

EFFECT OF FUND ATTRIBUTES ON FUND RETURN: AN ANALYSIS OF CLOSE-END MUTUAL FUNDS OF PAKISTAN

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Abstract. *The purpose of this Mutual funds have become an attractive investment option particularly for small investors to diversify their portfolio. The aim of this study is to explore the determinants of close ended mutual funds return in Pakistan. For this purpose secondary data is used from 2007-2013. Multiple regression analysis is carried out to measure the determinants (fund size, liquidity, expense ratio, and fund turnover) of fund return. The findings of the study revealed that expense ratio and fund turnover significantly influences the return of the fund. Moreover, fund size is positively related to fund return whereas expense ratio, fund turnover and liquidity are inversely related to fund return.*

Key words: Mutual fund, open-ended mutual fund, close-ended mutual funds, stock exchange.

Introduction

Mutual funds have experienced exponential growth all over world and have become an attractive investment option particularly for small investors. Since mutual funds pools money from individual as well as organizations and invests these funds in various stocks, bonds and other assets, it helps investor's particularly small investors to diversify their investment by investing in mutual funds. Small investors due to their limited capacity are unable to diversify their portfolio. Over the past few years, mutual funds popularity has increased significantly as a viable and desired investment option among investors all over world. In United States alone the number of listed mutual funds exceeded the number of listed securities on the New York Stock Exchange. The phenomenal growth of mutual funds particularly in developed countries not only reveals investor's preference for this kind of investment but also has led to the creation of a diverse variety of mutual funds (Huhmann, 2005).

Mutual funds can be categorized into open-ended mutual funds and close-ended mutual funds. Funds that remained open for investment at any given time are known as open-ended mutual funds. Shares of open ended mutual funds can be directly purchased by investors at any time. Furthermore, investors not only have the authority to sell shares but also buyback their open ended mutual funds shares. On the other hand, in close ended mutual funds investors are not allowed to repurchase the shares that they sell. Instead, shares of close-ended mutual funds can be sold by investors just like a company share on the stock exchange. The most distinctive feature of open-ended mutual funds is that open ended mutual fund has only shareholders and there are no customers (Zera, 2001).

The effectiveness of asset management by fund managers has received much attention from the researchers and continues to attract researcher's attention. Studies from Jensen (1964), Shawky (1982), Bogle (1991) and George (2001) analysed the performance of mutual funds by comparing risk-adjusted returns of mutual funds with unmanaged indexes. One thing is clear from the findings of these studies that mutual funds failed to outperform the market. Similarly, studies from Ippolito (1992), Tan, Sweeney and Rathinasamy (1997), Gallagher (2003), and Joseph (2004) analyzed the relationship between average fund return and fund attributes.

In Pakistan mutual funds were introduced in 1960s when National Investment Trust (NIT) and Investment Corporation of Pakistan (ICP) carried out their initial public offering. Since then Pakistan's mutual fund industry has experienced significant growth with net assets increased to Rs. 20.1 billion in 2015.

In recent years, Pakistan mutual industry underwent significant changes as a result of changing economic conditions and market dynamics. Major structural changes that occurred during the last few years include the preference for open ended mutual funds over close ended mutual funds and the shift in investment strategy by focusing more on income and money market funds over equity funds. Moreover, the market share of Islamic funds has also increased considerably during the last few years.

The overall objective of the study is to analyze the influence of fund attributes like fund size, liquidity, fund turn and expense ratio on the average return of mutual fund. Currently, the overall size of mutual funds in Pakistan is comparatively small to that of other developing countries and there is huge potential for the mutual fund industry to grow in Pakistan. Therefore, it is important to analyse the performance of mutual funds in Pakistan considering that the financial markets are in the developing stage.

Literature Review

In empirical literature we find a number of studies that focused on analyzing the effect of fund attributes on the performance of mutual fund return (Soderlind, Magnus & Engstrom, 2000; Korkeamaki & Smythe, 2004). One of the most common fund attribute that have been used by researchers in empirical studies is fund size. Empirical evidence suggests that there is a relationship between fund size and fund return. Studies from Grinblatt and Titman, (1994), Peterson Petrainco, Riepe and Xu (2001) and Nazir and Nawaz (2010) indicate a positive relationship between fund size and fund return whereas Persson and Karlson (2005) found a negative relationship between fund size and fund return. Moreover, Robert and Sahu (1988) found out that in US the performance of small size funds is much superior over other fund sizes. Similarly, Gorman (1991) also found that the performance of small size mutual fund is better than large size funds. The findings of these studies further reveal that returns start declining beyond a certain size as the fund exhaust its economies of scale (Beckar & Vaughan, 2001; Chen, Hong & Kubik, 2004). Furthermore, Soderlind et al., (2000) also provided support to earlier findings by revealing that the performance of small size equity funds was comparatively better.

Another important determinant that has been commonly used in empirical studies is expense ratio. The findings of a vast majority of empirical studies indicate actively managed funds failed to increased return significantly to meet their expenses. Studies from Elton, Gruber, Das and Hlavka (1993) and Livingston and O'Neal (1998) provide strong evidence that an inverse relationship exists between expense ratio and fund return. As the expenses rise, fund return falls and vice versa. On the contrary, studies from Droms and Walker, (1996) and Nazir and Nawaz, (2010) found a positive relationship between expense ratio and fund return.

Fund turnover also an important factor has been used in empirical studies while measuring fund return. Fund turnover can be used to determine whether the fund manager is using an active or passive strategy to accomplish his goals. Higher turnover indicates that the fund manager is following an active strategy whereas lower turnover indicates that fund manager is following a passive strategy. Empirical evidence with respect to fund turnover and its effect on fund return is rather mixed. On one hand, Carhart (1997) and Afza and Rauf (2009) found an inverse relationship between fund return and fund turnover whereas on the other hand, Soderlind et al., (2000) and Wermers (2000) found a positive relationship between fund return and fund turnover. Sawicki and Finn (2002) argued that due to the possibility of facing redemptions open-ended funds expected to their assets mostly in cash form. As a result returns

might be lower for open-ended funds thus resulting in lower investment in open-ended funds.

Liquidity is another factor that has been used by researchers while measuring fund return. Studies from Glenn (2004), Dukes and Davis (2006), Afza and Rauf (2009) and Nasir and Nawaz (2010) found a significantly negative effect of liquidity on fund return.

While analyzing the financial literature, one thing is clear that most of the empirical evidence comprises of studies focused on US mutual funds. However, off late many researchers have shifted their focus towards emerging markets where the mutual funds are still in the developing stage. Ramasamy and Yeung (2003) while focusing on the Malaysian mutual funds identified three critical determinants that affect the performance of mutual fund. These determinants are transaction costs, past performance and fund size. Moreover, Indian mutual funds also received greater attention from researchers as a result of phenomenal growth that the Indian economy has experience over the last few years. Mukul (2006) while focusing on Indian mutual funds revealed that most of the mutual funds in India generated significant returns thus meeting the expectations of the investors.

Despite the increased from researchers in the performance and management of mutual funds across the globe, the mutual fund industry of Pakistan failed to attract the attention of researchers in this area. Due to which there is very limited empirical literature with respect to Pakistan. Cheema and Shah (2006) argued that an effective and efficient role in corporate governance by mutual funds and institutional investors is the only way in which interest of the small investors can be protected. Moreover, Sipra (2006) found out that nearly half of close ended mutual funds outperform the market.

Methodology

The purpose of the study is to analyze the influence of fund attributes on fund return in the close-ended mutual funds of Pakistan. For this reason fund size, liquidity ratio, expense ratio and fund turnover are selected as the attributes of the fund and fund return is measure through return on assets. Multiple regression analysis is used to measure the influence of liquidity ratio, fund size, fund turnover and expense ratio fund return.

Secondary data is used for this study and data is collected from the database of State bank of Pakistan. State Bank's database provides financial information of all listed firms. For this study a total of 15 close-ended mutual funds were considered, however the final sample comprised of 12 mutual funds because only those mutual funds were selected for this study that remained

listed for the period under investigation. Data for the study was collected from 2007-2013 covering a period of seven years. The reason for restricting the study to seven years was that financial information for most mutual funds beyond 2007 was not available.

During the course of initial data analysis it was found out that data collected for expense ratio, liquidity and fund turnover was not normally distributed. Since it is a requirement for the data to be normally distributed before applying regression, hence, data transformation techniques were applied for ensuring normal distribution. Log transformations were applied on data collected for expense ratio and liquidity. Since data for fund turnover was negatively skewed, hence square root transformation was applied to ensure normal distributed. The reason for using square root transformation instead of log transformation is that log transformation is effective when data is positively skewed as is the case with expense ratio and liquidity whereas in case of negatively skewed data square root transformation is more effective (Cox, 2005). Natural log of assets is used to measure fund size, fund turnover is measured through the percentage of holding that turned over/replaced in a year by new assets, total expenses divided by total assets * 100 is used to measure expense ratio and lastly, cash balances divided by total assets *100 is used to measure liquidity.

Model

$$ROA_{it} = \alpha + \beta_1(FS)_{it} + \beta_2(FT)_{it} + \beta_3(ER)_{it} + \beta_4(LQ)_{it} + \mu_{it}$$

Table 1 *Variance Inflation factors*

<i>Variable</i>	<i>VIF</i>
Expense ratio	1.184
Fund size	1.640
Liquidity	1.275
Fund turnover	1.363

Table 2 *Correlation Matrix*

	<i>ROA</i>	<i>Expense Ratio</i>	<i>Fund Size</i>	<i>Liquidity</i>	<i>Fund Turnover</i>
ROA	1.00				
Expense Ratio	-0.41	1.00			
Fund Size	0.14	-0.17	1.00		
Liquidity	0.12	-0.20	0.08	1.00	
Fund Turnover	-0.41	0.19	0.30	-0.14	1.00

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efore running regression analysis, there are two issues that must be addressed without which the results may not be meaningful. They are; multicollinearity and heteroscedasticity. Multicollonearity is concerned with whether independent variables are related to each other or not to an extent that it distorts the relationship between dependent variable and independent variable. If multicollinearity exists among independent variables then our results may be misleading. Multicollinearity is measured in a number of ways including measurement through Variance inflation factors. Values from Table 1 and Table 2 indicate that multicollinearity is not an issue here. In order to measure for heteroscedasticity, white test was used and issues related to heteroscedasticity were addressed by assigning inverse standard deviation weights.

Results

Descriptive Statistics

Table 3 *Descriptive Statistics of Variables*

	<i>ROA</i>	<i>Expense ratio</i>	<i>Liquidity</i>	<i>Fund Size</i>	<i>Fund turnover</i>
Mean	4.61	4.8	7.8	6.09	678.22
Median	11.19	4.7	7.6	6.02	467.19
Maximum	48.45	13.6	17.3	7.15	1469.48
Minimum	-12.10	-3.9	-8.2	5.32	129.10
Std. Dev.	4.79	0.19	0.52	0.43	452.18
Skewness	-1.08	0.71	-0.58	0.63	0.64
Kurtosis	6.73	11.92	3.24	2.67	1.92
Jarque-Bera	93.27	286.03	4.91	5.89	10.01
Probability	0.000	0.000	0.046	0.042	0.006

The above table presents variable's descriptive statistics. The mean and median value of ROA is 4.61 and 11.19 respectively whereas its standard deviation is 4.79. The mean and median value of expense ratio is 4.8 and 4.7 respectively whereas its standard deviation is 0.19. The mean and median value of liquidity is 7.8 and 7.6 respectively whereas its standard deviation is 0.52. The mean and median value of fund size is 6.09 and 6.02 respectively whereas its standard deviation is 0.43. The mean and median value of fund turnover is 678.22 and 467.19 respectively whereas its standard deviation is 452.18. The skewness value of all variables indicates that data is almost normally distributed.

Regression Analysis

Table 4 *Regression Analysis*

<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
<i>C</i>	-139.25	104.98	-1.33	0.19
<i>Expense Ratio</i>	-75.46	16.93	-4.46	0.00
<i>Liquidity</i>	-18.99	12.32	-1.54	0.13
<i>Fund Size</i>	37.28	19.75	1.89	0.06
<i>Fund turnover</i>	-0.05	0.02	-2.99	0.00
<i>R-squared</i>	0.58	<i>Durbin-Watson stat</i>	1.78	
<i>Adjusted R-squared</i>	0.56	<i>F-statistic</i>	27.62	
<i>S.E. of regression</i>	179.22	<i>Prob(F-statistic)</i>	0.00	

The above presents the results of regression analysis. The regression coefficient of expense ratio indicates that expense ratio and fund return is inversely related to each other. It means that profitability declines as expense ratio increases and vice versa. Moreover the relationship is statistically significant as is evident from its corresponding *t-value*. Studies from Wermers (2000) and Joseph (2004) also concluded that an inverse relationship exists between liquidity and fund return. Increases in expenses results in decline in profitability that in turn leads to a negative effect on fund return.

The coefficient of liquidity also indicates that there is a negative relationship between liquidity and return on assets. Rise in liquidity leads to decline in profitability whereas decline in liquidity increases profitability. But the relationship between liquidity and fund return is statistically insignificant as is evident from its corresponding *t-value*. Chen et al., (2004) and Yan (2006) in their respective studies also found out a negative relationship between liquidity and fund return.

The coefficient of fund size indicates that there is a positive relationship between fund size and fund return which means that an increase in the size of the fund will have a positive effect on the return of the fund and vice versa. However the relationship is statistically insignificant as is evident from its corresponding *t-value*. Studies from Grinblatt and Titman, (1994), Peterson Petrainco, Riepe and Xu (2001) and Nazir and Nawaz (2010) indicate a positive relationship between fund size and fund return.

Lastly, the regression coefficient of fund turnover indicates that fund turnover is negatively related to fund return, which means that as fund turnover increases fund return falls and as fund turnover decreases fund return increases. Moreover the relationship between fund turnover and fund return is statistically significant as is evident from its corresponding t-value. Lower transaction costs allow investors to move their investments from one fund to another if the return is not satisfactory from their existing investments. Lower fund return will lead to increase in fund turnover as investors will be looking for more profitable options whereas in the case of satisfactory returns from existing investments, fund turnover is expected to be low. Findings of Cahart (1997) also revealed that there is a negative relationship between fund turnover and fund return.

The value of R-square is 0.58 which means that 58% variation in the dependent variable is due fund size, expense ratio, liquidity and fund turnover. The value of F-Statistic is significant which shows that the model is statistically significant.

Conclusion

The objective of this study was to explore the determinants of mutual funds return. For this purpose multiple regression analysis was carried out to measure the determinants (fund size, liquidity, expense ratio, and fund turnover) of fund return. The findings of the study revealed that expense ratio and fund turnover significantly influences the return of the fund. Moreover, fund size is positively related to fund return whereas expense ratio, fund turnover and liquidity are inversely related to fund return. However, the findings of the study are confined only to close-ended mutual funds. Considering the insufficient research on mutual funds in Pakistan and growth in Pakistani mutual fund industry, it is immensely to explore this important area and explore further other attributes of fund that have influence on fund return of all types.

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