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Mutual Funds Performance Evaluation: A Case of Pakistani Mutual Funds Industry in Years 2008-10

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Introduction - Basic mind set of any type of Investor is to manage the risk and maximize the returns. The common phenomenon in managing the risk is, not to put all the eggs in one basket in financial markets and this phenomenon is known as diversification. The diversification required choosing which baskets to put your eggs in; and most importantly how much? This question and lack of expertise to invest in the financial markets given birth to the mutual funds, along with the entrepreneurial mind set of the financial market experts. The financial market experts found a gap and translated it in to the win-win situation for those who doesn't exactly know when and where to invest and minimizing the risk through efficient management of funds through large portfolios, having enough capital to divest.

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MUTUAL FUNDS PERFORMANCE EVALUATION A CASE OF PAKISTANI MUTUAL FUNDS INDUSTRY IN YEARS 2008-10

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Mutual Funds Performance Evaluation: A Case of Pakistani Mutual Funds Industry in Years 2008-10

Bilal Ahmad Abbasi ^α & Dr. Syed Muhammad Amir Shah ^σ

I. INTRODUCTION

Basic mind set of any type of Investor is to manage the risk and maximize the returns. The common phenomenon in managing the risk is, not to put all the eggs in one basket in financial markets and this phenomenon is known as diversification. The diversification required choosing which baskets to put your eggs in; and most importantly how much? This question and lack of expertise to invest in the financial markets given birth to the mutual funds, along with the entrepreneurial mind set of the financial market experts. The financial market experts found a gap and translated it in to the win-win situation for those who doesn't exactly know when and where to invest and minimizing the risk through efficient management of funds through large portfolios, having enough capital to divest.

Another rationale of mutual funds incorporation is to provide the opportunity to those small investors who has the savings but doesn't have the sufficient time to spare for multiple income sources, to monitor or to keep an active eye on the financial market dynamics.

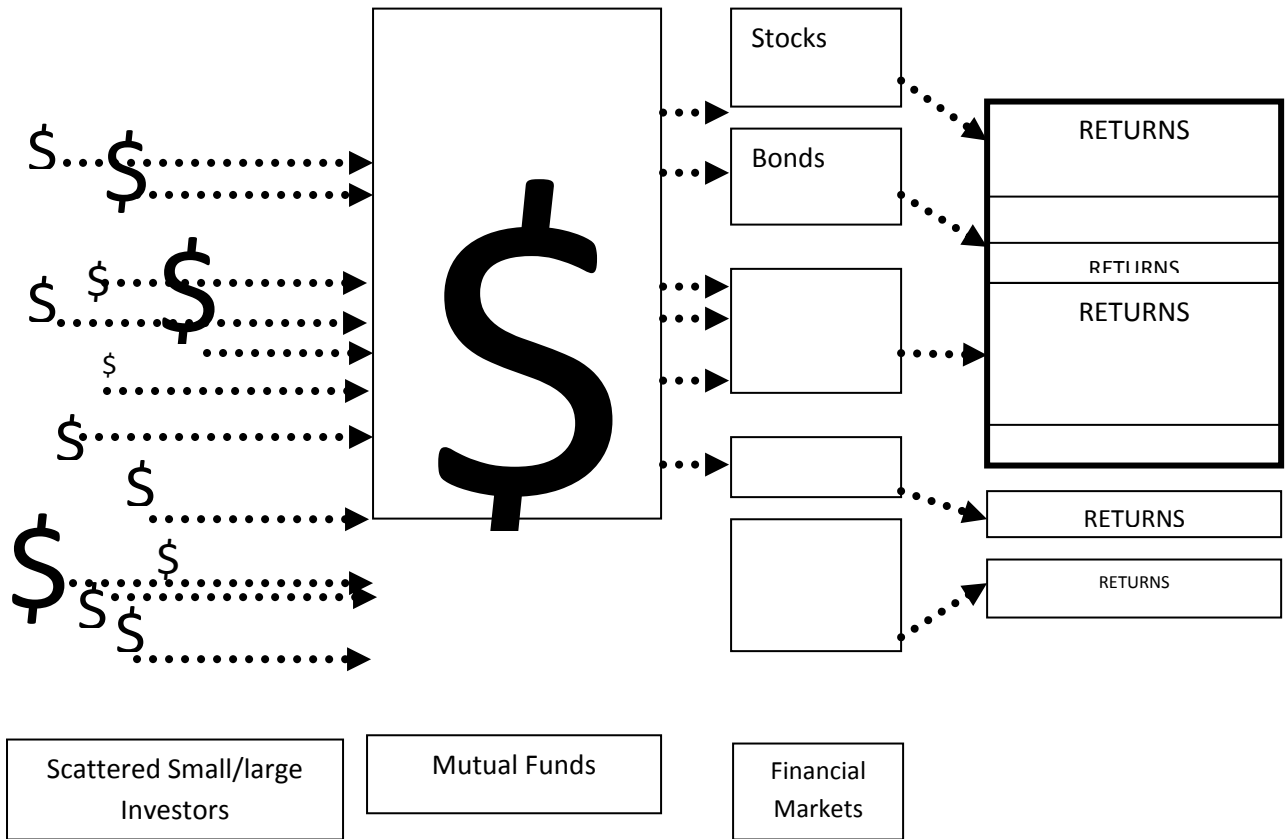
A portfolio can have the possibility of reducing the risk through diversification. Effective and efficient diversification required substantial funds to be invested. The Gap between the undersized fund holders and the financial expertise been filled with the introduction of the mutual funds. Financial experts required the sizeable funds to minimize the risk through portfolio diversification and the undersized fund holders required the financial experts to maximize the earnings on their funds. This need based joint win-win situation shaped the introduction of the mutual fund markets.

A team of skilled people manages the funds of savers and in turn invest these funds in different financial market securities e.g stocks, bonds, and other profitable businesses. This team of professionals is called fund managers and are responsible for investment decisions. The evaluation of this need base multiparty phenomena endow with risk minimization led towards the attraction for the institutions of a new way to minimize the risk,

prior to introduction of mutual funds in the middle of the 20th century the risk was measured on the rate of returns. The introduction of the mutual funds created the art of controlling unsystematic risk through diversified portfolio management.

The phenomena is quite simple that all the small saving holders put their money in one kitty (Fund Managers) and then a kitty with a sizeable worth can afford to invest in riskier and non-riskier financial market products managing a moderate return or even higher returns from the market returns. Instead putting all eggs with a small saving in one basket and exposing to high risk of breaking all the eggs, or alternatively putting the investment at very low risk and low returns by investing in the low risk securities. Let the right person do his/her job and decide how much risk to take on bases of his/her expertise. Deprivation of the need of financial experts (sizeable funds to divest) and small savers (lack of expertise) ended up to reduce the risk and maximize the profits through mutual funds. The following sketch summaries and elaborates the matter discussed above

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Mutual funds are categorized based upon (1) fund structure as open end and closed end funds (2) fund objective as Islamic Funds, Capital Protected Funds, Fund of Funds, Asset Allocation Funds, Equity Funds and Income Funds

The introduction of National Investment Trust (NIT) gave birth to mutual funds market in Pakistan in 1962. The second baby of this market was Investment Corporation of Pakistan (ICP), which established in 1966. Up to 2001 the overall growth of this sector was insignificant i-e there was only 2 open ended funds, 36 closed ended and 12 AMC's. After that due privatization and liberalization policy of Govt. this sector showed significant growth in first decade of this century i-e in 2010 we have in total 135 funds including 105 open ended funds and 28 AMC's.

This study will measure the performance of Pakistani mutual fund industry during last three years (2008 to 2010). As the mutual fund industry of Pakistan expanded with some pace in first decade of this century and due to this reason the performance evaluation of this industry become critical and hot topic. In this regard few efforts has been made in different time periods.

II. LITERATURE REVIEW

Generally mutual funds are used to bridge the gap that exists between investor and investment

avenues available at the stock markets and this fact has made their performance measurement a frequently studied topic in investment circles of most countries. Prior to 1960 investors used to estimate a portfolio's outcome more or less completely on the basis of one factor i-e rate of return. The element of risk was known to them but they were not capable to enumerate the risk. In early 1960s, portfolio theory taught them the art of quantifying the risk.

Friend, Brown, Herman and Vericks (1962) were among the first one's who came up with practical study on measurement of mutual funds outcomes, however the standard tools developed to measure risk adjusted mutual funds return by Treynor (1965), Sharpe (1966) and Jensen (1968) are considered the Bible on evolution of mutual funds performance. They compared risk-adjusted returns of the mutual funds with that of a bench mark market portfolio while using CAPM. Sharpe and Jensen concluded that mutual funds are performing below par and their returns are not enough to recompense investor against different types of mutual fund charges.

Friend and Vickers (1965) concluded that generally mutual funds have not performed better than an indiscriminate portfolio.

In 1968 a new statistical gauge to measure mutual funds performance was launched. This measure estimates the impact of manager's forecasting ability on

fund's return. For this purpose a study was conducted on ten years data (1955-1964) and concluded that mutual funds are providing better returns than any other investment alternative (Jensen 1968).

Investment timing and security selection were pointed out by earlier researches as a skill to assess performance of mutual funds and first time this was done in sixties. There is low positive relationship between the funds and the market portfolio in Pakistani market (Sipra, 2006) as compared to high positive relationship in case of most USA studies. It shows that, in case of Pakistan there is poor diversification and inclusion of guaranteed return securities in the portfolio of the funds (Afza and Rauf, 2009).

Johan McDonald (1974) studied the link between stated fund objectives and their risk return features and is of opinion that generally, the fund managers appears to keep their portfolios within the stated risk.

Richard A Ippolito (1989) has an argument that mutual funds generally offer better returns, but these returns are counteracted by diversified expenses and load charges. Mutual funds trading costs are significantly negatively connected with return performance (Chalmers, Edelen, Kadlec, 1999).

Barua, Raghunathan, and Varma (1991) assessed the performance of Master Share using Sharpe, Jensen, and Treynor's measure on data ranging from 1987 to 1991 and concluded the mutual funds perform better than the market but worse as compared to capital market line.

After studying data from 2001 to 2008; **Khalid, Abbas & Shah** commented that because of unpredictable environment the outcomes of closed end mutual funds in below par in Pakistani market. Shah and Hijazi (2005) commented that this sector is able to add value. By working on quarterly data of 43 open ended funds from 1999 to 2006 of Pakistani Mutual Fund market, Afzal and Rauf (2009) investigated the impact of factors like asset size, expense ratio, 12B-1, load, turnover, lagged return, age and liquidity on mutual funds outcome.

Redman, Gullet, Manakyan (2000) studied international mutual funds in three different time periods and commented that adding global mutual funds to local mutual funds portfolio will increase the benefits of diversification. Doncel, Grau, Otamendi, Saina (2011) in their study of European mutual funds have challenged traditional measures of mutual funds persistence and claimed that persistence is lower or non-existent. There is likely agency conflict between mutual fund investor and mutual fund companies (Chevalier, Ellison 1997)

Shah and Hijazi (2005) concluded in their research which was based on data ranging from 1997 to 2004 that Pakistani mutual fund sector has potential to grow. In present study, we will see whether this potential got capitalized or not, by measuring performance of the

industry in last three years i.e 2008 to 2010

III. HYPOTHESES

Ho: Mutual Funds perform better against equity market performance in Pakistan.

H1: Mutual Funds do not perform better against equity market performance in Pakistan.

IV. RESEARCH METHODOLOGY

a) *The Sample*

The present mutual funds industry of Pakistan consists of 135 funds, out of these 105 are open ended funds, 21 are closed ended and 9 are pension funds. These funds are managed by 28 asset management companies. Using convenience sampling, a sample of 30 mutual funds was made for this study because all necessary information about all mutual funds is not available for whole 3 years period (2008 to 2010) of this study.

b) *Sources of Data*

The 3 years daily net asset value (NAV) of the funds in sample got downloaded for official website of trading body of mutual funds industry of Pakistan, named the mutual funds association of Pakistan. The daily returns of the funds derived from difference of daily NAVs of the fund; in turn average is used to find quarterly, yearly and overall mutual funds returns. The corresponding market's (KSE 100 index) prices got downloaded from Yahoo.com. The return of the market got extracted from differences of the market daily closing prices. The data of risk free security (t-bills) was collected from State Bank of Pakistan published statistics.

V. METHODOLOGY AND EMPIRICAL RESULTS

In this study following three yardsticks are used to measure the performance of mutual fund industry of Pakistan. (1) The Sharpe Model (2) The Treynor Model and (3) Jensen Differential measure

a) *The Sharpe Model*

William Forsyth Sharpe developed this model in 1966; it is also called reward to variability ratio. It is used to measure the excess return per unit of risk in an investment asset. The ratio of returns above the risk free returns to standard deviation is calculated; the higher the result of this ratio for the portfolio, the more the fund is suitable for investment and vice versa. Sharpe constructed following ratio, generally known as Sharpe Ratio

$$\text{Sharpe Ratio} = (R_p - R_f) / \sigma_p$$

R_p = the average fund return;

R_f = the average risk free return

σ_p = the standard deviation of fund returns

This ratio reveals that how much investor remunerated against the risk taken and efficiency of fund managers that how much returns they generated and how well they diversified their portfolios. If excess returns per unit of risk of two assets are being compared, the asset with higher return/risk ratio number will be preferred over the other.

The study calculates the Sharpe ratio on daily historical returns of 30 mutual funds for 3 years period i-

e 2008 to 2010. The one year treasury bills rates are used as risk-free rate. The results shown in Table 1 reveal that there is even not a single fund out of thirty sampled funds with positive returns. This phenomenon is evident of funds managers' helplessness to generator reasonable returns on funds and their incapacity to diversify in winning manner. As a whole Sharpe ratio i-e -119.32 is also less than market ratio i-e 0.0010.

| Table 1 | | | |
|---|-----------------------------------|---------------------------|---------------------|
| Name of Fund | Average Return 2008 - 2010 | Standard deviation | Sharpe Ratio |
| JS Aggressive Asset Allocation | -0.0012 | 0.0035 | -34.85 |
| National Investment Unit Trust | -0.0009 | 0.0023 | -52.96 |
| Faysal Balanced Growth Fund | -0.0159 | 0.0548 | -2.50 |
| Faysal Income & Growth Fund | 0.0001 | 0.0006 | -220.28 |
| Crosby Dragon Fund | -0.0002 | 0.0041 | -29.80 |
| Atlas Income Fund | 0.0000 | 0.0005 | -248.40 |
| Atlas Stock Market Fund | -0.0003 | 0.0029 | -42.61 |
| Unit Trust of Pakistan | -0.0003 | 0.0019 | -65.28 |
| United Stock Advantage Fund | -0.0007 | 0.0038 | -32.09 |
| JS Income Fund | -0.0002 | 0.0007 | -173.37 |
| JS KSE 30 Index Fund | -0.0005 | 0.0046 | -26.44 |
| Pakistan Income Fund | 0.0000 | 0.0003 | -248.40 |
| Pakistan Capital Market Fund | -0.0004 | 0.0019 | -63.54 |
| United Growth & Income Fund | -0.0001 | 0.0004 | -302.62 |
| United Stock Advantage Fund | -0.0007 | 0.0038 | -32.35 |
| Meezan Islamic Fund | 0.0000 | 0.0035 | -35.10 |
| Dawood Money Market Fund | -0.0004 | 0.0025 | -248.40 |
| Alfalah GHP Value Fund | -0.0042 | 0.0158 | -7.95 |
| Meezan Islamic Income Fund | 0.0000 | 0.0004 | -276.66 |
| MetroBank Pakistan Sovereign Fund (12/12) | -0.0002 | 0.0011 | -248.40 |
| HBL Stock Fund | -0.0018 | 0.0082 | -14.93 |
| HBL Income Fund | 0.0000 | 0.0004 | -282.73 |
| HBL Multi Asset Fund | -0.0016 | 0.0068 | -18.00 |
| Askari Asset Allocation Fund | -0.0026 | 0.0056 | -21.99 |
| Askari Income Fund | -0.0001 | 0.0008 | -158.99 |
| IGI Income Fund | -0.0001 | 0.0005 | -244.80 |
| Alfalah GHP Income Multiplier Fund | -0.0001 | 0.0006 | -189.05 |
| United Islamic Income Fund | 0.0000 | 0.0005 | -264.84 |
| MCB Dynamic Stock Fund | -0.0020 | 0.0100 | -12.30 |
| KASB Stock Market Fund | -0.0005 | 0.0029 | -41.90 |
| United Composite Islamic Fund | -0.0002 | 0.0021 | -57.40 |

b) *The Treynor Model*

In contrast to Sharpe who considered total risk, Treynor considered only type of risk i-e Systematic risk. According to him the unsystematic risk is associated to a particular company and can be wiped out through diversification, and fund managers are supposed to do so. However the Systematic is associated with market and cannot be wiped out through diversification. Treynor ratio is used to measure return per unit of systematic risk. The mutual fund that provides higher return per unit of systematic risk will be favored over the other mutual

funds. The systematic risk calculated through "beta". The Treynor ratio is

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

R_p = the average fund return;

R_f = the average risk free return;

β = coefficient as a measure of systematic risk.

| Table 2 | | | |
|---|---|-------------|----------------------|
| Name of Fund | Average return of Fund 2008 - 2010 | Beta | Treynor Ratio |
| JS Aggressive Asset Allocation | -0.0012 | 0.0135 | -9.07 |
| National Investment Unit Trust | -0.0009 | 0.0171 | -7.14 |
| Faysal Balanced Growth Fund | -0.0159 | 0.5399 | -0.25 |
| Faysal Income & Growth Fund | 0.0001 | -0.0003 | -1.00 |
| Crosby Dragon Fund | -0.0002 | 0.0385 | -3.16 |
| Atlas Income Fund | 0.0000 | 0.0058 | -20.78 |
| Atlas Stock Market Fund | -0.0003 | 0.0312 | -3.90 |
| Unit Trust of Pakistan | -0.0003 | 0.0167 | -7.27 |
| United Stock Advantage Fund | -0.0007 | 0.0377 | -0.32 |
| JS Income Fund | -0.0002 | 0.0014 | -90.03 |
| JS KSE 30 Index Fund | -0.0005 | 0.0446 | -2.73 |
| Pakistan Income Fund | 0.0000 | -0.0019 | -1.00 |
| Pakistan Capital Market Fund | -0.0004 | 0.0147 | -8.29 |
| United Growth & Income Fund | -0.0001 | 0.0029 | -42.30 |
| United Stock Advantage Fund | -0.0007 | 0.0370 | -3.30 |
| Meezan Islamic Fund | 0.0000 | 0.0504 | -2.41 |
| Dawood Money Market Fund | -0.0004 | 0.0281 | -4.34 |
| Alfalah GHP Value Fund | -0.0042 | 0.1590 | -0.79 |
| Meezan Islamic Income Fund | 0.0000 | 0.0041 | -29.34 |
| MetroBank Pakistan Sovereign Fund (12/12) | -0.0002 | 0.0000 | -3110.30 |
| HBL Stock Fund | -0.0018 | 0.1014 | -1.21 |
| HBL Income Fund | 0.0000 | 0.0047 | -25.65 |
| HBL Multi Asset Fund | -0.0016 | 0.0808 | -1.52 |
| Askari Asset Allocation Fund | -0.0026 | 0.0054 | -23.00 |
| Askari Income Fund | -0.0001 | 0.0077 | -15.79 |
| IGI Income Fund | -0.0001 | 0.0013 | -92.17 |
| Alfalah GHP Income Multiplier Fund | -0.0001 | 0.0010 | -116.62 |
| United Islamic Income Fund | 0.0000 | 0.0031 | -39.00 |
| MCB Dynamic Stock Fund | -0.0020 | 0.1206 | -1.02 |
| KASB Stock Market Fund | -0.0005 | 0.0374 | -3.26 |
| United Composite Islamic Fund | -0.0002 | 0.0253 | -4.81 |

After computing the ratio of returns in excess of risk free return to systematic risk, the results are shown in Table 2. The results of the Table 2 depicts that the beta of all funds is considerably below than 1, which shows defensive approach of mutual funds. The results of Sharpe and Treynor are not same, which reveals the fact that mutual funds are not fully diversified against the unsystematic risk.

c) Jensen Differential Measure

Michael Jensen came up with notion of alpha (a) in 1969, and this differential measure, which is derived from capital market theory; is used to find out abnormal returns of a security over the notional expected return. This means the difference between actual returns of a fund and the return that should have been earned by the fund in a given market conditions and risk. Jensen measure is calculated as follows

$$R_p - R_f = \alpha + \beta [R_m - R_f] + \epsilon_p$$

R_p = the observed returns of the portfolio;

R_f = the risk free returns;

R_m = the return on the market index; and

ϵ_p = the error term

α and β = are the parameters of the model.

In this study Jensen measure has been applied on three years daily returns of mutual funds and results are shown in Table 3. One third of the sampled mutual funds have negative Alpha, which means they did not manage to out perform market proxy. The rest two third sampled funds have Zero Alpha, showing that neither funds nor market proxy can out perform each other. There is not a single fund with positive Alpha. The overall Alpha is also negative i.e. -0.03020

| Name of Fund | Alpha |
|---|--------------|
| JS Aggressive Asset Allocation | -0.12 |
| National Investment Unit Trust | -0.12 |
| Faysal Balanced Growth Fund | -0.07 |
| Faysal Income & Growth Fund | -0.12 |
| Crosby Dragon Fund | -0.12 |
| Atlas Income Fund | -0.12 |
| Atlas Stock Market Fund | 0.00 |
| Unit Trust of Pakistan | 0.00 |
| United Stock Advantage Fund | -0.11 |
| JS Income Fund | 0.00 |
| JS KSE 30 Index Fund | 0.00 |
| Pakistan Income Fund | -0.12 |
| Pakistan Capital Market Fund | 0.00 |
| United Growth & Income Fund | 0.00 |
| United Stock Advantage Fund | 0.00 |
| Meezan Islamic Fund | 0.00 |
| Dawood Money Market Fund | 0.00 |
| Alfalah GHP Value Fund | 0.00 |
| Meezan Islamic Income Fund | 0.00 |
| MetroBank Pakistan Sovereign Fund (12/12) | 0.00 |
| HBL Stock Fund | 0.00 |
| HBL Income Fund | 0.00 |
| HBL Multi Asset Fund | 0.00 |
| Askari Asset Allocation Fund | 0.00 |
| IGI Income Fund | 0.00 |
| Alfalah GHP Income Multiplier Fund | 0.00 |
| United Islamic Income Fund | 0.00 |
| MCB Dynamic Stock Fund | 0.00 |
| KASB Stock Market Fund | 0.00 |
| United Composite Islamic Fund | 0.00 |

The results of descriptive statistics are shown in Table 4; it's clear from the results that mutual funds earned a negative return of 0.1132 percent with a standard deviation of 0.00289, in comparison KSE 100 index earned a rate 0.1011 percent with a standard

deviation of 0.0637 during last three years period i-e 2008 to 2010. This fact indicates the market and funds remained failed to generate reasonable returns but funds looks more helpless in this regard.

| Descriptive Statistics | | |
|---|---------------------|----------------------|
| Descriptive Summary Statistics of Mutual Funds and KSE 100 Returns from 2008 to 2010 | | |
| Description | Mutual Funds | KSE 100 Index |
| Mean | -0.00113 | 0.00101 |
| Median | -0.00026 | 0.01329 |
| Maximum | 0.00009 | 0.09312 |
| Minimum | -0.01586 | -0.12027 |
| Standard Deviation | 0.00289 | 0.06371 |

VI. CONCLUSION

The paper explains the basic philosophy of mutual funds and gives an outline of Pakistani asset management industry and its performance. It evaluates the last three years performance of Pakistani mutual funds using (1) Sharpe (2) Treynor and (3) Jensen

evaluation models. The asset management industry of Pakistan is still in its infancy stage and unfortunately it has to face tough macroeconomic challenges, which are affecting financial market in general and mutual funds market in particular. This fact shows the ugly picture of mutual funds performance. On the whole, the mutual fund industry could not manage to out perform the

market alternate. The market alternate also performed poorly but slightly better than mutual funds. The one reason of mutual funds lagging behind than market is defensive investing approach of fund managers. This fact is apparent from Beta of funds which is well below than 1 in all cases. As a whole Sharpe ratio is -119.32, and this is less than market ratio of 0.0010. The excess return to systematic ratio of Treynor is also negative in all 31 sampled funds. We have also not a single positive Jensen Alpha, the results of all three measures depicts the below par performance of mutual funds. The main reasons of this poor performance are adverse macroeconomic conditions of the country, mainly terrorism, insecurity and inflation, defensive investing aptitude of fund managers, lack of giant efforts by the assets management companies and regularity authorities to promote and project mutual funds in order to build trust of investor and last but not the least is poor diversification. This sector has potential which has not been cashed so far, for future success of this industry, it's necessary to make efforts to popularize this sector among masses, so that saving can be mobilized and new avenues for investment should be explored. Convenience sampling and three years data are limitations of this study, a future study can use a better sampling technique and extended period data for its research.

REFERENCES RÉFÉRENCES REFERENCIAS

1. Irwin Friend and Douglas Vickers, "Portfolio Selection and Investment Performance" *The Journal of Finance*. Vol. XX, No.03, Sept. 1965, 391-415.
2. Ippolito, Richard A., "On studies of mutual funds performance". 1962-1991, *Financial Analyst Journal*, January-February, 43, 1993.
3. Jhon G Mc Donald, "Objectives and Performance of Mutual Funds1960-1967". *Journal of Financial and Qualitative Analysis* June 311-333,1974.
4. Jensen,M.C., *The Performance of Mutual Funds 1945-64*". *Journal of Finance*. Vol.23, No.2, May, 389-314, 1968.
5. Barua, S.K.,Raghunathan, V. and Verma J.R. "Master Share: A Bonanza for large investors" *Vikalpa*. January -March, 29-34,1991.
6. Sipra, N.,"Mutual Funds Performance in Pakistan 1995-2004", CMER Working Paper No.06-45, March 2006.
7. Afzal,T. and Rauf A., "Performance Evaluation of Pakistani Mutual Fund", *Pakistan Economic and Social Review*,Vol.47, No.2(winter 2009),199-214
8. Chalmers, John M.R., Edelen,Roger M., Kadlec, Gregory B., "Transaction-Cost Expenditure and Relative Performance of Mutual Funds" *Wharton Financial Institutions Center*, November 23, 1999.
9. Shah,A., Hijazi, T., "Performance Evaluation of Mutual Funds in Pakistan", *The Pakistan Development Review*,44,4(winter 2005), 863-876.
10. Khalid,.S.I, Abbas, Z., Shah,A., "Performance Evaluation of Closed End Mutual Funds by Investment Objectives in Pakistan's Economy" *International Conference on Applied Computer sciences*, pp 96-107.
11. Doncel, L.M., Grau, P.,Otamendi, J.,Sainz, J., "The Truth About Mutual Funds Across Europe", *Applied Economics Letters*,18,7,687-692.
12. Redman,A.L., Gullett, N.S,Manakyan, H., " The Performance of Global and Mutual Fund Performance", *Journal of Financial and Strategic Decisions*, Vol.13, No.01, Spring 2000.
13. Chevalier,J., Ellison, G., "Risk Taking by Mutual Funds as a Response to Incentives", *Journal of Political Economy*, Vol. 105, no 06, 1997.
14. Friend, I., F.E. Brown, E.S. Herman and D. Vickers, *A Study of Mutual Funds*, U.S. Government Printing Office, 1962: