

Managerial Attributes Effect on Mutual Fund Performance: Case from Pakistan, an Emerging Mutual Fund Market

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Received for publication: 19 January 2016.

Accepted for publication: 01 May 2016.

Abstract

This paper investigates the effect of managerial attributes like, age of manager, qualification of manager, experience of manager, age of fund and management fee on performance of mutual funds. For this purpose open ended equity funds of 19 assets management companies with a data set ranging from 2010 to 2014 is taken. Fixed effect panel regression is used to control the unobserved heterogeneity between the assets management companies. Results reveal that managers' qualification, age, total experience in mutual fund industry are positively and significantly related to performance of funds whereas, age of fund is negatively related to fund performance. Secondly, explanatory variable, management fee is not related to performance of mutual fund in Pakistan.

Keywords: Fixed effect panel regression, Fund performance, Managerial attributes, Open ended equity funds

Introduction

Sound financial system is very important for any economy. Mutual fund industry helps the economy, individual investors and institutional investors by different means. It gives different benefits to investors like, diversification, economy of scale, divisibility, liquidity and benefit of professional management (Chordia, 1996; Edelen, 1999). Mutual fund industry is also playing pivotal role as far as economic growth is concerned. This industry mobilizes the savings and idle money from general public and institutions to make it productive for economy. In USA currently there are more than 10,000 mutual funds working with investment of \$15 trillion (ICI, 2014). In last century mutual fund industry evolved as very useful tool for flourishing the economy; mobilizing the saving from myriad of investors and providing services to financial industry across the world (Rao & Mishra, 2007). In previous two decades India has developed its mutual fund industry a lot and Indian mutual fund investment is reached up to 800 billion dollars leading in Asian mutual fund industry.

Over a few decades there has been a great debate on managerial characteristic and mutual fund performance in area of behavioral finance. Investors also realize that they can actually take the benefits of this type of investment only when managers efficiently diversify the risk in best interest of investors and beat market with stock picking skills. There are different point of views of researchers regarding the managerial characteristics and mutual fund performance. (Bryant & Liu, 2011) investigated the impact of managers managing more than one fund on the performance and risk taking of that mutual fund. They used the Fama and French risk style difference and Russle style difference to measure the riskiness using panel data with fixed and random effect models. The

authors concluded that when manager manages more than one fund simultaneously; the risk of that particular fund increases.

Traditionally, in developing countries, like Pakistan researchers have focused on typical research; where sentiment of investors, managerial attitude, personal characteristics is less researched. To maximize the profit of investor efficient portfolio is needed and for efficient portfolio, efficient manager is needed. Whereas, mutual fund managers belong to different educational, cultural backgrounds, they have also different intelligent quotient (IQ), managerial skills and intuitive skills. Similarly, (J. Chevalier & Ellison, 1999) described in their paper that performance of mutual fund is linked with the managerial attributes like, his age, business education, score in SAT and his ability to manage the funds. They found in their study that managers who have secured higher SAT scores have higher risk adjusted returns on portfolios. Not only manager's personal attributes but also sentiments of human being can influence his or her decision-making.

Mutual fund industry in Pakistan

Mutual fund industry is also playing significant role in Pakistan. First mutual fund was started in 1962 in Pakistan with the name of National Investment Trust (NIT). Mutual fund industry gained actual pace and progress after year 2003. Now 30 assets management companies (AMCs) are currently working in Pakistan and 120 mutual funds that vary from investment objective and growth perspective for investors are traded. AMCs have jointly created a mutual fund association of Pakistan (MUFAP) to protect the interest of both, AMCs and investors.

In this study five year data ranging from 2010 to 2014 has been hand collected with 19 open ended equity mutual funds. Findings of the study posit the previous research mostly. As per the literature there are so many factors that impact the performance of mutual funds. However, in Pakistan managerial attributes are not yet considered as factor that can change the performance of mutual fund. So this study is unique in its kind and contributing in existing knowledge that how young mutual fund industry's performance is effected by managerial attributes.

Literature Review

(Abinzano et. al., 2010) used stochastic dominance technique and investigated whether managerial skill varies form one fund to another. With above said technique, authors compared different investment alternatives with the basic assumption of investor behavior. Moreover, authors concluded that style-adjusted returns are stagnant whereas, managerial skill varies and these varying parameters are due to different managerial skills. Skilled managers use their abilities with efficient manner to optimize the profit of portfolio, concurrently minimizing the risk at possible level.

(Prather et. al., 2004) contrary to previous studies took 25 mutual fund characteristics in different categories of popularity, management, cost and growth. Authors concluded that fund's expense ratio and assets under management are related to operational part of mutual fund. *Ceteris paribus*, more time manager is spending on single fund that fund will perform well in term of returns and by contrast, higher expense ratio will distort the performance of mutual fund. Surprisingly authors also found that contrary to popular belief that management variables are not much related to performance of mutual funds the exception is that less number of 'funds under management' of single manager leads to better care in term of time and thus performs better. Managerial characteristics also include quantification of mutual fund managers if manager have related business qualification there are more chances that managers will perform better similarly, (Golec, 1996) concluded in his study that if young manager holds MBA degree and has reasonable tenure in managing mutual fund he would generate good risk adjusted fund profit.

Results of (L. J. Prather & Middleton, 2002) suggest that there is no evidence that team management give superior performance over single managers due to marginal benefit of superior performance does not exceed the cost of team management. However, decision making is mainly based on managerial characteristics and that's why in same market environment some managers perform better than the other.

(Philpot & Peterson, 2006) conducted their study on real estate mutual fund and measured the performance through managerial attributes like, age tenure, qualification and sole versus team management. Authors concluded that sole managed funds earned greater returns as compare to team manager fund and there is no evidence of any relationship between fund return and management fee and managerial characteristics. Managerial characteristic and fund characteristics both have significant impact on performance of mutual fund. Moreover, balance funds are performing better than other funds in market. More interestingly, in Taiwan's mutual fund market female fund managers perform much better than males managers do. Fund's net asset value positively influence the performance whereas, fund under management, manager persistence and tenure has negatively influencing the fund performance (Hu et. al., 2012).

Managerial attributes are not only important for mutual fund industry but also for other fields of finance like (Rakhmayil & Yuce, 2009) investigated relationship between capital structure and qualification of higher management. Authors investigated how qualification of and experience of CEO influence leverage of company. They concluded in their study that managers with higher qualification are taking more risk in term of debt financing to increase the firm value.

According to (Lee et. al., 2011) performance of male manager is significantly better than that of female fund managers and performance of senior manager is greater than that of junior managers. Moreover, managers holding graduation degree performing well as compared to managers holding masters and PhD degree. (Maxam et. al., 2005) shed the light on managerial characteristics and hedge fund performance. Manager's education like, education from top US school, previous work experience outperforms the other managers in same market environment.

(Shah et. al., 2005) concluded in their study using Jensen's Alpha and Shape ratio that mutual funds in Pakistan outperform the market by 0.86 percent. Authors also suggested that some mutual funds are underperforming due to poor diversification. But authors took overall stance that mutual funds in Pakistan are adding value. Similarly, (Afza & Rauf, 2009) evaluated the performance of open ended mutual fund of Pakistan form 1999-2006. Authors' collected quarterly data for all those mutual fund listed on MUFAP. They concluded in their study that among all fund characteristic only liquidity and 12B-1 (type of load) are significant. (Nazir & Nawaz, 2010) tried to explore the determinants of mutual fund growth. Authors collected data of open ended mutual fund from Pakistan, ranging from 2005-2009. They applied fixed and random effect regression and came at conclusion that only assets turnover, management fee and expense ratio are show positive significant relationship with growth of mutual fund.

After reviewing the relevant literature of Pakistan regarding mutual fund industry, we found a gap that no researcher had tried to shed the light on managerial characteristic of mutual fund. This area still needs to be explored in context of Pakistan. All researchers in Pakistan focused fund characteristics only and overlooked the managerial attributes. So, this study is going to fill this trench of literature by investigating the relation of mutual fund performance and managerial attributes of fund managers.

Theoretical Framework

Keeping in view the research gap in Pakistan and rigorously review existing literature following hypothesis has been developed.

H₀: Managerial attributes does not impact upon performance of mutual fund in Pakistan

H₁: Managerial attributes impact upon performance of mutual fund in Pakistan

Data and methodology

Below is the detailed methodology adopted to complete this research work.

Data Sources

Open ended mutual fund data is collected mainly from online web portal 'Mutual Fund Association of Pakistan' (MUAFP) and information also extracted from financial statements of each asset management company' respective website. Total 19 assets management companies with 95 observations are included in this study. The data is collected from year July 2010 to June 2014. As fiscal year in Pakistan starts on July 1st and ends in 30th June next year. There are two reasons for selecting open ended mutual funds; first there are reasonable numbers of mutual funds available for study second, these mutual funds have been operating in country effectively for on decade. For data analysis panel regression model with fixed effect is used.

Methodology

Different variables that are related to managerial attributed are taken in this study. These are, age of manger, qualification of manger, experience of manger and two explanatory variables are also included that are management fee and age of fund. Although management fee and age of fund are not considered as managerial attributes, but these variables are included as explanatory variable that can be related to performance of the mutual fund. On the left side of equation returns of mutual fund for all companies are taken that are collected from their respective websites. Returns mean annual return announced by respective fund manager in this research work.

Qualification of manger is assessed using dummy variable where value 1 takes for managers who have professional certification like CFA, ACMA, CA of PIPFA and otherwise zero. These professional degrees definitely give greater quality related to risk management and stock picking skill to fund managers that ultimately leads to better performance for mutual fund (Gottesman & Morey, 2006). Manager's experience is calculated on the basis of overall time he has spent in similar industry (special care is taken for how long fund manager is managing the mutual funds regardless how long he is serving the current fund) so; total fund managing experience is accounted for. There are several studies that argue that age of manger is playing significant role on risk taking and beating the market. Some of them have logically proven in their studies that young fund managers are taking extra risk and sometime outperform and sometime due to extra risk taking underperform i.e. (Abinzano, Muga, & Santamaria, 2010; Golec, 1996; Karagiannidis, 2012; March & Shapira, 1987). Next variable is fund age, fund age has pivotal role in performance of any mutual fund there are different findings of different researchers about age of fund. Results of (J. A. Chevalier & Ellison, 1995; L. Prather, Bertin, & Henker, 2004) suggest that older fund conglomerates large assets under management, management of fund holding more fund and resultant performance of fund declines due to extra burden on management. Final variable, management fee is part of earning that is taken by managers who devote their skill and time to diversify the risk of investor's money make these investments lucrative for investors. But, if management fee would be greater it would erode the net residual earning for investors.

Following model 'regression with fixed effect' is used for data analysis of this study.

$$Fund_{it} = a_i + \beta_1 MGR\ age_{it} + \beta_2 quali_{it} + \beta_3 exper_{it} + \beta_4 fundage_{it} + \mu_{it}$$

Where, Fund_{it} is annual return of mutual funds varies with time t and 'i' across the assets management companies, MGR age is manager's age that varies with time and funds, quali_{it} is dummy variable for manger's qualification. If manager holds professional degree like CFA, CA, ACCA or PIPFA is equal to 1 otherwise contains 0. Exper_{it} is total experience of manger in mutual

fund industry. Furthermore, parameter α_i is part of error term that captures the unobserved heterogeneity between different mutual funds firms. It means that starting return level of different mutual is different that certainly influence the net impact of predictor in our regression. μ_{it} is random error.

Results and Discussion

To have a first look at the data, descriptive statistics has been computed and later on regression analysis has been conducted.

Table 1: Descriptive Statistics

| Variables | Obs | Mean | Std. Dev. | Min | Max |
|-------------|-----|-------|-----------|--------|-------|
| Fund Return | 95 | 22.24 | 17.01 | -22.26 | 64.41 |
| MGR Age | 95 | 35.11 | 6.06 | 24.00 | 47.00 |
| Quali | 95 | 0.67 | 0.47 | 0.00 | 1.00 |
| Exper | 95 | 9.28 | 5.05 | 1.00 | 24.00 |
| MgtFee | 95 | 2.75 | 2.43 | 0.03 | 19.67 |
| Fund Age | 95 | 9.00 | 10.62 | 1.00 | 52.00 |

Summary of all variable is shown in Table 1. Results of table 1 shows that the average return of open ended mutual fund is Pakistan is 22% with this fact that all mutual fund do not perform alike and there is difference among return of assets management companies because standard deviation of return is about 17%. Average age of manger is 35 years. Qualification is dummy variable so decrepitates statistics of this variable are not relevant here. Average experience of manager who is working with mutual fund industry is 9 years. Average management fee is charged is by management is 2.75 %. Average fund age in Pakistan is 9 year because mutual fund industry is young relative to other develop nation especially USA.

Table 2: Hausman Test of specification

| Test: Ho: Random effect is appropriate | | | | |
|--|--------|--------|------------------|-------|
| ---- Coefficients ---- | | | | |
| | Fixed | Random | Difference (F-R) | SE. |
| Fund Age | -25.46 | 0.35 | -25.81 | 8.29 |
| MgtFee | 0.85 | 0.16 | 0.69 | 0.21 |
| Expert | 28.90 | -0.23 | 29.13 | 8.40 |
| Quali | 8.34 | -10.18 | 18.52 | 16.19 |
| X ² = 23.97 | | | | |
| P > X ² = 0.0001 | | | | |

Hausman Test of specification is used to select the best alternative between the fixed effect panel regression and random effect panel regression. P-value of X² (0.0001) is sufficient to reject the null that is, Random effect is appropriate against the alternative that is fixed effect is appropriate to use at this panel data. So, in over study fixed effect panel regression will give appropriate results as suggested by Hausman test of specification.

So, Fixed effect panel regression is applied on data and results are reported in table 3. Results of table 3 show that only two variables, fund age and manager's experience are significantly related to the return of mutual fund. Further to check the reliability of model we further have done diagnostic checking.

Table 3: Regression with fixed Effect

| Description | Coeff. | Std. Err. | t stats | P>t | [95% Conf. Interval] | |
|---------------------|-----------|-----------|---------|----------|----------------------|-------|
| Fund Age | -25.46 | 8.29 | -3.07 | 0.003*** | -41.9 | -8.93 |
| MgtFee | 0.85 | 0.77 | 1.11 | 0.27 | -0.68 | 2.38 |
| Expert | 28.90 | 8.41 | 3.43 | 0.001*** | 12.13 | 45.67 |
| Quali | 8.34 | 16.80 | 0.50 | 0.621 | -25.15 | 41.83 |
| MGR Age | (omitted) | | | | | |
| Const | -24.86 | 14.90 | -1.67 | 0.1000 | -54.57 | 4.85 |
| $\sigma\mu$ | 233.7 | | | | | |
| $\sigma\varepsilon$ | 14.8 | | | | | |
| $P\varepsilon$ | 14.8 | | | | | |
| F stat. | 2.19 | | | 0.0101 | | |
| No. of Obs | 95 | | | | | |
| R2 | 0.0228 | | | | | |
| Within | 0.2111 | | | | | |
| Between | 0.1007 | | | | | |
| $R(\mu I, Xb) =$ | -0.9989 | | | | | |

*** Significant at 1%

Diagnostic checking of model

Table 4: Modified Wald test for GroupWise heteroskedasticity

| | Coeff. |
|--|--------|
| H0: σ_i^2 (σ_i^2 For all i) | |
| X2 | 41.95 |
| P> X2 | 0.002 |

Heteroskedasticity is checked in table 4 with null that error terms are homoscedastic against the alternate error term are heteroskedasticity. Corresponding P-value of X2 (0.0018) is unable to reject the null. So heteroskedasticity does not exist in error term.

Table 5: Serial correlation

| | Coeff. |
|------------------|----------------------------------|
| H0: σ_i^2 | = No first-order autocorrelation |
| X2 | 3.004 |
| P> X2 | 0.1002 |

Further serial correlation is tested in table 5 with null that No first order correlation exist in panel data against the alternate that first order correlation exist in panel data.

Table 6: Correlation

| | Return | fundage | mgtfee | exper | quali | agemgr |
|---------|---------|---------|---------|--------|---------|--------|
| Return | 1 | | | | | |
| fundage | 0.1272 | 1 | | | | |
| mgtfee | -0.002 | -0.241 | 1 | | | |
| expert | 0.0088 | 0.5484 | -0.1769 | 1 | | |
| quali | -0.2532 | 0.1382 | -0.0752 | 0.0304 | 1 | |
| agemgr | 0.0443 | -0.0653 | 0.0883 | 0.3201 | -0.4201 | 1 |

X2 and corresponding P-value (0.1002) suggest serial correlation exists in panel data.

To investigate the multicollinearity among the independent variable, correlation matrix technique is used. As obvious from above “correlation Table” that no multicollinearity issue exists in our independent variables because coefficients of correlation matrix is less than high level correlation that the rule of thumb is above 80%.

Table 7: Multicollinearity

| VIF Table. | | |
|------------|------|----------|
| Variable | VIF | 1/VIF |
| fundage | 2.15 | 0.46404 |
| agemgr | 2.15 | 0.46452 |
| expert | 2.05 | 0.488555 |
| quali | 1.82 | 0.55088 |
| mgtfee | 1.16 | 0.863092 |

Further, as a general rule, if the variance inflation factors (VIFs) of variables exceed 10, which usually happen when R2 exceeds 0.90, it shows the existence of severe multicollinearity. VIF of the explanatory variables reported in the Table 7 are lower (less than 1.67) than the threshold level and thus it is less likely to have multicollinearity in our estimation.

Table 8: Regression with fixed Effect after robustness

| Description | Coef. | Std. Err. | t | P>t | [95% Conf. Interval] | |
|------------------------|--------------|-----------|-------|-------|----------------------|--------|
| Fund Age | -25.46014*** | 0.3653 | -69.7 | 0.00 | -26.23 | -24.69 |
| MgtFee | .8529351* | 0.41088 | 2.08 | 0.053 | -0.01 | 1.710 |
| Expert | 28.8966*** | 1.48841 | 19.41 | 0.00 | 25.77 | 32.02 |
| Quali | 8.338145** | 2.64939 | 3.15 | 0.006 | 2.77 | 13.90 |
| MGR Age | 7.0433*** | 2.5623 | 5.76 | 0.003 | 2.16 | 15.23 |
| Const | -24.85962 | 9.5389 | -2.61 | 0.018 | -44.90 | -4.81 |
| $\sigma\mu$ | 233.76324 | | | | | |
| $\sigma\varepsilon$ | 14.819249 | | | | | |
| $P\varepsilon (\mu_i)$ | 0.9959973 | | | | | |
| F stat. | | | | | | |
| No. of Obs | 95 | | | | | |
| R2 | 0.2111 | | | | | |
| Within | 0.0228 | | | | | |
| Between | 0.1007 | | | | | |
| $r(\mu_i, Xb) =$ | -0.09989 | | | | | |
| F-stats | 0.0007 | | | | | |
| | | | | | | |

*** Significance at 1%, * at 10%

For the remedial action of serial correlation we have minimized the standard errors and re-test fixed effect panel regression after minimizing the standard errors. Results of final fixed effect model are reported in table 8. Results of table 6 show that overall model fitness is improved and model is now good fit as shown by F statistics and its corresponding P-value that is 0.0007. All variables are highly significantly influencing the return of mutual fund. Coefficient of -0.25 shows that fund age negatively impacts upon returns of mutual fund, our results posit the findings of (J. A. Chevalier &

Ellison, 1995; L. Prather et al., 2004) that older funds are able to get more assets under management but they have fewer member of team who are managing the fund and performance of those funds declines as fund becomes older. By contrast, younger fund perform relatively better. Coefficient of variable manager's experience demonstrates that manger with greater experience in respective field is able to make superior returns as compare to other fund managers. Similarly, qualification of manager is also positively related with mutual fund returns in Pakistan. Furthermore, management fee is positively significant at 10% level. Results revealed that management fee is not significantly related to the returns of mutual funds, meaning that management fee is independent to returns of mutual fund. Our results are similar to (Philpot & Peterson, 2006) that management fee does not impact the returns of fund.

Table 9: Comparison of Models

| | 1 | 2 | 3 | 4 |
|---------------|----------|-----------|----------|--------------|
| VARIABLES | OLS | Fixed | Random | Fixed robust |
| Fund age | -0.0704 | -25.46*** | -0.0704 | -25.46*** |
| | -0.385 | -8.294 | -0.385 | -0.365 |
| Quali | -10.18** | 8.338 | -10.18** | 8.338*** |
| | -4.485 | -16.8 | -4.485 | -2.649 |
| Expert | -0.229 | 28.90*** | -0.229 | 28.90*** |
| | -0.503 | -8.413 | -0.503 | -1.488 |
| Mate | 0.164 | 0.853 | 0.164 | 0.853* |
| | -0.739 | -0.767 | -0.739 | -0.411 |
| MGR age | 0.346 | | 0.346 | 7.0433*** |
| | -0.226 | | -0.226 | -2.56 |
| Constant | 30.13** | 639.8*** | 30.13** | 639.8*** |
| | -14.11 | -214.2 | -14.11 | -1.596 |
| Observations | 95 | 95 | 95 | 95 |
| R-squared | | 0.211 | | 0.211 |
| Number of Ent | 19 | 19 | 19 | 19 |

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Comparison of simple OLS regression, regression with fixed and random effect and fixed effect with robustness is given in table 9 respectively. Results show that in OLS regression only qualification is significant. Then regression with fixed and random effect is employed to further test what are the results of these two regressions. It can be seen from table 9 that results are not as expected and most of the coefficients are not significant. Then further Housman test of specification is tested and results suggested that fixed effect regression is appropriate for our panel data. Fixed effect regression is again applied on panel data along with diagnostic checking. Two tests, serial correlation and heteroskedasticity are used for diagnostic checking of fixed effect regression to investigate its robustness. Results of heteroskedasticity and serial correlation show that there is no heteroskedasticity in panel data however, the problem of serial correlation exist. For remedial action of serial correlation, standard errors are minimized and results are presented in table 9, model 4. Results of model 4 suggest that all parameters are significantly impact mutual fund return.

Conclusion

In this study five year data, ranges from 2010 to 2014 has been hand collected for this study with 19 open ended equity mutual funds. Findings of the study posit the previous research mostly.

There are so many factors that impact upon the performance of mutual fund but in Pakistan managerial attributes are not considered as factor that can change the performance of mutual fund. So this study is unique in its kind and contributing in existing knowledge that how young mutual fund industry's performance is effect by managerial attributes. Statistical results of this study reveal that managers' age, qualification and experience is highly statistically significant at 1% level that endorse that if manager is more experience in his field, he surely has superior knowledge about tendencies of market and he would out perform in managing the fund. Similarly if manager got professional experience this will give him more clear understanding of market and help him to understand the complexities of market and he would perform better. Manager age is also significant at 1% level that suggests that when manager is senior in age his vision and understanding is clearer than younger manger and he would perform better. Two explanatory, management fee and age of fund are also significant. Fund age is highly statistically significant with negative sing that suggests that fund that is older manage to get more assets under management with same number of fund managers that creates extra burden on fund manager and resultantly fund performance become negative. Finally, second explanatory variable is management fee that is not much contributing in fund performance and based on statistical results it can be stated that fund performance is independent form management fee charge by asset management companies in Pakistan.

Limitations

Our research is not without limitations certainly there are some limitation regarding data collection and data analysis. First, mutual fund market in Pakistan is emerging yet and all types of mutual fund do not exist widely in Pakistan. So this dilemma compelled us to take only open ended mutual funds. Furthermore, on this sample 2SLS technique can be applied to check the endogeneity because mutual fund returns may cause to change the explanatory controlling variable of study. Any justifiable proxy for those variables can be used as instrumental variable to make the findings more reliable. Moreover team structure and bio data of manger is not publish on respective websites of asset management companies that creates bottleneck for research to obtain data regarding every fund manager.

After rigorous research and data analysis we have enough reasoning to suggest some policy implication. Major implication of this research is for asset management companies. This is obvious form findings of this study that managerial attributes play significant role in performance of mutual fund performance. So asset management companies should go for talent hunting and select managers who have profession degrees of accountancy and finance. They should also take care of age and experience of managers. Regulatory bodies for investment in Pakistan should take measures to bound asset management companies to follow some devise minimum qualification and experiences standards to safeguard and protect interest of investor in Pakistan. Regulatory bodies of Pakistan should also take some measure to aware individual investors enough that lead them to make sure about managerial attributes of fund manager before investing in mutual funds.

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