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Equity Mutual Funds Performance in Pakistan: Risk & Return Analysis

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ABSTRACT

The purpose of this study is to find the performance of the Pakistani mutual fund industry. The performance of these funds can be considered to be very good relative to the market portfolio. This research study is focused on Secondary source of data. Analysis apply will require to investigate the related matters of research, which includes the related data of profitability ratios comprising of 12 Asset management companies (AMCs) annual reports in different time period from 1999 to 2009 using yearly returns of the different Mutual Funds. The multiple regression method is used in this paper for the performance of the funds. The results of this research explain that Market Portfolio (MP), Pakistan Investment Bonds (PIBs) are having positive and significant impact on Yearly Return (YR) of different Mutual Funds but dividends (DIV) is having negative and insignificant impact on yearly return of mutual funds, so it is recommended that it is still in early days of mutual funds in Pakistani market. The dividend had always a negative impact on the yearly returns (YR) of mutual funds because the Net Asset Value (NAV) is decreasing after giving dividend at the end of the fiscal year. This study will also add to the body of knowledge as it can be a useful reference to other researchers who are keen to carry out studies on the performance of other types of Mutual Funds in Pakistan.

Key Words: Yearly Return of Mutual Funds, Dividends, Market Portfolio, Pakistan Investment Bonds, and Net Asset Value.

INTRODUCTION

The investors choose Mutual Funds based on different characteristics. This study explores the equity mutual funds performance in Pakistan with the risk and return analysis. The first chapter

starts off with a background description concerning the history of mutual funds and their increased importance in Pakistan to get an understanding for the choice of subject. Further on, it continues with a problem discussion to create knowledge about the relevance of the thesis. The background and the problem discussion lead to a problem definition and a purpose. From this the purpose and research question have emerged.

More than past year's many investors have gradually turned to mutual funds to save for retirement and other fiscal goals. Mutual funds offer the advantages of diversification and proficient management; nevertheless, as with any investment choice, mutual funds engage risk. Fees and taxes will moderate the fund's returns, so it is important that before investing that you understand the risks implicated in mutual fund investing as well as the advantage and disadvantage of mutual funds.¹

A mutual fund recital is one of the most commonly studied topics in investments area in most countries. The reason for this attractiveness is availability of data and the importance of mutual funds as vehicles for speculation in the stock market for both individuals and institutions. Mutual funds usually provide three benefits to their investors. First, they reduce the risk of investing in the stock market by diversification. Second, they provide professional management by experts in the stock market. And third, by pooling of speculation funds, they allow small investors to hold a diversified assortment.

Despite the fact that the first and third benefits of mutual funds have been usually accepted as real benefits, the second benefit of having access to financial expertise has been questioned expansively in finance literature. A vast amount of literature exists in finance on the topic of market effectiveness that recommends passive speculation and suggests that paying

¹ (<http://www.sec.gov/index.htm>)

money to so-called speculation professionals is a fool's game. As evidence they have tested again and again the performance of these professionals, such as mutual funds, and found substantiation to support their hypothesis of market efficiency.

Stock mutual funds or stock funds (also known as equity funds) are funds that spend in equities, popularly known as stocks. Younger investors, who are more inclined towards higher earnings with increased risk, prefer stock funds to more conservative bond funds, and money market funds. Stock mutual funds look for long-term growth with capital appreciation, while short term revenue comes from dividends or interest. There are certain funds that aim at specific market sectors that might be growing, but this also increases the risk level in investment.

Mutual Funds were introduced in Pakistan in the year 1962, with the public submission of NIT (National Investment Trust) was introduced which is an open-end mutual fund. The formation of the ICP (Investment Corporation of Pakistan) in 1966 offered a series of close-ended mutual funds, which was subsequently divided into two lots in June 2000 and was then privatized. In the private sector, there are forty-three open ended and twenty-two closed-ended mutual funds. Although Pakistani mutual funds have experienced a astonishing growth for the period of under study (1999- 2005) with net asset value grown from Rs. 16 billion to Rs. 137 billion till June 30, 2005, which also necessitate to determine whether the growth in this sector is a real one or is just a effervesce.

Nevertheless, comparing Pakistani mutual fund industry internationally it is of a tiny size. According to Khorana *et al.* (2005), Pakistan holds only 1.33% mutual fund assets to primary securities, in dissimilarity to India with 3.7%, Malaysia 4.0%, Hong Kong 20.3%, and South Korea 16.5%. These facts point toward that mutual fund industry in Pakistan has noteworthy room to grow. Paid-up capital may look extensive but the size is still too small as compared to

international standards. The claim of management efficacy by asset management companies has been an ancient issue in finance literature and researchers have repetitively evaluated management efficiency of mutual funds.

Jensen, 1964; Shawky, 1982; Bogle, 1991; Pushner *et al.*, 1999; George, 2001) have examined management effectiveness by comparing risk-adjusted returns of mutual funds with those of unmanaged indexes. The results of these studies point toward that in general mutual funds have not been able to go one better than the market. Management efficacy has been also evaluated by many studies through exploratory relationship of fund returns with its elected attributes (Ippolito, 1992; Tan *et al.*, 1997; Gallagher, 2003; Joseph, 2004). These studies have generally taken attributes as fund size, fund operating expense and turnover ratio in order to show their strong pressure over open-ended fund returns. The effectiveness of open-ended mutual funds should be evaluated as Pakistan's fund industry has a notable room to grow further, which currently is smaller compared to other developing countries. Therefore, looking at the probable of the industry and the need of the small investors, it is important to assess the relationship of fund returns with its selected attributes in Pakistan.

Mutual fund is a collective investment scheme, which specializes in investing a pool of money collected from many investors for the purpose of investing in securities such as stocks, bonds, money market instruments and similar assets. A fund's portfolio is structured and maintained to match the investment objectives stated in its catalog.

One of the main advantages of funds is that they give small investors admittance to competently managed, diversified portfolios of equities, bonds and other securities, which would be moderately difficult (if not impossible) to generate with a small amount of capital. The income earned through these investments and the capital appreciations realized are shared by its

unit holders in magnitude to the number of units owned by them. Open-ended fund units are issued and can typically be purchased or exchanged as needed at the fund's current net asset value² (NAV) per share whereas closed-end funds are listed on the stock exchanges and can be generously traded.

LITERATURE REVIEW:

The following paragraphs demonstrate the literature recapitulation concisely with respect to investment styles, mutual fund performance measures and past empirical studies on performance of mutual funds:

Investment Styles:

Sharpe (1988, 1992) classified the range of mutual fund investment styles into two broad categories:

- The characteristics-based style analysis (such as value, growth, small-cap, large-cap, income, balanced etc.), which is based on portfolio's and benchmark's current and/or historical holdings and its security weights and is considered to be the most powerful and comprehensive approach.
- The returns-based style analysis is a statistical method that was originally proposed by William F. Sharpe under the name of effective asset mix and attribution analysis. Multi-index model is the principle of this approach, which suggests that a portfolio's return is associated linearly to the return on a series of factors.

² Net asset value is the market value of net assets (total liabilities deducted from total assets) as a ratio of the number of outstanding shares.

Chan et al (2002) in their article to analyze whether differences in style are associated with differences in performance have adopted a style classification based on two dimensions: market capitalization and value-growth orientation. The classification adopted by them draws upon the academic research on behavior of stock returns and is used in a great extent in the mutual fund industry.

Brown and Goetzmann (1997), Carhart (1997) depict that size and value help in explaining the divergences in fund performance. Grinbalt and Titman (1989), Daniel et al. (1997) used an alternative approach based on fund's holdings to assess fund performance. On a related note, Daniel and Titman (1997) find that stock features do more effectively than factor loadings in explicating the cross-sectional behavior of average returns.

Karceski's (1998) model suggests that funds favor growth stocks over value stocks. Chan, Karceski, and Lakonishok (2000) provide evidence on the operating performance of size-value equity asset classes.

Chan et al (2002) confirm that size (small, mid, and large) and book-to-market (value, growth) are useful descriptors of fund styles. Further, their study brings out that investment styles that flock around an extensive market benchmark is acquired by most of the mutual funds. Extreme positions are taken away from the index by few funds, but those who do are more probably favor growth stocks and past winners. Agency and behavioral circumstances may be reflected by the prejudice toward glamour and the disposition of poorly performing value funds to shift styles. Once the style is adjusted, there is a proof that growth managers on average surmount value managers. Although a similar conclusion about its style is produced by fund's factor loadings and its portfolio characteristics, an approach using portfolio characteristics anticipate funds better.

Further, we find the following models (incorporating certain style dimensions) available to classify whether a particular fund is classified as small cap fund, value fund, or balanced fund etc:

- Fama- French three factor model (size and book-to-price ratio) [Fama and French (1992, 1993)]
- Brown and Goetzmann's model (1997) based on eight style dimensions (returns on growth and income, value, glamour resources, global timing, international, and metal funds).
- A different style classification method that is used in a great extent in the investment management industry is provided by Sharpe in 1992. This procedure regresses a fund's return on the returns to cash and a diversity of equity classes.
- BARRA³ Swiss model of 8 style factors [Beckers et al. (1993)] based on Size, Success, Yield, Volatility, Earnings volatility, Growth, Financial Leverage, and Value.

Performance Measurement:

(i). Performance in terms of rate of return: Absolute measure of performance:

Performance in terms of growth of Net Asset Value (NAV) per unit is commonly applied measure of performance of mutual funds. According to Firth (1977), the growth of NAV is calculated in terms of rate of return over a period of evaluation. Rate of return on equities held by

³ A multi-factor model created by Barra Inc., which is used to measure the overall risk associated with a security relative to the market.

the equity mutual fund have a direct paying on the fund performance. The study of Gupta (1981) presented a detailed and well-based estimate of “portfolio” rate of return on equities. This pioneering study in the Indian context has been a colossal part in the field and is regarded as the benchmark on the rate of return on equities for the specified time. He laid the basis of rate of return concept in performance evaluation.

Jain (1982), evaluated performance of Unit Trust of India (UTI) during 1964-65 to 1979-80, including the profitability aspects of Unit Scheme 1964, Unit Scheme 1971 and Unit Scheme 1976. He concluded that its real rate of return have been low indicating overall poor performance of UTI schemes. There has been no significant increase in the profitability over the years.

Haslem (1988) evaluated fund performance when he compared the fund return with the return on market portfolio with the comparable risk. The fund’s systemic risk, beta coefficient, is used to compare portfolio risk proportional to the market risk. ‘Beta’ is a measure of risk of the fund’s portfolio relative to the risk of the market portfolio.

(ii).Performance in terms of risk-adjusted rate of return: relative measure of Performance:

Portfolio performance without reckoning the risk exposure do not provide fair and true picture. Various studies in the past have not only examined performance in terms of rate of return but also evaluated portfolio performance in terms of risk-adjusted rate of return (Treyner and Sharpe’s indices). Equity mutual funds assume higher risks compared to gilts, bonds or other government securities. Hence, they are expected to produce returns not only higher than the returns offered by gilts, bonds or other government securities but also high enough to match the risk level of a given equity fund. Treyner and Sharpe’s indices offer such a measure of performance. Treyner (1965) and Sharpe (1966) have provided the conceptual framework of

relative measure of performance of equity mutual funds. While Treynor used systematic risk, Sharpe used total risk to evaluate the mutual fund portfolio performance.

Higher value of Treynor's index bespeaks improved performance of portfolio and vice versa. The Treynor's measure of portfolio performance is relative measure that ranks the funds in terms of risk (market risk) and return. The index is also termed as reward to volatility ratio.

Higher value of Sharpe's index bespeaks improved performance of portfolio and vice versa. The Sharpe's measure of portfolio performance is also relative measures that place the funds in terms of risk (total risk) and return. The proportion is also named as reward to variability ratio.

Fama (1972) advocated yet another measure of portfolio performance. Fama suggested that overall portfolio performance has two components. First, the performance due to stock selection ability (realized return minus expected portfolio return) of the fund manager and second, the performance (expected portfolio return – risk free return) due to higher portfolio risk assumed by the fund manager. He further broke selectivity into two finer components, i.e., net selectivity and diversification. Higher portfolio return may be consequence of higher portfolio risk resulting from low diversification of equity mutual fund. In equation form, Fama expressed the relationship as under:

Apart from rate of return, Firth (1977) has also suggested Capital Asset Pricing Model (CAPM) as another measure of fund performance. The performance model used in the study was based on the generally accepted premise that increased expected returns are associated with higher level of risk. Kon (1983), evaluated performance in terms of selectivity and timing parameters over a period, January 1960 to June 1976. The sample was 37 funds. The study concluded that individually few funds have shown positive selectivity and timing skills but collectively mutual funds failed to perform satisfactorily.

In the literature, we find the following most commonly used risk-adjusted performance measures based on ex-post returns in the perspective of Capital Asset Pricing Model (CAPM):

- Sharpe's measure (Sharpe, 1966)
- Treynor's measure (Treynor, 1965)
- Jensen's Alpha (Jensen, 1968)

Nevertheless the above mentioned three measures are deduced from capital market theory and the CAPM, therefore they are dependent upon the presumptions implied with this theory. For example, if the Treasury bill rate is not a suitable proxy for the risk-free rate, or if investors cannot borrow and lend at the risk-free rate, this will have an impact upon these measures of performance. Fama (1972) suggested fund performance in terms of surplus returns over expected returns based on premium for total risk. In other words, the excess returns are computed based on Capital Market Line (CML).

In order to overcome the limitations associated with the above traditional risk-adjusted performance measures, a conditional model was developed by Ferson and Warther in 1996. In this model, the excess returns to the portfolio are related to three explanatory variables: the standard market portfolio a synergistic term that is the product of the returns to the benchmark market index and the lagged dividend yield a synergistic term that is the product of the benchmark market index and the lagged T-bill rate.

In general, investors are more cautious while accomplishing investment decision. The presence of saneness in every investor needs higher return at minimum risk but it is impossible to acquire abnormal returns when markets are efficient. In general, risk is associated with various applications differently but in common, it means negative intension such as harm or loss or some

undesirable action. Kaplan and Garrick (1981) expressed the risk and demonstrated that a factor of uncertainty and potential loss that might be incurred is involved in a risk.

The definition of risk from a strategic management perspective is the one that is often acquired as manager's subjective judgment of the personal or organizational consequences. It may result from a specific decision or action. "Beta" has been admitted as most appropriate measure of risk that describes the slope of any regression line. According to Sharpe, Beta reveals the volatility of a stock relative to a market benchmark. The majority of investors who spend in mutual fund themselves are not clear with the purpose and constraints of their investment but in addition to this most important critical gap that exists in this process is lack of awareness about presence of risk elements in mutual fund investment. The new marketing idea and strategies place special emphasis on recognition of customer needs in an effort to provide high level of quality services (Harrison, 2000)

Gerasimos G.Rompotis (2008) conducted his research on Greek Mutual Fund for the period 2002 to 2005, on the performance and expenses of Mutual funds, he used general sample of equity, Bond, Balanced and money market funds. He found that performance is negatively influenced by expenses further more it was found that Bank affiliated fund charges more to investor's than Non-Bank funds. Carhast (1997) also found the same outcomes negative relationship between Expenses and Performance however he suggested that a persistence to performance can be achieved if the cost is maintained as constraint level, he further found that worst preferring fund are the only type where had performance is highly attributable to the persistence of expenses.

The study of multi-period investment CAPM was initiated by Tobin in 1965. The effect of the heterogeneous investment horizon on portfolio choices was analyzed and later he developed a relationship between the risk and return measures of the single-period investment horizon and

those of the multi-period investment horizon. After Tobin's work, Jensen (1969) was the first person to inquire the effect of investment horizon on the estimation of the systematic risk. Based on the instant systematic risk concept, he concluded that the logarithmic linear form of the CAPM could be used to remove systematic risk. However, Jensen did not include the investment horizon parameter in his model. In 1993, El-Khoury conducted studies on Risk-Return relationship based on Amman Stock Exchange data. He concluded that debt equity ratio appears to be insignificantly correlated to required return in all regression.

By measuring the relationship of fund's net asset with its return, the effect of fund size on its return can be evaluated. It has been indicated in previous studies that smaller the size of fund, the higher is its operating efficiency. It was concluded by Robert in 1988 that the smallest quartile of US funds size attained much high ranking performance as compare to other quartiles. The conclusion made by Robert specifically suggested that the smallest quartile had a substantial positive risk adjusted returns as evaluated by Jensen Abnormal Performance Index at 90% level of significance. Another development by Gorman (1991) when he found that small mutual funds, as perform slightly better than large mutual funds. We can say by the above experiences that mutual funds rapidly deplete economies of scale and experience decreased returns. After looking at these researches, the relationship between fund performance and fund size in the Swedish market was evaluated by Soderlind *et al.* (2000). He concluded that equity funds that are smaller achieve better performance.

The asset management companies' claim of management potency has been a tenacious issue in finance literature. The management effectiveness of mutual fund has been repeatedly assessed by Researchers. Management effectiveness has already been examined in previous studies by Bogle in 1991, Pushner in 1999 and George in 2001 by comparing risk-adjusted returns of mutual

funds with those of unmanaged indexes. Generally mutual funds have not been able to outperform the market is the outcome of these studies. Management effectiveness has also been assessed by lots of previous studies through examining relationship of fund returns with its selected attributes by (Ippolito, 1992; Tan *et al.*, 1997; Gallagher, 2003; Joseph, 2004). Attributes as fund size, fund expenses and turnover ratio have generally been taken in order to demonstrate their firm influence over open-ended fund returns.

The conclusion of most of the studies on mutual fund performance is that actively managed funds fail to encourage returns sufficiently to reclaim their expenses back. Therefore, negative relationship between fund return and fund expenses is one of the most apparent observation among the previous studies.

A cross-sectional series regression methodology was used by Droms and Walker in 1994. They examined four funds over 20 years from 1971 to 1990, and furthermore they analyzed 30 funds for a six-year period from 1985 to 1990. Moreover they compared the funds with the Standard and Poor's 500 Index, the Morgan Stanley Europe, Australia, and Far East Index (EAFE) which procurator's non-U.S. stock markets and the World Index. By applying the Jensen, Sharpe, and Treynor power of performance, it was found that U.S market and the international market was underperformed by international rates. In addition, it was indicated by their result that portfolio turnover, expense ratios, asset size, load status and fund size are unconnected to fund performance.

A study by Gupta and Aggarwal (2007) sought to check the performance of mutual funds operation in India. In this regard, quarterly returns performance of all the equity-diversified mutual funds from January 2002 to December 2006 was tested. Analysis was carried out with the help of Capital Asset Pricing Model (CAPM) and Fama-French Model. Amidst contrasting

discoveries from the action of the two models, the study calls for further research and insights into the interplay between the performance determinant factor portfolios and their effect on mutual fund returns.

Raza et al. (2011) investigates the validity of capital asset pricing (CAP) model in Karachi Stock Exchange (KSE). The data used in this study were collected from 387 companies of 30 different sectors on monthly, quarterly and semi-annual basis. The Paired sample t- test is applied to find the difference between actual and expected returns. Results show that capital asset pricing model (CAPM) predict more accurately the expected return on a short term investment as compare to long term investment. It is recommended that the investors should more focus on CAPM results for short term as compare to long term investments in KSE.

METHODOLOGY

This research study is focused on Secondary source of data. Analysis apply will require to investigate the related matters of research, which includes the related data of profitability ratios comprising of 12 Asset management companies (AMCs) annual reports in different time period from 1999 to 2009. In fact, all the secondary information would be collected from the websites of Stock Exchange⁴, KSE-100 Index and annual report of AMCs and Mutual Fund Companies' website⁵. The multiple regression method is used to analyze the effect of multiple independent variables over a single dependable variable. The following multiple regression model is used in this research:

⁴ www.kse.com.pk

⁵ www.mufap.com.pk

$$YR = \alpha + \beta_1 DIV + \beta_2 MP + \beta_3 PIB + \varepsilon$$

Whereas,

YR= Yearly Return of Mutual Funds

DIV=Dividend of Mutual Funds

β_1 = Coefficient of Dividends

MP= Market Portfolio

β_2 = Coefficient of Market Portfolio

PIB= Pakistan Investment Bonds

β_3 = Coefficient of Pakistan Investment

α = Constant

ε = Error term

ESTOMATIONS AND RESULTS

Table 4.1 represents the descriptive statistics for each variable.

Table 4.1: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Yearly Return (YR)	47	-41.93	96.07	11.39	36.95
Dividend (Div)	47	1.35	40.21	16.05	8.86
Market Portfolio (MP)	47	-58.16	75.7	19.88	51.36
10-Year PIBs (PIBs)	47	5.58	13.27	10.86	2.41

Table 4.1 is showing that mostly variables have their mean lay between minimum and maximum value some close to minimum value and some close to maximum value. As yearly return has mean 11.39 which is lie between minimum and maximum value, Dividend has mean 16.05 lie between minimum and maximum value, Market Portfolio has mean 19.88 lie between

minimum and maximum value, 10-Year PIBs has mean 10.86 which is close to maximum value which refers to high earnings. Market portfolio has mean 19.88 and standard deviation 51.36 here is mean value close to maximum value with high volatility and 10-year PIBs has mean 10.86 and standard deviation 2.41 here is mean value is close to maximum value which shows that larger number of observations are close to the maximum value as 10-year PIB was less volatile or it can say that it was constant therefore mean is close to maximum value.

The table 4.2 shows the results generated by Cochrane-Orcutt Method. The table is showing P-values, F-value, t-values, adjusted r^2 , and coefficient values.

Table 4.2: Parameter Estimates

Variables	Beta	t-stat	Probability	VIF
Constant	-34.271	-2.162	(0.036)	0
Dividends	-0.145**	-1.909	(0.063)	1.111
Market Portfolio	0.9*	12.062	(0.001)	1.072
Pakistan Investment Bonds	0.255*	3.255	(0.002)	1.181
Adjusted R ² 0.761 Durbin-Watson 2.067		F-stat 49.898 Probability (<.0001*)		

*Significant at the 0.05 level

**Significant at the 0.10 level

The value of adjusted R^2 is 0.761, which shows that the independent variables in the model can accurately predict 76.1% of the total variance present in the dependent variable. F-value and P-value comes from the test of ANOVA, which shows the sufficiency of adjusted R^2 . The P-value is less than 0.05 which confirms that our model is significant and our null hypothesis (H_0) is rejected, so it means the independent variables used in this study to predict the values of dependent variables can accurately measures enough variance. The result shows that the value of Variance Inflation Factor (VIF) is less than 2.50, this indicates that the correlation among the three variables are very low and hence no Multi-Collinearity factor exist in the

Regression model. A relationship between Yearly Return (YR) and independent variables can be checked in the scatter plot in Appendix. All scatter plots indicate some kind of linear relationship. The values of Durbin-Watson statistics for dependent variables in our case is almost 2.00, this indicates that there is no autocorrelation exists in our study and the regression models assume that the error deviations are uncorrelated.

The impact of dividend (Div) of the mutual fund (-0.145) on the performance of the fund is insignificant because the P-value is greater than 0.05; so H_0 is accepted in this case. The performance of market portfolio (MP) (0.90*) on the returns of Mutual Funds has a significant impact. The null Hypothesis is rejected in this case. There is a positive relationship with return. The impact of market portfolio (MP) has significant impact because the yearly returns are same as compare to the yearly returns (YR) of Mutual Funds. The performance of KSE-100 index during 2005 & 2008 is negative. The impact of 10-year PIBs (PIBs) (0.255*) on the returns of Mutual Funds is significant because the P-value is less than 0.05; so null hypothesis is rejected in this case. Impact of this variable reflects a positive influence on the returns of Mutual Funds. The PIB is a long term bond and it is compare with the returns of Equity Funds and Stock Market.

The Beta value shows the relationship between the variables in the model, if the value of coefficient is positive it means that independent variables have positive relation with dependent variable i.e. increase in dependent variable is caused by increase in independent variable and if the value of coefficient is negative than independent variables are having negative relation with the dependent variable i.e. decrease in dependent variable is caused by increase in dependent variable. The values of coefficients beta and constant are used to construct the regression model, the model is shown below:

$$\mathbf{YR} = -34.271 - 0.145 (\mathbf{Div}) + 0.90* (\mathbf{MP}) + 0.255* (\mathbf{PIBs})$$

CONCLUSION:

This study examines the performance of Equity Funds in Pakistan for the period of 1999 until 2009 using yearly returns of the different Mutual Funds. The analysis of the data in this research used a well-established event study methodology to identify the performance of Equity Fund. The equity mutual funds under study were ranked on the basis of their average returns, standard deviation, and coefficient of variation. The returns of most of the funds are greater than the benchmark return. During the period only 2 or 3 funds are perform less than the KSE-100. The performance of most of the funds is better than the benchmark returns. Test of relationship have shown significant and positive relationship between market returns measured by Karachi Stock Exchange (KSE-100 Index) and Open-Ended Equity Funds. The implication of the study practically will help the investors in their decision making since this study provides information and prior knowledge to the investors whether Open-ended Equity Funds is the best fund to invest. Moreover, revealing the specific volatility patterns in returns might also benefits investors in risk management and portfolio optimization.

It is recommended that more funds will analyze and different benchmark should be used. The management of the mutual funds assets should become more substantial so that return of their portfolio to be more attractive than the usual market returns with a view to attracting new domestic and foreign investors.

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