

Performance Evaluation of Pakistan Mutual Funds



By

Muddassir Ali

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Supervisor

Dr. Jalil Ahmed

Department of Business Studies

Pakistan Institute of Development Economics Islamabad



Pakistan Institute of Development Economics

CERTIFICATE

This is to certify that this thesis entitled: “**Performance Evaluation of Pakistan Mutual Funds**” submitted by Mr. Muddassir Ali is accepted in its present form by the Department of Business Studies, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree of **Master of Science in Management Sciences**.

External Examiner:

Dr. Muhammad Jamil
Professor of Economics
KIE, University of Azad
Jammu & Kashmir, Muzaffarabad

Supervisor:

Dr. Jaleel Ahmed Malik
Assistant Professor
CUST, Islamabad

Head, Department of Business Studies:

Dr. Nadeem Ahmed Khan
Head
Department of Business Studies
PIDE, Islamabad

Declaration

I **Muddassir Ali**, Student of MS, Business Studies solemnly declare that I have done my research work entitled “**Performance Evaluation of Pakistani Mutual Funds**” submitted for partial fulfilment of MS, Business Studies degree in Finance, under the supervision of Dr. Jaleel Ahmad. Furthermore, I also declare that this thesis is original research work and no part (e.g. tables, results etc.) of this thesis is copied or plagiarized. I also solemnly declare that it has not been submitted for any other degree from this or other university or institute. All items copied from internet or other written sources have been properly mentioned in the quotation marks and with a reference to the source of citation.

Muddassir Ali

Acknowledgement

“A man who is unable to live in society and thinks he is self-sufficient for himself either beast or God”. Aristotle.

The above quota best describes the nature of a man. Being human it was not possible for me as well as completes my Thesis without the help and support of my well-wisher.

First of all I would like to thanks almighty Allah who gave me time and strength to complete my report. And also it will be unfair to acknowledge the services and guidance provided by my Supervisor Dr. Jalil Ahmad during the period of my Thesis work. I really thank him from the core of my heart.

Last but not the least I want to thank my parents and sister. I have always enjoyed their support and love during the thick and thin of my life.

Let me conclude with a quote which states that “He didn’t wish to be believed to be the best but to be it.” Plato.

Muddassir Ali

Dedication

Dedicated to

My Parents, Teachers

&

Brothers, Sisters and Friends

Who always pray for me and help me in the best possible way.

May Almighty

Bless them

Forever and ever

Aameen

Abstract

This study was aim to know the management effectiveness of open-ended mutual funds in Pakistan to aware fund manager and stakeholders. Many reasons that are separated management effectiveness for both “close ended mutual funds and open-ended mutual funds” i.e. funds flows, size and structure. The study focused on 26 mutual funds from 2012-2018. The diagnostic test revealed Fixed Effect Model is appropriate, for econometric estimation of the given data set. The findings of the study shows that on average the sharp ratio in Pakistan give positive outcomes, which means the mutual fund performance with higher risk have positive return. The coefficients of the variables from fixed effect model showed that total net asset, expense ratio and turnover have significant positive relation with net asset values at 5% and 1% level of significance. Liquidity ratio and age of the mutual fund appeared negative significant association with net asset values which means higher liquidity ratio and more mature fund have indirect relation with net asset values. The findings attract the investors interest to focus on the given relationship of variables and make decision to earn higher profit while public sector need to promote new mutual fund management asset companies such that investors have more options for making profitable business.

Keywords: Mutual Fund Performance, Net Asset Values, Sharp Ratios, Fixed Effect Model,

List of Acronyms and Abbreviations

MUFAP-Mutual fund Associations of Pakistan

NAV- Net Asset Value

E_Ratio- Expense Ratio

Age_Months-Total Number of months operational

Log_TNA-Natural log of Total Net Assets

PC- Percentage

MFI- Mutual Fund Industry

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CHAPTER NO 1

INTRODUCTION

1.1 Introduction of mutual funds

Mutual funds refer to the funds that are collected from various investors and they invested them on their behalf and that of the return is distributed among unit holders through per unit price and unit holding by investors. According to (Howells and Ban 2005) mutual funds offer an investment opportunity for various investors to utilize their available resources and invest in stocks, and enjoy economy of scale and can also reduce transaction cost. Similarly as per Gohar et al., (2011) mutual fund investment can increase once income level and it will reduce the risk with the passage of time it has been noted that the industry associated with MFI, has gone through extraordinary development in different parts of the world but still in developing countries this industry is operating at its initial stage.

During the last decade, Net Asset value (NAV) of Pakistan achieved a growth rate of almost 30 percent. In similar stance, Asset management companies (AMC) in July 2017, roughly dealt with almost 233 funds which also includes closed voluntary pension schemes. However, during June 2018 to June 2019 there has been a record growth of 27 percent and almost invested Rs. 574.29 billion in Open end Lending, tracked by Rs. 22.9 billion in closed-end lending and Rs. 25.21 billion in “Voluntary Pension Schemes”. (Asad and Siddiqui 2019)

Due to the development in mutual fund sector I, it has led to different sort of ‘mutual fund i.e., close ended and open ended funds. Open-ended fund is the fund where payment or recovery

of shares are approved on frequent basis and these are not the customers usually the shareholders. Whereas, Close ended funds are those funds whose shares are firstly offered to the public and then traded in the secondary market between different investors and for that reason their holders can be treated as customers not shareholders. For instance, Zera (2001), separated the two types of funds and pointed out that holders of open-ended funds are the shareholder though customers not shareholders are those trade with closed-ended funds.

The motive of mutual fund establishment to assistance the minor investors who cannot direct invest in dissimilar kind of securities, In this regard the AMC is very efficient and it provides professional management of rare resources with the help of experts in the stock market. Mutual fund provides intermediary between the borrowers and the lender and it was announced in 1962 in Pakistan, through the “public offering of NIT. Presently, National Investment Trust is the single open-ended mutual fund functioning in the public region.

ICP was opened in 1962 and it offered sequence of close ended mutual funds and later on it was distributed in two slots in June 2000 and then sold Private sector however around forty-three open ended and twenty two closed-ended mutual funds in Pakistan. From 1995 to 2005 there was a record and impressive rise in the MFI by a net asset of Rs 16b to Rs 137 billion. However, we cannot compare Pakistan mutual industry to that of international market as Pakistan mutual industry is very limited. According to Ajay Khorana et al., (2005) India holds with 3.7%, H K 20.3%, Malaysia 4.0% and S K 16.5% as compare to Pakistani has just 1.39% mutual funds asset to primary securities, as link to above mentioned countries. The above figure of different countries express that Pakistan has a smooth room to grow. Paid-up capital is like acceptable but in regard to global standards it is much less.

The AMC (Asset management companies) such as Mutual funds generally claims its effectiveness in their asset management activities and in the past various researchers have constantly debated the effectiveness of mutual funds. For instance, scholars such as (Shawki, 1982; Jensen and Michael 1964; Pushner et al., 1999; Bogle, 1991; George P & Artikis 2001 ;) has elaborated on the effectiveness of Management of funds by associating it with both managed and unmanaged indexes. Their outcomes and findings suggests the ineffectiveness of mutual fund to capture the market. In many other studies, scholars have attempted to point out the association of mutual funds returns with its attributes (Ippolito & Richard A 1992; Tan et al, 1997; Gallagher & David R 2003; Joseph, 2004). For instance, attributes can take forms such as the size of Fund, expenses associated with funds, and turnover ratio have been used to explore their association with mutual funds returns.

1.2 Problem of the study

During the last decade, Net Asset value (NAV) of Pakistan achieved a growth rate of almost 30 percent. For instance, during June 2018 to June 2019, there has been a record growth of 27 percent and almost invested Rs. 574.29 billion in Open end Lending, tracked by Rs. 22.9 billion in closed-end lending and Rs. 25.21 billion in “Voluntary Pension Schemes”. But still the industry in Pakistan lacks behind many of its regional and global counterparts I.e. Indian Mutual fund industry and American mutual fund industry. Alternatively there is a research problem in relation to Pakistani mutual funds industry which calls for a detail analysis by relating management effectiveness of open-ended mutual funds with its various attributes as the size of MFI in Pakistan is still smaller than its international counterparts. While studying at the potential of the industry and the demand of the small investors, it is essential to judge the relationship of certain attributes with its fund return in Pakistan.

1.3 Research Question of the study

1. What factors determine the performance of mutual funds in Pakistan?
2. Does size, expense ratio, age, turnover and liquidity are important in determining the performance of mutual funds in Pakistan.

The above two questions ask about the determinants that can potentially affect the performance of mutual funds. There are many potential factors that can determine the performance of mutual funds and therefore we have included the various determinants of mutual funds to evaluate mutual funds' performance in Pakistan

1.3 Objectives of the study

The current study developed to meet the following objectives.

1. To determine the performance of mutual funds in Pakistan
2. To highlight various factors such as size, expense ratio, age, turnover and liquidity in determining the performance of mutual funds.

1.4 Scope of the study

This study of mutual fund performance only includes asset allocation funds, equity funds, index tracker funds and balance funds other than these funds are excluded from the research and sharia compliant funds are also not part of the research, because sharia funds have different investment

strategies and cannot be mixed with conventional funds. Consequently, the scope of this study covers equity funds, asset allocation funds, balance funds, and index tracker funds.

1.5 Research Gap

Research gap of the study is such that, we have excluded sharia complaints mutual funds and only included conventional mutual funds because the former possess different investment strategies than the later. Secondly, this research study is different from the past studies in the time horizon as we have selected most recent available data in order to evaluate mutual funds' performance in Pakistan

1.6 Significance of the study

Mutual fund industry in Pakistan is growing over the time and very limited research has been conducted to evaluate mutual fund performance in Pakistan. In this study the researcher evaluated to recognize the determinants of fund performance like size, age, expense ratio, Turnover and liquidity on performance and want to know their effect .This will let the investors and management of the fund companies to identify the performance of its attributes.

1.7 Theoretical Framework

This study integrates portfolio theory and rational theory of mutual funds to evaluate performance of mutual funds in Pakistan. Mutual funds offer single investors an opportunity to invest in securities and take advantage of both economies of scale as well as lower cost in transaction or transaction cost (Howells & Bain 2005). Small investors own funds but often lack better and safe investment opportunities and mutual fund as an asset management company functions in the same line by gathering these funds and investing in other securities to makes

profit. Evaluation of Mutual funds' performance requires various potential explanatory variables. For instance, (Korkeamaki & Smyth 2004) elaborated that mutual funds size and mutual funds returns are related with each other. In other wordseffect of funds size can be assessed by calculating the relationship of fund's net assets with its return. In particular, small mutual fund in size as measured by net assets outshines their large counterparts. For instance, Gorman (1991)found that large mutual funds perform slightly weaker as compare to small mutual fund measured by net assets. As per the theory of efficient market, it is really hard and difficult to generate long term positive funds return.

The importance of expense cannot be avoided particularly dealing with open-ended mutual funds. For instance, Miles Livingston & O'Neal (1998) emphasized the crucial role of expense in determining the performance of mutual funds. Some other factors can also explain the variation in return such as fund turn over and age of mutual fund. Mark M & Carhart (1997)established an inverse association between fund returns and fund turnover. Rao (1996)by using sample size of 964 funds and established statistically insignificant relationship of expenses with age for US mutual fund industry denoting that age with size is also an important factor that shows an important role in mutual fund industry.

The previous studies and theoretical framework proposes that determinants of mutual funds' performance reveal notable role in the advancement of importance to mutual funds specially in developing economies where the financial and monetary market is weak and needing special attentions to promote the sector, for a better mutual performance the turnover ratio is expected to have high yield that actively promote the life span of the funds which boost the size of funds. And automatically the expenses of the funds also increase substantially because of higher age and size that cause to increase the liquidity of funds. Hereafter in short words we can

conclude that all these channels are linked with mutual performance strongly and it's expected that they have 'significant 'impacts on the determination of MF performance.

Here are multiple determinants and instruments that is take to describe the performance of Mutual funds which differs as stated by nature of economies i.e. in developed economies they are stable in nature while in developing economies they are sensitive because of many emerging and facing economical and financial issues and problems Mukul et al., (2006). This attempt is aimed at estimating the management productiveness regarding open ended MF in Pakistan for the purpose of minor investors and fund managers could reap benefit. In the next section, researcher will discuss data and methodology of study.

1.8 Organization of the Study

The first chapter highlighted brief introduction of the topic focusing on Introduction, objective, significance and scope of the study. In second chapter researcher evaluated the previous studies related to our objective of the study while in chapter three we briefly discussed the research methodology followed by data analysis chapter four we have seen the features, characteristics and estimations of the data associated with the study. In final section i.e. chapter five researcher have concluded our study with some suggestions and policy recommendations based on our findings.

CHAPTER NO 2

LITERATURE REVIEW

The interdependence of open-ended fund's presentation with its characteristics in different time period for the settled economies have been precisely evaluated by many researchers Söderlind P et al.,(2000); Korkeamaki, 2004). The aftermath the return on its funds size could be evaluated by calculating the interdependence of funds net asset with its return. Preliminary researches have been shown the lofty is its operating efficiency and smaller the size of funds concluded United State fund size realized with its smaller quartile high and mighty performance in relation to some other quartiles Robert (1988). The conclusion shows Jensen Abnormal performance index at 90% level of insignificance which express smaller quartile had significant positive risk adjusted returns.

Likewise there is another study indicate small mutual funds which measured by net assets perform better in regard of large mutual funds Gorman, (1991)These studies shown that mutual fund deplete economy of scale latter or sooner or ended up in the form of decrease returns (J Chen et al., 2004; Becker et al., 2001, Söderlind P et al., 2000)evaluated the interdependence of fund size of fund size with its performance data took from Swedish market and ended-up that if “equity funds that are tiny in size” can deliver finer performance, consistence of management efficiency has been attention for many researchers.

Moreover, theoretically efficient market also emphasis that over series of time generating positive funds returns for funds managers is being challenged continuously. Stephen J et al., (1995) studied annually fund returns for US funds and came up with the result that returns consecutively co-related overtime and thus neutralizing the efficient market hypothesis, study

further advises to determining future of mutual funds return can also be determined the past performance of mutual funds. However, much of the studies on mutual funds are coming up with an outcome that; all the dynamically managed funds are unable to raise returns completely to back their expenses.

The importance of open ended funds can be found in Livingston et al., (1998). In similar stance, Elton et al.,(1993)investigates mutual funds return in United states and came up with a conclusion that, there is a negative association allying equity based fund performance and the size of expense ratios. Similarly, a slight different form of expense is the “load” which is investigated by Droms and Walker(1995). As per these researchers, pooled model that is cross sectional and time series regression model can identify that no-load and load standing, turnover rate, asset size and expense ratios was similar to unadjusted and risk adjusted returns. W. McLeod et al.,(1997)evaluated a slight different, structure of mutual fund expense 12B-1 started that the fund managers should defend such expenses in regard of more returns.

In same way, Korkeamaki & smyth(2004)analyzed this specific similarity from Finish market and then found that older funds charge higher expense and there are no incentives for investors in the presence of higher expense for higher risk adjusted returns, for achieving their goals fund managers chosen active or passive management strategy to signifies level of funds turnover, where higher turnover symbol shows active fund managers and vice versa. Numbers of researchers have examined the interdependence among fund turnover and funds gain. On the other hand (Söderlind P et al., 2000,Wermers, 2000)established a direct link between turnover and fund returns. Glenn et al., (2004) claims that open ended funds has to keep more of its assets in form of cash because it has the probability of recovery. Therefore an “open-ended fund which may end in less gain for the open ended mutual funds”.

Moving on a number of studies has also used funds life time as a deciding factor to calculate many kind of variables of mutual funds such as size, funds flows, return and expense. The research of Spuma M & Rao(1996)took sample size of 994 funds find out an insignificant of expenses with age for United State Mutual Fund Industry. Moving on, some other study of Julia Sawicki and Frank Finn(2002)confirmed life time of funds to performance young fund tool sample size 55 Australian funds. In the other hand huge number of researchers has observed US mutual funds Karlsson et al., 2005)while, mutual fund industry of other growing markets has fascinated researchers substantially in recent time. Therefore Ramasamy et al., (2003) survey the relative importance of different factors for the choosing, of mutual funds by financial counsellor in Malaysia andcame up with these results; that; consistent cost of transaction, size of funds and past performance were the three main determinants that influencing the fund's performance. In consideration of India's fund industry because of its quick growth. further, Narayan Rao Sapa & Ravindran Madava(2003)analyzed mutual funds performances by choosing the mutual fund industry in India and suggested that overall funds were capable to fulfil investors demand by issuing excess return in regard of expected return which were basically included both types of risk such as systematic as well as total risk. Once again Mukul et al.,(2006)analyzed pension fund industry in India and explored that two developments are extremely important such as reliable and superior system with ultra- professionalism are crucial in this regard.

However, as we can see a growing number of researchers across the globe are dealing with this issue but unluckily the MFI in Pakistan is still its initial stage and there are more opportunities to be explored as long as the mutual funds industry in Pakistan is anxious. Cheema et al.,(2006)in their study of Pakistan's Mutual Funds industry revealed that small investors can be attracted to invest on these funds if there are a well-functioning governance system in the country.

Moving on, in an another research by Sipra (2006) assessed the performance of closed ended mutual funds in Pakistan and data collected from the period 1995-2004 and came up with a conclusion that by Jensen and Treynor measures probably half of the funds are on the top position over five years as far market portfolio is concerned.

In Pakistan Talat Afza & Ali Rauf(2009) studied mutual funds 1999-2006 and find out that expense ratio and age are having positive relation with performance but are statistically insignificant .the 12B-1 have significant positive relation with performance they also suggest that size is not a significance factor in performance evaluation.

Conclusion

The literature shows that there is variation in result by different researcher in different markets; especially when it comes to Pakistani markets there have been not so much research, evaluating mutual funds this paper especially investigate the size, age, expense, liquidity and turnover on 'performance of mutual fund in Pakistan market.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Research Methodology comprises set of tools and techniques that researcher follows to find the final conclusion of the selected objectives. It helps researcher to go in scientific and systematic way to achieve the desired objectives. In the current chapter the researcher discussed the tools and techniques used throughout the research period. After introductory paragraph, the researcher discussed the theoretical framework used in the study. In third section mathematical representation with econometric model the researcher considered is briefly discussed. In section 4 researcher discussed the research strategy used in the model. In final section the researcher concluded the current chapter.

3.2 Theoretical Framework

Wermers, (2000) investigated the mutual fund performance and predicted that according to some key factors and variables that are associated with the fund performance i.e. expense ratio, turnover, fund size management, past performance, management fees, manager style of investment etc. can be used as determinants of mutual funds. The later studies of (Sanjeev Bhojraj et al.,(2012)&Richard J. Dowena & Mann 2004)confined that Fund performance and firm size have strong relationship with each other.J Chen et al., (2004) found that size can eradicate fund performance due to liquidity factor. Elton et al., (2011) found that with increase in performance and size of mutual fund, the management fee and expense ratio in mutual funds decreases. In the same manner, Otten and Bam, (2002) argued that young fund doing good in

performance as compare older one because the investors always prefer younger funds, because the expected yield of younger fund is higher than that of older one. Afza & Afza (2009) studied Pakistan's mutual funds and found that age and expense ratio in the mutual funds have positive relation with performance but because of the high structural changes and policy shocks, the result been obtained statistically insignificant.

Hence the literature highlights possibility of strong and evident based significant relationship varying in magnitude and direction can exists among the considered variables. The author concludes its expected outcomes towards the relationship among focused variable as there is possibility of strong statistically significant relationship among different indicators of mutual funds, but the result may also contradict with existing theories and previous literature. This is because that in Pakistan, the customers of mutual funds are rare and people mostly prefer to invest on other sectors like real estate, bonds and shares etc. The diagrammatical representation of undergoing study is given below.

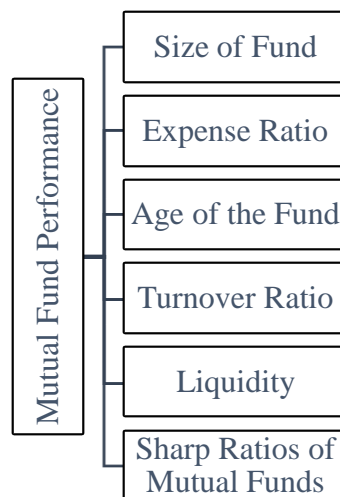


Figure 3.1: Theoretical Framework: Source: (Afza, 2009)

3.3 Specification of the Regression model

The following regression model will be used for analyzing performance of funds.

$$\begin{aligned} \text{Return} = & \alpha + \beta_1 (\text{Size})_{it} + \beta_2 (\text{Expense Ratio})_{it} + \beta_3 (\text{Age})_{it} + \beta_4 (\text{Turnover})_{it} \\ & + \beta_5 (\text{Liquidity})_{it} + \varepsilon_{it} \quad (\text{Eq. 3.1}) \end{aligned}$$

Where in the above model dependent variable is the annual return of funds and α : is constant of equation. $\beta_1, \beta_2, \beta_3$ are the respective coefficients. On the right hand side, in order to avoid omitted bias researcher will include Size, expense ratio, age, turnover and liquidity as an explanatory variables of the study. And finally, ε_{it} is residual term which shows the unexplained part of the study model.

3.4 Research Strategy and Econometric Technique

We will employ regression analysis in order to achieve our study objectives. In the preceding model, we have unknown parameters in the form of α and β 's. In order to obtain values for these parameters OLS has often been employed by different researchers. OLS as an econometric technique with its well-known properties offers values for these parameters if and only if certain assumptions are not being violated. One of the important assumption of OLS is that of no endogeneity among explanatory variables and error terms. That is, on average there should not be any correlation between independent variables and error term. In most of the panel models, presence of individual heterogeneity also creates the issue of endogeneity and in such circumstances using OLS will gives us biased and inconsistent estimators. In other words, we cannot employ OLS in the presence of individual heterogeneity in our model. Consequently, in order to avoid the issue of endogeneity we will employ most suited model for panel data set namely Fixed and Random effect model. Fixed effect model as its name suggest fixed these

individual differences and offers unbiased and consistent estimators and solves the issue of endogeneity. In the same way, Random effect also provide us the same unbiased and consistent estimators by controlling for these individual characteristics. However, the only difference between Fixed and Random effect model is that, the former explains variations within a specific individuals funds, while the later offers variation between different individual funds. In order to choose among Fixed and Random effect model, we will employ Housman specification. According to Housman specification model fixed effect is appropriate.

3.5 Conclusion

The brief research methodology suggests that there is possibility of strong significant relationship can exist among the focus variable. In the current study the researcher undertakes mutual fund performance as dependent variable while size of the mutual fund, age, expense ratio, liquidity, turnover ratio, and sharp ratios as independent variables. Besides sharp ratios and size, liquidity ratio and expense ratio, rest of the variables researcher consider as control variables. Since the researcher is taking cross sectional data for 26 mutual funds for a period of 2012-2018, provides panel data and for these type of panel or pooled data OLS have no BLUE features. Therefore, the researcher decided to choose random effect, fixed effect or pooled regression model based on different diagnostic test. The diagnostic tests and rest of econometric estimation is highlighted and discussed in chapter five of the current study. In next section researcher briefly highlighted the features of undertaken variables with their statistical features.

CHAPTER 4

DATA AND DESCRIPTIVE STATISTICS

4.1 Introduction

In this chapter the researcher explained the data description that includes nature of data, and sources and data collection followed by focused dependent and independent variables. In section 4.6 researcher explained the sharp ratios and a short descriptive table is been used for showing the average sharp ratios indicators in Pakistan. In section 4.7 the researcher discussed the descriptive features of dependent and independent variables while in section 4.8 the researcher highlighted the correlation to show the degree of association among dependent and independent variables.

4.2 Nature of Data & Source

The data is secondary in nature and quantitative .The data has been collected from the years starting 2012 to 2018. Annual reports of the asset management companies extracted from their official websites and the NAV value collected from MUFAP website.

4.3 Data Collection limitations and sample size

As this study focuses on equity funds and those funds which can invest their assets to 50 percent equity investments, so MUFAP categorize these funds into-equity fund, balanced fund, asset allocation fund and index tracker. Equity fund totally invests in equity type while the other can invest 50 percent of their investment into equity market. Other than these types of funds are excluded from the sample. Currently there are 40 funds in these categories and out of them 10 funds are newly formed and do not have past history for about more than three years and some of

these funds have currently merged into existing fund. So after those exclusion only 26 funds are acceptable for our findings, and the time period of seven years starts from 1st July 2012 and ends to 30th June 2018. These 26 funds are operational before July 2012 so we have a total of 182 observations

4.4 Dependent variable of the study

4.4.1 Performance

Performance of Mutual funds is the dependent variable of the study. In order to measure performance of mutual funds, researcher converted daily Net asset value (NAV) into annual NAV Sharp Ratio used by Afza & Rauf (2009). Annual NAV represent the performance of mutual funds and can be affected by a number of factors which have been discussed below.

4.5 Independent variables

4.5.1 Size of funds

The size of mutual funds Fund may affect the performance in many ways and could be both economies and diseconomies of scale, some researcher argued that economies of scale could be lowering of expense ratio and administrative costs, and diseconomies of scale due to organizational difficulty and trade without giving a proper information in the market Chen et al., 2004. Size has been taken as independent variable. Total assets held by companies in form of portfolio or receivables and their current market value is taken as size. Natural logarithm of total net assets used for Size.

H1: Size of funds has significant impact on Mutual fund performance

4.5.2 Expense Ratio

Expenses for a particular year has been retrieved, which can include management fee and other expenses by the company. The total expense for a year divided by total net assets which results per unit cost incurred for managing that fund. If by spending more resources on active management manager increase the return, then expenses regression coefficient should be positive Afza and Rauf (2009)

H2: Expense ratios has significant effect on Mutual fund performance

4.5.3 Age

Age start from the date at which the fund started; researcher took age in years. The performance with age told us about the effect of time period on performance. As mutual fund become more experienced when the number of years increased in mutual funds industry. Some studies show that older funds perform better than newer because of learning by doing process. Some suggests newer fund may more efficient and could perform then the older one. Furthermore, Chen et al. (2004) found no relationship between performance and age of fund, but in the other hand Otten & Ban (2002) studied and found a positive Relationship among the two variables performance and age of funds.

H3: Age of funds has significant effect on Mutual fund performance

4.5.4 Turnover Ratio

Turnover ratio reveals the total trading activity assumed by the fund during the quarter which has been converted into annual. Turnover is a ratio that is measured the number of times inventory is sold or consumed. In future, if active management rises return the turnover variable will have a

positive relationship with fund's return Gohar et al., (2011)Hence Mark M and Carhart (1997) studied and found negative relation of portfolio turnover ratio on the performance of mutual fund.

H4: Turnover of funds has significant effect on Mutual fund performance

4.5.5 Liquidity

Liquidity ratio is reported by mutual funds to provide clear picture to the investors with insights that how much cash the funds is holding. Liquidity measured by the fund's total cash on annually basis, taking percentage dividing the total cash or cash equivalents by the fund's total assets. If upturn in cash balance avoids quick sales of assets, then relationship of liquidity with fund return is likely to be positive (Afza, 2009)

H5: Liquidity has significant effect on Mutual fund performance

4.6 Sharp Ratios of Mutual Funds

In Pakistan mutual fund started its journey in 1962, when the first National Investment Trust functionally operated. The turnover fund level denotes passive or active management tools chosen by fund representatives in order to meet their active goals where higher rate of turnover show active management. One of the important financial term associated with the performance of mutual fund is sharp ratio. Sharp ratio tells us about the risk factor associated with the return of mutual funds. There is possibly both positive and negative sharp return values. Positive sharp return means higher outcome and profit earning from the mutual funds while the negative sharp ratio values indicate higher risk factor lead to loss in the mutual funds. The below table give a quick overview to the sharp ratios that have been calculated by the author using total return –

risk factor divided by standard deviation. Since mostly the available data is on daily basis; therefore, to neutralize the data, it is been converted into average annual data. The results of sharp ratio are given as follows.

Table 1: Descriptive Analysis (Sharp Ratio's)

Measures	Total Return	Out Performance	Daily SD	Annual SD	Sharp Ratio
Mean	9.22	0.00609	0.014125	0.224235	0.004424
Median	7.49	0.071097	0.012675	0.201212	0.118675
Maximum	10.51	6.096818	0.021619	0.343188	3.987121
Minimum	7.31	-5.46424	0.008046	0.127726	-2.827
Std. Dev.	9.49	1.628007	0.004135	0.065637	1.333404
Observations	26	26	26	26	26

Table 1 show the average behavior of out performance, daily standard deviation, annual standard deviation, and sharp ratios. From the given table we can see that daily standard deviation recorded in the study time period for 26 mutual funds is 0.014 while the average annual standard deviation recorded slightly higher that stood 0.22435. Sharp ratio indicates the earning from the risk taking. We can see that on average mutual funds experiencing 1% higher risk have positive returns of 0.004424%. This means that average performance of mutual funds in Pakistan are positively associated with risk taking. The maximum sharp ratio return is been recorded Alfalah Mutual Funds which have positive return of 3.98% while lowest is been recorded in ABL Mutual funds that stood -2.87% in 2015. Hence, we can say that on average, the performance of mutual fund sharp ratio in Pakistan have positive returns through out the study period.

4.7 Descriptive Statistics

The below table highlights the descriptive features of our considered variable. The purpose of discussing descriptive statistics is to show the average behavior of our variables.

Table 2: Descriptive Analysis

	NAV (Sharp Ratio)	Log_TNA	ERATIO	TURNOVER	LIQUIDITY	AGE (In Years)
Mean	0.007436	21.95475	0.045783	0.830132	8.65551	12.45
Median	0.004749	22.06517	0.034484	0.85	8.674298	10.12
Maximum	0.107039	25.04157	0.59537	1.5	10.01687	8.5
Minimum	-0.02037	18.55033	-0.03283	0.076	6.189669	13
Std. Dev.	0.013206	12.74441	0.057574	0.1828	6.32935	5.3
Observations	182	182	182	182	182	182

The above table 1, tell us about the descriptive behavior of variables under consideration. The average net asset value (NAV) shows that 26 mutual financial institution have average value equals to 0.007436 having maximum value recorded 0.107 been recorded in AKD opportunity fund in 2012 while lowest been recorded -0.02037 in ABL stock fund in 2014. The Log_TNA where maximum is recorded value 25.04 and lowest is been recorded 12.7. The Expense ratio for the mutual fund institution is been recorded 0.045 with highest 0.5953 and minimum of -0.03283. The liquidity ratio recorded maximum value 10.01 and minimum is been recorded 6. The standard deviation of age is 5.3 where maximum of 12.45 and minimum of 5.3. The total number of observations included in the study are 182 that have been collected from period 2012-2018 for a total 26 mutual funds organizations.

4.8 Correlation Matrix

The table 1 briefly showed the descriptive behavior of mutual fund related variables. But it is important to show the correlation matrix to highlight the degree of association among variables. This is been used because of two important reasons, First correlation matrix tell us about the association between variables and secondly it tell us about the multicollinearity. Multicollinearity

arises because of the strong relationship among variables and in the presence of high multi collinearity our estimates either may be insignificant or either may be have high significant values.

The blow table give us a quick overview of the correlation matrix of variables. Here we need to confirm that since we are taking panel/pooled data that have features of time series and cross sectional, and because of time series nature there may arise normal correlation. So we will ignore the correlation between -0.5 and 0.5. Usually the value of $-1 < r < 1$, which means nearer to -1 give us negative correlation and nearer to +1 give us positive correlation.

Table 3: Correlation Matrix

	NAV	LOGTNA	ERATIO	LIQUIDITY	TURNOVER	AGE
NAV	1					
LOGTNA	0.03743	1				
ERATIO	0.204896	-0.14063	1			
LIQUIDITY	-0.02764	0.35472	0.017058	1		
TURNOVER	0.136495	-0.00576	0.001648	-0.06965	1	
AGE	0.068375	0.4906	0.282886	0.384608	-0.00748	1

From the above correlation matrix we can see that all of the variables i.e. Net Asset Values (NAT), Log Total Net Assets (LOGTNA), Expense Ratio (ERATIO), Liquidity, Turnover and Age of the mutual funds have no correlation or very small correlation with each other. The degree of association between NAT, LOGTNA, ERATIO, LIQUIDITY and Age is given as 0.03743, 0.204896, -0.02764, 0.1364 and 0.068375, respectively. This show that expect liquidity all the variables have positive degree of association with net asset values. It is general phenomenon that higher the liquidity ratio will lead to lower net asset values. Therefore, the correlation between given variable is negative. Almost all of our variables have normal correlation with each other. Only higher correlation cane be seen among age of the mutual funds and total net assets of the mutual funds that is 0.4906. But as we discussed earlier that due to

time series features of the variables this small correlation can be ignore. So, we can say that there is no problem of multicollinearity in our data. We can apply econometrical techniques to find out the performance of mutual funds.

CHAPTER 5:

RESULT AND DISCUSSION

5.1 Introduction

The current chapter deals with the econometric results and findings of the study. The current study undertakes cross sectional data i.e. the data from 2012-2018 for 26 mutual funds of different public and private sector organization. The current chapter is designed after introductory paragraph simple pooled least square method is been used only for the purpose to explore the significance of variables such that there can be made a comparative results towards the heterogenetic responses of the data. In section 5.3 the researcher used pooled diagnostic test to find the suitable methods for the ongoing study. There are three key methods can be use for cross sectional data i.e. pooled regression, fixed effect and random effect model. The diagnostic test will help the researcher to find the most suitable method. In section 5.4 fixed effect regression results are been focused because the diagnostic tests confirmed that fixed effect model is more suitable than pooled and random effect model. In final section of current chapter, the researcher concluded the hypothesis acceptance and rejection based on the findings of fixed effect model. The brief discussion of each section is now discussed as below.

5.2 GMM Panel Data Results

Rao (2001) in his study on performance of Large-Assets of mutua funds stated that since the data set of mutal funds usually is of panel form, therefore we can rely on the GMM panel regression analysis without taking the difference or integrating orders of variables. It is because that all of the variables of different organization are been taken in balanced data set form and there comes

no issue of the time series. Therefore, we can use simple GMM method to explore the relationship. The below table give findings of normal GMM results of the data set. We will discuss the panel estimations and the counter results of Generalized Method of Moment using the best suitable method through different diagnostic tests after the the current regression analysis. It will help us to compare the findings of regression coefficient results and GMM estimations.

We have taken Net Asset Values (NAV) as our dependent variable while total net assets, expense ratio, liquidity, turnover and age of mutual funds as dependent variables. The results are given as follows.

Table 4: GMM Panel Analysis Results

Dependent Variable: NAV				
Method: Generalized Method of Moments				
Estimation weighting matrix: HAC (Bartlett kernel, Newey-West fixed bandwidth = 5.0000)				
Standard errors & covariance computed using estimation weighting matrix				
Instrument specification: TOGTNA EXPENSE RATIO LIQUIDITY RATIO				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.0234	0.017488	-1.33821	0.1826
LOGTNA	0.002218	0.00119	1.863561	0.064
ERATIO	0.058342	0.018719	3.116769	0.0021
LIQUIDITY	-0.00305	0.001892	-1.61189	0.1088
TURNOVER	0.008985	0.005251	1.710964	0.0888
AGE	-0.00074	0.0009	-0.52518	0.6001
R-squared	0.4730	Mean dependent var		0.007436
Adjusted R-squared	0.4256	S.D. dependent var		0.013206
S.E. of regression	0.1310	Sum squared resid		0.031713
Durbin-Watson stat	1.9943	J-statistic		14.39200
Instrument rank	4	Prob(J-statistic)		0.00007

The above table 3 tell us about the GMM results of our estimates. Our dependent variable is Net Assets Values while total net assets (LOGTNA), Expense Ratio (ERATIO), Liquidity, Turnover and Age of the mutual funds are been taken as independent variables. To signify the variable in GMM term, the author taken expenses, log liquidity and log TNA as instrumental variables. The

model significance results i.e. R^2 , Adjusted R^2 , J-statistics and probability of J-statistics show the significance of model. The value of R^2 and Adjusted R^2 is quite normal depicting that the considered variables explain the dependent variable around 47.23%.

The Coefficient results indicates that total net assets, expense ratio and turnover have significant and positive relation with net assets value at 5% level of significance while liquidity shows significant negative relation with net asset values at 10%. Age give negative insignificant relation with net asset values. The result indicates that 1% increase in total net assets lead to increase the net asset values by 0.002218% having significant relation at 10%. The expense ratio indicates that 1% increase in expense ratio leads to increase the net asset values by 0.05834% which is significant at 1%. The turnover indicates that 1% increase in turnover ratio of mutual funds increase the net asset values by 0.0089% that is significant at 10%. This means all the mentioned three variables i.e. Total Net Assets, Expense Ratio and Turnover Ratio have significant positive relation with Net Asset Values at 5% and 10% level of significance. Shah and ZA (2018) concluded in his research work that since total net assets represents the worthiness of mutual funds, therefore the increase in total assets means having higher net returns which comes from net asset values. Rao and Umaishwar (2001) propped that expense ratio denotes the capabilities and expenses of mutual funds, which means higher expense ratio denotes the greater returns from the assets, therefore the relationship between expense ratio and net asset value is positive and significant. Both (Rao, 2001& Shah, 2018) concluded almost same remarks about turnover ratio. They stated that higher turnover ratio means the activeness of a mutual funds. Higher the turnover ratio means higher trust and capability of the mutual funds. Therefore, the earnings from the mutual funds indicates positive relationship with net asset values. Our findings regarding the relationship between net asset values with total net assets, expense ratio and

turnover ratio show positive and significant. Therefore we can say that estimates of our regression analysis are matching with the theory and previous studies on the topic.

Karlsson et al., (2005) stated about liquidity that there is negative relationship between liquidity and net asset values, because higher liquidity means, a mutual fund is more fastly transferable to liquid cash but the maturity of the fund is either too short or too long which makes consumer to less bow down towards liquid form. From our above estimates of regression analysis, we can see liquidity give negative and insignificant relation at 1% and 5% but is significant at 11%. So we can say that 1% increase in liquidity may lead to decrease the net asset values by 0.0035%. About age of the mutual funds, there is dual literature on the topic. Some authors argued that when a mutual funds age increases the customers trust on the organization build up and more people interested to get involve with the benefits while some argued that investors are more optimist towards new funds, therefore they prefer to invest on new mutual funds providers. Hence young mutual funds have more chances of net asset values as compare to aged one. From the findings about regression we can see that age of the mutual funds give negative insignificant relation with net asset values. As Afza & Rauf (2009) observed the same results concluding that some of the mutual funds have positive while most of the funds have negative relation with net asset values, therefore for a shorter period of time series and data set, the findings give insignificant results.

5.3 Panel Data Diagnostic Test Results

Afza and Afza (2009) stated that regression analysis result simply give us the coefficient values that are not easily to be relied because of different policy shocks, different group intercepts, and most importantly the time and cross sectional behavior of the variables. Shah and Zahid Ali

(2018)in his study stated that it is important to highlight the diagnostic test which tell us about the best possible and suitable method for the panel data estimations. The below table give us some diagnostic tests i.e. Chow test used for common intercept appearance in the group, while Breusch Pagan Test is been used to stimulate that pooled or random estimation technique is better. Through Hausman test we try to find out that either Fixed Effect or Random Effect model best suits our estimation results. The findings of the results are given as below.

Table 5: Diagnostic Test Results

Chow Test	F-Stat	Prob	Decision
H0: Pooled Model is Better than Fixed	1.6524	0.0187	H0 rejected
H1: Fixed Model is better than Pooled			
Breusch Pagan Test	Chi-Sqr	Prob	Decision
H0: Pooled Model is better than Random	0.551318	0.4532	H0 Accepted
H1: Random Model is better than Pooled			
Hausman Test	Chi-Sqr	Prob	Decision
H0: Random Effect Model is appropriate	10.9879	0.0118	H0 rejected
H1: Fixed Effect Model is appropriate			

The first diagnostic test is been used to check out that among pooled model and fixed effect model which one best suit our data set. We can see that the null hypothesis of Chow test i.e. Pooled Model is better than Fixed model is been rejected at 5%. Which means for the ongoing data set, we can use Fixed effect model. Second test Breusch Pagan Test is been applied to check weather pooled model is best or random model. We can see that the null hypothesis of Breusch Pagan test is been accepted at 5% which means, for the ongoing study data set we can use pooled data over random model. But our first diagnostic test confirmed it that Fixed Effect model more suitable for the data set. , we used Hausman Test to check either Random Effect model is suitable or Fixed Effect Model. The null hypothesis is been rejected supporting the usage of Random Effect model appropriateness. The alternative hypothesis is been accepted which states that Fixed Effect Model is more appropriate than random effect. From the diagnostic test results,

it is confirmed that for the ongoing study we can rely on Fixed Effect Model. Different researchers i.e. Shah (2018); Rao, (2001); Abbasi et al., (2012); Wermers (2000) & Richard J. Dowena & Mann 2004) have applied the same techniques to explore the mutual funds' performance.

5.4 Fixed Effect Regression Analysis

Since we are dealing with cross and time series data together, that give us panel data. From the above diagnostic test, we found that Fixed Effect Model is best suiting our data for further panel data analysis. There is another logic that most of the researchers i.e. Sajid & Gohar (2019) argued that “there is some time after and before phenomenon that is related to panel data analysis, and to explore their behavior before and after phenomenon best suits the applicability of fixed effect model”. Therefore, we are going to apply Fixed Effect Model to estimate our regression results for panel data. The results are given in the below table.

Table 6: Fixed Effect Model Estimation

Variable	Coefficient	Std. Error	t-ratio	p-value
C	-0.00279	0.0355776	-0.0764888	0.98
LOGTNA	0.008743**	0.00280429	3.118161816	0.0132
ERATIO	0.11329***	0.0364302	3.1097825	0.01423
LIQUIDITY	-0.003049*	0.001892	-1.611886	0.0976
TURNOVER	0.008985*	0.005251	1.710964	0.0888
AGE	-0.0102219**	4.50E-03	-2.0986	0.04898
R-Sq	0.34621	Adjusted R-Sq	0.3298	
F Statistics	3.3989	Prob	0.00421	
		AIC	-856.324	
		HQ	-798.7896	
		DWT	2.1321	

Table 6 tells us about the coefficient values of the variables. Net Asset value is taken as the dependent variable while log total net assets (TNA), Expense Ratio (ERATIO), Liquidity, Turnover and Age of the mutual funds are taken as independent variables. We can see from

the diagnostic tests, that R^2 value shows that around 34.62% variation in net assets comes from the given independent variables. The F-Statistics suggest that overall model is significant while Durban Watson Statistics show no problem of Autocorrelation in the data.

The coefficient value shows that Total Net Assets, Expense Ratio and Turnover shows positive and significant relation with Net Asset Values while liquidity and age of the mutual fund show negative and significant results. The findings show that on average when there is increase 1% in Total Net Assets, the net asset value increases by 0.0874423% while 1% increase in expense ratio lead to increase the net asset values by 0.1132%. Both of the results are significant at 1% and 5% respectively. Turnover ratio shows positive significant result at 10% suggesting that 1% increase in turnover ratio lead to increase the net asset values by 0.0089%. The findings of liquidity show that it is significant at 10% suggesting that 1% increase in liquidity will lead to reduce the net asset values by 0.003049%. The age of mutual fund states that with one month increase in the mutual fund, the net asset value falls by 0.102219%. This depicts that younger mutual funds have higher net asset values as compare to older one.

The findings of the fixed effect model is somehow different from that of simple regression results. Because in regression analysis the age of mutual fund was insignificant. The value of R^2 in fixed effect model is improved showing that around 34.5% variations in dependent variables comes because of the independent variables which was 7% in regression analysis. The results of regression analysis closely resembled with that of (Afza, 2009) who also have founded the almost the same results. While in fixed effect model there is been observed some difference in the current study's result and that of literature. Rao & Umaishwar (2001) argued that there is positive relationship between age and net asset values because higher maturity means more stable while Shah & Zahid Ali (2018) concluded that investor's perception towards new mutual

fund is optimistic, therefore the relationship between age and net asset value is inverse. Our finding support Shah (2018) estimates and there is been observed negative relationship between age and net asset values. This support the modern theory or younger mutual funds have higher returns. Therefore, with time the net asset values of mutual funds fall as compare to that of old one.

5.5 Hypothesis Testing

The findings of study from the above tables shows that there is significant relationship between mutual funds performance and its determinants. We have applied simple panel regression analysis and Fixed Effect Model. Simple regression analysis is been used only to show the behavior of relation among different variables. While Chow test, Breusch Pagan Test and Hausman Test supported that fixed effect model in the current study is better than the other measures. The hypothesis mentioned in the methodology section are now been concluded in the given table.

Table 7: Hypothesis Acceptance or Rejection

S.No	Null Hypothesis	t-test	Probability	Decision
1	Size of funds have no significant impact on mutual fund performance	3.11816	0.0132	H0 rejected
2	Expense ratio have no significant impact on mutual fund performance	3.1097	0.0142	H0 rejected
3	Age of the Funds have no significant impact on mutual fund performance	-2.0986	0.04898	H0 rejected
4	Turnover of the funds have no significant impact on mutual fund performance	1.710964	0.0888	H0 rejected
5	Liquidity have no significant impact on mutual fund performance	-1.611886	0.0976	H0 rejected

The above-mentioned hypothesis estimates are fixed effect model estimates. The null hypothesis has been rejected that showed there is no significant relationship or significant impact of given

independent variable on our dependent variable. Hence, we can conclude that the given variables have significant impact on mutual fund performance.

CHAPTER 6

CONCLUSION AND POLICY RECOMMENDATION

6.1 Conclusion

Being a developing economy Pakistan mutual fund market is an emerging market, that still struggle and polishing its service sector through capital market. The current study seeks to fulfill the research gap to evaluate the management effectiveness of open ended mutual funds in Pakistan, with the aim of benefiting the fund managers and the small investors. There are many reasons to accept that management effectiveness for close-ended mutual funds would be different from open-ended due to price structure, size and fund flows. Total 26 mutual fund asset management companies from all over Pakistan have been taken under-consideration from 2012-2018. Different Econometrical and statistical estimations have been applied. We have taken mutual fund performance as our dependent variable which is been denoted by net asset value. While total net assets, expense ratio, turnover ratio, liquidity and age of the mutual funds are been taken as independent variables.

The sharp ratio is been discussed to show the performance of mutual funds in Pakistan that revealed that during the study period the mutual funds asset management companies have observed positive sharp ratio indicating profit earning with taking higher risk. The daily standard deviation is been neutralized to annual standard deviation that depicts daily standard deviation in mutual funds have lower standard deviation as compare to the annual one. Hence we can say that on average 1% higher risk in mutual fund lead to increase the profit ratio by 0.0044%.

Chow test of model stability reflected that fixed effect model is better than pooled model because the difference in the intercept of different groups make it more suitable for use. Using Breusch Pagan test we confirmed that fixed effect model is better than random model. Random effect model best suit the cross sectional data of large set. Hausman Test helped us to use fixed effect model over panel, pooled and random effect model. Hence the results of Fixed effect model are been considered as final estimated results.

The estimation of fixed effect model taking net asset values as dependent variable revealed that there is significant positive relationship exists between total net asset, expense ratio and turnover ratio with net asset values. Each 1 % increase in total net asset, expense ratio and turnover ratio lead to increase the net asset values by 0.00873%, 0.11329% and 0.008985% which are significant at 5%, 1% and 10% respectively. Liquidity ratio is been observed having negative significant impact on mutual funds. The result show that every 1% increase in liquidity ratio lead to reduce the mutual funds by 0.003049% which is significant at 10%. Age of the mutual fund is also a key factor that determine the net asset value. The significance of age differs in both econometric estimation method. From Panel Regression analysis we observed that age give negative and insignificant relation with net asset value. While in fixed effect model it give negative and significant relation with net asset value. Each one month increase in the mutual fund, lead to reduce the net asset values by 0.0102219% that is significant at 10%.

6.2 Policy Recommendation

The objective of the study, was to explore the determinants of mutual funds in Pakistan. For that we used different independent variables that have both theoretical and empirical relation with

dependent variable. Based on the findings of the study, the following policy recommendations are made to further improve the mutual fund performance in Pakistan.

1. The determinants of mutual fund performance revealed that there is significant positive relationship exists between fund return and expense and turnover ratio while in the other hand, there is negative relationship between fund performance and liquidity so it is suggested for the fund managers keep well tactics that level of the determinants of fund performance which ensure growth in its returns and investors and fund managers both will enjoy their benefits.
2. Whereas outcomes also show some of the funds underperform because of diversification problem. Beside that internationally there had been wonderful growth in this sector, the progression in mutual fund industry has been observed due to the both size and maturity of many foreign capital markets and so we are unable to achieve that from many years. In the current situation the need is to organize saving of the single unit holders by offering variety of fund with various investment purpose. The asset management companies ought to reveal the associated risk with return in their annual financial reports this way the investors will aware of risk and return and can chose better option. This sector can achieve success by the good performance of the fund industry and role which is performed by regulatory forms. Outstanding performance and tough guidelines will rise the status of mutual funds in Pakistan.

6.3 Future Directions

The study is giving new understood for upcoming researches to evaluate mutual fund industry sectors with different sides of financial products. More research can carried out on different variables like behavioral aspects of investors regarding their investment in mutual fund industry further more research can be carried out on sharia compliant fund to know the attributes of sharia funds.

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APPENDEX A

List of mutual funds taken in the Sample

1. ABL stock fund
2. AKD opportunity fund
3. Alfalah Alpha funds
4. Alfalah stock funds
5. Atlas stock fund
6. first capital fund
7. firsthabib stock fund
8. JS growth fund
9. JS large cap fund
10. JS value fund
11. Lakson equity fund
12. MCB pak stock fund
13. NAFa stock fund
14. National investment unit
15. UBL stock advantage fund
16. Pakistan capital market fund
17. Faysal balance growth fund
18. Faysal asset allocation fund
19. NAFA multi asset fund
20. Unit trust of Pakistan
21. Alfalah GHP value fund
22. Askari asset allocation fund
23. MCB Pak asset allocation fund
24. NAFA asset allocation fund

25. Pak oman asset allocation fund

26. AKD index traker fund