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Performance Evaluation of Mutual Funds in Pakistan

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INTRODUCTION

In Pakistan Mutual Funds were introduced in 1962, when the public offering of National Investment (Unit) Trust (NIT) was introduced which is an open-end mutual fund. In 1966 another fund that is Investment Corporation of Pakistan (ICP) was establishment. ICP subsequently offered a series of closed-end mutual funds. Up to early 1990s, twenty six (26) closed-end ICP mutual funds had been floated by Investment Corporation of Pakistan. After considering the option of restructuring the corporation, government decided to wind up ICP in June, 2000. In 2002, the Government started Privatisation of the Investment Corporation of Pakistan. 25 Out of 26 closed-end funds of ICP were split into two lots. There had been a competitive bidding for the privatisation of funds. Management Right of Lot-A comprising 12 funds was acquired by ABAMCO Limited. Out of these 12, the first 9 funds were merged into a single closed-end fund and that was named as ABAMCO Capital Fund, except 4th ICP mutual fund as the certificate holders of the 4th ICP fund had not approved the scheme of arrangement of Amalgamation into ABAMCO capital fund in their extra ordinary general meeting held on December 20, 2003. The fund has therefore been reorganised as a separate closed-end trust and named as ABAMCO Growth Fund. Rest of the three funds were merged into another single and named as ABAMCO Stock Market Fund. So far as the Lot-B is concerned, it comprised of 13 ICP funds, for all of these thirteen funds, the Management Right was acquired by PICIC Asset Management Company Limited. All of these thirteen funds were merged into a single closed-end fund which was named as "PICIC Investment Fund". Later on the 26th fund of ICP (ICP-SEMF) was also acquired by PICIC Asset Management Company Limited. The certificate holders in extraordinary general meeting held on June 16, 2004

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approved the reorganisation of SEMF into a new closed-end scheme renamed as PICIC Growth Fund. The Securities and Exchange Commission of Pakistan subsequently authorised PGF on July 30, 2004.

Initially there was both public and private sector participation in the management of these funds, but with the nationalisation in the seventies, the government role become more dominant. Later, the government also allowed the private sector to establish mutual funds. Currently there exist Thirty-three funds by the end of Financial Year 2005. Twelve open-ended mutual funds are:

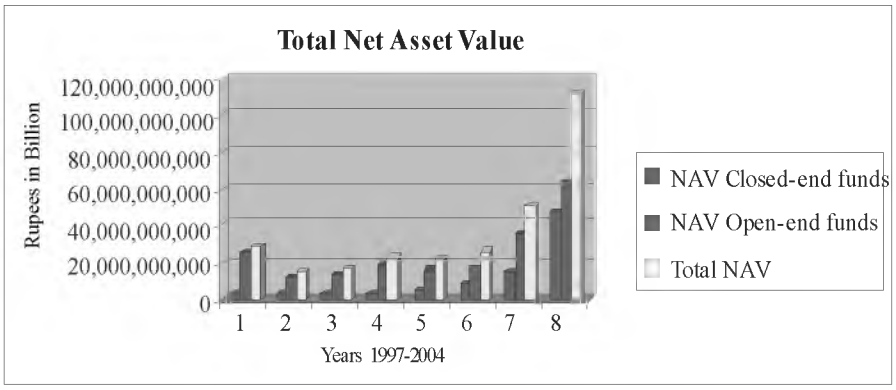
- public sector, 01;
- private sector, 11;

Twenty-one close-end mutual funds in Pakistan are:

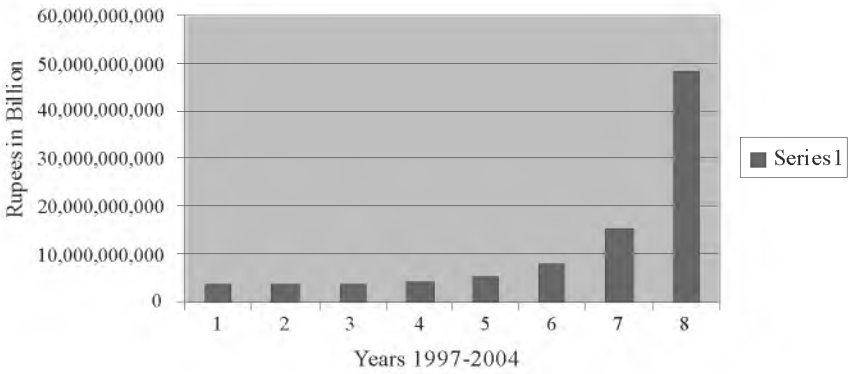
- public sector, 0;
- private sector, 21.

Performance evaluation of mutual funds is important for the investors and portfolio managers as well. Historical performance evaluation provide an opportunity to the investors to assess the performance of portfolio managers as to how much return has been generated and what risk level has been assumed in generating such returns. In this way the investors can also compare the performance of fund managers.

On June 2004 the net asset value of close-end mutual funds was Rs 48 billion and open-end funds net asset value was Rs 63.86 billion. Whereas on June 1997 the net asset value of closed-end mutual funds was Rs 04 billion and open-end mutual funds net asset value was Rs 25 billion. Total net assets value in 1997 was Rs 29 billion and at the end June 2004, raised to Rs 112 billion. There is a big increase of investment (entrusted amount) in this sector since 1997 to 2004 which necessitate the performance evaluation of funds free of manipulation.



Net Assets Value—Closed-end Mutual Funds



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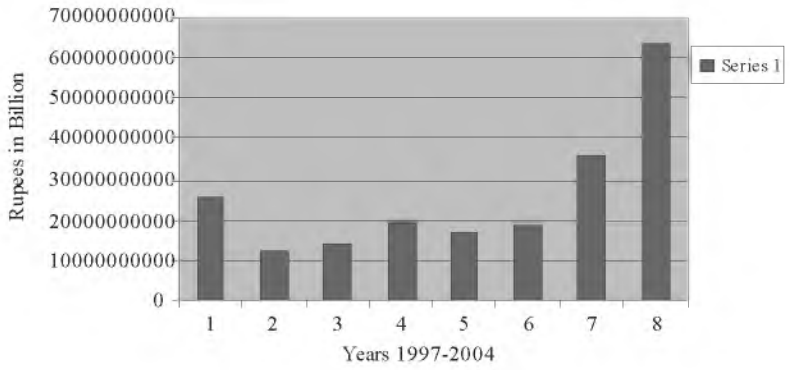

In the last few years mutual fund industry has shown significant progress with reference to saving mobilisation and important part of the overall financial markets. But still we are far behind the developed countries mutual fund industry. Growth in mutual funds worldwide is because of the overall growth in both the size and maturity of many foreign capital markets. These nations have increasingly used debt and equity securities rather than bank loans to finance economic expansion. The Pakistan economy can prosper because of the benefits of new investment opportunities arising from economic reform, privatisation, lowered trade barriers and rapid economic growth.

Individuals throughout the world have the same basic needs that are education for their children, health, good living standard and comfortable retirement. In our country where people are religious minded, mostly they avoid bank schemes for investments, if they are provided an investment opportunity which suits the religion, we can mobilise savings from masses which may be laying an idle money at present. By doing so we would be able to improve the living standard of our countrymen through economic prosperity. This can be achieved through the introduction of different species of mutual funds and their performance. The success of this sector depends on the performance and the role of regulatory bodies. Excellent performance and stringent regulations will increase the popularity of mutual funds in Pakistan.

LITERATURE REVIEW

In Gruber (1996) in his article based on USA data claims that most of the older studies are subject to survivorship bias. When this effect is adjusted, is argued that mutual funds on average under-perform the market proxy by the amount of expenses they charge the investors.

Otten and Bams (2002) Maastricht University, in 2002 carried a research on European mutual funds. Results suggest that Europeans mutual funds especially small capitalisation funds are able to add value. If the management fee is added back, some exhibits significant out performance. The author also pointed out that European mutual funds industry is still lagging behind the US industry both in total assets size and market capitalisation.

Malkiel and Radisich (2001) finds that index funds have regularly produced rates of return exceeding those of active funds by 100 to 200 basis points per annum in the United States over the 1990s and find that there are two reasons for the excess performance by passive funds: management fee and trading costs.

Wermers (2000) carried out a research on mutual funds performance in America and found that funds hold stocks that out perform by market 1.3 percent per year, but their net results under perform by one percent. Out of this 1.6 percent is due to expense and transaction costs.

Blake and Timmermann (1998) University of California, carried out a research in 1998 on performance evaluation of UK mutual funds and found that the average UK equity fund appears to under perform by around 1.8 percent per annum on a risk-adjusted basis. The authors says that there is also some evidence of persistence of performance, on average, a portfolio composed of the historically best-performing quartile of mutual funds performs better in the subsequent period than a portfolio composed of the historically worst-performing quartile of funds.

In 2002 Research conducted by Bauer, Koedijk, and Otten (2002) using an international database containing German, UK and US ethical funds remarked that the existing empirical evidence on US data suggests that ethical screening leads to similar or slightly less performance relative to comparable unrestricted portfolios.

Evidence on the performance of ethical mutual funds is mostly limited to the US and UK markets. For UK market four influential papers appeared during the last decade. The early studies compared ethical funds to market wide indices like the FT all share index. Using this methodology Luther, Matatko and Corner (1992) investigated the returns of 15 ethical unit trusts. Their results provided some weak evidence that ethical funds tend to out perform general market indices.

In 2004, Otten and Bams (2004) in article titled "How to measure mutual fund performance: economic versus statistical relevance" says that the majority of US studies conclude that actively managed portfolios, on average, under perform market indices. He quoted the examples of the studies conducted by Jensen (1968) and Sharpe (1966). He argued mutual funds under perform the market by the amount of expenses they charge the investors.

Gupta and Gupta (2001) in their studies on Indian mutual funds industry investigated that on Septmeber 30, 1999 total assets under the management of mutual fund industry stood at Rs 85,487 crore (Rs 850 billion). Further more that the mutual fund industry has four types of players i.e. (1) UTI; (2) public sector banks; (3) insurance corporations; and (4) private sector funds. These four types consist of 37 players, 11 are in the public sector including UTI, and the remaining ones are the private sector. The UTI alone accounts for Rs 63, 113 crore which is 74 percent of total assets of the industry. The share of other public sector funds is Rs 8831 crore that is 10.2 percent of total funds in the industry. The remaining resources of Rs 13, 543 crore that is 15.8 percent are available to the private sector funds. Total number of schemes offered by all funds is 311 out of which 182 are closed-ended; and 142 are open ended.

El-Khouri (1993) in his studies conducted on Risk-Return Relationship based on Amman Stock Exchange data concluded that debt equity ratio appears to be insignificantly correlated to required return in all regression.

RESEARCH METHODOLOGY AND EMPIRICAL RESULTS

The Sample

After 2002, mutual fund industry in Pakistan has witnessed significant changes and growth in terms of private sector participation, divestment of public sector funds. At present we have 33 funds–21 closed-ends, out of which 09 are the infant commenced in between 2003 and 2004 some of which emerged due to divestment and then merger of ICP funds while others are newly introduced. We have 12 open-end funds, out of these funds 10 funds are infant, which introduced in between 2003 and 2004. As we are concerned with survivorship bias controlled data, ICP funds which no more exist at the end of June 2004 and merged into other funds are excluded from the research sample and other funds which have life of two to three years have also been excluded from the evaluation. Rests of 14 funds out of total 33 funds have lived a long life and still operative which serve our research purpose.

Sources of Data

Annual reports of equity and balanced funds for the period from 1997 to 2004 have been used for data collection. For this purpose different sources have been used; Asset Management Companies of the funds, Stock exchanges, SECP and internet. Data for Treasury bills rate was collected from *Statistical Bulletins* of State Bank of Pakistan.

Variables

Variables picked for the performance evaluation of mutual funds are net income after taxes of funds, net asset value, number of certificates/shares outstanding, earning per certificate and net asset value per certificate/share, monthly returns of KSE 100 index. Six months Treasury bill rates. Return of fund was calculated dividing return per certificate by opening net asset value per certificate. Return per certificate was calculated dividing fund income after taxes by total number of certificates outstanding for the year. Net asset value per certificate was calculated by deducting total liabilities from total assets of the year or by taking shareholders equity. Return of a fund may also be calculated dividing net income after taxes of a fund by opening net assets of the fund for that year.

Methodology and Empirical Results

There are four models which are used worldwide for the performance evaluation of mutual funds (1) Sharpe Measure (2) Treynor Measure (3) Jenson differential Measure (4) Fama French Measure. We have used first three measures excluding Fama French Measure. The reason for not using Fama French Model is that for this model we needed data on book to market ratio for all companies listed at KSE from 1997 to 2004 which could not be made available.

The Sharpe Model

In 1960 William F. Sharpe started to work on portfolio theory as thesis project. He introduced the concept of risk free asset. Combing the risk free asset with the Markowitz efficient portfolio he introduced the capital market line as the efficient portfolio line.

The model given by Sharpe,[1] we can proceed further to use it for the determination of expected rate of return for a risky asset, which led to the development of CAPM capital asset pricing model. Through this model an investor can know what should be the required rate of return for a risky asset. The required rate of return has a great significance for the valuation of securities, by discounting its cash flows with the required rate of return.

[1]In 1990, Sharpe's role in developing the CAPM was recognised by the Nobel Prize committee. Sharpe shared the Nobel Memorial Prize in Economic Sciences that year with Markowitz and Merton Miller, the University of Chicago Economist.

In order to determine which portfolio offering the most favourable risk/return trade-off, we compute the ratio of the historical returns in excess of the risk-free rate to the standard deviation of the portfolio returns. The portfolio offering the highest reward/risk ratio then is the only risky portfolio in which investors will choose to invest. Using average returns of the portfolio uses Sharpe ratio to measure ex-post portfolio performance.

Sharpe introduced the following reward to variability ratio (known as Sharpe ratio):

$$\text{Sharpe Ratio} = \frac{(R_p - R_f)}{\delta_p}$$

R_p = the observed average fund return;
R_f = the average risk free return;
δ_p = the standard deviation of fund returns.

This model is used to measure the performance of a managed portfolio in respect of return per unit of risk. This ratio also measures the portfolio manager's ability on the basis of rate of return performance and diversification by taking into account total risk of the portfolio.

The study computes of the ratio of the historical returns, (ex-post returns) in excess of the risk-free rate to the standard deviation of the portfolio returns of the funds for the period from 1997 to 2004. Weighted average of six months Treasury bills rate was used as a risk free rate. Results show, (Table 1) that some of the funds have negative

Table 1

Name of Fund	Average Return 1997-2004	Standard Deviation	Sharpe Ratio
Closed-end Funds			
Almeezan Mutual Fund	0.2437	0.2899	0.5483
Asian Stock Fund	0.0248	0.3663	–0.1636
First Capital Fund	0.0353	0.3119	–0.1584
KASAB Premier Fund	0.1863	0.3851	0.2637
Golden Arrow Fund	0.1996	0.2831	0.4057
BSJS Balance Fund	0.2053	0.1849	0.6518
Prudential Stock Fund	0.0220	0.2195	–0.2857
Safeway Mutual Fund	0.1486	0.2918	0.2189
Tri Star Mutual Fund	–0.1706	0.7837	–0.3258
ICP (SEMF)	0.3197	0.3105	0.7564
4th ICP Mutual Fund	0.3162	0.2147	1.0778
Open-end Fund			
National Investment (Unit) Trust-equity Fund	0.2468	0.1757	0.9219
Unit Trust of Pakistan–Balance Fund	0.1770	0.0870	1.0597
Overall position/industry	0.1504	0.1384	0.4738

sharpe ratio which indicate the managers inability in diversification but on overall basis Sharpe ratio of funds is 0.47 (as compared to market which is 0.27) risk premium of per one percent of standard deviation which shows better performance as compared to market.

The Treynor Model

Treynor introduced two types of risks. One risk is called Systematic risk which is associated with market and cannot be diversified away. However, this type of risk can by calculated through "beta". Treynor says that portfolio expected return depend on its beta. The other type of risk which he separated from systematic risk is unsystematic risk. Unsystematic risk is specific to a company. The uncertainty attached with the specific company can be diversified away.

Treynor model is used to measure the performance of a managed portfolio in respect of return per unit of risk (systemic risk). In this way the mutual fund provides the highest return per unit of risk (systemic risk) will be preferred as compared to the fund provides low return per unit of risk. Treynor ratio uses Beta as a risk measure hence considers the Systematic risk. This ratio also measures the portfolio manager's ability on the basis of rate of return performance and diversification by taking into account systemic risk of the portfolio. This ratio measures the historical performance of managed portfolio in terms of return per unit of risk (systemic risk).

$$\text{Treynor Ratio} = \frac{(R_p - R_f)}{\beta}$$

R_p = the observed average fund return;
R_f = the average risk free return;
β = coefficient as a measure of systematic risk.

$$\text{Beta} = \frac{\sum(rm - rf)*(ri - rf) - n*\sum(rm - rf)/n*\sum(ri - rf)/n}{\sum(rm - rf)^2 - n*\sum((rm - rf)/n))^2} -$$

rm = market return
ri = portfolio return
rf = risk free return
n = number of observations.

Treynor Ratio indicate that the portfolio offering the highest reward/risk (systemic risk) ratio will be the only risky portfolio in which investors will choose to invest. The assumption is that the portfolio manager has diversified away the diversifiable risk (unsystematic risk/company specific risk) and the matter of concern for the investor should be the systematic risk (non-diversifiable/market risk) only,

instead of total risk. I computed the ratio of the historical returns, in excess of the risk-free rate (T-Bill rate) to the systemic risk of the portfolio returns of the Pakistani funds for the period from 1997 to 2004. Results show (Table 2) that all funds have beta less than 1, in some cases significantly less than 1, regarding systemic risk we can conclude that all mutual funds are defensive in their movement of returns as compared to the market returns (KSE 100 index). Treynor ratio on overall basis/industry is 0.13 risk premium of per one percent of systemic risk show reasonable risk premium per one percent of systemic risk. If the diversifiable risk which is company specific is fully diversified away by the funds portfolio manager, the results of Sharpe ratio and Treynor ratio are same. Our funds are facing the diversification problem that is why the results of both ratios are not the same.

Table 2

Name of Fund/Fund Objective	Average Return 1997-2004	Beta	Treynor Ratio
Closed-end Funds			
Almeezan Mutual Fund	0.2437	0.75	0.2103
Asian Stock Fund	0.0248	0.83	–0.0714
First Capital Fund	0.0353	0.63	–0.0783
KASAB Premier Fund	0.1863	0.93	0.1093
Golden Arrow Fund	0.1996	0.71	0.1618
BSJS Balance Fund	0.2053	0.41	0.2911
Prudential Stock Fund	0.0220	0.54	–0.1162
Safeway Mutual Fund	0.1486	0.62	0.1032
Tri Star Mutual Fund	–0.1706	0.28	–0.9121
ICP (SEMF)	0.3197	0.38	0.6183
4th ICP Mutual Fund	0.3162	0.15	1.5400
Open-end Funds			
National Investment (Unit)Trust-equity Fund	0.2468	0.64	0.2572
Unit Trust of Pakistan—Balance Fund	0.1770	0.17	0.5428
Overall/Industry Position	0.1504	0.50	0.1347

Jensen Differential Measure

Jensen in 1969 introduced alpha (α) in the capital asset pricing model to measure the abnormal return of a portfolio—that is difference between the actual average return earned by a portfolio and the return that should have been earned by the portfolio given the market conditions and the risk of the portfolio.

Jensen measure is calculated as follows:

$$R_p - R_f = \alpha_p + \beta_p [R_m - R_f] + \epsilon_p$$

R_p = the observed returns of the portfolio;

R_f = the risk free returns;
R_m = the return on the market index; and
$€_p$ = the error term
α and β = are the parameters of the model.

This measure has great appeal for practitioners as has been derived from the capital market theory Jensen differential measure applied on the data of mutual funds for the period from 1998 to 2004, the result shows (Table 3) that although few funds show negative alpha but on overall basis funds industry alpha is positive alpha of 6.03. Positive alpha of the mutual funds is an indication that the funds outperform the market proxy—KSE 100 index by 0.86 percent per annum.

Table 3

Name of Fund	Alpha
Closed-end Funds	
Almeezan Mutual Fund	9.18
Asian Stock Fund	–13.06
First Capital Fund	–5.07
KASAB Premier Fund	2.67
Golden Arrow Fund	5.88
BSJS Balance Fund	8.5
Prudential Stock Fund	–11.20
Safeway Mutual Fund	1.20
Tri Star Mutual Fund	–29.13
ICP (SEMF)	19.25
4th ICP Mutual Fund	24.0
Open-end Funds	
National Investment (Unit) Trust-equity Fund	0.57
Unit Trust of Pakistan—Balance Fund	7.45
Overall Position/Industry	6.027

Results of descriptive statistics Table 4, show that in the last seven years from 1998 to 2004 mutual funds, on average earned return of 15 percent with the standard deviation of 13.8 percent, whereas market return in this period was 19.5 percent with the standard deviation of 40.5 percent which indicates the controlled risk of funds. Therefore Sharpe ratio of funds is 0.47 (as compared to market which is 0.27) risk premium of per one percent of standard deviation which represents reasonable risk premium. This investigation also proves funds better performance to the market.

Table 4

Descriptive Statistics
Descriptive Summary Statistics of Mutual Funds and KSE 100 Index Returns from 1997-2004

Description	Mutual Funds	KSE 100 Index
Mean	0.150	0.195
Standard Deviation	0.138	0.405
Standard Error	0.038	0.153
Median	0.186	0.257
Minimum	–0.171	–0.560
Maximum	0.32	0.67

CONCLUSION

This paper provides an overview of the Pakistani mutual fund industry and investigates the mutual funds risk adjusted performance using mutual fund performance evaluation models. Survivorship bias controlled data of equity and balanced funds is used for the performance evaluation of funds. Mutual fund industry in Pakistan is still in growing phase. Result shows that on overall basis, funds industry outperform the market proxy by 0.86 percent. They are investing in the market very defensively as evident from their beta. Mutual Fund industry's Sharpe ratio is 0.47 as compared to market that is 0.27 risk premium per one percent of standard deviation. Results of Jensen differential measure also show positive after cost alpha. Hence overall results suggest that mutual funds in Pakistan are able to add value. Where as results also show some of the funds under perform, these funds are facing the diversification problem. Worldwide there had been a tremendous growth in this industry; this growth in mutual funds worldwide is because of the overall growth in both the size and maturity of many foreign capital markets, we are far behind. The need of an hour is to mobilise saving of the individual investors through the offering of variety of funds (with different investment objectives). The funds should also disclose the level of risk associated with return in their annual reports for the information of investors and prospective investors. This will enable the investors to compare the level of return with the level of risk. The success of this sector depends on the performance of funds industry and the role of regulatory bodies. Excellent performance and stringent regulations will increase the popularity of mutual funds in Pakistan.

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Comments

The authors deserve appreciations for choosing this topic at a time when the mutual funds are rapidly growing worldwide because of the expansion of the growth and expansion in international capital markets. The authors also deserve appreciation for exploring a research area which can contribute towards an understanding how savings could be mobilised through mutual funds in Pakistan. The historical performance of mutual funds further highlights their importance as these funds have shown tremendous increase during the past decade. I agree with the authors that in our country, people avoid interest-based conventional schemes of investment. If alternative schemes are provided which are religiously permissible, this can certainly boost up savings in the country and mutual funds can offer such opportunity.

With these appreciations, I would like to point out some areas where authors can pay more attention while revising their paper for final submission.

It is sometimes a matter of concern how different classes of investors perceive the risk and return hence investors' perception needs to be considered as essential ingredient of the rating process. A study indicates two factors which may affect the perception of investors' risk and their investment decision; (i) index-based investment, and (ii) investors' perception of the market capitalisation. According to PACRA's sources (newspapers of September 1, 2004) 'Every mutual fund investor has a distinct set of investment objectives and preferences. It is, therefore, difficult to capture these preferences in a single yardstick for guiding investment decisions'. Hence a new methodology has been pioneered by PACRA for rating of mutual funds and asset managers in Pakistan. The first such rating was carried out in 1999. This rating provides a measure of the asset managers' capacity to master the risk inherent in asset management. It covers the assessment of the quality of business structure, independence, control and communication systems, investment process and risk management. Since the paper is about Pakistan, it may add to the value of paper if PACRA's methodology is included in the review of literature and is also considered for analysis if feasible.

PACRA divides different funds into four groups:

Income Fund: a fund that primarily invests in debt securities including money market instruments.

Equity Fund: a fund that primarily invests in equity securities.

Balanced Fund: a fund that carries a reasonable mix of equity and debt securities.

Islamic Fund: a fund that invests in Shariah compliant instruments only.

The evaluation by groups may provide absolute and risk adjusted performance of fund and is comparable evaluation of whether the fund has been managed by manager's skill or by market circumstances (see http://www.pacra.com/ for details about PACRA's detailed Asset Manager Rating Methodology).

The paper applies three popular measures of performance such as Jensen index, Treynor index and Sharpe index. It however, does not explain why two other measures in addition to the above mentioned three measures of performance have not been considered. These measures are Sharpe Differential Return and Fama's Decomposition(2). There is a need to consider the measure which may capture the effect of unexpected events as 9/11 or recent earthquake.

Another point may be helpful for the authors that they have used Tyenor measure in the analysis but the study has neither been referred in the main text nor in references. Sharpe's and Jenson's references are is also missing. Sharpe's story of noble prize also seems redundant. It can be put in the footnote. The review of literature may be made more consistent. It is also suggested that in the tables given at the end, significance of parameters should be given for a better understanding of the trends.

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