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The effect of fund size on equity mutual fund performance in Pakistan

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ABSTRACT: The current study has been commenced to interrogate the link between fund size and equity mutual fund performance in Pakistan, which was rarely discussed in Pakistan. Although, numerous different studies depict the performance of equity mutual funds in Pakistan, which helps the investor in making better investment decisions, but still this area of research is somewhat untapped and a room for the improvement still available. The study focuses to find out the relationship between fund size and mutual fund by taking 12 equity mutual funds of Pakistan as a sample size and further characterized them according to their holding assets (Small size, Medium size and Large size) and collected the net asset value of the last trading/transaction day of each quarter for the tenure of 5 years (2010-2014). The techniques used for the evaluation is regression and correlation. The results of the study demonstrate by using the statistics of 12 equity mutual fund company's average net asset value and standard deviation for 5 years (2010-2014) and the utilization of limited duration and limited variables as a performance measure predicts the limitation of the basic study and reported that the fund sizes (small size, medium size and large size) directly and positively impact over the performance of equity mutual funds in Pakistan.

KEYWORDS: Net Asset Value, Standard Deviation, Equity mutual fund, Small, Medium, and large size funds.

1 BACKGROUND

Joint/Mutual funds can be well-defined as an investment arrangement which pleas for a pool of funds from a bulky quantity of individuals for the major purpose of sharing that group in securities for earnings and profits. These securities primarily contain bonds, stocks, money market tools and similar assets. One of the key benefits of mutual funds above any other deal to a small shareholder is that they provide small stockholder access to skillfully succeed, bonds, spread portfolios of equities and other securities, which is relatively difficult for a small stakeholder to generate with a small volume of investment he/she owes. The additional key benefit is the quantity of yield is typically greater and less chancy than single investment. (Rida Ali and Rana Abdul Qudous, 2012)

A growing amount of mutual funds in the advanced financial markets specifies shareholder's partiality for this style of investment (Huhmann, 2005). This was recognized in the light of the speedy globalization of the financial markets and extraordinary development in the a well-built securities market and market capitalization and an operative supervisory setting are consequently perceived as the pillar of development in the mutual fund business (Mahreen Mahmudand, Nawazish Mirza, 2011).

The importance of mutual funds cannot be denied on the ground of banking and finance in today's world. While mutual funds have been used constantly by progressive countries so far, it is fairly fresh zone in the growing countries containing Pakistan. Because of this it has not been fitted studied in Pakistan up till now and only limited studies have involved mutual funds as their study area (Shah & Hijazi, 2005; Sipra, 2006; Afza & Rauf, 2009).

(Talat Afza, and Ali Rauf, 2009) studied that mutual Funds were announced in Pakistan in 1962, with the community offering of NIT (National Investment Trust). Currently, a merely open-ended mutual reserve/fund functioning in the public

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sector is NIT (National Investment Trust). The growth of the Investment Corporation of Pakistan (ICP) in 1966 presented a chain of close-ended mutual funds which was later separated into two bags in June 2000 and was then privatized.

(Nopphon Tangjitprom, 2014) found various studies debating about numerous aspects having an influence on fund performance. Between those aspects, the factor about portfolio extent has been intensively argued. If fund scope is too great due to the huge size of fund movement, fund managers could not be capable to handle fund properly. Fund managers might cope with big size by scaling up the present fund allocation instead of diversifying into fresh assets (Pollet and Wilson, 2008).

(Joseph Chen, Harrison Hong, Ming Huang and Jeffry D. Kubik 2002) evaluated that the influence of the fund scope over performance is clearly a vital query for the mutual fund business and its shareholder; it has received slight research attention to date. Indeed, there appear to be dissimilar opinions between practitioners on this matter. Certain point out that there are benefits to fund size such as extra resources for research and lesser expenditure ratios (see, e.g., Fredman and Wiles (1998). Others trust that a great asset base erodes fund performance because of trading expenses related to liquidity (see, e.g., Lowenstein (1997). A small fund can simply place all of its money in its finest ideas, but a deficiency of liquidity forces a big fund to have to participate in its not-so worthy ideas. Large funds might also have to take greater positions each stock than is best, which creates it additional tough for them to get in and out of stocks than minor funds.

1.1 PROBLEM STATEMENT

Mutual funds have been used constantly by progressive countries so far, it is fairly fresh zone in the growing countries containing Pakistan. Because of this it has not been fitted studied in Pakistan up till now and only limited studies have involved mutual funds as their study area with a brief discussion of the fund size effect over mutual fund performance. The focus of the study will be relying over finding out the answer about: “What is the impact of fund size on the performance equity/growth Mutual/Joint Funds in Pakistan?

1.2 RESEARCH QUESTION

The study generates the answers of the following queries:

- How the small fund will affect the performance of equity mutual fund?
- To what extent, equity mutual fund will be affected by the medium sized funds?
- How large funds will impact over the equity mutual fund performance?

1.3 OBJECTIVE OF THE STUDY

The motive of the study is to recognize the connection of equity mutual fund performance in relation with small, medium and large fund sizes in Pakistan. This area is still untouched and still has a significant room to study and examine to which extent does fund sizes impact over equity/growth mutual fund performance in Pakistan.

1.4 SIGNIFICANCE OF THE STUDY

In Pakistan, few researched have been catered in terms of fund size impact over the equity mutual fund performance and most of them discussed the performance of equity mutual funds by using a collection of factors in which fund size was one of them and that is why most of the portfolio investors are unaware of positive and negative results of fund sizes. So, it is an opportunity to present a little more detail examination over the fund sizes in order to provide guidance and assistance to the investors and portfolio managers.

1.5 LIMITATION

- The study is confined to the annual report of the listed equity mutual fund companies of Pakistan.
- Due to the shortage of time, the research only utilized secondary data and conducted within a workplace atmosphere that regulated the researcher to reflect more variables.

2 LITERATURE REVIEW

The connection between fund size and the performance of equity mutual funds have evaluated by the international and domestic researcher and these studies are briefly discussed as below:

Nopphon Tangjitprom (2014) highlight the result of the Mutual trust magnitude on its presentation depending on lively equity mutual reserves in Thailand, in the sense of economies of scale, it is likely that reserves with big capacity have benefits in terms of deal costs should be fairly lesser in relation to the average. If fund scope is too excessive due to the huge capacity of fund movement, fund supervisors may not be capable to cope fund successfully, they may cope with big size by scaling up the present fund distribution instead of spreading into fresh assets (Pollet and Wilson, 2008), also show that there is a noteworthy connection between fund scope and its performance. Though, this connection is not direct but quadratic. Lesser fund performance is better as fund scope develops bigger due to economies of scale. However, when it becomes greater, it can decline fund performance because of diseconomies of scale, it tends to perform healthier only for a definite series of full net asset. Nopphon Tangjitprom (2014) study may help in the upcoming study and investigation over fund scope and its influence on the performance of equity mutual funds in Thailand.

Rao, D.N and Rao, S.B (2009) discussed the difficulty faced by the stockholders of equity mutual reserves, which is either to decide that there is any connection among fund size and performance of mutual reserve and there is minor research about this issue in India, that is why the study empirically studies the connection between fund size and mutual fund performance of equity mutual reserves. Correlation coefficient and covariance of fund size and the four dimensions of performance based on Return, Risk, Risk/Return and sharpe ratio was computed for testing the connection which shows all the four measurements of performance in negative terms and marks it vibrant that the correlation coefficient of fund volume/size and performance factors are not significant and covariance shows that other three measurements of performance (Return, Risk/Return and sharpe ratio) travels side by side in the similar track, it show that the fund supervisor of average and huge size equity reserves are incapable to beat the stock market and also did not get the benefit of moderately great amount of funds at their clearance.

Jonathan Reuter and Eric Zitzewitz (2013) checks the crucial rules of the Berk and Green's (2004) influential model, advance-skilled fund supervisors handle additional assets, but due to the diseconomies of scale, produce the similar predictable earnings as less-skilled supervisors. Jonathan Reuter and Eric Zitzewitz (2013) used regression discontinuity method in the study to experiment the Berk and Green (2004) model crucial rules, which includes the sample as the complete series of Morningstar groups (large-cap equity, corporate bond reserves, sector reserves etc.) and periodic monthly records among December 1996 to August 2009, it shows that the scale of diseconomies in the mutual reserve business, are too minor to transposal old-style opinions about manger abilities and investor cleverness, they need not moderate curiosity in Berk-Green model.

Earlier revenues do not appropriately forecast future earnings and investment purposes occasionally impact investment decisions of shareholders and there are several further aspects that affect the Balanced mutual reserves performance like fund size, nature of ownership of AMC's and investment technique of the fund manager (Ms. Sarika Keswani, 2011). The study covers 21 balanced mutual reserve systems for the duration of three years (April 1st, 2007 to March 31st, 2010) and Fund momentum and Correlation coefficient techniques used in this study, which displays that there is no influence of fund scope or size on the performance of Micro, Large, Medium and Small size Balanced mutual funds in the perspective of Return, Risk and return per risk.

Roger M. Edelen, Gregory B. Kadlec and Richard Evans, (2007) flexibly conversed the hypothesis that the scale of diseconomies associated to exchange or trading costs hinder fund performance. They influenced by the discussion of Berk and Green (2004), which announces that the investment arrival of great performing mutual reserves removes yield persistence since fund supervisors face diminishing yields to scale. Roger M. Edelen, Gregory B. Kadlec and Richard Evans, (2007) study based on the model of 1706 U.S. growth funds for the duration 1995-2005 and yearly exchange or trading cost of every fund have been computed and this study backing the Brek and Green (2004) study and displays the exchange or the trading cost harmfully influence fund performance.

Sheng-Ching Wu (2014) scrutinizes the collaboration among mutual fund/reserve performance and portfolio revenue and studies that lively trading could influence fund performance, but disappointing funds could be also traded lively at the similar time to accomplish well and for this purpose two-sage least cubes to report with simultaneity, by taking the open ended growth funds as a sample of 170 of Taiwan for he interval of 2003 – 2012. The results highlight the inferior performance of the funds containing greater portfolio revenue/turnover comparing with those funds taking lower revenue/turnover and the findings backing the supposition that lively trading decreases performance, and fund supervisors with reduced performance go to trade lively to hold employment.

Antonella Basso and Stefania Funari (2014) researches the character of the size/volume of mutual funds/reserve in the assessment of the fund/reserve performance by taking the data envelopment analysis (DEA) approach into account, with the focus of learning the subject from diverse viewpoints and with various statistical techniques and in order to apply analysis over the existence of economies or the diseconomies of scale in the mutual reserve/funds market.The Study contains

European equity mutual reserves/funds as the sample of 260 verified it for the confirmation of a linear/direct connection among DAE performance and the fund volume/size through the presence of a rank correlation, correlation coefficient and relate the DAE in the capabilities of large and small mutual reserves/funds. After analysis, it shows that there is no direct/linear linking between size/volume and performance, but the large fund tends, on average, to exhibit a slightly higher performance score than the smaller ones, thus indicating the presence of scale economies.

Jeffrey A. Busse, Tarun Chordia, Lei Jiang and Yuehua Tang (2014) scrutnizes regarding the greater mutual funds/reserves tends to underachieve in their smaller equivalents because of their properties and not because of higher transaction/trading costs and for this purpose, they construct two groups of sample, first one based on Holding data of Thomson Reuters Mutual Funds for the duration from January, 1980 – September, 2012 and the second-one generataed from Abel Noser-Thomson Reuters institutional trading date and check them by applying CAPM, Fama French, Regression and three factor model. Analysis depicts that greater fund experience lesser percentage trading/transaction expenses than lesser ones. Moreover, small volume/size funds contain small market capitalization shares and to a lesser degree as compare to the shares with great book-to-market ratios and higher momentum.

Edwin J. Elton, Martin J. Gruber and T. Clifton Green (2004) shows that the volume/size and causes of bigger fund income and correlations in their reserve/fund clans by consuming all funds clans obtainable in January 1998 and also used Investment Company Data Inc. (ICDI) to classify funds/reserves into 11 categories. By using Regression, correlation and Sharpe ratio, their analysis shows that investors who assured their investments to one fund clan hold chancier portfolios as compare to those who diversify across clans because mutual reserve/fund returns are more strongly correlated within fund clans and fund clans show a tendency to emphasis on great risk or small risk approaches, which clues to a better spreading of risk across limited investors.

Rida Ali and Rana Abdul Qudous (2012) investigated to answer the questions which inform about the charges of return in relative to the mutual reserves/funds and the capability of reserve/fund managers in reducing the risks involved. For this reason, they took 15 mutual reserves/funds from 2005-2009 and used Treynor and Sharpe technique. The Conclusion was statistically inspected by taking the standard deviation means which shows the performance of mutual reserves/funds is below as expected in Pakistan and the reason is that in Pakistan there is not a sole company that knocks the market, which increases interrogation about the influence of the portfolio supervisor in terms of market timing and their influence to spread their portfolios.

Mian Sajid Nazir and Muhammad Musarat Nawaz (2010) conversed the chief part of Mutual Reserve/Fund business in the emerging countries like Pakistan by suitably consuming the sluggish resource and they support their research through collecting the statistics of 13 clan equity/growth mutual reserves/funds from 2005-2009 and also utilized fixed/permanent effect and random/arbritary effect models for the approximation which shows clan proportion, expenditure ratio and asset turnover are confidently and positively heading to the evolution of mutual reserves/funds, in relative with risk adjusted revenues/returns and management charge are negatively related with mutual reserves/funds growth.

Tom Johansson and Mattias Jacobsson (2012) studied the connection among mutual reserve/fund size, performance, management charges, reserve/fund size and persistence in performance by taking Swedish's 91 mutual reserves/funds through six year term (2006-2011) and outcomes created on significance trials and regression which displays that there is no substantial and significant connection/relationship among reserve/fund size and fund/reserve performance and also display that there is no perseverance in performance for any of the volume/size-based reserve/fund collections. Also, it highlights that mutual reserves/funds with a greater asset initiated agrees to have lesser management charges than minor funds.

3 METHODOLOGY

The Equity mutual funds in Pakistan is not a large and well-matured in terms of number of companies, but the investment and asset they are managing is in the billions. This is a basic study and for this study the convenience sampling were selected. The total number of equity funds in Pakistan is 21 and the sample were taken on the basis of asset volume and size of the fund in terms of small, medium and large, the size covering from Rs.100 million to Rs.73 billion. The sample picked up for the study is 12 Equity Mutual funds (4 - Small sized, 4 - Medium sized and 4 – Large sized).

3.1 STATISTICAL TECHNIQUE

Net Asset Values of the selected Equity Mutual Funds were collected on the first transaction day of each quarter of the 5-year for calculating the Correlation coefficient and Covariance of the funds during January 2010 to December 2014.

3.2 HYPOTHESIS

1- H_1 or $H_{a=}$ There is a relationship between fund size and performance of Equity mutual funds in Pakistan.

H_0 =There is no relationship between fund size and performance of Equity mutual funds in Pakistan.

2- H_2 or H_b= There is a relationship between fund size and performance of small sized Equity mutual funds in Pakistan.

H_0 =There is no relationship between fund size and performance of small sized Equity mutual funds in Pakistan.

3- H_3 or H_c= There is a relationship between fund size and performance of medium sized Equity mutual funds in Pakistan.

H_0 = There is no relationship between fund size and performance of medium sized Equity mutual funds in Pakistan.

4- H_4 or H_d = There is a relationship between fund size and performance of large sized Equity mutual funds in Pakistan.

H_0 = There is no relationship between fund size and performance of large sized Equity mutual funds in Pakistan.

3.3 MATERIAL AND DATA

Data collected from the secondary sources for achieving the quantitative study setting with the combination of causal relationship analysis between fund size with equity mutual fund performance and making it an explanatory research as well with the help of deductive approach and based on the longitudinal setting with the time horizon of 5 years (January 2010 to December 2014).

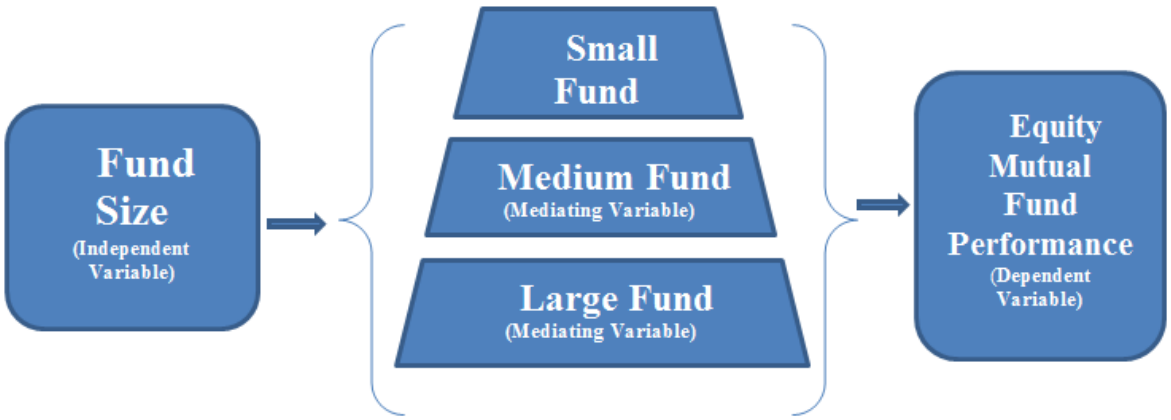
3.4 DATA COLLECTION TECHNIQUE

Facts and Figures of 12 sampled Equity Mutual Fund were collected from the Financial Statement of these companies and also uses the daily Asset Management Summary from the official website of Mutual Funds Association of Pakistan (MUFAP). All of the data were collected from January 2010 - December 2014 for the 12 sampled Equity mutual fund companies of Pakistan.

4 DATA SOURCE

The date based on Quarterly figure of net asset value of each fund was collected from their respective websites for the duration January 2010 - December 2014. The study collects the data from Mutual fund association Pakistan (MUFP) and from the web pages of Asset Management Companies (AMCs), Karachi Stock Exchange, Financial Markets Association of Pakistan (FMA). Previous researchers and their literature played a vital part in the construction of the study.

THEORETICAL FRAMEWORK



5 DATA ANALYSIS:

The Average Annual Net asset value and the annual Standard Deviation of the 12 sampled equity mutual fund was computed by taking the net asset value of the reserves on the last business day of every quarter for continuous five year period (January, 2010 to December, 2014) and the overall assets which are existing under the 12 sampled equity mutual fund is average Rs.81 billion. These figures are given below:

Companies	Year	Net Asset Value (Rupees is '000)	Standard Deviation
Atlas Stock Market Fund	2010	651188.5	99990.8
	2011	636068.3	45779.99
	2012	800274.5	125695.6
	2013	1025041	111880
	2014	1240728	225388.4
Alfalah GHP Stock Fund	2010	399474.3	93330.71
	2011	273570.3	35787.53
	2012	247736.8	33051.76
	2013	365589.5	101851.3
	2014	704079	329589.6
JS Large Capital Fund	2010	2115142	262062.5
	2011	1412066	196628.5
	2012	1273186	65955.51
	2013	1268738	458989.2
	2014	831669.8	96090.76
United Stock Advantage Fund	2010	1109556	145480
	2011	1259610	59763.35
	2012	1546164	199964.1
	2013	1757467	335659.7
	2014	4277609	891752.3
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	2011	1259610	59763.35
	2012	1546164	199964.1
	2013	1757467	335659.7
	2014	4277609	891752.3
National Investment Unit Trust	2010	32736157	3033155

	2011	37225326	2501593
	2012	40722807	559154.9
	2013	46760914	5757668
	2014	64427406	6039565
MCB Pakistan Stock Fund	2010	1825956	229099.6
	2011	1154137	184166.9
	2012	1010679	76417.17
	2013	1155523	78496.96
	2014	3329212	1400813
NAFA Stock Fund	2010	1030017	132672.7
	2011	911986.8	64043.47
	2012	1197045	160801.7
	2013	1114680	23349.32
	2014	2012473	595603.6
HBL Stock Fund	2010	1718260	133217.6
	2011	1968941	83975.14
	2012	2342074	198138.1
	2013	3247082	350863.7
	2014	4069731	142534.6

5.1 ANALYSIS OF FUND SIZE

- **Fund Size and Performance of equity mutual fund: Hypothesis Testing**

  The following hypothesis testing was completed:

  Null Hypothesis: There is no relationship between fund size and performance of mutual funds in Pakistan.

  Alternate Hypothesis: There is a relationship between fund size and performance of mutual funds in Pakistan.

ANOVA (Table5.1)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	61873699650041.900	1	61873699650041.900	244.655	.000[b]
	Residual	14668324399626.695	58	252902144821.150		
	Total	76542024049668.600	59			

a. Dependent Variable: Standard Deviation
b. Predictors: (Constant), Net Asset Value

At the level of Significance 5% (Alpha=0.05) and the significant value as per shown in the Anova and Coefficient model is less than the significance value as 0% (0.0), so they are all significant and falling in the area, therefore the Null Hypothesis is rejected and Alternate Hypothesis stands, Which means that the Fund size impact over the performance of Equity mutual Funds in Pakistan.

5.1.1 DESCRIPTIVES

Descriptive Statistics(Table5.1.1)

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Standard Deviation	60	23349	6039565	492911.92	1139000.633	4.028	.309
Net Asset Value	60	247737	64427406	4939172.02	12446196.533	3.471	.309
Valid N (listwise)	60						

The skewness statistic of the Net asset value and Standard deviation are 3.471 and 4.028 respectively, both are greater than zero, which means that they are showing positive and right skewed distribution, but the skewness statistic of both variables is greater than 1, which means that the skewness is significant and the distribution is distant from balanced, hence the Spearman method used to identify the correlation among variables.

5.1.2 NONPARAMETRIC CORRELATIONS

Correlations(Table 5.1.2)

			Standard Deviation	Net Asset Value
Spearman's rho	Standard Deviation	Correlation Coefficient	1.000	.735**
		Sig. (2-tailed)	.	.000
		N	60	60
	Net Asset Value	Correlation Coefficient	.735**	1.000
		Sig. (2-tailed)	.000	.
		N	60	60

***. Correlation is significant at the 0.05 level (2-tailed).*

The Spearman correlation coefficient figure shown in the graph confirms the overall strong and positive correlation between the Net Asset Value and Standard Deviation variables by 0.735 (73.5%), also showing that fund sizes strongly impact over the performance of equity mutual fund in Pakistan.

5.1.3 REGRESSION

Variables Entered/Removed (Table5.1.3)

Model	Variables Entered	Variables Removed	Method
1	Net Asset Value[b]	.	Enter

a. Dependent Variable: Standard Deviation

b. All requested variables entered.

Model Summary(Table 5.1.4)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.899[a]	.808	.805	502893.771

a. Predictors: (Constant), Net Asset Value

As it can be seen in the model summary, R coefficient correlation is showing a positive correlation between Net Asset Value (Fund Size) and Standard Deviation (Performance) and the degree of this relationship can be seen by analyzing the R Square = 0.808 (80.8%) which is showing that Net asset value of equity mutual funds greatly and highly predict the change in performance in terms of Standard Deviation of equity mutual funds by 80.8%.

Coefficients(Table 5.1.5)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	86520.493	69929.143		1.237	.221
	Net Asset Value	.082	.005	.899	15.641	.000

a. Dependent Variable: Standard Deviation

5.1.4 LINEAR REGRESSION EQUATION

Standard Deviation/performance = 86520.493+0.082 (Net Asset Value/Fund Size)

Each unit increment in Net Asset Value of equity funds increases the Performance of equity fund by 0.082. It is also predicted by referring regression equation, that the value of the intercept is 86520.493, it means that if the fund size is zero, the regression equation depicts the performance as 86520.493.

5.2 ANALYSIS OF SMALL SIZED FUNDS:

4 out of 12 sampled equity funds have fund size more than Rs.100 million but less than Rs.999 million and the overall reserve scope (assets) achieved by them is Rs.955 million and they constitute 1.16 % of the total reserve scope (assets) of sampled equity mutual funds. As mentioned in the section of methodology, these total reserves/fund volume have been characterized as Small/Minor Fund Sized and the average Net Asset Value and Standard Deviation of these sampled medium size funds are as below:

Companies	Year	Net Asset Value (Rupees is '000)	Standard Deviation
First Habib Stock Fund	2010	134914	5619.98
	2011	113513.8	8805.232
	2012	117180.8	5129.325
	2013	198611.8	35335.14
	2014	155365.5	19791.52
Alfalah GHP Alpha Fund	2010	170208.5	28633.13
	2011	125931.8	21596.93
	2012	121627.8	11830.68
	2013	116462.3	9347.442
	2014	338394.5	266625.9
First Capital Mutual Fund	2010	242555	11577.28
	2011	258019	7762.056
	2012	280293.5	5655.785
	2013	294647.5	28958.46
	2014	300844	12617.55
Crosby Dragon Fund	2010	241160.3	42845.18
	2011	162573.5	23819.86
	2012	171306.3	43307.06
	2013	160623.3	12815.05
	2014	161220.3	16085.42

- **Fund Size and Performance of small equity mutual fund: Hypothesis Testing**

The following hypothesis testing was completed:

Null Hypothesis: There is no relationship between fund size and performance of small sized mutual funds in Pakistan.

Alternate Hypothesis: There is a relationship between fund size and performance of small sized mutual funds in Pakistan.

ANOVA(Table 5.2.1)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15293624324.210	1	15293624324.210	5.997	.025[b]
	Residual	45904736247.590	18	2550263124.866		
	Total	61198360571.800	19			

a. Dependent Variable: Standard Deviation

b. Predictors: (Constant), Net Asset Value

At the level of Significance 5% (Alpha=0.05) and the significant value as per shown in the Anova and Coefficient model is less than the significance value as 2.5% (0.025), so they are all significant and falling in the rejection region, hence we reject the Null Hypothesis and Alternate Hypothesis stands.

5.2.1 DESCRIPTIVES

Descriptive Statistics(Table 5.2.2)

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Standard Deviation	20	5129	266626	30907.90	56753.558	4.154	.512
Net Asset Value	20	113514	338394	193272.70	71095.169	.660	.512
Valid N (listwise)	20						

The skewness statistic of the Net asset value and Standard deviation are 0.660 and 4.154 respectively, both are greater than zero, which means that they are showing positive and right skewed distribution, but the skewness statistic of standard deviation is 4.154 which is greater than 1, which means that the skewness is substantial and the distribution is far from symmetrical, hence the Spearman method used to identify the correlation among variables.

5.2.2 NONPARAMETRIC CORRELATIONS

Correlations(Table 5.2.3)

			Standard Deviation	Net Asset Value
Spearman's rho	Standard Deviation	Correlation Coefficient	1.000	.409
		Sig. (2-tailed)	.	.073
		N	20	20
	Net Asset Value	Correlation Coefficient	.409	1.000
		Sig. (2-tailed)	.073	.
		N	20	20

The Spearman correlation coefficient figure shown in the graph confirms the moderate but positive correlation between the Net Asset Value and Standard Deviation variables by 0.409 (40.9%), also showing that somehow small fund size impact over the performance of equity mutual fund.

5.2.3 REGRESSION

Variables Entered/Removed(Table 5.2.4)

Model	Variables Entered	Variables Removed	Method
1	Net Asset Value[b]	.	Enter

a. Dependent Variable: Standard Deviation
b. All requested variables entered.

Model Summary(Table 5.2.5)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.500[a]	.250	.208	50500.130

a. Predictors: (Constant), Net Asset Value

As can be seen in the model summary, R coefficient correlation is showing a positive correlation between Net Asset Value (Fund Size) and Standard Deviation (Performance) and the degree of this relationship can be seen by analyzing the R Square = 0.250 (25%) which is showing that Net asset value of Small sized equity mutual fund predict the change in performance in terms of Standard Deviation of small sized equity mutual funds by 25%.

Coefficients(Table 5.2.6)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-46219.525	33458.463		-1.381	.184
	Net Asset Value	.399	.163	.500	2.449	.025

a. Dependent Variable: Standard Deviation

5.2.4 LINEAR REGRESSION EQUATION

Standard Deviation/performance = -46219.525+0.399 (Net Asset Value/Fund Size)

Each unit increment in Net Asset Value of small equity funds increases the Performance of equity fund increases by 0.399. It is also predicted by referring regression equation, that the value of the intercept is - 46219.525, it means that if the fund size is zero, the regression equation depicts the performance as – 46219.525.

5.3 ANALYSIS OF MEDIUM SIZED FUNDS

4 out of 12 sampled equity funds have fund size more than Rs.1 billion, but less than Rs.4.3 billion and the overall reserve scope (assets) achieved by them is Rs.7054 million and they constitute 8.61 % of the total reserve scope (assets) of sampled equity mutual funds. As mentioned in the section of methodology, these total reserve/fund volume has been characterized as Average/Medium Funds Sized and the average Net Asset Value and Standard Deviation of these sampled medium size funds are as below:

Companies	Year	Net Asset Value (Rupees is '000)	Standard Deviation
Atlas Stock Market Fund	2010	651188.5	99990.8
	2011	636068.3	45779.99
	2012	800274.5	125695.6
	2013	1025041	111880
	2014	1240728	225388.4
Alfalah GHP Stock Fund	2010	399474.3	93330.71
	2011	273570.3	35787.53
	2012	247736.8	33051.76
	2013	365589.5	101851.3
	2014	704079	329589.6
JS Large Capital Fund	2010	2115142	262062.5
	2011	1412066	196628.5
	2012	1273186	65955.51
	2013	1268738	458989.2
	2014	831669.8	96090.76
United Stock Advantage Fund	2010	1109556	145480
	2011	1259610	59763.35
	2012	1546164	199964.1
	2013	1757467	335659.7
	2014	4277609	891752.3

- **Fund Size and Performance of Medium sized equity mutual fund: Hypothesis Testing**

The following hypothesis testing was completed:

Null Hypothesis: There is no relationship between fund size and performance of medium sized mutual funds in Pakistan.

Alternate Hypothesis: There is a relationship between fund size and performance of medium sized mutual funds in Pakistan.

ANOVA(Table 5.3.1)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	558931663891.603	1	558931663891.603	50.221	.000[b]
	Residual	200329678251.197	18	11129426569.511		
	Total	759261342142.800	19			

a. Dependent Variable: Standard Deviation

b. Predictors: (Constant), Net Asset Value

At the level of Significance 5% (Alpha=0.05) and the significant value as per shown in the Anova and Coefficient model is less than the significance value as 0% (0.0), so they are all significant and falling in the rejection region, hence we reject the Null Hypothesis and Alternate Hypothesis stands, Which means that the Medium sized funds impact over the performance of Equity mutual Funds.

5.3.1 DESCRIPTIVES

Descriptive Statistics(Table 5.3.2)

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Standard Deviation	20	33052	891752	195734.60	199902.785	2.486	.512
Net Asset Value	20	247737	4277609	1159747.85	890569.628	2.370	.512
Valid N (listwise)	20						

The skewness statistic of the Net asset value and Standard deviation are 2.370 and 2.486 respectively, both are greater than zero, which means that they are showing positive and right skewed distribution, but the skewness statistic of both variables is greater than 1, which means that the skewness is substantial and the distribution is far from symmetrical, hence the Spearman method used to identify the correlation among variables.

5.3.2 NONPARAMETRIC CORRELATIONS

Correlations(Table 5.3.3)

			Net Asset Value	Standard Deviation
Spearman's rho	Net Asset Value	Correlation Coefficient	1.000	.696**
		Sig. (2-tailed)	.	.001
		N	20	20
	Standard Deviation	Correlation Coefficient	.696**	1.000
		Sig. (2-tailed)	.001	.
		N	20	20

***. Correlation is significant at the 0.05 level (2-tailed).*

The Spearman correlation coefficient figure shown in the graph confirms the strong and positive correlation between the Net Asset Value and Standard Deviation variables by 0.696 (69.6%), also showing that medium fund size strongly impact over the performance of equity mutual fund.

5.3.3 REGRESSION

Variables Entered/Removed(Table 5.3.4)

Model	Variables Entered	Variables Removed	Method
1	Net Asset Value[b]	.	Enter

a. Dependent Variable: Standard Deviation
b. All requested variables entered.

Model Summary(Table 5.3.5)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.858[a]	.736	.721	105496.097

a. Predictors: (Constant), Net Asset Value

As can be seen in the model summary, R coefficient correlation is showing a positive correlation between Net Asset Value (Fund Size) and Standard Deviation (Performance) and the degree of this relationship can be seen by analyzing the R Square = 0.736 (73.6%) which is showing that Net asset value of Medium sized equity mutual fund greatly predict the change in performance in terms of Standard Deviation of Medium sized equity mutual funds by 73.6%.

Coefficients(Table 5.3.6)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-27621.724	39368.011		-.702	.492
	Net Asset Value	.193	.027	.858	7.087	.000

a. Dependent Variable: Standard Deviation

5.3.4 LINEAR REGRESSION EQUATION

Standard Deviation/performance = -27621.724+0.193 (Net Asset Value/Fund Size)

Each unit increment in Net Asset Value of medium sized equity funds increases the Performance of equity fund increases by 0.193. It is also predicted by referring regression equation, that the value of the intercept is – 27621.724, it means that if the fund size is zero, the regression equation depicts the performance as – 27621.724.

5.4 ANALYSIS OF LARGE SIZED FUNDS

4 out of 12 sampled equity funds have fund size more than Rs.1 billion, but less than Rs.64 billion and the overall reserve scope (assets) achieved by them is Rs.73 billion and they constitute 90.21 % of the total reserve scope (assets) of sampled equity mutual funds. As mentioned in the section of methodology, these total reserve/fund volume has been characterized as Large/Bulky Funds Sized and the average Net Asset Value and Standard Deviation of these sampled Large size funds are as below:

Companies	Year	Net Asset Value (Rupees is '000)	Standard Deviation
National Investment Unit Trust	2010	32736157	3033155
	2011	37225326	2501593
	2012	40722807	559154.9
	2013	46760914	5757668
	2014	64427406	6039565
MCB Pakistan Stock Fund	2010	1825956	229099.6
	2011	1154137	184166.9
	2012	1010679	76417.17
	2013	1155523	78496.96
	2014	3329212	1400813
NAFA Stock Fund	2010	1030017	132672.7
	2011	911986.8	64043.47
	2012	1197045	160801.7
	2013	1114680	23349.32
	2014	2012473	595603.6
HBL Stock Fund	2010	1718260	133217.6
	2011	1968941	83975.14
	2012	2342074	198138.1
	2013	3247082	350863.7
	2014	4069731	142534.6

- **Fund Size and Performance of Large sized equity mutual fund: Hypothesis Testing**

  The following hypothesis testing was completed:

  Null Hypothesis: There is no relationship between fund size and performance of large sized mutual funds in Pakistan.

  Alternate Hypothesis: There is a relationship between fund size and performance of large sized mutual funds in Pakistan.

ANOVA(Table 5.4.1)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50548836947353.860	1	50548836947353.860	65.568	.000[b]
	Residual	13876941513085.104	18	770941195171.395		
	Total	64425778460438.960	19			

a. Dependent Variable: Standard Deviation
b. Predictors: (Constant), Net Asset Value

At the level of Significance 5% (Alpha=0.05) and the significant value as per shown in the Anova and Coefficient model is less than the significance value as 0% (0.0), so they are all significant and falling in the rejection region, hence we reject the Null Hypothesis and Alternate Hypothesis stands, Which means that the Large sized funds impact over the performance of Equity mutual Funds.

5.4.1 DESCRIPTIVES

Descriptive Statistics (Table 5.4.2)

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Standard Deviation	20	23349	6039565	1087266.55	1841420.768	2.080	.512
Net Asset Value	20	911987	64427406	12498020.35	19728868.368	1.582	.512
Valid N (listwise)	20						

The skewness statistic of the Net asset value and Standard deviation are 1.582 and 2.080 respectively, both are greater than zero, which means that they are showing positive and right skewed distribution, but the skewness statistic of both variables is greater than 1, which means that the skewness is substantial and the distribution is far from symmetrical, hence the Spearman method used to identify the correlation among variables.

5.4.2 NONPARAMETRIC CORRELATIONS

Correlations(Table 5.4.3)

			Standard Deviation	Net Asset Value
Spearman's rho	Standard Deviation	Correlation Coefficient	1.000	.866**
		Sig. (2-tailed)	.	.000
		N	20	20
	Net Asset Value	Correlation Coefficient	.866**	1.000
		Sig. (2-tailed)	.000	.
		N	20	20

***. Correlation is significant at the 0.05 level (2-tailed).*

The Spearman correlation coefficient figure shown in the graph confirms the very strong and positive correlation between the Net Asset Value and Standard Deviation variables by 0.866 (86.6%), also showing that larger fund size highly and strongly impact over the performance of equity mutual fund in Pakistan.

5.4.3 REGRESSION

Variables Entered/Removed(Table 5.4.4)

Model	Variables Entered	Variables Removed	Method
1	Net Asset Value[b]	.	Enter

a. Dependent Variable: Standard Deviation
b. All requested variables entered.

Model Summary(Table 5.4.5)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.886[a]	.785	.773	878032.571

a. Predictors: (Constant), Net Asset Value

As can be seen in the model summary, R coefficient correlation is showing a positive correlation between Net Asset Value (Fund Size) and Standard Deviation (Performance) and the degree of this relationship can be seen by analyzing the R Square = 0.785 (78.5%) which is showing that Net asset value of Large sized equity mutual fund greatly and highly predict the change in performance in terms of Standard Deviation of Large sized equity mutual funds by 78.5%.

Coefficients(Table 5.4.6)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	53986.997	234159.101		.231	.820
	Net Asset Value	.083	.010	.886	8.097	.000

a. Dependent Variable: Standard Deviation

5.4.4 LINEAR REGRESSION EQUATION

Standard Deviation/performance = 53986.997+0.083 (Net Asset Value/Fund Size)

Each unit increment in Net Asset Value of large sized equity funds increases the Performance of equity fund increases by 0.083. It is also predicted by referring regression equation, that the value of the intercept is 53986.997, it means that if the fund size is zero, the regression equation depicts the performance as 53986.997.

6 FINDINGS

By taking an overview of the hypothesis testing makes it very clear that the coefficient correlation of the reserve volume/fund size and performance factors are significant and they have linear relationship also the trend shows in the fund companies tables, as the Fund size is increasing the standard deviation (Risk) is decreasing and indirectly increasing the performance of the equity mutual funds. The medium fund size is better than small fund and the large fund size is better than medium funds. The large and great size funds show lager performance improvement as associate to the medium and smaller ones. In short, the larger the size of the fund the greater and positively the equity mutual fund will perform.

7 DISCUSSION

The equity mutual fund industry in Pakistan is not that much grown-up, although few funds are well matured, but still there is a large space for the others. Managers and Financier of portfolios and mutual funds, mustn't only refer fund size, but they should also refer each and every factor before taking any decision into account.

The researches specially targeting the fund size and performance of mutual funds in Pakistan is almost near to zero, there are some studies which are taking fund size as one of the factors impacting over the performance of mutual funds, but there are very few researches in Pakistan where mainly fund size is focusing on the performance of equity mutual funds. There is still a gap to measure the performance through fund size and the performance in terms of Risk, economies of scale, return and so on. This gap, can be filled and may also contribute in the preferences of stockholders.

8 CONCLUSION

They study gives a positive relationship of fund size over performance of growth/equity mutual funds in Pakistan. Each performance factor depicted in the model, studies the impact of fund size over the performance of equity mutual fund in Pakistan during 2010-2014. The findings show that there is an important, significant and major relationship among fund size and mutual reserve performance. It shows enough evidence to say that there is a statistical significant supportive correlation between fund volume and Performance of equity mutual funds in Pakistan and Net asset value statistically impact over the Standard Deviation.

However, every action has a reaction, same in this case. The fund size directly and positively correlates with the equity mutual fund performance but previous studies also predict that as the fund size become larger it would become very difficult to liquidate a huge number of stocks in their portfolio and it would also create difficulties for the fund manager to accurately handle and allocate the large sized portfolios in terms of diversification.

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