

Examining the Performance of Closed-End Mutual Funds Under Different States of Pakistani Stock Market

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In this study we have analyzed performance of 22 mutual funds listed at Karachi Stock Exchange (KSE) during the sample period of 1999 to 2009. The performance of these funds have been analyzed under different states of stock market: Normal, Boom & Recession by using performance measure ratios (Jensen, Sharpe, Treynor and Sortino). In addition funds are ranked according to their performance. The results of this study reveal that overall Pakistani closed-end mutual funds have underperformed in different states of stock market for the sample period 1999-2009. It throws a big question on the performance of these funds managers. The results are worst in case of recession state of stock market. It indicates that fund managers are not performing their job in an efficient way

Keywords: KSE, Normal, Boom, Recession, Mutual Funds, Sharpe, Sortino, Jensen, Treynor, Composite ranking.

1. Introduction

Capital markets play a vital role in economic development of a country as it promotes investment. It is worthwhile to review the academic thinking regarding mutual funds, a subject that for the last five decades has occupied a prominent place in scholarly research. Mutual funds are financial institutions which pool resources from investors and make diversified investment in stock, bonds and other securities of capital market. Mutual funds have become one of the largest financial intermediaries. All over the world, the mutual fund industry consists of \$11.7 trillion of assets. United States has the largest share with investment of (60%). Other countries hold much lesser shares; Luxembourg has (6.5%), France has (6.1%), Italy has (3.1%), and Japan has (2.9%). Other countries have much smaller investment. Those countries include Bangladesh, Romania, and Sri Lanka (Khorana et. al., 2005).

Pakistan was a pioneer in establishing mutual funds in the South Asian Region. Mutual fund industry started in Pakistan in 1960's when the Government launched first open-end mutual fund in the form of National Investment Trust (NIT) in 1962 followed by the initiation of Investment Corporation of Pakistan (ICP) in 1966 (Arif, 2006). The Mutual

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fund industry in Pakistan enjoyed a remarkable growth rate of 57% during the period of 2002 – 2008. Net Assets reached the highest ever level of about Rs. 425 billion in 2008 when the stock market was at its peak. That time, the total number of mutual fund was 95. However, the rapid decline of the market in 2009 had an unpleasant impact on the mutual funds sector. Net assets of the mutual funds industry declined to Rs. 203.9 billion at the end 2009, as compared to Rs. 330 billion in 2008. Currently total number of fund is 102, out of which 22 are close-end.

In many countries of the world, the Performance evaluation of Mutual funds remained an important topic of research in the area of investment. This is mainly due to its popularity, easy access of data and importance as vehicle for investment in the stock market for individuals and institutions. (Javed & Iqbal, 2008). Some of the countries like India, Malaysia, Hong Kong and Singapore hold 3.7%, 4.0%, 20.3% and 16.5% mutual fund assets to primary securities in contrast to Pakistan where it is only 1.33% (Khorana et al, 2005). These facts indicate that mutual fund industry in Pakistan has significant room for growth. There are number of studies on the close-end mutual funds for different countries and in different contexts. However, no study to our knowledge has assessed performance of mutual funds in different states of Stock Market like Normal, Boom and Recession. Furthermore, there are limited studies with reference to Pakistan on performance evaluation of close-end funds. In this paper, the performance of 22 closed end mutual funds is analyzed in different states of Pakistani stock market during period 1999 to 2009. The performance of these funds is evaluated using different performance measure models such as Sharpe, Treynor, Jensen Alpha and Sortino ratio.

The specific objectives of this paper are to analyze the performance of closed–end mutual funds in Normal, Boom and Recession state of Pakistani stock market, to rank the sectors according to their performance in different states of stock market and compare the ranking of funds according to performance measures, to compare the performance of these closed–end mutual funds with their associated risk and return and to help the investor in decision making regarding investment in mutual funds.

Rest of the paper is organized in a way that section 2 gives a theoretical and empirical review of important mutual funds studies. Section 3 is about research methodology while section 4 covers results and discussion using different ratios while section 5 draws conclusion of the study.

2. Literature Review

Performance evaluation is the most popular topic in Mutual Funds because of the huge amount of money (trillions of dollars) invested in them (Haslem, 2008). There are various measures suggested for performance evaluation of mutual funds. Treynor (1965), Sharpe (1966) and Jensen (1967) provided some of the important contributions. These models became later the basis for future models where each performance measure has its own merits and demerits (Fama, 1972 and Grinblatt & Titman, 1993). Performances of mutual funds, determinants of mutual fund performance, performance persistence and return analysis of mutual funds have been examined in a number of

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studies for different countries using different techniques. Schooley and Worden (2009), studied the Life cycle of funds that were managed according to the investor's willingness to accept the risk over time horizons. The results suggested that wealthy investors might not need such fund. Less wealthy investors might be attracted towards these funds to get benefit out of these valuable services. Ferreira, et.al, (2007), checked determinants of mutual fund performance using four factor models for funds from 19 countries. The major finding of the study explained that size of the funds did matter and the performance of large funds was better. Furthermore, young funds investing abroad performed better than other funds and performance of funds charging higher fees and managed by more experienced individuals was better than others. This study was the first one where domestic four-factor model and Carhart (1997) international four-factor model were used for large number of international funds and for estimating risk adjusted performance of funds Domestic.

In a number of studies, performance evaluation of mutual funds was carried out using different ratios such as Sharp, Treynor, Jensen's measure and Fama's measure and many other models. Rao and Ravindran (2003), carried out a study and evaluated the performance of Indian mutual funds, in a bear market by using relative performance index, risk-return analysis, Treynor's ratio, Sharp's ratio, Sharp's measure, Jensen's measure and Fama's measure. Relative performance Index was computed for a sample of 269 open-ended schemes out of 433 during period September 1998-April 2002. The major finding of that study suggested that most of the funds gave excess return against expected return and were able to satisfy investor's expectations.

With reference to Pakistan, Afza and Rauf, (2009) examined the management effectiveness of open-ended mutual funds. Their focus was on examining management effectiveness of open-ended mutual fund by using several important variables such as turnover load, age, liquidity. Keshwani (2008) also examined performance of newly introduced and growing open-ended mutual funds in Pakistan. In this study, pioneering model of evaluating mutual funds performance by Sharpe (1966), Treynor (1965) and Jensen (1967) were used. Results of the study found negative performance of the funds. Similarly another study on open ended mutual funds was conducted by Shah and Hijazi, (2005) who evaluated the Performance of open end mutual funds using Sharpe, Treynor, and Jensen's differential Measures. Cheema and Shah (2006) using annual data conducted another study on mutual funds in Pakistan for the period of 1994-2004. They found that the protection of investors (minority) was only possible if in general, the institutional investors and mutual funds in particular played a important role in corporate governance. Performance of open end mutual funds was also evaluated by Sipra (2005). He worked on performance of mutual fund in Pakistan for the period of 1995-2004, and found that approximately 30% of funds beat the market in that period. However, composition of the funds that beat the market was not feasible since they kept changing from time to time. Therefore, he suggested that there was no special competency required for mutual funds to beat the market on consistent basis. Furthermore, the result was consistent with the semi strong form of market efficiency.

A brief review of literature reveals that different authors have used different combinations of variables for explaining performance of mutual funds. Besides, there are few studies on mutual funds performance in Pakistan. Nevertheless, the focus of

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almost all of the studies remained the open-end mutual funds. None of the studies has evaluated performance of the closed-ended mutual funds in Pakistan although a number of studies for closed-ended funds have been conducted in some countries such as UK and USA.

In view of these facts, the present study aims at evaluating performance of closed-end mutual funds in different states of stock market, which has not been previously done. In this research, the basic models proposed by Sharpe (1966), Treynor (1965), Sortino (1986) and Jensen (1967) have been applied. The reason for not using different variations and advanced techniques such as Fama & French (1993) is non-availability of such required data as the Pakistani financial and equity market is quite young and immature. The results obtained from the application of those models on the data would then be used to evaluate performance of the rapidly growing Pakistani Mutual Funds industry. The results would help to identify the flaws and weaknesses of both individual funds and the industry as a whole.

3. Research Methodology

The main objective of this study is to evaluate the performance of close-end mutual funds in Pakistan. The methodology used in this study is quantitative in nature where performance of funds is measured by four basic performance evaluation models. These models include Sharpe ratio, Treynor index, Sortino ratio and Jensen's Alpha. Sortino ratio has been included in analysis as a new contribution not used by former studies in context of Pakistan.

3.1 Models Specifications

In order to evaluate performance of closed-end mutual funds, individual fund returns are calculated by following formula:

$$\text{Return (\%)} = \frac{\text{MonthClosin gpriceofcurrentperiod} - \text{Monthclo sin gpriceoflastperiod}}{\text{Monthclo sin gpriceoflastperiod}}$$

The next important calculation is of beta of the fund. The formula for CAPM beta as mentioned by Jensen (1967):

$$\beta_p = \frac{\text{COV}(R_p, R_m)}{V(R_m)}$$

Where β_p is the CAPM beta of the fund portfolio, $\text{Cov.}(R_p, R_m)$ is the covariance between the return of the portfolio and the market. $V(R_m)$ is the variance of the Market returns. Performance evaluation of mutual funds in different states of stock market is calculated by four different models: Sharpe (1966), Treynor (1965), Sortino (1986) and Jensen (1967). As shown hereafter.

Treynor Ratio calculates the excess return for the portfolio that could have been earned on a risk free investment per unit of its systematic risk.

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$$Treydor. = \frac{(R_p - R_f)}{\beta_p}$$

Where: R_p : is the return on the mutual fund portfolio., R_f : is the risk free rate. β_p : is the systematic risk of the portfolio, common to all portfolios in the market.

Jensen's Alpha adjusts for the beta risk, where more risky securities expected to have higher returns. The Jensen's Alpha can be shown as follows:

$$Jensen. = \alpha_p - R_p - [R_f + \beta_p (R_m - R_f)]$$

Where: α_p : is a measure of excess return on the portfolio, R_p is the Realized Return on the portfolio, R_m is the Market return, β_p is the Beta of the portfolio and R_f is Risk-free rate of return.

Sharpe Index is another criterion used in this study. It was proposed by Sharpe in 1966 for performance evaluation as an extension of the Treynor's (1965). The Sharpe ratio is a measure of excess return per unit for total risk in investment. The total risk in this ratio is the standard deviation of portfolio returns. The formula for the Sharpe ratio is:

$$Sharpe. = \frac{(R_p - R_f)}{S_p}$$

Where: S_p is the standard deviation of the returns of mutual funds portfolio for the sample period.

Sortino Ratio is also used in the study to measure the risk adjusted return for an investment, portfolio or fund. Sortino ratio is a modification of Sharpe ratio and it penalizes only those returns falling below a user is specified target or required rate of return. Sortino ratio is a measure of risk-adjusted returns.

$$Sortino = \frac{R - T}{DR}$$

Where, R is the realized return of the portfolio and T is the required rate of return for an investment while DR is the downside risk (it is the target semi-deviation=square root of the target semi-variance)

The realized return of the portfolio R is calculated by the following formula:

$$R = (1 + \text{total return})^{(1/N)} - 1, \text{ where } N \text{ is the number of time periods}$$

The Downside risk (DR) in the form of mathematical equation is:

$$DR. = \sqrt{\int_{-\infty}^x (X - T)^2 \cdot f(x) \cdot dx}$$

Where, X is the monthly return of portfolio, T is the minimum accepted return (risk free rate)

$$U. = \begin{cases} X - T \dots \text{if } (X - T) < 0 \\ 0 \dots \dots \dots \text{otherwise} \end{cases}$$

3.2 Sample and Data Set

The sample study is based on all close-ended mutual funds, listed on the Stock Exchanges of Pakistan. It consists of 22 closed-end mutual funds listed on Karachi Stock Exchange for period of January 1999 to December 2009. The main variables used in analysis of funds are the monthly return, value of KSE 100 Index and six months Treasury bill rates, on monthly basis during the study period. Monthly returns calculated on basis of closing prices and value of KSE 100 index are obtained from the websites of stock exchanges, business recorder (www.businessrecorder.com) and KHI stocks (www.khistocks.com.pk). In this study, Karachi Stock Exchange 100 Index is used as proxy to represent different states of the stock market of Pakistan. The Normal state of stock market used in this study existed during the period from January 1999 to August 2005. The Boom state of stock market followed it from September 2005 to April 2008. The Recession state of stock market was in first period of May 2008 to December 2009.

4. Results and Discussion

In analyzing the performance of close-ended mutual funds, first of all descriptive statistics are presented to describe the data and variables used in analysis. Descriptive analysis is followed by the quantitative analysis where different performance measures including Treynor Ratio, Sharp ratio, Jensen's Alpha and Sortino ratio are used to evaluate performance of different closed-end mutual funds during period January, 1999 to December, 2009. Furthermore, the performance of closed-end mutual funds is analyzed in normal, boom & recession states of Pakistan stock market. Moreover, ranking of different funds under different states of stock market is also presented.

4.1 Descriptive Statistics

Descriptive statistics of mutual funds for the period 1999-2009 regarding number of mutual funds, fund price, market price, fund return, market return and risk free rate are presented in Table 4.1. Generally, the mean composite average fund price remains around Rs 8.51., the mean composite fund price ranges from Rs.4.56 to Rs.14.52. Furthermore, the fund price of Tri star mutual fund remains at minimum Rs.0.30, while the fund price of PICIC growth mutual fund remains at maximum, (Rs.53.13). Moreover, high price volatility is observed in PICIC growth and JS value mutual funds while less price variability in the Tri Star mutual fund.

The mean composite average return of mutual funds return remains at 1.25%, while it ranges between -49.41% and 100.02% with standard deviation of 22.49% during the sample period. Dominion stock mutual fund shows the lowest monthly returns, while more than 300% monthly returns are observed in Tri star and 1st capital mutual funds. Again high monthly returns volatility is observed in PICIC growth and JS value mutual funds. On the other hand, PICI energy mutual fund shows less variability.

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KSE index is used as a benchmark; it ranges from 926 points to 15,125 with an average of 5,939 points and standard deviation of 4,264. Similarly, the average monthly market return is observed at 2.26% with standard deviation of 9.44%. The minimum monthly return is -41.47% of and maximum monthly return is 27.26% during the sample period. These facts confirm the high volatility in the market due to which KSE is said to be the most volatile market of the world. Descriptive statistics of risk free rate shows that average monthly risk free rate remains around at 0.67% with variability of 0.29%; it remains highest at 1.17% and lowest at 0.10% during the sample period.

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Table 4.1
Descriptive Statistics of different variables for the period 1999-2009

S#	Particular	Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
	1. Funds Prices					2. Funds Returns			
1	JS VALUE	9.47	5.89	3.81	21.69	-	0.2148	-	0.3362
2	Investec mutual fund	3.05	1.52	1.3	8.25	0.029	0.3452	-0.675	0.9186
3	Al meezan M. fund	8.97	1.55	4	10.5	0.0507	0.3677	-0.6	1.5
4	Safeway MF	6.61	5.31	1.5	24.5	0.0574	0.3554	-	2.4483
5	Tri Star	1.6	1.04	0.3	7	0.065	0.4295	-	3
6	PICIC Energy fund	8.11	1.3	6.5	12	-	0.0903	-	0.1205
7	PICIC growth	33.7	7.69	23.37	53.15	-	0.0905	-	0.1812
8	JS large capital	8.42	1.25	6.6	12.4	0.0021	0.1047	-0.234	0.2555
9	Meezan balanced F.	8.1	1.82	3.8	10.5	-	0.1083	-	0.2872
10	JS Growth	12.25	1.86	10.9	14.9	-	0.1554	-	0.1054
11	Golden arr. stock F.	5.43	2.8	1	12	0.0471	0.293	0.6429	1.8
12	Pakitan premier fund	14.02	2.13	10.5	19.2	-	0.118	-	0.2958
13	1st captial	5.26	2.52	1.5	11.05	0.0482	0.3748	0.7115	3.3864
14	Dominion stock fund	2.2	1.59	0.34	8.5	0.0214	0.2414	0.7492	0.8158
15	Namco	7.49	2.22	2.99	10	-	0.1813	-	0.3141
16	Atlas	7.22	2.39	2	10.5	0.0065	0.1343	-0.56	0.4143
17	Asian stock 01	3.79	2.42	1.15	12.4	0.0701	0.4327	0.6817	2.9655
18	Prudential	2.31	1.09	0.5	8.05	0.0397	0.3224	0.5833	1.8
19	Pak strategic fund	8.68	2.45	2.06	12.05	-	0.1202	-	0.2889
20	First Dawood M. fund	6.84	2.18	1.75	9.5	0.0195	0.1785	0.5723	0.3843
21	Pak oman	8.86	1.43	4.52	11.23	0.0193	0.1982	0.3989	0.7198
22	PICIC investment	14.85	1.96	10	20.1	-	0.0905	-	0.1044
	3. Market Index					4. Market Return			
	KSE-100 Index	5,939	4,264	926	15,125	0.0226	0.0944	-	0.2726
	5. Risk Free Rate								
	6-moth T-bill rates	0.0067	0.0029	0.0010	0.0117				

4.2 Performance and Ranking of Mutual Funds during three states of Pakistan Stock Market: Normal, Boom & Recession

In our study, Karachi Stock Exchange is taken as benchmark and the mutual funds performance models are first applied on market data (KSE) under different state of stock market as presented in Table 4.2 below. After that, these mutual funds performance models are applied to each fund and are compared in order to see whether fund managers beat the market or not.

Table 4.2				
Benchmark Performance Measures				
S. No.	Jensen's alpha	Sharpe ratio	Treynor ratio	Sortino ratio
Normal State of stock market				
1	0	0.2817	0.0262	0.2231
Boom State of stock market				
2	0	0.2595	0.0162	0.2687
Recession State of stock market				
3	0	(0.1097)	(0.0139)	(0.1326)

Ranking of the close-end mutual funds based on their performance according to different performance ratios are also presented in the following section. This ranking is for different states of stock market including the normal, boom and recession. Composite ranking is also presented under Jensen, Sharpe, Treynor and Sortino measures.

4.2.1 The Normal State of Stock Market

The results show that when the stock market of Pakistan was normal, performance of these mutual funds was not satisfactory and it provided investors on average with negative returns. The results presented in Table 4.3 shows that no single fund has beaten the market portfolio index under the normal state of stock market. Even some of the mutual funds (6, 7, 12, 16 & 17) are showing a negative sharp index. However, majority of the mutual funds are showing positive figures. Amongst these funds, the Asian Stock Fund 01 shows the best performance but not up to the benchmark, while the performance of Meezan balanced fund remains the worst. These findings are in agreement with a previous research study of Sipra (2006) on Pakistani mutual funds. Unlike Sharpe index, the Treynor index shows some better performance of these mutual funds against the market index. The results in the table reveal that more than 50% of the mutual funds beat the market index. On the basis of this ratio, performance of fund managers is considered as satisfactory. The dominion stock fund shows tremendous performance, while performance of PICIC growth fund remains the worst. On the other hand, the funds 6, 7, 12, 16 and 17 are also showing poor performance.

The results of Sortino ratio are similar to Sharp ratio, as this ratio is a modification of Sharpe ratio. This ratio panelizes those returns falling risk free rate or minimum

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accepted rate of return. In this ratio, risk free rate is used as minimum acceptable return. Only fund number 5 outperforms the market. On the other hand, the funds# 6, 7, 12, 16 and 17 are showing poor performance. The table is also showing that over all, the performance of these funds is extremely volatile against the market index. Furthermore, one appealing point is that all the three ratios are showing worse performance of funds # 6, 7, 12, 16 and 17. According to Jensen's alpha, majority of the funds are showing negative numbers and funds number 16 and 17 are showing extremely bad performance. The Prudential fund is showing tremendous performance, while the performance of JS growth fund remains the worst.

In terms of ranking of funds in the normal state of stock market, Prudential mutual fund gets the highest ranking according to Jensen and Treynor measure, while Asian stock gets highest ranking by Sharpe index. On the other hand, PICIC growth is ranked highest by Sortino ratio, surprisingly. But, on average, Safeway mutual fund gets highest ranking and the best performer fund amongst all funds. Similarly, on average, prudential mutual fund remains second highest performer. Atlas and First Dawood Mutual fund are observed to be the worst performing funds.

On the basis of all these performance measure ratios, funds number 6, 7, 12, 16 and 17 are showing bad performance and performance of these funds managers is highly questionable.

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Table 4.3

Funds performance for the period 1999-2005 under normal state of stock market

S#	Fund name	Sharpe		Treydor		Sortino		Jensen's		Composite
		Ratio	Ranking	Ratio	Ranking	Ratio	Ranking	Alpha	Ranking	Ranking
1	Investec Mutual Fund	0.078	10	0.0185	9	0.1136	7	-0.0355	14	11
2	Al Meezan Mutual Fund	0.116	8	0.0721	5	0.1754	3	0.031	4	4
3	Safeway MF	0.146	5	0.0808	3	0.1807	2	0.0351	3	1
4	Tri Star	0.146	4	0.0575	6	0.1052	8	0.0388	2	5
5	PICIC Growth	0.159	3	0.0055	11	0.2738	1	-0.0234	11	7
6	JS Large Capital	-0.3	16	-0.036	14	-0.3897	16	-0.0449	15	16
7	Meezan Balanced Fund	-0.36	17	-0.343	17	-0.4043	17	-0.034	13	17
8	Golden Arrow Stock Fund	0.181	2	0.0416	8	0.1289	4	0.0228	6	6
9	Pakistan Premier Fund	0.107	9	0.0157	10	0.118	6	-0.0171	10	10
10	1 st Capital	0.063	11	0.0758	4	0.049	11	0.0086	8	9
11	Dominion Stock Fund	0.128	7	0.0818	2	0.1025	10	0.0206	7	8
12	Atlas	-0.17	13	-0.053	15	-0.2981	13	-0.0534	16	14
13	Asian Stock 01	0.201	1	0.0571	7	0.1195	5	0.0298	5	3
14	Prudential	0.136	6	0.1346	1	0.1027	9	0.0433	1	2
15	Pak Strategic Fund	0.028	12	0.005	12	0.0352	12	-0.0123	9	12
16	First Dawood Mutual Fund	-0.26	15	-0.03	13	-0.3751	15	-0.0708	17	15
17	PICIC Investment	-0.25	14	-0.078	16	-0.3117	14	-0.0331	12	13

4.2.2 The Boom State of Stock Market

When stock market of Pakistan was at boom, performance of these funds was not as remarkable as expected. Still a large numbers of funds are showing a negative ratio, which portrays the poor performance of fund managers. The results of Sharp ratio presented in Table 4.4 shows that no single fund except Dominion stock fund could beat the market portfolio index under the boom state of stock market. It shows better performance in the boom period as compared with its performance under the normal state of stock market. However, majority of the mutual funds under performed against the market.

The results of Sortino ratio are also similar to Sharp ratio. Only Dominion stock fund has beaten the market portfolio index under the boom state of stock market. Treynor ratio shows some respectable performance of these funds because more than 24% funds beat the market index. Under the boom state of stock market, unlike the Sharpe index, the Treynor shows evidence of improved performance of these mutual funds against the benchmark, as it measures the portfolio's risk premium return per unit of risk. On the basis of this ratio, performance of funds managers is considered reasonable. The dominion stock fund also shows tremendous performance under boom state of stock market as well. It shows a consistent performance of this fund. According to Jensen's alpha more than 35% managers of the mutual funds have been trying to earn excess return against the market under the boom state of stock market. Here, dominion stock fund is also showing the best performance by beating the market significantly. On the other hand, JS value stock shows the worst performance.

On the basis of all these performance measures, funds # 6, 12, 16 and 17 names Meezan Balanced, Atlas, Pak Oman and PICIC Investment funds respectively are showing bad performance under the boom state of stock market as it is observed under the normal state of stock market. New funds 3, 4, 11 & 14 named as PICIC Energy, PICIC growth, Namco and Pak strategic funds respectively are also among the bad performers. On the other side, the performance of Dominion stock fund has improved.

The ranking of all closed-end mutual funds under boom state of stock market is also presented in the table which shows that in boom state of stock market, on average, Dominion mutual fund gets highest ranking, and also shows consistent performance. Similarly, on average Tri Star mutual fund remains second highest performing fund. PICIC Energy and PICIC growth fund are observed as the worst performer while the ranking of Meezan Balanced fund has improved.

4.2.3 The Recession State of Stock Market

Performance of the close-end mutual funds during recession state of stock market in the form of different performance measures is presented in Table 4.5. Generally, when the stock market of Pakistan was in recession, these ratios for the benchmark have shown negative results. Similarly, all four ratios for all of the mutual funds are also showing negative ratios except Asian Stock fund and Oman Fund. This shows that

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during the recession state of stock market, the overall market and mutual fund industry specifically closed-end mutual funds have depicted bad performance. Specifically The Asian Stock fund and Pak Oman fund have outperformed the market significantly as per four performance measure ratios. They are used to show the best performance of these mutual funds under recession state of stock market.

Table 4.4										
Funds performance for the period 2005-2008 under boom state of stock market										
		Sharpe		Treynor		Sortino		Jensen's		Composite
S#	Fund name	Ratio	Ranking	Ratio	Ranking	Ratio	Ranking	alpha	Ranking	Ranking
1	JS VALUE	0.0618	6	0.0105	7	0.1181	4	-0.0337	17	7
2	Tri Star	0.1175	2	0.0377	2	0.1357	2	0.0174	2	2
3	PICIC Energy fund	-0.1511	16	-0.0393	16	-0.1873	15	-0.0133	14	16
4	PICIC growth	-0.3011	17	-0.0396	17	-0.4363	17	-0.0268	16	17
5	JS large capital	0.1093	4	0.0195	4	0.1157	5	0.0061	4	4
6	Meezan balanced fund	-0.0229	10	-0.0097	11	-0.0473	10	-0.003	8	10
7	Golden arrow stock fund	0.0016	9	0.0017	9	-0.006	9	-0.001	7	8
8	Pakistan premier fund	-0.0716	13	-0.0155	13	-0.0845	12	-0.0114	13	12
9	1 st capital	0.1175	3	0.02	3	0.1256	3	0.008	3	3
10	Dominion stock fund	0.2996	1	0.0775	1	0.2995	1	0.0614	1	1
11	Namco	-0.0621	12	-0.0189	14	-0.0891	13	-0.014	15	14
12	Atlas	0.0696	5	0.0159	5	0.063	6	0.0024	6	5
13	Prudential	0.0412	7	0.013	6	0.0459	7	0.0025	5	6
14	Pak strategic fund	-0.0825	14	-0.0131	12	-0.0958	14	-0.0114	12	13
15	First dawood mutual fund	0.0283	8	0.0052	8	0.0275	8	-0.0047	10	9
16	Pak oman	-0.1425	15	-0.0223	15	-0.2272	16	-0.0042	9	15
17	PICIC investment	-0.0593	11	-0.0075	10	-0.0718	11	-0.011	11	11

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Table 4.5										
Funds performance for the period 2008-2009 under recession state of stock market										
S#	Fund name	Sharpe		Treynor		Sortino		Jensen's		Composite
		Ratio	Ranking	Ratio	Ranking	Ratio	Ranking	Alpha	Ranking	Ranking
1	JS VALUE	-0.2128	7	-0.049	6	0.4144	9	-0.0342	6	5
2	Tri Star	-0.5593	13	-0.0481	5	0.6356	13	-0.347	18	13
3	PICIC Energy fund	-1.245	18	-0.1269	15	0.9323	18	-0.195	16	18
4	PICIC growth	-0.7829	16	-0.0673	12	0.7331	16	-0.1684	13	16
5	JS large capital	-1.0648	17	-0.1309	16	0.3622	8	-0.4365	19	17
6	Meezan balanced fund	-0.1047	3	-0.0293	4	0.1372	3	-0.0087	3	3
7	JS Growth	-0.4877	12	-0.0545	7	0.5705	11	-0.2452	17	12
8	Golden arrow stock fund	-0.6998	15	-0.0621	9	0.6895	14	-0.1407	12	15
9	Pakistan premier fund	-0.4101	11	-0.0628	10	0.5417	10	-0.1874	15	11
10	1 st capital	-0.1799	5	-0.1563	17	0.2872	5	-0.0385	8	8
11	Dominion stock fund	-0.2968	8	-0.1756	18	0.3151	7	-0.0889	10	9
12	Namco	-0.1555	4	-0.0652	11	0.2202	4	-0.0364	7	4
13	Atlas	-0.2122	6	-0.0735	13	0.2956	6	-0.0292	5	6
14	Asian stock 01	0.1605	1	0.5694	1	0.2534	1	0.1313	1	1
15	Prudential	-12.2219	19	-4.8713	19	0.9968	19	-0.1208	11	19
16	Pak strategic fund	-0.3447	10	-0.0611	8	0.6041	12	-0.0256	4	7

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17	First dawood mutual fund	-0.3226	9	-0.0764	14	0.7782	17	-0.0405	9	14
18	Pak oman	0.0695	2	0.0236	3	0.0839	2	0.0192	2	2
19	PICIC investment	-0.6467	14	0.1001	2	0.7014	15	-0.1742	14	10

The other two funds, Meezan Balanced fund and PICIC Investment fund also managed to beat the market portfolio under Sharpe and Treynor's measure. On the other hand, Prudential fund is showing the worst performance amongst all mutual funds. The descriptive statistics also show that the mutual fund price has remained constant during the entire recession period by providing zero return. Overall, more than 90% of the mutual funds have failed to beat the market index.

According to ranking of the closed-end mutual funds in recession state of market, on average Asian Stock01 fund not only gets highest ranking, but it also remains at top according to four performance measures. Similarly, Pak Oman and Meezan Balanced fund remain on 2nd and 3rd position. Prudential and PICIC energy funds are observed to be the worst performing funds.

5. Conclusion

In this paper our objective was to analyze the performance of 22 closed-end mutual funds in Pakistan under different states of stock market which include normal, boom and recession. The analysis was carried out using four performance measures such as Sharpe, Treynor, Jensen's Alpha and Sortino ratio. On the basis of analysis it was found that the performance of these mutual funds has remained poor under the normal state of stock market when compared against the benchmark. No single fund has beaten the market portfolio index, with some of the mutual funds showing a negative Sharp index. The Asian Stock Fund shows the best performance but not up to the benchmark, while performance of Meezan balanced fund is the worst. The Sortino ratio, also provides similar results. The Treynor index shows better performance of these mutual funds against the market index as about 50% of the mutual funds beat the market index. The dominion stock fund shows best performance of PICIC growth fund shows worst performance. In case of Jensen's alpha measure, majority of the funds show negative results. The Asian Stock fund shows the best performance, while the performance of JS Growth fund is the worst. On basis of all these ratios, the performance of these funds managers is highly questionable.

In the boom state of stock market, the performance of most of the funds is not as well as expected. Many funds are showing negative results which portray poor performance of their managers. While during Recession, the performance measure ratios for the benchmark are showing negative results. Similarly these ratios for all funds are negative except Asian Stock fund and Oman Funds. This shows that during recession, the largely market and closed-end mutual funds have shown bad performance.

The Composite ranking is also documented under all the four basic rankings of Jensen, Sharpe, Treynor and Sortino measures. Under the normal state of stock market, Prudential mutual fund gets highest ranking regarding Jensen and Treynor measure, while the Asian stock gets highest ranking by Sharpe index. PICIC growth is ranked highest by Sortino ratio, surprisingly. But, on composite basis, Safeway mutual fund gets highest ranking and is the best performer fund amongst all the funds. While JS large capital fund, Golden arrow funds are observed to be the worst performing funds. In boom state of stock market, on average, Safeway mutual fund gets again highest ranking and shows some consistent performance. JS large capital fund and Meezan balanced fund are observed to be the worst performing funds. Under the recession state of stock market, on average, dominion stock mutual fund not only gets highest ranking, but also remains at top according to all four-performance measures. PICIC growth and PICIC energy funds are observed to be the worst performing funds.

On the basis of above findings, we suggest that Funds that are underperforming on consistent basis need to look their investment strategy in detail and must review their performance and should make efforts for changing their diversifying and investment strategies.

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