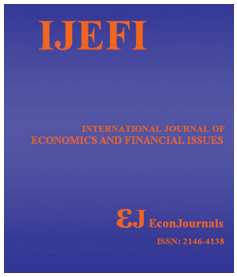

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# Fund-specific Determinants of Performance: An Empirical Study of Islamic and Conventional Mutual Funds of Pakistan

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**ABSTRACT**

This study is an attempt to investigate the fund-specific determinants of performance of conventional and Islamic mutual funds in Pakistan. For this purpose, Sharpe ratio, Sortino ratio, Information Ratio and Jensen Alpha are used as proxies of funds' performance. We examine several fund-specific characteristics as potential determinants of fund performance such as fund size, turnover, liquidity, management fee, expense ratio, new money, fund age and fund family. A sample of 100 open ended mutual funds were evaluated for a period from 2011 to 2016. This sample is further divided into overall, conventional and Islamic funds. Data was extracted from the annual reports of mutual funds, business recorder and the daily NAV is obtained from the website of Mutual Fund Association of Pakistan. Fixed and Random effect methodology is used for the data analysis of this study. The result shows that turnover and new money have a significant positive impact on Sharpe ratio for all three samples of funds. Liquidity is positively and significantly related with Sharpe ratio in case of Islamic funds while for conventional funds age has a significant positive effect on fund's performance. Expense ratio is negatively associated with Sharpe ratio in case of conventional funds. The finding suggested that turnover, liquidity and new money demonstrates significant positive relation with information ratio for conventional funds. On the contrary, Islamic funds' performance is worsen by the new money. Sortino ratio is influenced significantly positive by fund family and fund age for all the three sample of funds. Turnover has a positive impact on the Sortino ratio of Islamic funds while management fees has negative influence on the Sortino ratio. Fund family and liquidity has been found to be significantly positively related with Jensen Alpha of conventional funds while new money has significant negative effect on the Jensen Alpha.

**Keywords:** Mutual Fund, Fund-specific Determinants, Performance, Pakistan
**JEL Classifications:** G10, G23

## 1. INTRODUCTION

Mutual funds play a vital role in the financial market of any country. Mutual funds channelized the funds and financial resources in way to transfer liquidity to the capital market. It helps small investors and households by investing their savings in profitable avenues, i.e., money market and capital market instruments. Developed financial intermediation system makes flourish the economic activities of a country by providing opportunities to local and foreign investors. Mutual funds are working under asset management companies (AMCs) which aims to invest the fund of individual as well as institutional investors in various profitable financial instruments. Huge number of investors of mutual fund all over the world more specifically from developing countries indicate investor's choice for this mode of investment.

Islamic mutual funds and conventional mutual funds operate under two opposite financial system as a whole. The fundamental framework for an Islamic financial system is a set of rules and regulations (Shariah principles) governing economic, social, political and cultural dimensions of human being living in societies. The basic sources for this Shariah Laws are originated from the Quran (Holy book of Islam followers), the Sunnah (authentic traditions of the Prophet Muhammad PBUH) and Islamic jurisprudence.

In Islam investment choice and its management is not a new concept. Earlier Muslims were established an interest-free economic system for utilizing their financial resources to sponsor productive activities and consumer necessities and this system had worked for years efficiently. But with the passage of time Muslim

societies became more refined and cultured and their financing requirements became more complex. In this modern era there is an increasing quest of Muslim to have a modern economic and financial system which adhere their religious values and beliefs.

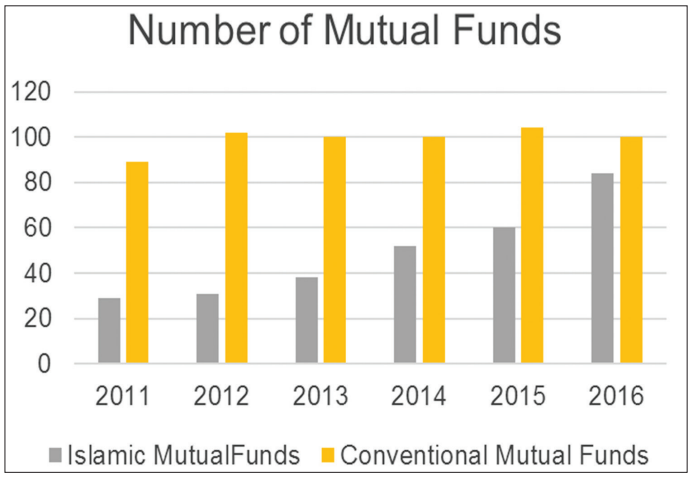
The Mutual Fund industry of Pakistan has developed by leaps and bounds in the last two decades. The history of Pakistani mutual fund industry started with the public offering of NIT (National Investment Trust) in 1962. Net Asset Value of AMCs has increased from US $318 million in 2002 to US $4329 million in 2016. Currently, 182 open-ended funds are being operated under the umbrella of 20 AMCs. Islamic mutual funds have a very small share in the mutual fund industry of Pakistan as compared to Islamic mutual funds operating in other Islamic countries. Al-Meezan investment Management Company is considered the first AMC which introduces the Islamic mutual funds in Pakistan in 1995. In 2016 Pakistan's Islamic mutual fund's net assets reached to US $1.47 billion which represents 34% share of the overall mutual fund industry, however this share is too low in comparison with other Muslim countries (Figure 1).

This study explores the relationship between the funds characteristics and funds' performance of Islamic and conventional mutual funds. There are many factors which influence the fund performance such as; fund flow, fund age, fund family, liquidity, turnover and fund size etc. The contribution of this study is manifold. Firstly, this is the first paper which encompasses many key determinants of fund performance in the Pakistani mutual fund industry. Secondly, this paper provides a comprehensive comparative analysis of conventional and Islamic mutual funds. Thirdly we have used daily NAV value to calculate the risk adjusted performance of funds, which no study has yet incorporated in Pakistani context. On the basis of above discussion, we address the following research questions. (1) What are the determinants of the performance of conventional mutual funds? (2) What are the factors determining the Islamic mutual funds' performance? (3) Do Islamic mutual funds perform better than the conventional mutual funds?

To address the above mentioned research questions, daily data is collected from the MUFAP website and annual return are being calculated as the proxy of performance. The determinants data is hand collected from the Annual reports of the respective mutual fund. Overall data comprised of 100 mutual funds from the year 2011 to 2016. Fixed and Random effect model was applied on the extracted data to determine the effect of funds determinants on the performance (Figure 2).

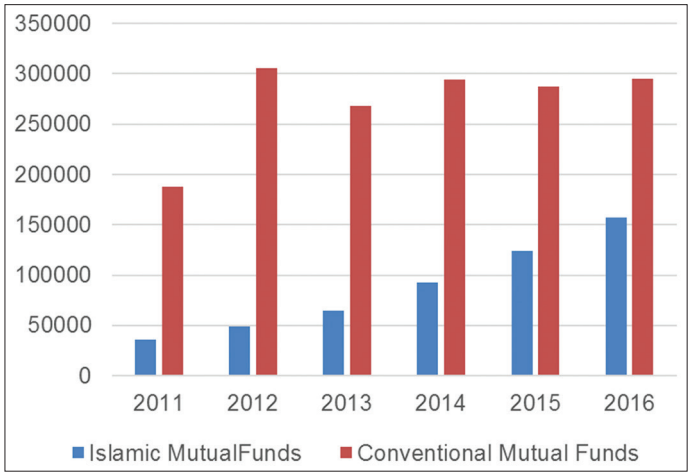
The results provide evidence that turnover, liquidity, new money and age influence the fund performance positively. But in case of Islamic fund the new money exhibits a negative relation with performance. Management Fee has a significant negative impact on fund performance in case of Islamic fund. However, it has insignificant negative affect on performance for overall funds and conventional funds. Similarly fund size has also insignificant relation with performance in this analysis. Expense ratio for all types of fund suggest a negative relation with fund performance. Fund family demonstrates a negative association with fund performance. On the other hand, fund family exhibits a positive relation with fund's alpha. Similarly, fund age and fund's alpha are positively related.

**Figure 1:** Number of mutual funds




Source: MUFAP website

**Figure 2:** Net asset value of mutual funds




Source: MUFAP website

## 2. LITERATURE REVIEW

In the past several studies have been attempted to investigate the fund performance, performance persistence, flow performance relationship, timing ability and selectivity of fund. In the recent past researchers also tried to examine the fund performance in relation to attributes of fund. In the literature enough work has been done in this topic in the general context and in the developed financial markets but very minimal effort has been witnessed in the comparative perspective of Islamic and conventional funds and more specifically in emergent economies. Despite the fact that there is growing interest of researchers for conducting research in the area of mutual funds worldwide, but very scarce research been done in the Pakistan's mutual fund industry.

The Shariah investment board of Islamic mutual funds only allow investment in those business avenues whose operating activities

and capital structure fulfills the Shariah compliant requirements. Islamic mutual funds prohibit investment in businesses that are not shariah compliant e.g., alcohol, arms and weapons, tobacco, pornography, biotechnology used for human cloning, and those firms which heavily dependent on debt financing. Islamic mutual funds also avoid investments in interest bearing instruments e.g., Bonds, debentures, treasury bills, certificate of deposits, warrants, and options etc. According to Shariah principles Islamic mutual funds strictly prohibited to invest funds in businesses doing speculation (Maysir) and excessive uncertainty (Gharar) (Abdelsalam et al., 2014; Hayat and Kraeussl, 2011; Shanmugam and Zahari, 2009).

Numerous studies has been done by the researchers on the performance evaluation of Mutual funds in Pakistan. Afza and Rauf (2009); Nazir and Nawaz (2010) and Shah et al. (2005) have employed the traditional measures of performance such as Sharpe, Treynor and Jensen Alpha. Shah and Hijazi (2005) evaluated the performance of mutual funds in Pakistan. They were of the view that funds which underperforms frequently confront diversification problem. Sipra (2006) also conducted research to investigate the performance of mutual funds of Pakistan and concluded that market outperforms the fund performance and only few were able to outperform the market. Further, results showed that there is a low correlation between the funds and market. This low correlation indicates a lower degree of diversification of investments (Afza and Rauf, 2009).

Nazir and Nawaz (2010) investigated the determinants of mutual fund growth in Pakistan by applying fixed and random effect models and concluded that Turnover, fund family ratio and expense ratio are positively related with the growth of the mutual funds. On contrary management fee and risk adjusted returns were negatively related to the mutual funds growth.

Fund performance can be effected by fund characteristics such as cash flow, liquidity, age, fund family, turnover and past performance (Cuthbertson et al., 2008). Bollen (2007) conducted a research on the mutual fund attributes and investor behavior, notable findings of his study were that Socially Responsible fund's performance were better than the conventional fund's performance. Bauer et al. (2005) evaluated the performance of ethical mutual funds and conventional mutual funds and found no significant difference between the risk-adjusted return of both types of funds.

## 2.1. Turnover

A positive relationship between Funds performance and turnover has been documented by a lot of studies (Grinblatt and Titman, 1994; Agnesens, 2013). Wermers (2000) document a positive relation of turnover and fund performance. In his view, funds with high turnover usually incur higher transaction costs which ultimately charge higher expenses, the manager of those funds hold stocks with higher return than low-turnover funds.

Dowen and Mann (2004) has done a study on mutual fund performance in which they reported that high turnover reduces the risk adjusted performance of mutual funds. Low (2010) performed a monthly time series analysis on Malaysian mutual funds from the January 2000 to December 2004. Her notable finding was that funds performing well have a negative relationship with funds turnover. Elton et al. (1993) has also examined mutual funds' performance from 1965 to 1984 by using TM approach. Their study revealed similar finding that on average fund performance appear to exhibits a negative relation with turnover.

On contrary, Dorms and Walker (1996) and Ippolito (1989) found no relationship between turnover and fund performance for both domestic and international funds. According to them mutual fund risk adjusted returns and turnover has no correlation but there is a negative relation of risk adjusted returns and expense ratio.

On the basis of above arguments we present the following hypothesis.

Hypothesis 1: Turnover and fund performance are positively related (Grinblatt and Titman, 1994; Agnesens, 2013).

## 2.2. Fund Size

In the mutual fund literature substantial work has been conducted on fund size and fund performance by well-known researchers. Mutual funds which outperform the market usually entice substantial amount of funds from investors who are in search of different investment alternatives for the sake to get a reasonable return on their investment (Beckers and Vaughan, 2001).

Large size of funds enjoys a number of benefits. Firstly, if there is fund which is large in size it has an economies of scale which means their fixed costs will be spreading over its net asset. Secondly, funds which have large size provide an opportunity to avail benefits in the form of various fruitful investment which small funds lacks (Ciccotello and Grant, 1996).

Indro et al. (1999) suggested that fund size which is measured as natural log of fund net asset value has a negative and significant effect on the fund performance. This indicates that funds with big in size has an economies of scale. Similarly, Chance and Ferris (1991) also revealed a negative correlation of fund size and fund performance. Chen' et al. (2004) investigated US equity mutual funds for the period 1962-1999. They were interested to find the impact of fund size on fund performance and found an inverse relation between the two. They also revealed that this negative association between fund size and performance is due to liquidity. According to them liquidity and fund size erode the performance of small caps stocks. They also suggest that large funds usually face management challenges too.

Sharpe (1966) investigated 34 US based open-end mutual funds from the period 1954 to 1963 and found that sharp ratio of the sample of funds was smaller than the benchmark during the mentioned period. He also suggested that there is no significant relation of fund size and fund performance, however good performing funds has lower expense ratio.

Hypothesis 2: Fund Size has a negative impact on the Funds' performance (Agnesens, 2013; Chen et al., 2004; Ferreira et al., 2013; Pollet and Wilson, 2008).

### 2.3. Fund Age

Fund age is one of the important determinants of fund performance. Newly born or young funds usually incur significant amount of costs in the form of marketing, floatation and printing in the early stage of funds. Evidence also report that young mutual funds also get effected by investment learning cycle (Gregory et al., 1997). Bauer et al. (2005) suggest one of the underlying reason of young funds' underperformance is that these funds exhibits a higher market risk which in turn invest in lesser number of stocks. They are also of the view that new funds are usually smaller in size than the mature funds.

Studies on fund characteristics in relation to fund performance of 65 Malaysian mutual funds for the period 2000-2004. The study suggests that fund characteristics such as fund size, turnover, expense ratio, age and found that, on average, the risk adjusted returns of funds were not significantly related to age and fund size during the sample period. Some of the studies also suggested that young funds may have potential to perform better than the older funds Otten and Bams (2002) and Blake and Timmerman (1998).

Hypothesis 3: Fund age has a positive effect on the performance (Agnesens, 2013; Ben and Hellara, 2011).

### 2.4. Management Fee and Expense Ratio

Since there are many factors which influence fund performance, expense ratio is considered one of the vibrant determinants of fund performance. It has been observed in the literature that there are contradicting opinion on the relationship between expense ratio and fund performance. Some studies reported that expense ratio and fund performance has a positive relation (Dowen and Mann, 2007; Nazir and Nawaz 2010). In addition, Islamic mutual funds appears to be costly in terms of expense ratio but on the other hand earning the higher mean return. Investing in mutual fund gives an advantage to investor in mitigating risk by diversifying the portfolio for which they charge fee by using different names such as management fee, front end load, back-end load, 12b-1 load and expense ratio (Afza and Rauf, 2009). In the most cases investor feels that these fees are higher even it's not sufficient to cover the return from investment (Carhart, 1997; Haslem et al., 2008).

Hypothesis 4 and 5: Fund performance worsens with fund fee and expense (Carhart, 1997; Gil-Bazo and Ruiz-Verdu, 2009; Pollet and Wilson, 2008).

### 2.5. Liquidity

Several studies reported a diverse nature of relations of liquidity with the fund portfolio performance. Liquidity has a negative effect on funds' performance as argued in many research studies. The negative relation of liquidity and fund performance indicates that holding and maintaining more cash can unfavorably influenced the fund risk adjusted return (Glenn and Thomas, 2004; Dukes et al., 2006; Afza and Rauf, 2010; Nazir and Nawaz, 2010).

In finance literature fund size has been debating since long and it has a connection with other fund specific characteristics. The larger the fund sizes there is a need for more managers which can create the problem of high hierarchical costs and organizational structure friction, and liquidity restraints, which reduce their performance. On the other hand, the funds which are smaller in size it is easier for managers to chart different investment strategies with an aim to enhance the shareholder returns (Beckers and Vaughan, 2001; Chen et al., 2004).

Hypothesis 6: Liquidity has a negative relation with fund performance (Glenn and Thomas 2004; Dukes et al., 2006).

### 2.6. Fund Flow

The impact of fund flow and fund past performance has been discussed in many earlier studies. Here fund flow is also called new money in the finance literature meaning that when investors put their money into mutual fund it is called fund inflow and when they put money out of mutual fund it is called fund outflow. Gruber (1996) and Zheng (1999) find evidence which suggest that mutual fund investors in US are able to select (avoid) good (poor) performing fund, which they call smart money effect. This means that investor is considered smart if they move their money into (out of) good (poor) performing funds. Another study conducted by Feng et al. (2012) on fund flow in the Chinese mutual fund industry and found different results than US they suggest that on average Chinese investors have no selection ability of good performing funds while the US investors are considered to be able to select good performing funds. Sapp and Tiwari (2004) are of the view that smart money effect can be better explained by the momentum factor in the stock returns. Ferreira et al. (2013) evaluated mutual funds in US and found a mixed evidence. They suggest that fund flows cannot predict the future performance of funds. However, the studies done outside US they concluded that fund flows have a positive relation with fund performance.

Hypothesis 7: There is a positive relation between new money and past performers (Gruber, 1996; and Zheng, 1999).

### 2.7. Fund Family

Several studies consider fund family as one of the determinants of fund performance. Many authors had conducted study on mutual fund performance in relation to fund family and their results suggest that fund family has a positive and statistically significant impact on fund performance in different countries in the world (Agnesens, 2013; Chen et al., 2004; Ferreira et al., 2013; Massa and Patgiri, 2009). Fund family has a potential advantage of economies of scale and economies of scope. Funds having larger fund family can opt special attention on trading commissions and can avail benefit from higher lending fees (Chen et al., 2004).

Hypothesis 8: Fund family has a positive impact on the performance (Agnesens, 2013; Chen et al., 2004; Ferreira et al., 2013).

## 3. METHODOLOGY

### 3.1. Population and Sample Size

At present 182 open-ended mutual funds are operating under the umbrella of 20 AMCs in the Pakistan. The sample frame is limited to only open-ended funds and do not included closed-ended funds. Moreover, these funds are further classified by different styles of funds, such as equity funds, income funds, balanced, capital

protected, asset allocation and funds of funds. We excluded money market, index and commodity funds because of passive strategy and their risk and return are different from those of the mentioned funds. After dropping the above funds, we were left with 100 open-ended mutual funds for our sample of study.

## 3.2. Data

Mutual fund's returns were calculated from the Net Asset Value (NAV) and the daily data were obtained from the official website Mutual funds association of Pakistan (MUFAP). PSX 100 index (benchmark for conventional market return) and KMI 30 (benchmark for Islamic market return) index were used to measure the performance of Conventional and Islamic mutual funds respectively. The historical daily data of the aforementioned indices were downloaded from the Yahoo finance website. 1-year treasury bills yield is used as a proxy for risk free rate and is obtained from the Statistical Bulletins issued by the State Bank of Pakistan.

We selected 100 open-ended mutual funds operating in Pakistan. Daily NAV data is obtained from the website of Mutual Fund Association of Pakistan and data for other variables e.g., TNA, management fee, liquidity, asset turnover, cash flow etc. is extracted from the annual reports and fund manager reports of the concerned fund for a period of 6 years from 2011 to 2016. The list of variables and their measurement is provided in Table 1.

## 3.3. Overview of Research Design

The study used Fixed and Random effect OLS for the determinants of fund characteristics and fund performance.

$$R_{it}=\beta_o+\beta_1 Size_{it}+\beta_2 Expnse_{it}+\beta_3 Fees_{it}+\beta_4 Liquidity_{it}+\beta_5 Turnover_{it}+\beta_6 NewMoney_{it}+\beta_7 Family_{it}+\beta_8 Age_{it}+\mu_o$$

Where,
$R_{it}$=Return of the fund of firm i for year t.
$Size_{it}$=Assets size of firm i for year t.
$Expense_{it}$=Expense ratio of firm i for year t.
$Fee_{it}$=Remuneration paid to the Management of firm i for year t.
$Liquidity_{it}$=The closing cash of fund is taken as a measure of liquidity.
$TATO_{it}$=Total asset turnover of firm i for year t.
New $Money_{it}$=New Money is Fund Flow of firm i for year t.
$Family_{it}$=Number of funds encompassing in the umbrella of an AMCs has been measured as fund family.
$Age_{it}$=Fund age of firm i for year t.
$\mu_o$=Error term for specific year for specific firm.

## 3.4. Measurement of Variables

### *3.4.1. Dependent variables*

#### 3.4.1.1. Sharpe ratio

The return of the mutual funds is calculated by different methods in accordance with different measures. The first measure of return is taken as Sharpe ratio which is measures for the first time in 1966 by Sharpe. This ratio basically measures the extent of excess return with proportion to unit change in risk. The formula is given as follow;

$$S.R=\frac{Ri-Rf}{S.D}$$

Where SR=Sharpe ratio,
Ri is the expected return,
Rf=Risk free return,
SD=Standard deviation of the returns.

#### 3.4.1.2. Sortino ratio

The second ratio used in our analysis to measure performance of the funds is Sortino ratio which is similar to the Sharpe ratio but it castigates only that return which falls below the investors target return. The formula for this ratio is as follow;

$$SOR=\frac{Ri-TR}{DR}$$

Where,
SOR=Sortino ratio,
Ri=Expected return,
TR=Target return,
DR=Downward deviation.

#### 3.4.1.3. Information ratio

The third ratio that encompasses in this study is Information ratio measured as the risk-adjusted return of a financial security (or asset or portfolio). It is defined as expected active return divided by tracking error, where active return is the difference between the return of the security and the return of a selected benchmark index, and tracking error is the standard deviation of the active return.

$$IR=\frac{E[Ri-Rm]}{S.D[Ri-Rm]}$$

Where,
IR=Information ratio,
IRi=Expected return,
Rm=Benchmark return,
SD [Ri-Rm]=Tracking error.

#### 3.4.1.4. Jensen alpha

The last measure of the return is the Jensen Alpha which measures the abnormal return of a security or portfolio of securities over the theoretical expected return.

$$Alpha=Rf+[Rm-Rf]$$

Where, Alpha=Jensen Alpha,
Rf=Risk free rate,
(Rm-Rf)=Risk premium.

## 3.5. Independent Variables

The performance of the mutual funds is determined by many factors that include: Assets size, expense ratio, management fee, liquidity, asset turnover, fund flow, fund family and fund age.

The measurement of each variable was given in the Table 1.

# 4. EMPIRICAL ANALYSIS

## 4.1. Descriptive Statistics

The Table 2 shows the descriptive statistics of annual funds specific attributes from 2011 to 2016. In this table the first column shows

**Table 1: Variables measurements**

| Variables | Explanation | Calculation |
|---|---|---|
| Size | Assets size of firm i for year t | Ln[fund's total net assets] |
| Expense | Expense ratio of firm i for year t | Total operating expenses scaled by the fund's average net assets |
| Fees | Remuneration paid to the management of firm i for year t | The amount which is paid to the management of the fund as a remuneration is considered as management fee |
| Liquidity | The closing cash of fund is taken as a measure of liquidity | The closing cash of fund is taken as a measure of liquidity |
| Turnover | Total asset turnover of firm i for year t | Total income as a percentage of fund's total net assets |
| New money | Fund flow of firm i for year t | New money=$TNA_{it}-TNA_{i,t-1}(1+R_{i,t})$ |
| Family | Number of funds in a fund family | The number of funds encompassing in the umbrella of an AMCs has been measured as fund family |
| Age | Age it=fund age of firm i for year t | The number of years of fund's since operating |

AMCs: Asset management companies

the variables (dependent and independent) of all the funds. Four variables (dependent variables) are used as performance measures namely Sharpe ratio, information ratio, Sortino ratio and Jensen Alpha. The independent variables included in the first column are fund size, expense ratio, management fees, liquidity, turnover, new money, Fund family and fund age. The second column explains the mean value of all the aforementioned variables. Third column shows the Median value of all the variables. Fourth and Fifth column shows 25$^{th}$ and 75$^{th}$ percentile respectively of all the data. The last measures the standard deviation.

The mean value of performance measure for two variables are positive which are Sharpe ratio (0.24431) and Jensen Alpha (0.016264). While the other two dependent variables Information ratio and Sortino ratio displays negative values of −0.35631 and −1.59063 respectively. Based on all performance measures it can be inferred that on average the funds returns matched the benchmark return. The median values of all four dependent variables are also consistent with that of the mean values.

The expense ratio of all the funds is 3.25% of fund's assets having standard deviation of 2.7% showing no variability across the funds. Similarly, the size 25$^{th}$ percentile is 12.97 while the 75$^{th}$ percentile is 14.78 showing no substantial spread in the funds size. The New money variable shows a negative value (−197317) inferring that on average investors are moving their money out of the funds. Fund family indicates 9 mean number of funds operating under umbrella of AMCs. Mostly the funds are young in the mutual fund industry in Pakistan showing an average age of 6 years.

Table 2 presents the summary statistics of annual fund specific characteristics and Performance measures of Conventional vs Islamic mutual funds in a similar manner as discussed in above paras. The mean value of Sharpe ratio (0.3964161) and Jensen Alpha (0.0223933) of Conventional funds displays a positive result. Contrary to this, Sortino (−1.725881) and Information ratio (−0.3672419) indicates negative result respectively. These results can implies that on average conventional funds returns offset their benchmark returns. On the other hand, only one performance measure i.e., Alpha measure (0.0048165) exhibits positive value and the rest of three performance proxies indicate negative results these are Sharpe ratio (−0.049897), Information ratio (−0.334026) and Sortino ratio (−1.333096) for Islamic funds. While comparing this to Islamic Funds the performance results are not satisfactory. It can be infer that on average conventional funds' performance is better than their counterpart.

The table also explains that conventional funds are larger in size than their counterpart. The average size of conventional funds is 13.87 while on average Islamic funds has 13.61. Similarly the expense ratio for conventional funds (3.55%) are higher than the Islamic funds (2.75%). It implies that Islamic funds are managing their expenses efficiently as comparing to conventional funds. On average the management fee charge by Islamic Funds are lesser than the conventional funds by an amount of Rs. 8 million. Conventional funds are more liquid than their counterpart. The New Money variable shows negative result for conventional fund (−416058.3) which indicates that investors are moving out of their money from the funds. Contrary to this, Islamic mutual funds has a positive new money (245663) which infer that investors are moving into their money into Islamic funds. Conventional Funds are comparably better than the Islamic funds in terms of turnover. On average AMCs of Islamic funds manages slightly more funds than conventional AMCs. Both classes of funds are consider young on average in the industry. Conventional funds and Islamic funds average ages are 6 and 5 years respectively.

## 4.2. Correlation Analysis

Table 3 shows the correlation analysis of overall funds. The correlation coefficient among all the dependent variables is less. 8 which indicates that there is no multicollinearity problem. Also the variance inflating factor (VIF) reports values of less than 4 therefore no obvious problem of multicollinearity among the independent variables as reported in Table 2. Among the independent variables only fund family has a negative relationship with the Sharpe ratio inferring that as the number of funds increases the Sharpe ratio declines. Expense ratio has a negative effect on information ratio (r = −0.015). Sortino ratio has positive relationship with size(r = 0.075) and management fees (0.02). Lastly, the Jensen Alpha reports negative relationship with all independent variables except size.

This table also reports the correlation analysis of conventional and Islamic mutual funds. Looking at the Sharpe ratio, expense ratio is negatively correlated with conventional funds (r = −0.0473) while positively with Islamic funds (r = 0.0732). This suggests that as the expenses increases the returns declines in case of conventional funds but on the contrary the Islamic funds better

**Table 2: Summary statistics of overall, conventional and Islamic funds**

| Overall funds | | | | | | Conventional funds | | | | | Islamic funds | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variables | Mean | Median | 25th percentile | 75th percentile | SD | Mean | Median | 25th percentile | 75th percentile | SD | Mean | Median | 25th percentile | 75th percentile | SD |
| SR | 0.24431 | 0.095 | −0.14 | 0.96 | 1.406637 | 0.3964161 | 0.12 | −0.07 | 1.108 | 1.373642 | −0.049897 | 0.005 | −0.43 | 0.67 | 1.408892 |
| IR | −0.35631 | −0.3583918 | −0.5822658 | −0.1309001 | 0.400148 | −0.3672419 | 0.3682331 | −0.620806 | −0.128225 | 0.443701 | −0.334026 | −0.329423 | −0.512564 | −0.156247 | 0.2964512 |
| SOR | −1.59063 | −1.338467 | −1.535744 | −1.149037 | 1.919341 | −1.725881 | −1.344651 | −1.567779 | −1.168176 | 2.339502 | −1.333096 | −1.30461 | −1.532178 | −1.032159 | 0.4307705 |
| Alpha | 0.016264 | 0.0053481 | 0.0022451 | 0.0081548 | 0.23933 | 0.0223933 | 0.0055209 | 0.0022451 | 0.0081746 | 0.2955646 | 0.0048165 | 0.0051468 | 0.0024134 | 0.0082115 | 0.0060747 |
| Size | 13.89001 | 13.84482 | 12.97775 | 14.78806 | 1.304427 | 13.8711 | 13.84112 | 12.99974 | 14.82451 | 1.391497 | 13.61056 | 13.68699 | 12.74925 | 14.70376 | 1.866283 |
| Expense | 0.032544 | 0.0279113 | 0.0184193 | 0.0374391 | 0.027855 | 0.0353462 | 0.0289584 | 0.0207686 | 0.0398531 | 0.0272348 | 0.0275684 | 0.0252511 | 0.0153603 | 0.0335933 | 0.0277098 |
| Fees | 38261.67 | 17787.5 | 6757 | 36779 | 74758.82 | 40608.03 | 20093.5 | 8141.5 | 43094.5 | 77819.71 | 32233.35 | 10317 | 4308 | 28069 | 67122.47 |
| Liquidity | 7.868943 | 6.122567 | 5.291504 | 11.15696 | 3.216536 | 7.945865 | 6.190769 | 5.260368 | 11.05138 | 3.238118 | 7.579172 | 5.964587 | 5.130231 | 10.94162 | 3.162235 |
| Turnover | 0.156368 | 0.1285551 | 0.0882299 | 0.2054004 | 0.137264 | 0.1688661 | 0.1347392 | 0.0941087 | 0.2271732 | 0.1558988 | 0.1311245 | 0.1071392 | 0.0715987 | 0.1836388 | 0.0868732 |
| New money | −197317 | 5893.181 | −172345.2 | 373758 | 5912465 | −416058.3 | −1227.556 | −241201.4 | 296143.8 | 7066623 | 245663 | 21728.59 | −107018 | 491772.2 | 1922705 |
| Family | 9.82548 | 9 | 6 | 12 | 5.2641 | 9.034783 | 8 | 5 | 12 | 5.086342 | 10.62083 | 11 | 7 | 13 | 5.46671 |
| Age | 5.812627 | 6 | 3 | 8 | 3.713946 | 6.150943 | 6 | 4 | 8 | 3.461712 | 5.167598 | 5 | 2 | 8 | 3.986615 |
| Obs. | 450 | | | | | 290 | | | | | 160 | | | | |

The above table presents the summary statistics of annual fund specific attributes of overall, Conventional and Islamic mutual funds. The sample period covers from 2011 to 2016. The sample of the study consists of 58 conventional mutual funds while 42 Islamic mutual funds operating in Pakistan. In this table SR refers Sharp Ratio, IR is the Information ratio, SOR measures Sortino Ratio, alpha is the Jensen Alpha, size is the measure of fund size, expense refers to expense ratio, Fee stands for management fee, Liquidity is liquidity of funds, Turnover refers to total asset turnover, New Money is defined as new money, Family is expressed as fund family and Age is defined as fund age respectively. The measurement of all listed variables are explained in the Table 1. SD: Standard deviation

**Table 3: Correlation analysis and VIF of overall funds**

| Panel A | SR | IR | SOR | Alpha | Size | Turnover | Liquidity | Expense | FEE | New money | Family | Age | VIF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SR | 1 | | | | | | | | | | | | |
| IR | 0.2159 | 1 | | | | | | | | | | | |
| SOR | −0.0337 | 0.0066 | 1 | | | | | | | | | | |
| Alpha | −0.2604 | −0.294 | 0.4109 | 1 | | | | | | | | | |
| Size | 0.0353 | 0.0316 | 0.0757 | 0.0875 | 1 | | | | | | | | 2.32 |
| Turnover | 0.1616 | 0.1406 | −0.0092 | −0.181 | −0.1386 | 1 | | | | | | | 2.15 |
| Liquidity | 0.2817 | 0.3276 | −0.1112 | −0.441 | 0.2711 | 0.1848 | 1 | | | | | | 2.14 |
| Expense | 0.0125 | −0.015 | −0.0581 | −0.1286 | −0.3234 | 0.3433 | 0.01 | 1 | | | | | 1.83 |
| FEE | 0.0686 | 0.0759 | 0.02 | −0.0606 | 0.6849 | −0.0151 | 0.3861 | −0.1104 | 1 | | | | 1.36 |
| New money | 0.2498 | 0.0511 | −0.0103 | −0.0566 | 0.0275 | −0.6376 | 0.0495 | −0.1285 | −0.0031 | 1 | | | 1.30 |
| Family | −0.0969 | 0.0822 | −0.0292 | −0.0404 | 0.2221 | −0.0945 | 0.0556 | −0.094 | 0.0422 | 0.0184 | 1 | | 1.09 |
| Age | 0.1556 | 0.1532 | −0.0602 | −0.1153 | 0.1275 | −0.0527 | 0.2242 | −0.0071 | 0.1489 | 0.0498 | 0.0248 | 1 | 1.07 |

This table depicts the correlation analysis of annual panel data of mutual funds related variables. The sample period covers from 2011 to 2016. The sample of the study consists of 100 open end mutual funds operating in Pakistan. In this table SR refers Sharp Ratio, IR is the Information ratio, SOR measures Sortino Ratio, Alpha is the Jensen Alpha, Size is the measure of fund size, Expense refers to expense ratio, Fee stands for management fee, Liquidity is liquidity, Turnover refers to turnover of fund, New Money is defined as new money, Family is expressed as fund family and Age is defined as fund age respectively. The measurement of all listed variables are explained in the Table 1. VIF: Variance inflating factor

manages their expenses hence the returns increases. Information ratio reports that in case of conventional funds. The new money and size is positively correlated with the conventional funds having correlation coefficient of 0.066 and 0.0627 respectively. While in case of Islamic funds new money and size are negatively correlated with the coefficients of −0.03 and −0.06 respectively. The expense ratio is negatively correlated with information ratio of conventional funds while contrarily positively correlated with Islamic funds. The above argument conclude that as the size increases the funds are able to manage their expenses efficiently.

Size and management fees have a positive effect on Sortino ratio of conventional funds while they influence negatively on Islamic mutual funds. The variables negatively influencing the Sortino ratio in conventional funds are turnover($r = -0.0073$), expense ratio($r = -0.062$) and new money($r = -0.016$) respectively. In case of Islamic funds turnover, expense ratio and new money has positive relationship with Sortino ratio having coefficients of 0.188, 0.043 and 0.029 respectively. Lastly, the Jensen Alpha has positive relationship in terms of size and fund family. On the other hand, in Islamic funds Jensen Alpha shows negative relationship with size and fund family. Jensen Alpha reports negative values with all other independent variables in case of Islamic funds (Table 4).

Concluding from the above discussion, Size is positively related with all performance measures of conventional funds whereas in case of Islamic funds three out of four measures of size are negatively related with performance. Hence the assets are better utilized in conventional funds to gain returns. Expense ratio reveals a negative association with performance proxies in case of conventional funds. On the contrary, in respect of Islamic funds expense ratio displays positive link with funds returns (3 out of 4). This indicates that conventional funds generate more returns with less expenses as compared to Islamic funds.

In case of conventional funds, management fees are positively correlated with performance measures. This indicates that as the investor pay large amount in the form of fee, the management in turns efficiently manages the fund's portfolios which ultimately reflects better risk adjusted performance. Islamic funds' performance is positively related with turnover. Funds with higher turnover incur higher transaction costs which ultimately charge higher expenses. The managers hold stocks with higher return as compared to low turnover funds.

### 4.3. Regression Analysis

Table 5 reveals the results of regression analysis for overall, conventional and Islamic funds in which Sharpe ratio is taken as dependent variable. In this analysis funds are divided into three categories. In the first category overall funds are estimated for Sharpe ratio. In this analysis four variables i.e., turnover, liquidity, new money and fund age exhibit significant positive influence on Sharpe ratio. Our results are in line with Grinblatt and Titman, 1994; Agnesens, 2013). This implies that the more the fund managers utilized its assets effectively the more it will enhance its fund return. Liquidity is also found positively affecting fund performance (Sharpe ratio) which indicates that maintaining more cash can positively affect the fund risk adjusted performance. Higher level of liquidity provides an opportunity to the fund managers to invest in profitable avenues in speculative motives. There is a negative relation between expense ratio and fund performance which entails that as the expenses arise it reduces profit and ultimately fund return. The New Money has a positive impact on fund's performance meaning that fund manager are actively managing the funds of investors. This evidence is consistent with the earlier studies done by (Gruber, 1996; and Zheng, 1999). Since New Money and Sharpe ratio are positively related this shows that as the investor move their money for conventional funds the results suggest that Turnover, New Money and Fund Age are positively effecting the fund performance and only expense ratio shows significantly negative effect on fund performance. Our findings are in line with the Agnesens, 2013; Ben and Hellara, 2011). On contrast, the regression analysis results for Islamic fund displays that Turnover, Liquidity and New Money have significantly positive effect on fund performance. Into the mutual fund it will enhance the fund performance. Lastly, fund age is also effecting the performance positively which means that old fund can have better performance in the mutual fund industry due to getting more experience and exposure in the market by passage of time. Looking at the regression analysis.

In the Table 6 asset Turnover has a positive effect on information ratio for overall and conventional funds. This evidence is in line with Grinblatt and Titman, 1994; Agnesens, 2013). This means that assets are efficiently utilized to gain return. The New money has significant positive impact on fund performance in case of overall and conventional funds. However there is inverse relation between new money and information ratio of Islamic funds inferring that funds are not properly transformed into profitability. As the age of the fund increases, their market experiences also increases which in turns transforms into better performance. Our result is in line with the said proposition. On the other hand, Fund Family has negative relation with fund performance for all three panel of funds. Our finding is in contradiction with the Agnesens, 2013. This infer that as the number of funds increases the return of funds decline. This is due to managing large number of funds is challenging for the management.

Table 7 reveals that the size of fund for conventional fund has a negative impact on fund performance which infer that as the funds grow its performance declines. However the fund size for the Islamic funds has a positive relation which indicates that higher the fund size the better will be the fund performance. Observing the result of liquidity, it has a positive impact on fund performance for conventional fund whereas it has a reverse relation for its counterpart. In addition, management fee influence fund performance negatively in case of Islamic funds. Our findings are in support of Carhart, 1997; Gil-Bazo and Ruiz-Verdu, 2009; Pollet and Wilson, 2008). On contrast, management fee has a positive impact on fund performance for conventional fund. Fund Family and fund age has a significant negative impact on fund performance for all the panels. Our result is consistent with the Agnesens, 2013.

Table 8 reports that liquidity has a significant positive impact on Jensen Alpha for overall and conventional funds. This evidence

**Table 4: Correlation analysis and VIF of conventional versus Islamic funds**

| Panel B (1) | Conventional funds | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | SR | IR | SOR | Alpha | Size | Turnover | Liquidity | Expense | FEE | New money | Family | Age | VIF |
| SR | 1 | | | | | | | | | | | | |
| IR | 0.2602 | 1 | | | | | | | | | | | |
| SOR | −0.0448 | −0.0018 | 1 | | | | | | | | | | |
| Alpha | −0.2504 | −0.2372 | 0.4601 | 1 | | | | | | | | | |
| Size | 0.0165 | 0.0666 | 0.1082 | 0.1415 | 1 | | | | | | | | 2.27 |
| Turnover | 0.0901 | 0.1541 | −0.0073 | −0.1828 | −0.1578 | 1 | | | | | | | 2.39 |
| Liquidity | 0.2393 | 0.3608 | −0.1318 | −0.4473 | 0.2266 | 0.1652 | 1 | | | | | | 2.18 |
| Expense | −0.0473 | −0.0537 | −0.062 | −0.1562 | −0.3759 | 0.3481 | −0.0174 | 1 | | | | | 2.05 |
| FEE | 0.0588 | 0.098 | 0.0417 | −0.0571 | 0.6694 | −0.0361 | 0.3568 | −0.1521 | 1 | | | | 1.34 |
| New money | 0.2992 | 0.0627 | −0.0166 | −0.0533 | 0.0087 | −0.6793 | 0.052 | −0.1395 | −0.0274 | 1 | | | 1.36 |
| Family | −0.0467 | 0.03 | −0.0484 | 0.0075 | 0.1213 | −0.0389 | 0.1379 | −0.0387 | −0.0567 | 0.0054 | 1 | | 1.09 |
| Age | 0.1755 | 0.1944 | −0.0264 | −0.0998 | 0.0749 | −0.1109 | 0.1862 | −0.0301 | 0.2071 | 0.1082 | −0.0209 | 1 | 1.09 |
| **Panel B (2)** | **Islamic funds** | | | | | | | | | | | | |
| | SR | IR | SOR | Alpha | Size | Turnover | Liquidity | Expense | FEE | New money | Family | Age | VIF |
| SR | 1 | | | | | | | | | | | | |
| IR | 0.1641 | 1 | | | | | | | | | | | |
| SOR | 0.2207 | 0.0148 | 1 | | | | | | | | | | |
| Alpha | −0.2791 | −0.504 | 0.0524 | 1 | | | | | | | | | |
| Size | 0.072 | −0.03 | −0.2019 | −0.176 | 1 | | | | | | | | 2.06 |
| Turnover | 0.3923 | 0.1639 | 0.1888 | −0.2071 | 0.0409 | 1 | | | | | | | 1.31 |
| Liquidity | 0.3804 | 0.2849 | −0.0618 | −0.5222 | 0.3043 | 0.3388 | 1 | | | | | | 1.84 |
| Expense | 0.0732 | 0.1019 | 0.0431 | −0.0331 | −0.1988 | 0.3322 | 0.0585 | 1 | | | | | 1.16 |
| FEE | 0.0942 | 0.0232 | −0.212 | −0.114 | 0.6152 | 0.0868 | 0.3932 | −0.0272 | 1 | | | | 1.54 |
| New money | 0.2095 | −0.06 | 0.0299 | −0.1341 | 0.2028 | −0.1012 | 0.167 | −0.109 | 0.2439 | 1 | | | 1.20 |
| Family | −0.0745 | 0.1498 | −0.286 | −0.2629 | 0.4287 | −0.1093 | −0.0536 | −0.1054 | 0.235 | 0.0205 | 1 | | 1.33 |
| Age | 0.0914 | 0.1179 | −0.389 | −0.1659 | 0.1742 | 0.0542 | 0.2493 | −0.0091 | 0.0224 | −0.1469 | 0.1738 | 1 | 1.19 |

This table depicts the correlation analysis of annual panel data of conventional versus Islamic mutual funds related variables. The sample period covers from 2011 to 2016. The sample of the study consists of 58 conventional mutual funds while 42 Islamic mutual funds operating in Pakistan. In this table SR refers sharp ratio, IR is the information ratio, SOR measures sortino ratio, Alpha is the Jensen Alpha, Size is the measure of fund size, Expense refers to expense ratio, Fee stands for management fee, Liquidity is liquidity, Turnover refers to turnover of fund, New money is defined as new money, Family is expressed as fund family and Age is defined as fund age respectively. The measurement of all listed variables are explained in the Table 1. VIF: Variance inflating factor

**Table 5: Dependent variable: Sharpe ratio**

| Independent variable | Overall | | Conventional | | Islamic | |
|---|---|---|---|---|---|---|
| | Co-efficient | t-value | Co-efficient | t-value | Co-efficient | t-value |
| Cons. | −2.13608 | −1.77 | −1.31699 | −0.92 | −1.61952 | −1 |
| LnTNA | 0.082834 | 0.95 | 0.035363 | 0.35 | 0.021185 | 0.16 |
| Turnover | 5.64636*** | 8.34 | 5.471939*** | 7.22 | 5.51683*** | 3.39 |
| Liquidity | 0.064443** | 2.27 | 0.036908 | 1.14 | 0.125748** | 2.02 |
| Management fee | −1.14E-06 | −0.83 | −1.97E-07 | −0.12 | −2.35E-06 | −0.99 |
| Expense ratio | −6.17362** | −2.32 | −8.55302*** | −2.57 | −2.70556 | −0.62 |
| New money | 1.44E-07*** | 9.52 | 1.40E-07*** | 8.54 | 1.46E-07** | 2.3 |
| Fund family | −0.02312 | −1.6 | −0.01166 | −0.64 | −0.01882 | −0.69 |
| Fund age | 0.050502** | 2.21 | 0.069414*** | 2.4 | −0.00746 | −0.17 |
| Hausman test | 0.2162 | | 0.0940 | | 0.2948 | |
| Adjusted R2 | 0.2629 | | 0.3359 | | 0.1644 | |

This table depicts the Fixed-random effect regression analysis of annual panel data of all mutual funds. Where Sharpe ratio is dependent variable and independent variables are natural log of TNA (fund size), Expense (expense ratio), Fee (management fee), liquidity, turnover, New money, Family (fund family) and Age (fund age) respectively. The sample period covers from 2011 to 2016. The sample of the study consists of 100 mutual funds in which 58 are conventional mutual funds while 42 are Islamic mutual funds operating in Pakistan. Hausman test is used to decide whether fixed or random effect regression is appropriate. The measurement of all listed variables are explained in the Table 1. ***, **, *indicate the significance at 1%, 5% and 10% level respectively

**Table 6: Dependent variable: Information ratio**

| Independent variable | Overall | | Conventional | | Islamic | |
|---|---|---|---|---|---|---|
| | Co-efficient | t-value | Co-efficient | t-value | Co-efficient | t-value |
| Cons. | −0.87554 | −1.59 | −0.9437 | −2.76 | −0.57093 | −0.68 |
| LnTNA | −0.00163 | −0.04 | 0.009489 | 0.4 | −0.02128 | −0.27 |
| Turnover | 0.470334*** | 2.58 | 0.686105*** | 3.58 | −0.46029 | −1.16 |
| Liquidity | 0.010979 | 0.3 | 0.028165*** | 3.76 | 0.045936 | 0.52 |
| Management fee | −7.30E-07 | −1.2 | −2.23E-07 | −0.61 | −1.27E-07 | −0.17 |
| Expense ratio | −0.90777 | −1.21 | −1.4692* | −1.8 | 0.391621 | 0.38 |
| New money | 8.59E-09** | 2.13 | 1.14E-08*** | 2.77 | −3.09E-08** | −2.02 |
| Fund family | −0.02323** | −2.86 | −0.00086 | −0.2 | −0.01372 | −1.19 |
| Fund age | 0.094396*** | 5.41 | 0.017016*** | 2.54 | 0.059355** | 2.02 |
| Hausman test | 0.0000 | | 0.0030 | | 0.0017 | |
| Adjusted $R^2$ | 0.1340 | | 0.1792 | | 0.1416 | |

This table depicts the Fixed-random rffect regression analysis of annual panel data of all mutual funds. Where Information Ratio is dependent variable and independent variables are natural log of TNA (fund size), Expense (expense ratio), Fee (management fee), liquidity, turnover, New money, Family (fund family) and Age (fund age) respectively. The sample period covers from 2011 to 2016. The sample of the study consists of 100 mutual funds in which 58 are conventional mutual funds while 42 are Islamic mutual funds operating in Pakistan. Hausman test is used to decide whether Fixed or Random Effect regression is appropriate. The measurement of all listed variables are explained in the Table 1. ***, **, *indicate the significance at 1%, 5% and 10% level respectively

**Table 7: Dependent variable: Sortino ratio**

| Independent variable | Overall | | Conventional | | Islamic | |
|---|---|---|---|---|---|---|
| | Co-efficient | t-value | Co-efficient | t-value | Co-efficient | t-value |
| Cons. | 1.194583 | 1.07 | 2.977062 | 1.81 | −1.1056 | −2.38 |
| LnTNA | −0.06449 | −0.75 | −0.1646 | −1.31 | 0.035651 | 0.96 |
| Turnover | 0.558375 | 1.43 | 0.417601 | 0.84 | 0.724257** | 2.06 |
| Liquidity | −0.07506 | −1.47 | −0.09726 | −1.32 | 0.010064 | 0.43 |
| Management fee | 4.60E-07 | 0.37 | 1.40E-06 | 0.7 | −1.25E-06** | −2.04 |
| Expense ratio | −1.16314 | −0.72 | −1.7646 | −0.74 | −1.09558 | −1.16 |
| New money | 1.26E-08 | 1.46 | 1.26E-08 | 1.19 | 2.81E-09 | 0.21 |
| Fund family | −0.05352*** | −3.59 | −0.09225*** | −3.77 | −0.02997*** | −3.96 |
| Fund age | −0.13574*** | −4.57 | −0.13657*** | −3.24 | −0.09525*** | −6.52 |
| Hausman test | 0.3228 | | 0.4888 | | 0.5885 | |
| Adjusted R2 | 0.3178 | | 0.3261 | | 0.6857 | |

This table depicts the fixed-random effect regression analysis of annual panel data of all mutual funds. Where Sortino ratio is dependent variable and independent variables are natural log of TNA (fund size), Expense (expense ratio), Fee (management fee), liquidity, turnover, New money, Family (fund family) and Age (fund age) respectively. The sample period covers from 2011 to 2016. The sample of the study consists of 100 mutual funds in which 58 are conventional mutual funds while 42 are Islamic mutual funds operating in Pakistan. Hausman test is used to decide whether Fixed or Random Effect regression is appropriate. The measurement of all listed variables are explained in the Table 1. . ***, **, *indicate the significance at 1%, 5% and 10% level respectively

is in line with Glenn and Thomas (2004) however, it has negative influence on Jensen Alpha. The new money suggest a significant negative relation on fund alpha for Islamic funds. Fund Family reports a significant positive effect on fund alpha for overall and conventional funds. Fund age has a significant negative relation for fund performance for all three panels of funds.

## 5. CONCLUSION

Mutual funds are considered as a credible investment option for small investors who lack information, skills, or knowledge of investing in capital market. This paper provides an overview of the mutual fund industry in Pakistan. We seek to investigates the

**Table 8: Dependent variable: Jensen Alpha**

| Independent variable | Overall | | Conventional | | Islamic | |
|---|---|---|---|---|---|---|
| | Co-efficient | t-value | Co-efficient | t-value | Co-efficient | t-value |
| Cons. | −0.00488 | −0.82 | −0.01188 | −1.44 | 0.001591 | 0.21 |
| LnTNA | 0.000509 | 1.02 | 0.000947 | 1.4 | 0.000954 | 1.34 |
| Turnover | −0.00193 | −0.97 | −0.00161 | −0.67 | 0.000523 | 0.14 |
| Liquidity | 0.000986*** | 2.49 | 0.001** | 2.11 | −0.00063 | −0.78 |
| Management fee | −6.77E-09 | −1.03 | −9.40E-09 | −0.92 | −3.37E-09 | −0.5 |
| Expense ratio | 0.002445 | 0.3 | 0.002955 | 0.26 | 0.003842 | 0.41 |
| New money | −4.73E-11 | −1.08 | −4.36E-11 | −0.86 | −2.76E-10** | −1.98 |
| Fund family | 0.000146* | 1.65 | 0.000313** | 2.34 | 3.22E-05 | 0.31 |
| Fund age | −0.001*** | −5.24 | −0.00106*** | −4.44 | −0.0009*** | −3.36 |
| Hausman test | 0.0000 | | 0.0000 | | 0.0272 | |
| Adjusted $R^2$ | 0.1271 | | 0.1451 | | 0.2906 | |

This table depicts the fixed-random effect regression analysis of annual panel data of all mutual funds. Where Jensen Alpha is dependent variable and independent variables are natural log of TNA (fund size), expense (expense ratio), fee (management fee), liquidity, turnover, New money, family (fund family) and Age (fund age) respectively. The sample period covers from 2011 to 2016. The sample of the study consists of 100 mutual funds in which 58 are conventional mutual funds while 42 are Islamic mutual funds operating in Pakistan. Hausman test is used to decide whether Fixed or Random Effect regression is appropriate. The measurement of all listed variables are explained in the Table 1. ***, **, *indicate the significance at 1%, 5% and 10% level respectively

funds specific determinants of performance of conventional and Islamic mutual funds in Pakistan by examining a comprehensive sample of 100 mutual funds over the period from 2011 to 2016. In this study we investigated several fund's specific characteristics as potential determinants of fund performance such as fund size, turnover, liquidity, management fee, expense ratio, new money, fund age and fund family. In addition, we evaluate the performance of conventional and Islamic mutual funds of Pakistan via various performance proxies: Sharp ratio, Jensen Alpha, information ratio and Sortino measure to gauge the performance.

The findings show that Sharpe ratio and Jensen Alpha have positive result while Sortino ratio and information ratio displays negative results for overall and conventional mutual funds. In case of Islamic mutual funds only Jensen Alpha exhibits positive values. The reason behind low performance of Islamic mutual funds is due to the fact that investments of these funds are prohibited in businesses that are not Shariah compliant (Islamic Law) such as alcohol, arms and weapons, tobacco, pornography, biotechnology used for human cloning, and those firms which are heavily dependent on debt financing.

On the basis of our regression results it is concluded that turnover and new money have a significant positive impact on Sharpe ratio for all three categories of funds. Liquidity is positively and significantly related with Sharpe ratio in case of Islamic funds while in case of conventional funds age has a significant positive effect on fund's performance. Expense ratio is negatively associated with Sharpe ratio in case of conventional funds. The finding suggested that turnover, liquidity and new money demonstrates positive significant relation with information ratio for conventional funds. On the contrary, Islamic funds' performance is worsen by the new money. Sortino ratio is influenced significantly positive by fund family and fund age in case of all the three categories of funds. Turnover has a positive impact on the Sortino ratio of Islamic funds while management fees has negative influence on the Sortino ratio. Fund family and liquidity has been found to be significantly positively related with Jensen Alpha of conventional funds while new money has significant negative effect on the Jensen Alpha.

This study has policy implications in manifold. Firstly, our findings are imperative and eloquent for the fund manager of AMCs as this study delivers a new evidence on the determinants of performance of Islamic and conventional funds in Pakistan. On the basis of our evidence it is advocated that the fund manager should keep a balance in the level of determinants of fund performance in order to generate maximum return for the investors. Secondly, our results are also useful for investors as they provide important information to them regarding the attributes of funds that are effectively influence the performance.

We expect that this study can encourage researchers in the realm of mutual fund to further extend this subject in manifold. Firstly, by employing more sophisticated models of performance such as CAPM, Fama French and Carhart models. Secondly, this study can be extended to other countries as well to evaluate the comparative performance of mutual funds. Lastly, more studies can be done to incorporate the fund manager attributes as well in determine the fund performance.

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