

Full Length Research Paper

Performance comparison of mutual funds in Pakistan

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This study was conducted to analyze and compare the performance of different types of mutual funds in Pakistan, and concluded that equity funds outperform income funds. These funds are further classified into broker backed and institutional backed funds for detail analysis. Findings showed that within equity funds, broker backed category shows better performance than institutional funds. On the other hand, among income funds, institutional funds are outperforming broker backed funds. Further, it has been found empirically that fund managers are able to time their investments with the conditions in the market, and possesses significant timing ability. This study further concludes that equity fund managers possess significant market timing ability and institutions funds managers are able to time their investments, but brokers operated funds did not show market timing ability.

Key words: Mutual funds, Pakistan, performance.

INTRODUCTION

Mutual funds today are one of the most studied areas in developed countries due to their efficient and effective role in reducing risk and enhancing return through professional management of funds. These funds boost the incomes of small investors as well as reduce their exposure to unsystematic risks which needs to be taken into consideration for accurate results.

The funds have become extremely popular over the last 20 years. The same funds which were once an obscure instrument are now part of daily lives. In United States, more than 80 million people invest in mutual funds which make a total of trillions of dollars invested in America alone. To many people, investing in mutual funds is just buying and holding them instead of letting cash just stay in bank without any sort of return, and that is the whole understanding of their funds. The returns of the funds are not the true measure of their performance unless risk factors are accounted for in the returns. The investors should look for funds which have highest return with lowest risks to maximize their gain.

Despite the important role funds have played in different countries, the fund industry had not progressed here in Pakistan, irrespective of the fact that first fund NIT

(National Investment Trust) was launched in 1962. All the progress made till date has been the efforts and industry friendly policies that have come during the last five years and if we refer to the statistics, it has been 25 to 30% annual growth, but still, it is growing on a slow pace. As per the mutual fund association of Pakistan (MuFap) there have been 28 asset management companies in the year ending June 30, 2008 and 69 open ended mutual funds. Although this industry has not progressed in Pakistan as it had in other countries, however, growth has been picking the pace in the last few years.

Pakistan's mutual fund industry has taken a giant leap forward over the last decade with the rising number of asset management companies, and size and number of funds. Moreover, this sector now represents a strong presence of well-known financial groups, who bring professional expertise, risk management, large distribution networks and innovative product offerings putting the industry at par with its regional peers.

Investor confidence remains high on the back of superior profitability delivered in an environment of fairness and transparency, through an effective regulatory support and framework designed by the securities and exchange commission of Pakistan (SECP) and the Mutual Fund Association of Pakistan (MUFAP). The future for this industry holds tremendous potential and the regulating authorities are committed to the mission of

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of raising the professional standards of the industry, improving public awareness and advancing the interests of all the stakeholders. The major benefit that this Industry is now capitalizing on is the level of diversification the funds provide. With the level of education and awareness, the individual investors are more concerned to have a secured exposure of various instruments and mutual funds are just doing that.

The analysis in this paper is motivated by the fact that to date, very little evidence on Pakistani mutual fund industry exists. Also, the studies conducted in the past have restricted their analysis only to the very conventional measures of Sharpe Ratio, Treynor Ratio and Jensen's Measure.

The main contribution of this study is to provide a thorough analysis of the mutual fund industry of Pakistan on the dimensions of performance, selectivity, timing, and persistence. The aspects of selectivity, timing, and persistence have never been gauged for the Pakistani mutual industry before. The study concludes that equity funds are better in their performance compared to income funds. However, within equity funds, broker backed category shows better performance and in income funds, institutional funds are outperforming rest of income funds. And it has been found out in our study that fund managers in Pakistan possess significant market timing ability.

LITERATURE REVIEW

Various research papers relevant to our study are discussed. Most of the literature is taken from foreign studies conducted on mutual funds because in Pakistan, not much work has been done on this industry.

Pakistan was the pioneer in the field of mutual funds in the South Asia Region when it launched National Investment Trust (NIT), an open-ended mutual fund in 1962. It was followed by the establishment of Investment Corporation of Pakistan (ICP) in 1966, which launched a series of close-ended mutual funds. Both NIT and ICP were established in the public sector. However, it subsequently failed to maintain the tempo of the initiatives taken in the field until early nineties, mainly due to multiple reasons including frequent changes in economic policies, high rates of alternative investment such as National Saving Schemes (NSS), capital outflow, limited investment options, profusion of risk free investment options in Government securities, lack of awareness among the general public about collective investment schemes, lack of aggressive marketing and distribution network.

The private sector played a major role in attracting investments in mutual funds. The major reason behind this success was the professional management offered by the sector and their attractive marketing techniques. The mutual fund industry grew by an average of 57%

since 2003, which was a remarkable result of the efforts put in by private sector for growth of fund industry of Pakistan. The total size of the industry was 292 billion rupees as at June 30th, 2007. It increased in 2008; however, the total size of industry is 269.221 billion for the first quarter of year 2009. Also, the percentage contribution of various asset management companies (AMCs) towards the total asset under management as in year 2009 has varied. A total of 10 funds have been launched from year 2008 till date, which makes a total of 69 funds at present as against less than 10 funds in 2002 which increased to 32 in 2006, and subsequently to 59 in 2007.

A great number of studies are found on American and European fund industry. The scope of studies is not restricted to evaluating performance with few ratios but a wide research is done on various related topics in funds to have a thorough understanding of the subject.

The Wharton School of Finance and Commerce (1962) carried out the first comprehensive study covering various aspects of the US mutual fund industry. This study was specifically done to evaluate performance of funds. The study found out that half the funds performed better and the other half worse than the unmanaged portfolio.

Sharpe (1966) was acknowledged for his work on performance evaluation. He proved the simple fact that if management is sound but securities are incorrectly selected, there will be major differences in fund returns. Sharpe's (1966) article is among the earliest research to evaluate the performance of mutual funds using some of the concepts from modern portfolio theory. Sharpe posits that if sound mutual fund management requires the selection of incorrectly priced securities, effective diversification and selection of a portfolio in a given risk class, then there is ample room for major and persistent difference in fund returns.

Jensen (1968) developed an absolute measure of performance based upon the capital asset pricing model. The excess returns were regressed upon the excess market returns to estimate the characteristic line of the regression model. Jensen reported that mutual funds did not appear to achieve abnormal performance (in the sense of his risk/return measure) when transaction costs were taken into account. Thus the result of the study lent support, to the strong form of efficient market hypothesis.

Fama (1972) developed a methodology for evaluating investment performance of managed portfolios. Fama suggested that return on a portfolio could be subdivided into two parts; the return for security selection (selectivity) and return for bearing risk (risk). Gupta (1974) found that almost all-mutual fund subgroups outperformed the market when DJIA was used and all, but income and balanced groups, when SandP 500 was used.

Blake and Timmermann (1998) carried out a research on performance evaluation of UK mutual funds and found that the average UK equity fund appears to underperform by around 1.8% per annum on a risk-adjusted basis. Malkiel and Radisich (2001) found 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 that there are two reasons for the excess performance by passive funds: management fee and trading costs.

Otten and Bams (2002) carried out a study on European mutual funds. The results suggested that European funds with small capitalization are able to add value. The paper found strong persistence of performance in UK mutual funds, but little or no persistence for countries as France, Germany and Italy. It was also determined that UK funds showed positive Jensen alpha value for returns.

Market timing ability has also been one of the important topics for researchers analyzing the mutual fund industry. For example, Treynor and Mazuy (1966), using a quadratic equation, worked on the hypothesis for no timing ability. They rejected the hypothesis of not possessing timing ability. Lee and Rehman (1990) found that out of 93 US mutual funds, 17% show significant timing ability and 15% show a positive and significant Jensen measure. In fact, 10 funds (11%) have both significant timing and selection abilities. Ferson and Shadt (1996) argue that the true market timing abilities of fund managers, if there are any, should not merely come from publicly available information but also from something that is superior to the lagged public information variables. To address this issue, they propose conditional market timing measures.

The work of Jiang et al. (2004) seems to be the only study that reports the overall significant timing ability in a broad sample of mutual fund managers. Using refined portfolio-based measures derived from the standard Treynor and Mazuy (1966) or Henriksson and Merton (1981) models, they find that US equity funds all have significant timing abilities. They show that, among all the domestic equity funds, the aggressive growth funds are most active in timing the market, followed by growth funds, growth and income funds, with balanced funds as the least active.

The study conducted by Shah and Hijazi (2005) showed that funds industry on average outperform the market proxy by 0.86%. On the whole, the paper suggested that mutual funds in Pakistan are able to add value. Some of the funds however do underperform in the results due to diversification problems.

Sipra (2006) conducted a study on Pakistani fund market. The paper made use of equity funds present in market at that time. Equity funds outperformed the market and produced positive return after deducting costs. The funds also have the potential to add value due to present lack of diversification indicated by the difference in Sharpe and Treynor ratios. The proportion of fund which are able to beat the market in a given time period is low and no fund was able to beat the market consistently, which indicate the semi strong form of market efficiency. The paper made use of Sharpe ratio,

treynor ratio, and Jensen's alpha. The funds outperformed the market on these measures.

In detail, the aim of conducting this particular research followed by the hypotheses that have been developed for this research in order to get to the results is discussed.

AIM OF THE STUDY

The major aim of conducting this study is to explore Pakistani fund industry on which no prior work has been done despite that the foundation of this industry was laid back about 48 years ago in 1962. Yet, with such a long history, no literature is found on Pakistani market except for the two papers that have been written which too have restricted their scope of study to two or three ratios.

Thus this study will be a thorough analysis of performance evaluation and comparison of mutual funds on the dimensions of performance and timing, the aspects which have not been previously looked into for Pakistani industry. Not only the performance will be analyzed and evaluated, but also the study will dig deeper into a particular direction of performance in evaluating the performance of institutional and broker operated funds and making a comparison as to which category of funds perform better and the reasons behind the better performance of the particular category. No author has so far made a comparison of the two categories of funds.

HYPOTHESES DEVELOPMENT

Certain hypotheses have been developed in order to conduct this research. The aim is to proceed for various tests on data sample with the target of getting to a conclusion based on the following hypotheses of this study:

H₁: Equity funds perform better than income funds

This hypothesis is based on the general understanding and literature that with high risks comes high returns, the equity funds are high risk funds being functioning in stock market which is volatile and risky. Whereas, income funds invest in fix income instrument which are a low risk area for investment but returns are low as well. It has been seen that equity funds outperform market proxy (Gupta, 1974; Sipra, 2006).

This hypothesis is further broken down into sub hypothesis for detailed analysis. The two sub hypotheses are:

H_{1a}: Among equity funds broker operated funds perform better than institutional funds.

H_{1b}: Among income funds institutional funds perform better than broker operated funds.

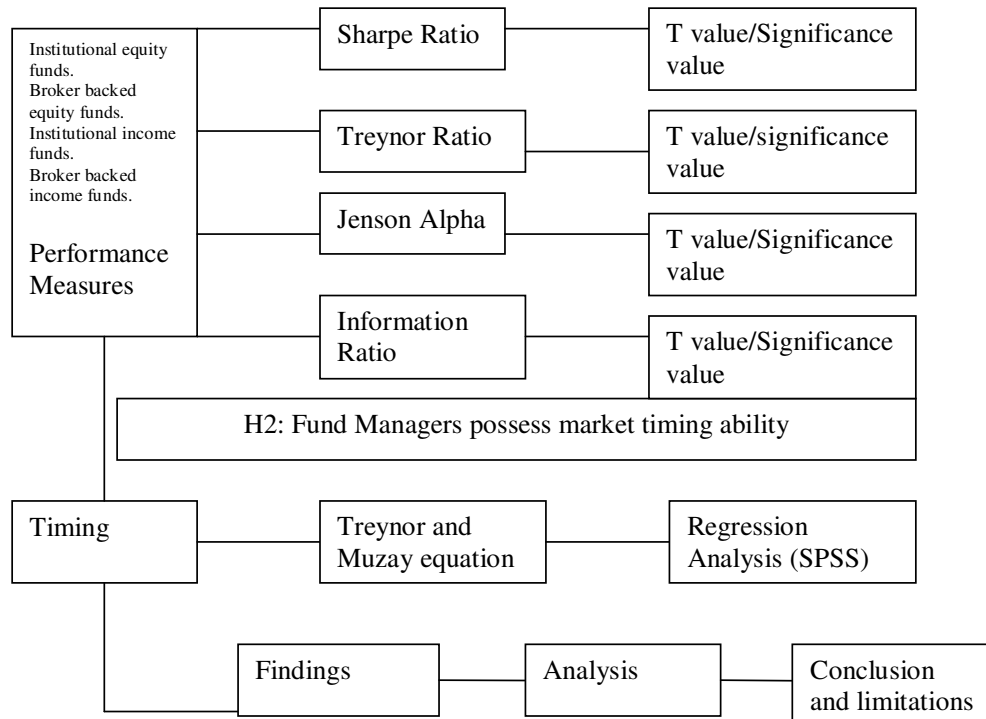


Figure 1. H₁; Equity funds perform better than income funds.

H₂: Fund manager possess market timing ability

This hypothesis has been developed after reading the literature on market timing ability of fund managers (Treyner and Muazey, 1966).

The paper proves that most of the fund managers possess market timing ability (Lee and Rehman, 1990). H₂ has also been divided into sub hypothesis for further investigation.

H_{2a}: Equity fund managers possess timing ability as compared to income fund managers.

H_{2b}: Broker backed funds managers possess market timing ability compared to institutional funds managers.

These two sub hypotheses have been designed to check the timing abilities within the categories of different fund types.

Hypothesis framework

Figure 1 describes the main hypotheses for this study and the stepwise flow of the study once the hypotheses are developed.

RESEARCH DESIGN AND METHODOLOGY

This is an exploratory research and is being conducted for the first time. The hypothesis is developed with intent of getting results that can be useful for further elaboration on this topic, and for an in

depth knowledge. Various tests will be applied to get findings, thus making it a pure quantitative research. This study will be analyzing relationships among large number of variables in single study. Furthermore, it will be a cross sectional study and extent of researcher interference will be minimal.

Variables

The research paper will be covering fund performance from the broker and institutional perspective to get to a conclusion as to which category performs better. Similarly, a detailed analysis will be performed to see if the fund managers in Pakistan possess the market timing ability in our industry.

Independent variables

The independent variables determined for the study are: fund return and credit rating. Funds returns are calculated from their net asset values that are calculated on monthly basis for our research. Further, the credit rating is also an independent variable.

Dependent variables

The dependent variables for the study are: returns of KSE; bond market; fund performance. The returns of KSE-100 index are the dependent variable (Sipra, 2006). Furthermore, fund performance will be a variable depending on fund returns, thus making it a dependent variable.

Sample selection

Sample will be selected based on the ranking of companies as per

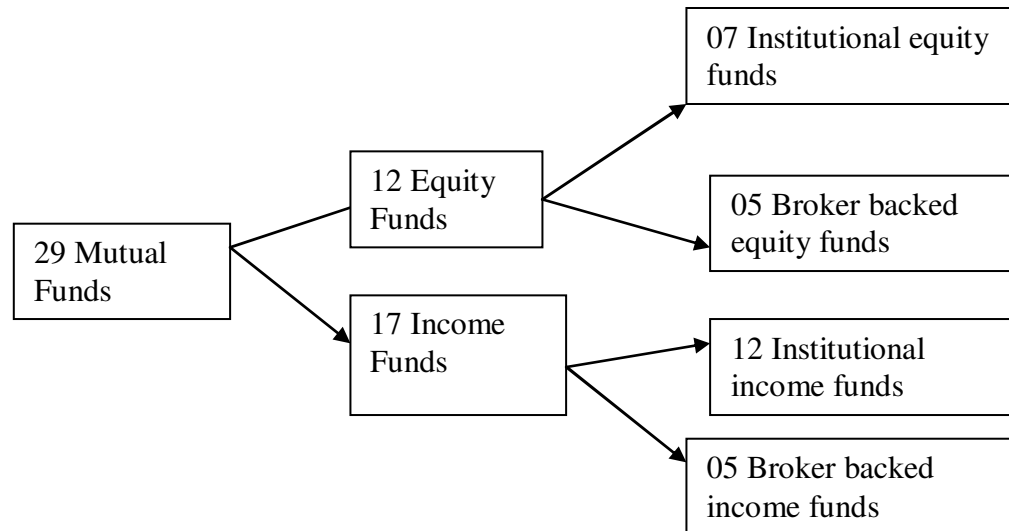


Figure 2. Stepwise flow of the study.

Pakistan Credit Rating Agency (PACRA) ratings.

The order of companies as per PACRA rating is given in All the income and equity funds for the top 15 companies will be taken as per PACRA rating for research purposes that have data available for 3 and more years will be

included in the study in order to get reliable findings.

The entire sample consists of 29 funds. They are further broken down into equity and income funds which are 12 and 17 respectively. Each type of fund is further broken down into two fund categories of institutional and income funds. The step wise flow and number of funds in each broken down type and step are given in the Figure 2.

Time duration

The fund data will be collected for a five year period from year 2005 to 2009. The year will be taken from July till June making the 5th year ending on June 30, 2009. The data will further be collected on per month basis. Because most of the funds do not have a history of more than five years, therefore, a period of five years has been selected for the study.

Sources of data

Data has been gathered from both primary as well as secondary sources that were available. The net asset values (NAV's) which is the value of fund portfolio less liabilities and is calculated on daily basis will be used primarily for calculations.

The values will be taken from the fund sites from their NAV history.

Various other data needed were be taken from various sources including assets management companies of the funds, websites of various funds, state bank's website, and Pakistan credit rating agency (PACRA) website, Securities and Exchange Commission of Pakistan (SECP), concerned individuals, and internet.

Value of risk free rate (R_f) which is the 6 month T-bill rate was taken from state bank website and the remaining values were taken from Jahangir Siddiqui brokerage house JS Global. Market risk rate for equity funds will be calculated based on opening and closing values from KSE-100 index and Karachi Stocks whereas for income

funds, KIBOR rate has been taken from State Bank of Pakistan (SBP).

Performance

There are four models which are used worldwide for the performance evaluation of mutual funds: Sharpe measure; Treynor measure; Jensen differential measure; information ratio.

Sharpe measure

Sharpe (1966) conceived a composite measure to evaluate the performance of mutual funds. This ratio was developed to measure risk-adjusted performance. The Sharpe ratio is calculated by subtracting the risk-free rate which is the 6 month T-bill rate in our study from the rate of return for a portfolio, and dividing the result by the standard deviation of the portfolio returns. The Sharpe ratio formula is:

$$\text{Sharpe ratio} = (R_p - R_f) / \delta P$$

where R_p is the observed average fund return where the average has been calculated through the geometric mean (GM); R_f = the average (calculated through GM) risk free return; δp = 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 higher the Sharpe ratio, the better the performance. With the help of this measure, one is determining the deviations from the market determined price of risk as defined by capital market line (CML).

Treynor measure

The Treynor measure is similar to the Sharpe ratio in that it is a ratio of excess return per unit of risk except that in this case, the risk is defined as the non-diversifiable risk. In other words, it gives

us the measure of return per unit of market risk or systematic risk that the investment earns.

Thus, Treynor measure is: $(R_p - R_f) / \beta_p$

Where R_p = the observed average fund return where the average has been calculated through the geometric mean (GM); R_f = the average (calculated through GM) risk free return; β_p = the non-diversifiable risk (systematic risk) of the portfolio.

Treynor introduced the concept of the security market line, which defines the relationship between portfolio returns and market rates of returns, whereby the slope of the line measures the relative volatility between the portfolio and the market (as represented by beta). The beta coefficient is simply the volatility measure of a stock, portfolio, or the market itself. The greater the line's slope, the better the risk-return tradeoff.

Jensen's alpha

Jensen's measure, called Jensen's alpha, is the difference of the portfolio return from the return predicted by the CAPM. It is based on the ideas contained in CAPM, and is like Treynor measure, which measures how well a portfolio manager does at dealing with systematic risk. R_m is the return on KSE-100 index, which is the market portfolio in our analysis. The terms within the square brackets equal the expected return for the portfolio being considered according to CAPM.

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

Alpha (α) measures the degree to which managers are earning significant returns after accounting for market risks as measured by beta (β). If the manager is earning a fair return for a given portfolio's systematic risk, then α would be zero. The positive α indicates good performance whereas a negative α indicates a poor performance. Jensen alpha allows us to statistically test whether what the return manager earns is significantly more (or less) than what is expected using the CAPM. The validity of Jensen measure is tied to the validity of CAPM.

Information measure

Information ratio also known as an appraisal ratio, measures a portfolio's average return in excess of benchmark portfolio divided by the standard deviation of this excess return. Formally, the information ratio (IR) is calculated as:

$$IR_j = \frac{\bar{R}_j - \bar{R}_b}{\sigma_{ER}} = \frac{\overline{ER}_j}{\sigma_{ER}}$$

Where: IR_j = the information ratio for portfolio j ; R_j = the average return for portfolio j during the specified time period; R_b = the average return for the benchmark portfolio during the period; σ_{ER} = the standard deviation of the excess return during the period.

To interpret IR, notice that the mean excess return in the numerator represents the investor's ability to use her talent and information to generate a portfolio return that differs from that of the benchmark against which her performance is being measured (for example, the KSE-100 index). Conversely, the denominator measures the amount of residual (unsystematic) risk that the investor incurred in pursuit of those excess returns.

The coefficient σ_{ER} is sometimes called the tracking error of the investor's portfolio and it is the "cost" of active management in the sense that fluctuations in the periodic ER_j values represent random

noise beyond an investor's control that could hurt performance. Thus, the IR can be viewed as a benefit-to-cost ratio that assesses the quality of the investor's information deflated by (1998) has noted that the Sharpe ratio is a special case of the IR where the risk-free asset is the benchmark portfolio, despite the fact that this interpretation violates the spirit of a statistic that should have a value of zero for any passively managed portfolio. More importantly, Goodwin (1998), also showed that if excess portfolio returns are estimated with historical data using the same single-factor regression equation used to compute Jensen's alpha, the IR simplifies to:

$$IR_j = \frac{\alpha_j}{\sigma_e}$$

Where: e = the standard error of the regression.

Timing

Market timing involves shift of funds between a market index portfolio and a safe asset such as treasury bills or a money market fund, depending on whether the market as a whole is expected to outperform the safe asset. In practice however, most managers do not shift fully between t-bills and the market. The formula for determining market timing ability of fund manager is given thus which is also termed as Treynor and Mazuy equation:

$$R_{pt} - R_{ft} = \alpha_p + \beta_p (R_{mt} - R_{ft}) + C_p (R_{mt} - R_{ft})^2 + \epsilon$$

Where R_{pt} = Geometric return on the fund; R_{ft} = Geometric mean of risk free return on 6 month t bill; α_p = Jensen alpha of portfolio fund; β_p = Beta of fund; R_{mt} = Market return (GM); ϵ = Error.

If α_p is positive and significantly different from zero, we identify selection skills, as in the security market line model, and if C_p is positive and significant, the mutual fund manager possesses timing ability.

The examples of market timing are switching between sectors, switching between stocks and bonds or switching between stocks and risk free treasury bills. The effect of correctly timing the market would be to increase portfolio beta in up markets (market return exceed risk free return) and decrease it in down markets (market return is less than risk free return).

Tools

The SPSS software and Microsoft excel have been used for calculation of various models to get to proper results. Data analyses tools in Microsoft excel have been frequently used for calculation of beta and regression analysis. Further tests will be run on SPSS to attain final values.

RESULTS

Results that have been achieved by applying various performance measures are focused on. The results are followed by a comprehensive discussion based on these results.

Analysis for H_1

In order to check the significance of findings, various

Table 1. Descriptive statistics for mutual funds 2005 to 2009 (H_1).

Model	Mean	Standard deviation	F	Significance
Sharpe ratio				
Equity funds	0.310	0.144	5.777**	0.023
Income funds	-0.217	0.745		
Treynor ratio				
Equity funds	0.726	0.265	1.336	0.258
Income funds	-0.001	0.110		
Jenson alpha				
Equity funds	1.086	2.055	4.532**	0.043
Income funds	0.304	0.131		
Information ratio				
Equity funds	0.387	0.176	4.336**	0.047
Income funds	0.088	0.473		

* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$.

analyses have been conducted on the entire fund sample. Table 1 gives the descriptive statistics of the entire sample of 29 funds.

The table gives the mean, standard deviations, F statistics and significance level for all the funds ratios. This is done to check the significance of hypothesis one (H_1).

The mean return for Sharpe ratio of equity funds is 0.310 whereas, the mean of income funds came out to be negative (-0.217). The difference is significance at 95% level.

The Treynor measure mean for equity funds is 0.726 whereas, it is negative -0.001 for income funds but these values are not significantly different.

The Jenson alpha mean is 1.086 for equity fund as against the mean of 0.304 for income funds and this difference is significantly different with significance of 0.043 at 95% confidence level.

The information ratio mean for equity funds has come out to be 0.387 whereas for income funds, it is 0.088 which is again, significantly different with value of 0.047 at 95% confidence level.

This table and results thus go in line with the earlier findings that equity funds are doing better than income funds (Gupta, 1974). The reasons for equity funds doing better can be the high risk high return factor. There is high risk in stock market but the returns also are high unlike the income funds in which there is minimal risk factor but the returns then also turn out to be low.

The stock market is characterized by the trade-off between risk and return. The higher the risk the investor is willing and able to take, the higher the potential rewards from the investment. Thus the equity funds perform high.

H_{1a}: Among equity funds, broker backed funds perform better than institutional funds

Table 2 (Panel A) shows the descriptive statistics for the two categories of equity and income funds. Taking the two categories of equity funds and the ratios, the mean for broker backed category in equity funds turns out to be 0.297 whereas, it is slightly higher for institutional funds with the mean of 0.318.

The mean value of Treynor ratio for broker backed equity funds is 0.161 higher than institutional funds mean of 0.009; however, the deviation or risk taken by income funds is higher. Similarly, the mean for broker operated funds category is higher for both the Jenson alpha and information ratio. Thus the broker backed equity funds are performing better than the institutional funds category. The reason for such a result are the dominance the brokers have over stock market and their know how to the market movements. Brokers are directly dealing in stock market and thus know better when it comes to equity funds which are investing in stock market. Institutional funds on the other hand, have not been dealing in stock market instruments so may not be having that strong insight as brokers have.

H_{1b}: Among income funds, institutional funds perform better than broker operated funds

The results in Table 2 (Panel B) are giving the descriptive statistics for income funds categories. Both the broker backed and institutional funds give a negative mean value for Sharpe ratio. The broker category gives mean of -0.236 whereas, institution gives mean of -0.211 which

Table 2. Descriptive statistics for categories of equity and income funds.

Model	Panel A : Equity fund (H _{1a})		Panel B: Income fund (H _{1b})	
	Mean (Std.dev)	F (Sig.)	Mean (Std. dev.)	F (Sig.)
Sharpe ratio				
Broker	0.297 (0.222)	0.58 (0.814)	-0.236 (0.353)	0.003 (0.954)
Institution	0.318 (0.068)		-0.211 (0.842)	
Treynor ratio				
Broker	0.161 (0.207)	0.954 (0.352)	-0.003 (0.155)	0.12 (0.734)
Institution	0.009 (0.298)		-0.001 (0.010)	
Jenson alpha				
Broker	1.918 (3.173)	1.464 (0.254)	-0.220 (0.080)	0.828 (0.377)
Institution	0.492 (0.205)		0.465 (0.142)	
Information ratio				
Broker	0.404 (0.205)	0.075 (0.789)	0.214 (0.423)	0.359 (0.558)
Institution	0.374 (0.169)		0.049 (0.473)	

is not significantly different. Similarly, there is a negative difference for both categories mean in Treynor ratio but it is again not significant.

The Jenson alpha mean for broker category is -0.220 whereas for institution it is 0.465 which is a huge difference while for information ratio both means are positive.

The institutional category of income funds has shown a better mean though not significant. But the means are better in ratios. The reason being income funds invest in fixed income instrument and financial institutional are dealing in that since long time. Their experience and insight in fixed income instrument is more than brokers who have been dealing in equity markets.

Analysis for H₂: Fund managers possesses market timing ability

Market timing refers to a manager's ability to correctly outguess the future market movement and to optimally allocate funds among different asset classes. Security selection, on the other hand, refers to the ability to successfully forecast company specific events and, thus, to pick undervalued securities and outperform passive benchmark portfolios.

Table 3 gives the results for market timing ability of fund managers for entire sample. The timing ability is measured from Treynor and Mazuey equation. Alpha, B ($R_m - R_f$) and $(R_m - R_f)^2$ are independent variables, whereas $R_p - R_f$ is the only dependent variable. The regression analysis has been run in order to get to the results

The entire sample of 29 funds has been taken to check if fund managers in Pakistan possess market timing

ability. We can see that the beta value of $(R_m - R_f)^2$ is 0.116 and is statistically significant with value of 0.003 at a 95% confidence level, thus proving that managers in Pakistani Mutual Funds do show market timing ability and significant security selection ($\alpha = 0.946$).

H_{2a}: Equity fund managers possess timing ability as compared to Income fund managers

Regression analysis has also been run to check if the timing ability is possessed by the equity fund managers or the income fund managers. Table 4 (Panel A) shows the results of regression analysis run for equity funds. The beta value is 0.057 and alpha value is 1.54 which is positive thus proving the timing and security selection ability possessed by equity fund managers.

The results in Table 4 (Panel B) show the regression run for the sample of income fund managers to check the market timing ability.

The value turns out to be -0.082 showing that timing ability is not possessed by managers as the value is negative. It is however not significant.

H_{2b}: Broker funds managers possess market timing ability compared to institutional fund managers

Table 5 (Panel A) is regression for broker operated funds to see market timing ability. It is evident from the table that the managers do not possess market timing ability as the value is negative. This value is however not significant.

Table 3. Regression analysis for timing ability (entire sample) (H_2).

Variable	Beta	t-value	Significant
Constant		-1.107	0.279
Alpha	0.946***	26.981	0.000
B ($R_m - R_f$)	-0.004	-0.116	0.909
Cp ($R_m - R_f$) ²	0.116***	3.271	0.003
R ²	0.972		
F Statistics	286.579		

***p < 0.01.

Table 4. Regression analysis for market timing ability (equity and income fund managers; H_{2a}).

Variable	Panel A: Equity fund managers	Panel B: Income fund managers
	Beta (t-value)	Beta (t-value)
Constant	-0.273 (-1.273)	-0.502(-5.717)
Alpha	1.54*** (5.57)	0.811*** (5.752)
B ($R_m - R_f$)	0.557* (2.016)	-0.161 (-1.14)
Cp ($R_m - R_f$) ²	0.057 (1.362)	-0.082 (-0.612)
R ²	0.986	0.766
F Statistics	191.276***	14.162***

*p < 0.10; **p < 0.05; ***p < 0.01.

Table 5. Regression analysis for market timing ability (broker and institutional fund managers; H_{2b}).

Variable	Panel A: Broker fund managers	Panel B: Institutional fund managers
	Beta (t-value)	Beta (t-value)
Constant	0.498 (0.682)	-0.49 (-0.019)
Alpha	0.992*** (22.582)	0.36*** (3.197)
B ($R_m - R_f$)	-0.032 (-0.584)	-0.036 (-0.506)
Cp ($R_m - R_f$) ²	-0.019 (-0.35)	0.648*** (5.739)
R ²	0.991	0.918
F-Statistics	177.245***	59.961***

*p < 0.10; **p < 0.05; ***p < 0.01.

Table 5 (Panel B) gives the result of regression analysis run on institutional funds. We can see that the value of 0.648 clearly indicates that market timing ability is possessed by the managers and it is significant at the 99% confidence level.

After going through various set of finding, we can say that the fund manager's possess market timing ability taking the entire sample into consideration. However, on individual scales, the equity fund managers possess ability to time their investment where as it was not the case in income funds.

In the categorical findings, the brokers have not been possessing the timing, whereas, institutions have given a high value and at a confidence level of 99%. This means that institutions are major contributors towards the market

timing ability of entire sample. The reason for institutions to possess the market timing is their vast experience and professional management and organized system. Brokers on other hand are relatively new as compared to institutions that have been in operations for years. They have been dominating stock market but the systems are not as organized as institutions that have year's old history, huge networks and professionalism

DISCUSSION

The results of the study which is "performance comparison of mutual funds in Pakistan" are that all the equity funds have been able to beat the market showing

consistent positive results thus performing better than income funds. The higher returns with higher risk can be the main attributer towards a better performance of equity funds on the whole.

The equity and income funds have also been outperforming their benchmark which is consistent with the study of Gupta (1974) who found that almost all-mutual fund subgroups outperformed the market. Also, it is consistent with the study conducted by Shah and Hijazi (2005) showed that funds industry on average outperform the market proxy by 0.86%. On the whole, the paper suggested that mutual funds in Pakistan are able to add value. Some of the funds however do under perform in the results due to diversification problems.

With the categories that are the main subject of our study, the broker operated funds gave a better performance than their institutional equity funds. The brokers have a very in depth knowledge of the movements of stock markets and the lucrative stocks and sectors because this is the core business of stock brokers. Now if they have launched their funds it is equally acceptable fact that their equity knowledge base is more than anyone and thus the equity funds will certainly better off than rest of equity funds categories. Currently, there are four brokers that have been dominating the stock market and thus, are key players when it comes to equities investment decisions. Whereas, it is an equally buyable fact that financial institutions funds will do well in income funds because it is the core business of banks. That is why more number of income funds are found with institution and thus having a high cash position.

The market timing ability has also been area of this study. Regression run on the entire sample of 29 funds show that fund possess market timing ability which is in consistence with the study of Treynor and Mazuy (1966) using a quadratic equation who worked on the hypothesis for no timing ability. They rejected the hypothesis of not possessing timing ability. Thus the study proved that funds possess timing ability and so is proved by our sample results.

The literature available on market timing ability for US and UK market show that funds do possess market timing ability like Lee and Rehman (1990) found that out of 93 US mutual funds, 17% show significant timing ability and 15% show a positive and significant Jensen measure. In fact, 10 funds (11%) have both significant timing and selection abilities. Our findings have come out to be in consistence with the literature available.

Secondly analyzing the equity and income funds for market timing ability, the results proved that equity fund managers possess market timing ability. This result again came in consistence with the studied literature work of Jiang et al. (2004) that reports the overall significant timing ability in a broad sample of mutual fund managers. Using refined portfolio-based measures derived from the standard Treynor and Mazuy (1966), and Henriksson and Merton (1981) models, they found out that US equity

funds all have significant timing abilities. The income fund managers however did not turn out to be showing market timing ability. Similarly, the broker backed sample also did not possess the market timing ability. Institutional funds sample possessed market timing ability and also gave a significant result. This means they are major contributor to the significance that came out in the entire sample studied for timing. Now, one is pushed to think why institutions are showing a significant market timing ability. The answer is very obvious because the financial institutions have been in market for years so they have developed a professional management and organized systems. There is a strong network developed by institutions due to time they have been in market and more professional individuals as fund managers.

The institutions have huge number of funds as against the brokers and it is apparent that they have professionals and resources to manage such a great number of funds. Similarly, people trust with institutional funds is more because of the credibility the institutions have developed with their clients in form of bank dealings and making them more experienced in this field. The entire idea of having market timing ability is to have greater exposure to the market when it is moving up and lower exposure when it is declining. A manager, who consistently increases the fund's exposure to equities just before stock market upturns, will show returns that beat the market. And our fund managers that possess market timing ability just do that.

CONCLUSION AND LIMITATIONS

The study has explored various areas of Pakistani fund industry. The comparison of performance of equity and income funds has been made and equity funds have turned out to be better performing in terms of their returns. These funds can be linked to high risk and high return theory. The broker backed funds perform better in equity fund type whereas institutional funds perform better in income funds. Both of these are based on test results and the fact that brokers main job is dealing in stock market and stocks whereas financial institutions deal in income and money market.

The fund managers in Pakistan possess market timing ability and are able to time their investment decisions with the market movements in order to get best results. They are able to gain greater exposure when the market is moving up and reduce the exposure when it is showing lower trend.

Both equity and income funds possess market timing ability but it is significant in institutions due to their vast experience and dealings. The professional management is also one of the factors of their good performance. Most of the fund managers of income funds are CFA qualified professional managing the fund.

There are certain limitations attached with the study

which if solved, can give a more accurate picture of fund industry of Pakistan. The time period of this research is five years which may not truly represent the performance of funds before this period and affect the results. Newly started funds performance may be over or under estimated due to short span of time.

Lack of data availability was of the major limitation of this paper. Most of the funds in Pakistan do not have a long history, so not much data is available. And in certain cases, data is not being given, which was a barrier. There has not been much work done on mutual fund industry of Pakistan so no tangible research material and findings are present to help in literature survey with reference to Pakistan.

Lack of sufficient benchmarks available to do a more productive research is another major limitation. For example, there is no bench mark present for the style adjusted analysis which can help in an even better analysis. Limited market penetration also limits the scope of research in fund industry and therefore, proves as a hurdle to research on the topic.

Book-to-market ratio is not available for the mutual funds because of which the Fama French Measure cannot be used to gauge performance. This is another important tool for measuring performance and has been used in a number of articles published in the West.

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