0.0536(15)
5	Pakistan St. Allocation Fund	0.0002 (5)	0.0011 (5)	-0.0043 (3)	-0.0224 (6)
6	Golden Arrow Fund	-0.0002 (6)	0.0007 (6)	-0.0074 (5)	-0.0344(10)
7	JS Large Cap Fund	-0.0021 (7)	-0.0011 (7)	-0.0100 (8)	-0.0215 (5)
8	JS Value Fund	-0.0026 (8)	-0.0015 (8)	-0.0100 (9)	-0.0236 (9)
9	PICIC Investment Fund	-0.0029 (9)	-0.0021 (9)	-0.0077 (6)	-0.0128 (1)
10	Pakistan Premier Fund	-0.0044 (10)	-0.0036 (11)	-0.0082 (7)	-0.0425(14)
11	NAMCO Balance Fund	-0.0045 (11)	-0.0034 (10)	-0.0125(13)	-0.0399(13)
12	Atlas Fund of Funds	-0.0049 (12)	-0.0039 (12)	-0.0103(10)	-0.0347(11)
13	PICIC Growth Fund	-0.0059 (13)	-0.0052 (13)	-0.0110(11)	-0.0226 (7)
14	JS Growth Fund	-0.0071 (14)	-0.0064 (14)	-0.0120(12)	-0.0193 (4)
15	Asian Stock Fund	-0.0074 (15)	-0.0065 (15)	-0.0142(14)	-0.0361(12)
16	First Dawood Mutual Fund	-0.0146 (16)	-0.0133 (16)	-0.0446(16)	-0.1164(16)

Table 3:

S.No.	Close-Ended Mutual Funds	Overall Performance	Net Selectivity	Diversification
1	PICIC Energy Fund	0.0031	0.0006	0.0003
2	First Capital Mutual Fund	0.0018	-0.0092	0.0009
3	Al-Meezan Mutual Fund	0.0016	-0.0102	0.0024
4	Meezan Balance Fund	0.0023	-0.0048	0.0019
5	Pakistan Strategic Allocation Fund	0.0011	-0.0102	0.0015
6	Golden Arrow Fund	0.0008	-0.0096	0.0025
7	JS Large Cap Fund	-0.0011	-0.0117	0.0008
8	JS Value Fund	-0.0015	-0.0111	0.0018
9	PICIC Investment Fund	-0.0021	-0.0121	0.0007
10	Pakistan Premier Fund	-0.0035	-0.0150	0.0040
11	NAMCO Balance Fund	-0.0033	-0.0077	0.0003
12	Atlas Fund of Funds	-0.0039	-0.0138	0.0016
13	PICIC Growth Fund	-0.0052	-0.0178	0.0039
14	JS Growth Fund	-0.0064	-0.0116	0.0003
15	Asian Stock Fund	-0.0065	0.0012	-0.0010
16	First Dawood Mutual Fund	-0.0125	-0.0185	0.0032

Table 4:

S. No.	Close-Ended Mutual Funds	Sharpe Index	Treynor Index	Sartino Index
1	Pakistan Premier Fund	0.01023	0.01114	0.00649
2	Pakistan Strategic Allocation Fund	0.01023	0.01114	0.00578
3	JS Value Fund	0.01023	0.01114	0.00269
4	Golden Arrow Fund	0.01023	0.01114	0.00293
5	JS Large Cap Fund	0.01023	0.01114	0.00228
6	First Dawood Mutual Fund	0.02636	0.02675	-0.00531
7	PICIC Growth Fund	0.00841	0.00931	0.00355
8	PICIC Investment Fund	0.00846	0.00931	0.00378
9	Asian Stock Fund	-0.00902	-0.00820	-0.01590
10	PICIC Energy Fund	0.00168	0.00244	-0.00437
11	JS Growth Fund	0.00471	0.00541	-0.00027
12	NAMCO Balance Fund	0.00497	0.00584	-0.00328
13	Al-Meezan Mutual Fund	0.01022	0.01114	0.00524
14	Meezan Balance Fund	0.01022	0.01114	-0.00638
15	Atlas Fund of Funds	0.01023	0.01114	0.00471
16	First Capital Mutual Fund	0.01023	0.01114	0.00190

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