Performance Evaluation of Mutual Funds

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ABSTRACT
The aim of conducting this research is to find out the investment tendency in mutual funds of Pakistan, Conventional Vs Islamic. The study is also aimed at finding out the role of mutual fund investment in Pakistan. This study also finds out the factors effecting the investment in mutual funds and measure the performance of mutual funds through the models which are used worldwide to evaluate the investment tendency in the area of mutual funds through portfolio (Risk/Return) Sharpe Measure and Treynor Measure, to make the best point for investment through graphical representation for both conventional and Islamic, which is much easier to take better decision for investment either sell or buy.

Keywords: financial management, performance management, mutual funds
INTRODUCTION

Many individual investors make their first entrance into the universe of “real money” investing via a mutual fund. Mutual funds are the popular investment vehicles for both the small and large investor. The first mutual fund was founded in 1924 by the “Massachusetts Investors Trust.” A mutual fund is an existing portfolio of assets into which someone may invest directly. Mutual funds are technically called investment companies. Mutual fund is a professionally managed type of collective investment scheme that pools of capital from many investors and invests it in stock, bonds, short-term, long-term investment, market instruments etc. by the end of 1997 there were 9,400 mutual funds in the United States, with assets totaling $4.49 trillion (including the close-end companies). This is a 25 percent increase since the end of 1996. These are continuously extend their implication so, from 1991 to 1997 in the U.S, the value of corporate equities held by mutual funds increased ten-fold, from $309 billion in 1991 to $4.49 trillion in 1997. In contrast, direct ownership of common stock increased only three-fold during the same period, from $2.6 trillion to $7.8 trillion. In 1991, 6.4 percent of common stocks were held indirectly through mutual funds; in 1999, that figure had grown to 18 percent. In 1999, nearly half of all U.S. households owned a mutual fund. Given the size and growing importance of mutual fund investors, it is important to gain a better understanding of their behavior. The mutual fund industry in Pakistan which was introduced in 1962. National Investment Trust (NIT), launched in 1964, and Investment Corporation of Pakistan (ICP), a close-end fund launched in 1966.

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

In the last few years mutual fund industry has shown significant progress with reference to saving mobilization 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, privatization, 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 mobilize 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**

We argue that mutual fund investors use simple decision heuristics when selecting mutual funds to purchase or sell. (After presenting our empirical results, we discuss whether these heuristics affect investor welfare.) When purchasing funds, we posit that investors use a representativeness heuristic, where recent performance is deemed overly representative of a fund manager’s true ability. When selling funds, this representativeness heuristic is more than offset by investors’ reluctance to realize losses (the disposition effect).

In the early 1960s the investment community talked about risk, but there was no specific measure for that term. How investors quantify their risk about investment, the basic portfolio model was developed by Harry Markowitz (1952-1959). Markowitz showed the importance of portfolio management and to calculate the risk of portfolio (Systematic or Un-systematic).

Ross (1976-1977) to develop the Arbitrage Pricing Theory, which is most beneficiaries to achieve the maximum return with lowest risk.


H. Mendelson (1987) active performance of trading mechanism accomplishes the highest return of stocks.

Keith C. Brown & W.V. Harlow (1989) discussed the uncertainty for a rational investor; the best management of portfolio manager reduces the uncertainty through selection the active performance of funds.

Bailey & Joseph Lin (1992) evaluate the diversification benefits and further diversify of portfolio to entrance the new investor in portfolio.

Martin J, Gruber & Edwin J. Elton (1993) evaluate the performance of bond mutual funds and discussed its importance in the real world of investment. If investors rely on a representativeness
heuristic when selecting mutual funds, they will underestimate the tendency of fund performance to mean revert and thus anticipate better relative performance than is realized.

The fact that more money is invested in active than passive funds despite the superior historical performance of the latter is “prima facie” evidence that most investors believe that some mutual fund managers have the ability to consistently beat the market. Surveys also reveal that investors rely heavily on past performance when evaluating their fund purchase decisions.

Capon, Fitzsimons, and Prince (1996). The decision to sell a mutual fund is quite different from the decision to purchase a fund. Most investors hold few funds. In (1998), the average household held five mutual funds. Thus, unlike purchases where investors have thousands of funds to choose from; investors have only a handful of funds from which to choose when selling. Using the representativeness heuristic, investors would view poor fund performance as overly representative of a manager’s skill and sell losing fund investments. However, this representativeness heuristic is partially offset by investors’ desire to avoid the recognition of losses or loss aversion.

Brad M. Barber & Terrance Odean (2000) detail discussed about the performance of mutual funds return and to evaluate with other securities.


Now, the main purpose of this research is to examine the risk and return characteristics of Pakistan equity mutual funds. Risk-adjusted performance is evaluated using two evaluation techniques, i.e., Sharpe measure & Treynor measure. We suspect that investors use both the investment frame and the agency frame. Which frame dominates in the buying or selling decisions of mutual fund investors is an empirical question, which we address in this research. We provide well-built evidence that it is the disposition effect, rather than the agency frame, that determines which funds investors buy or sell.

Objectives of the Study

- Precise the risk
- Enhance the investment
- Buying & selling strategy
- To explore the best point for investment

RESEARCH METHODOLOGY AND EMPIRICAL RESULTS

The Sample

Mutual fund industry in Pakistan has witnessed significant change and growth in terms of private sector participation, divestment of public sector funds. At present we have selected 10 mutual funds; 5 are conventional and 5 are Islamic which showed their best performance in couple of years especially after the global recession. We focus on both terms of mutual funds; open-ended as well as close-ended. As we are concerned with survivorship bias controlled data, we focus on those funds
whose reflect the best possibility to investment for investor with all respect of Risk-Return characteristics.

Sources of Data
Annual reports of all funds for the period from 2006 to 2008 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 investment tendency of mutual funds are net asset value, number of certificates/shares outstanding, earning per certificate and net asset value per certificate/share, monthly returns of KSE 100 index. Monthly Treasury bill rates. Return of fund was calculated dividing return per certificate. 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 evaluate the investment tendency of mutual funds (1) Sharpe Measure (2) Treynor Measure (3) Jenson differential Measure (4) Fama French Measure. We have used first two measures excluding Jenson differential measure & Fama French Measure. The reason for not using Jenson differential measure, we calculate individual funds return and portfolio funds return excluding abnormal returns specifically in recession period because Jenson differential measure mainly use to calculate 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, and not using for Fama French Model is that for this model we needed data on book to market ratio for all companies which we have selected listed at KSE 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, 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.

In order to determine which portfolio offering the most favorable 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)
Sharpe Ratio = \( \frac{R_p - R_f}{\delta_p} \)

\( R_p \) = the observed average fund return;
\( R_f \) = the average risk free return;
\( \delta_p \) = the standard deviation of fund returns.

**Conventional**

<table>
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<th>Fund</th>
<th>Return</th>
<th>Risk free</th>
<th>SD</th>
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<tbody>
<tr>
<td>AKD</td>
<td>0.0885</td>
<td>0.09863525</td>
<td>0.390920992</td>
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<td>FAYSAL</td>
<td>0.0822</td>
<td></td>
<td>0.138816025</td>
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<tr>
<td>PAK SMF</td>
<td>0.0736</td>
<td>0.226321229</td>
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<td>PICIC</td>
<td>0.0622</td>
<td>0.096230974</td>
<td></td>
</tr>
<tr>
<td>ATLAS</td>
<td>0.0461</td>
<td></td>
<td>0.164001925</td>
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**Rank The Sharp measure**

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<tr>
<td>PAK SMF</td>
<td>-0.11084</td>
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</tr>
<tr>
<td>FAYSAL</td>
<td>-0.11876</td>
<td></td>
</tr>
<tr>
<td>ATLAS</td>
<td>-0.32033</td>
<td></td>
</tr>
<tr>
<td>PICIC</td>
<td>-0.37862</td>
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**Islamic**

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<tbody>
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<td>PAK INTL</td>
<td>0.1316</td>
<td>0.09863525</td>
<td>0.144679856</td>
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<tr>
<td>MBF</td>
<td>0.1129</td>
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<td>0.144531418</td>
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<tr>
<td>MIF</td>
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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 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).

\[
\text{Treynor Ratio} = \frac{R_p - R_f}{\beta}
\]
Rp = the observed average fund return;

\( R_f \) = the average risk free return;

\( \beta \) = coefficient as a measure of systematic risk / average portfolio beta

**CONVENTIONAL FUNDS**

Average Portfolio Return = 0.0705

Average Return of Risk Free Rate = 0.0986

Average Portfolio Beta = 0.3826

Treynor Measure = -0.07353893

**ISLAMIC FUNDS**

Average Portfolio Return = 0.0468

Average Return of Risk Free Rate = 0.0986

Average Portfolio Beta = 0.4100

Treynor Measure = -0.126478197

*Islamic Funds is better performance than Conventional funds because the Treynor Ratio of* Islamic Fund is higher than Conventional Treynor Ratio.

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.

CONCLUSION
This paper provides an overview of the Pakistani mutual fund industry and investigates the mutual funds risk adjusted investment tendency using mutual fund performance evaluation models. Survivorship bias controlled data funds are used for the evaluation of investment tendency on mutual funds. Mutual funds industry in Pakistan is still in growing phase. Overall results suggest that mutual funds in Pakistan are able to add more value either Conventional or Islamic. Islamic mutual funds perform better results as compare to conventional but still conventional funds continuously doing well to enhance their investment with sustainable returns. 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 mobilize 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 upon 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.

RECOMMENDATIONS
By conducting this research, the researcher felt many things, which should be done to upgrade the status of mutual fund investments. So, taking full advantage of this platform, the researcher wants to recommend certain things to the people who would like to do some further study upon this topic. There are also some suggestions for the authorities or the people who can do something practically for evaluate the investment tendency in mutual funds.

1st of all this study has been conducted on a small scale and it covers only best perform mutual funds in selected years. The same study could be conducted on a large scale considering all mutual funds that perform their functions either in Govt. sector or private sector.

Secondly a request to government authorities is that they should enhance this investment sector to make the best possible polices to attract the investor and to promote the value of mutual fund investment.

Thirdly as a researcher founds many techniques to promote mutual fund concept and to make paramount ratio among the funds selection. Awareness should be developed in investor about this investment approach, the manger who mange this investment portfolio should be select the greatest combination of funds with analysis all the parameters of risk-return and also calculate or manage the level of risk, analysis of the current financial position, economic conditions and future forecast of economic conditions.
**Portfolio Allocation based on risk levels**

**LOW-LEVEL RISK CONSERVATIVE PORTFOLIO**
50% Gov’t. Treasury Bill Funds
50% Money Market Funds

**MODERATE-LEVEL RISK CAUTIOUSLY AGGRESSIVE PORTFOLIO**
40% Growth & Income Funds
30% Gov’t. Bond Funds
20% Growth Funds
10% Index Funds

**HIGH-LEVEL RISK AGGRESSIVE PORTFOLIO**
25% Aggressive Growth Funds
25% International Funds
25% Sector Funds
15% High Yield Bond Funds

**MEASURING RISK**

As you become a more experienced investor, you may want to examine other, more technical, measures to determine risk factors in your choice of funds.

Beta coefficient is a measure of the fund’s risk relative to the overall market. For example, a fund with a beta coefficient of 2.0 means that it is likely to move twice as fast as the general market – both up and down. High beta coefficients and high risk go hand in hand.

Alpha coefficient is a comparison of a fund’s risk (beta) to its performance. A positive alpha is good. For example, an alpha of 10.5 means that the fund manager earned an average of 10.5% more each year than might be expected, given the fund’s beta.

Interest rates and inflation rates are other factors that can be used to measure investment risks. For instance, when interest rates are going up, bond funds will usually be declining, and vice versa. The rate of inflation has a decided effect on funds that are sensitive to inflation factors; for example,
funds that have large holdings in automaker stocks, real estate securities, and the like will be adversely affected by inflationary cycles.

R-Square factor is a measure of the fund’s risk as related to its degree of diversification.

The information is supplied here merely to acquaint you with the terminology in the event you should wish to delve more deeply into complex risk factors. The more common risk factors previously described are all you really need to know for now, and perhaps for years to come.

One caveat is in order, however. There is no such thing as an absolutely 100% risk-free investment. Even funds with excellent 10 year past performance records must include in their literature and prospectuses the following disclaimer: “Past performance is no guarantee of future results.” However, by not exceeding your risk tolerance level, you can achieve a wide safety and comfort zone with mutual fund portfolios such as those shown in Figure above.

REFERENCES

12) Gupta, O. P., and Amitabh Gupta (2001) Research Methodology for Performance
13) Evaluation of Mutual Funds. Chandigarh: University Business School, Panjab University,