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DETERMINANTS OF MUTUAL FUNDS PERFORMANCE IN PAKISTAN

Muhammad Asad[1+]
Danish Ahmed Siddiqui[2]

[1,2]Karachi University Business School, University of Karachi, Pakistan.
[1]Email: asadmuhammad50@gmail.com Tel: +923111008370
[2]Email: daanish79@hotmaill.com Tel: +923333485884

(+ Corresponding author)

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ABSTRACT

The aim of this thesis is to investigate various fund attributes influencing returns of Pakistani mutual funds. For this ten types of Mutual funds were selected for the period of 2015-17, and the effect of six micro and two macro fund specific variables on their returns were analyzed. Models have analyzed the effect of all factors in different categories of funds & for different classes of funds. Results showed that the attributes having impact on mutual fund return are risk and expense ratio positively. Some variables have no impact on fund returns i.e. fund size, fund age, and risk return coefficient, moreover macroeconomic factors (GDP and Interest rate) & risk adjusted return have negative relation on fund returns. Macro factors impact have difficult to analyzed with mutual fund return because relation of fund returns mostly depends on its micro factors and its fund manager expectation regarding market. However macro-economic factors affect the overall fund market or any specific class of funds. Sector wise analyze describes the detail effect of each variable in this research, however expense ratio have positive effect on fund return in conventional return but negative for Islamic fund returns.

Contribution/ Originality: The paper's primary contribution is to finding out the factors that effect on mutual fund return in Pakistan. It is very beneficial for those who want to find effect of micro factors, macro factors, and Islamic & conventional wise & different sector wise in Pakistani mutual fund market.

1. INTRODUCTION

1.1. Background

Mutual fund is the security of investment which permits investors to supply money to one with professionally accomplished investment (Mobius, 2007). Mutual funds can be invested in a combination of those assets .which are related to cash, stocks, holdings they're the underlying security types, bonds and portfolio which means combine to form one mutual fund. It is organization that fabricate less risky portfolio than an individual financial professional would ensure. Mutual funds enable investors to invest in different portfolios of equity, debts, money marketing instruments and Government securities. Mutual funds are diversified and change can be achieved with small share funds by lower nominees. The income is distributed to the shareholder from the mutual funds which were outstanding to the capital gains they're earned. Mutual funds play an important role in capital market of any country. In Pakistan, mutual fund market is growing steadily as investors get confidence in this market. Currently there

almost 210 of open market mutual funds are active and almost 574billion of asset currently managed by Asset management companies. Management effectiveness of open-ended mutual funds should be evaluated as Pakistan's fund industry has a significant room to grow further, which currently is smaller in size compared to other developing countries. It is important to evaluate the relationship of fund return before looking at the potential of the industry and the need of the small investors with its selected attributes in Pakistan. Many pioneering methods of finance services, products, business and regulatory bodies have emerged to make the Pakistan Capital Market more liquid and strong to face the global challenges. Emergence of increasing role of Mutual Fund industry in financial intermediation is one of the major developments following the structural reforms that have been initiated in the Pakistan economy. Mutual Fund played a crucial role in optimal channelization and allocation of obtainable resources in the economy. This role becomes stronger in the developing economies like Pakistan where the potential investors don't have much investment knowledge, information, and facilities to invest in the capital markets.

The question arise by many investors that by which factors mutual fund return are related and which factors effect on its return. So in this research we have studied the relationships of 8 factors (macro and micro factors) to mutual fund return with the help of different models.

1.2. GAP Analysis

Many research papers were published to evaluate the effect of different factors in mutual fund returns. Friend (1962) offered the first empirical analysis of performance. Sharpe (1966) studied the performance of 34 mutual funds during the years 1954-1963 to test why some of them performed better than others and if they could beat the market, the gap in this research is that it only consider the risk adjusted return as benchmark to beat the market however there are many other factors that also can effect. Ippolito (1992) performed a study to evaluate whether investor invest in mutual fund with high expense ratio, he test 143 fund and found a significant positive relation between management fees, turnover ratio and returns. He concluded that it paid off for uninformed investors to pay managers to invest their money, however, this research could not be able to differentiate the expense ratio effect on open ended and close ended fund. Ciccotello and Grant (1996) based a study on earlier finding showing that yesterday's best performing mutual fund tent to become today's largest mutual funds as investors are likely to invest heavily in these funds in response to past success, however, they only consider one factor of fund age that effect on investor decision however in actual other factors also consider to focus. Chen *et al.* (2003) also investigate whether performance depend on size or not. They found strong evidence that fund size erodes performance and that this relationship was not driven by heterogeneity in fund style, but they did not differentiate the close end and open end mutual fund size separately. Moreover, studies such as; Tuck (2007); Gallagher (2003) and has found that the size of Fund has a significant impact on the expense ratio of fund. The larger the fund size, the lower the expense ratio because of the economies of scale and reduction in marginal cost. Therefore, the fund size is mostly considered as having positive relationship with fund performance, this research does not include the impact of other factors in respect of funds return. However, the gap in their researches were that they didn't include the macro economic factors effect in analyzing return of mutual fund. Moreover, above mentioned researched were not done of country like Pakistan, where mutual funds are not only rapidly growing but it has almost same size of Islamic and conventional funds market. Hence by studying Pakistan we can get comparative insight between the two types of funds.

There were certiain studies done pn Pakstan, Nazir and Nawaz (2010) Investigated the role of various factors in determining the mutual funds growth in Pakistan. The board data for the period of 2005-2009 has been used for 13 family equity mutual funds. The results have reported that assets turnover, proportion of family, and expense ratio are positively leading the growth of mutual funds, in contrast with risk adjusted returns (RAT) and management fee which are negatively associated with mutual funds growth has investigated the performance of equity mutual fund in Pakistan and found the positive relationship between Stock exchange return and equity fund return. However, researchers only consider equity mutual funds & not include other types of funds. Arshad (2013) used measurement

of managerial effectiveness and operational efficiency to evaluate Performance of Mutual Funds in Pakistan for the period 1962 – 2015 and compared open and close ended in this regard. The determinants like nature, expense ratio, all sized variables and age have significant impact on expense ratio. Alam and Qadar (2014) also measure the effect of open ended mutual funds return its different characteristics, by analysis they found the positive relationship between fund size, expense ratio and management expense on return, further load fee and liquidity have negative relationship, other categories of funds does not include in this research. But this research does not include the effect of Islamic and conventional funds.

This research is different from above discussed literature with respect that above research not discuss all factors in one paper that effects return of mutual fund as this research has. This research has taken especially in perspective of Pakistani mutual funds market because there is no such type of research are available to explore the effect on fund return in this broader way and as Pakistan mutual fund market in expanding day by day so there is a need to find the factors that actually driven the fund return so this would be fruitful for current and prospective investors who want to invest in this market. In this research, we have investigated the impact of different factors that impact on fund returns, to expand the exposure of this research we also include macro factors effects. Further we also find these micro and macro factors effect with help of ten different categories of funds & also bifurcate these in further two categories which is Islamic and conventional funds. So this research conclude the effect on eight different macro and micro factors, which further describes its impact on Islamic and conventional funds, also in nine different categories of funds.

1.3. Research Objective

The main objective of this research is to determine the factors that impact the returns of mutual funds of Pakistan. To determine this we select 100 mutual funds of 9 different categories from Pakistan mutual fund market, it includes conventional & Islamic both. To find the impact we include both micro factors (Expense ratio, Fund age, Fund size, Risk return coefficient, Standard deviation, Sharp ratio) & macro factors (GDP, Interest rate). To find the impact of return we have formed 14 different model.

- In model 1, we find the impact of all factors macro & micro of all types of funds to find the overall effect all factors in mutual funds return.
- In model 2, we find the impact of only macro factors in all types of funds to find the effect of macro factors in mutual funds return.
- In model 3, we find the impact of micro factors in all types of funds to find the effect of micro factors to all mutual funds return.
- In model 4, we find the impact of both micro & macro factors in Islamic mutual funds return.
- In model 5, we find the impact of all factors in conventional mutual funds to find the effect of both micro and macro factors in conventional mutual fund market.
- In model 6, we find the effect of both macro and micro factors in specific category of fund i.e. Aggressive fixed income fund
- In model 7, we find the effect of both macro and micro factors in specific category of fund i.e. Asset allocation fund
- In model 8, we find the effect of both macro and micro factors in specific category of fund i.e. Balanced fund
- In model 9, we find the effect of both macro and micro factors in specific category of fund i.e. Equity fund
- In model 10, we find the effect of both macro and micro factors in specific category of fund i.e. Income fund
- In model 11, we find the effect of both macro and micro factors in specific category of fund i.e. Money market fund
- In model 12, we find the effect of both macro and micro factors in specific category of fund i.e. Islamic asset allocation fund

- In model 13, we find the effect of both macro and micro factors in specific category of fund i.e. Islamic equity fund
- In model 14, we find the effect of both macro and micro factors in specific category of fund i.e. Islamic income fund

1.4. Hypothesis

$H_{1:}$ Mutual funds return depend on both macro & micro factors

$H_{2:}$ Mutual funds return depend on macro factors

$H_{3:}$ Mutual funds return depend on micro factors

$H_{4:}$ Islamic funds return depend on its fund characteristics

$H_{5:}$ Conventional funds return depend on its fund characteristics

$H_{6:}$ Aggressive fixed income funds return depend on its fund characteristics

$H_{7:}$ Asset allocation funds return depend on its fund characteristics

$H_{8:}$ Balanced funds return depend on its fund characteristics

$H_{9:}$ Equity funds return depend on its fund characteristics

$H_{10:}$ Income funds return depend on its fund characteristics

$H_{11:}$ Money market funds return depend on its fund characteristics

$H_{12:}$ Islamic asset allocation funds return depend on its fund characteristics

$H_{13:}$ Islamic equity funds return depend on its fund characteristics

$H_{14:}$ Islamic income funds return depend on its fund characteristics

1.5. Significance of Study

The mutual funds in Pakistan had gained attention of different researchers in various parts of the world recently. This had a significant on Pakistan's mutual funds industry as compared to the partial scope in past. The mutual fund industry had encountered giant development; however, mutual fund is as yet a current marvel in a portion of creating Pakistan's economy. For this study we choose Pakistani mutual fund market because of its different characteristics. From few years, mutual fund market of Pakistan has grown substantially as many new funds and new categories of funds are introduced. Further Islamic mutual funds market also got huge recognition because many kind of Islamic funds offer by large AMCs i.e Al Meezan Mutual fund, UBL Islamic Funds etc. As per MUFAP annual report 2017, almost 22 categories of funds are operate in Pakistan mutual fund market (11 Conventional & 11 Islamic). So this growth & different market structure encourage to find the factors that effect this mutual fund market & to guide investors who're risky in taking steps will take careful investments in mutual funds by considering its determinants.

1.6. Limitation

The industry of Mutual Funds has come into existence during the past few years which made it to be limited across the investors. Investors didn't want to invest their money in risky business rather they want to invest in their own business. This is one of the major limitations of mutual funds in Pakistan. The evolvement of Pakistan's Mutual Funds regulatory body also proved to make it limited in its bounds. When investors invest in a mutual fund, they depend on the fund's manager to make the right decisions regarding the fund's portfolio. If the manager isn't performing well that you had hoped, you might not make as much money on your investment. If you invest in Index Funds, you forego management risk.

1.7. Organization

In the following section, we will provide critical review of the existing literature containing the critical academic debate about (the topic) with the views of the academicians' and practitioners' on the matter. In section 3 we discuss

on research methodology, nature and kind of research, sample size, sampling method, data collection methods employed during the study, kind of data collected, and the way in which data is integrated. The section 4 will comprise the research data of both kinds – primary as well as secondary – collected and integrated. It will also show findings of the data and their interpretation and analysis. Section 5 will comprise a critical debate on the study drawing on the literature review and contrasting it with the findings of this study. Lastly section 6 will constitute recommendations and conclusions of the study.

2. LITERATURE REVIEW

The present study attempts to evaluate the management effectiveness of open-ended mutual funds in Pakistan for the purpose of benefiting the fund managers and the small investors. Many of researchers had evaluated the relationship of open ended fund's performance in different time periods for the developed economies with its attributes (Soderlind, 2000); (Korkeamaki, 2004). There are certain reasons to accept that management effectiveness for open-ended mutual funds would be different from close-ended due to size effect, pricing structures and fund flows. Management effectiveness would be evaluated by examining the relationship of mutual fund return with fund size, fund expenses, fund's age, portfolio turnover, loads and level of cash. The effect of fund size on its output can be estimated by measuring the relationship of fund's net asset with its return.

Former studies have showed that smaller the size of fund, the higher is its operating efficiency. Pakistan's fund industry has not been able to attract the attention of researchers resulting in very limited research for Pakistan's fund industry as compared to the growing interest of researchers in mutual funds around the world. Cheema (2006) said in their study that Pakistani fund industry using the annual data for 1994-2004 period concluded that the sufficient protection of minority investors can only be possible if established investors in general and mutual funds in particular play a significant role in corporate governance. Another study by Sipra (2006) evaluated the performance of close-ended mutual funds in Pakistan based on the data for the period 1995 to 2004 and reported that according to Jensen and Treynor measures almost half of the funds outperformed the market portfolio over the last five years. However, when the risk measure was adjusted for Fama's net selectivity measure the market portfolio outperformed all the funds except one.

Khalid *et al.* (2010) The study examined the execution assessment of mutual funds. She took 23 closed-end mutual funds from 2001-2010 as sample. Jensen Alpha, Treynor ratio, Sharpe index, Sortino measure and informational measure were used in the research. Besides Sortino ratio, which dealt only with downsize risk, the rest of the measures found similar association between risk and return of mutual funds. As all those ratios gave negative results, it suggested that the Pakistani mutual funds industry had still a long way to go and that the fund managers should implement policies which, by offering maximum benefits and returns, could attract the larger investors. Afza and Rauf (2009); Nazir (2010). They both focus on finding the determinants of mutual fund execution. Afza and Rauf endeavor to comprehend and clarify open ended mutual fund execution for the 1999–2006 periods as demonstrated by a quarterly Sharpe proportion. They find not very many components that seem, by all accounts, to be huge and the outcomes indicate the significance of past returns anticipating future returns while different elements, for example, cost proportions or the fund's asset size are not huge. The main objective was to find the causes of growth and performance of mutual fund industry in Pakistan in the researches. Nazir and Nawaz (2010) concentrate on a little example of 13 mutual funds where there is family or group possession, and attempt to distinguish critical components that decide the development of the business. They find that estimate of the assets has a positive effect on execution. They had drawn attention of investors to identify different factors including management, business ratio, size of fund and MER[1] which affect growth of funds. It has been observed that the above mentioned factors had significant impact on growth of fund and MER has negative impact on growth.

[1] Management expense ratio (MER)

The study conducted by Shah (2005) on the performance of open end and closed end fund revealed that the fund outperform the benchmark due to their defensive strategies. However the industry is still in early stages stage and requires a lot to do for potential growth in it. The investment objective of fund is significant for the investors. It has been observed that equity funds normally bear high risk as compared to bond funds. As a result, the equity funds may have high MER as compared to debt funds (Wongsurawat, 2011). He revealed two possible reason for such behavior of MER; first, the quality of information contained by the fund manager of an equity fund. Second, Equity funds are more vulnerable to risk of loss, as a result the fund manager keep information up to date leading to high cost of maintaining such information. Whereas in debt fund, the transactions are less costly as compared to equity funds as they do not require complex information set for bond funds. Significant impact has been observed on the management MER of fund in terms of the life of fund. However, it has been observed while reviewing the Malaysian fund industry, that the life of fund has no impact on MER.

According to Low (2008) life has no impact on the MER of mutual funds in Malaysia, whereas in other studies the authors found that if the fund is alder, it reduces the MER and have significant impact. While reviewing the Malaysian mutual fund industry, Low (2008). Determined the factors affecting the MER on Malaysian mutual funds. During the study, he observed that the factors including the fund size and the sponsors group of fund are significant factors that affect the MER. Further, these factors also impact the performance of the funds. However the impact of fund size found to be negative on the MER which indicates that as the size of fund increase, the MER of the fund would decrease. Similar study was also done by Babalos *et al.* (2009) they told in their research on Greek equity funds. The results of study were found similar to the study earlier made by another important study conducted by Rompotis (2008). Rompotis who discussed the impact and relation of the fund's objective on the mutual funds. While conducting research, it has been observed that the investment objective had impact on the expense side of funds. In this regard, the findings revealed that the stock funds have high MER as compared to debt funds. In order to understand factors determining the MER, study revealed that the asset size of fund have negative impact on the expenses borne by the fund.

The consistency of management effectiveness has been the focus of interest for many researchers. The theory of efficient market also suggests that fund managers should not be able to generate positive fund returns consistently over a period of time. In this context, Brown (1995) Brown analyzed annual fund returns of US funds and found that returns are serially correlated over time thus negating the efficient market hypothesis. This study also confirms that past performance of mutual fund can be an important attribute in determining future fund returns.

2.1. Mutual Funds in Pakistan

Mutual Fund is a vehicle that groups funds from customers buying their stocks to store in group of securities together with selling and buying. The securities existence are determined by a fund supervisor (Frank and Reilly, 2011). This frontier is effective because inherent every stage is a portfolio which results in the risk for this amount of yield that is expected. Make up the set of portfolios.

Mutual funds have been the fastest growing institutions in the world as they manage the risk management tools through expansion over the past decade. In Pakistan mutual fund is one of attractive investment alternative. Study shows that Mutual fund have amazing growth. As the net asset value (NAV[2]) grows more than 30% during 2008 to 2017. The growing number of mutual funds' share sold and their NAV indicated that mutual funds are becoming a popular alternative of investment.

At June 30, 2017, there have been 20 Asset Management Companies handling 233 funds including end, Closed Voluntary Pension Schemes and end funds. The Assets under management On June 30, 2016 to Rs. 622.35 billion on

[2] Net Asset Value (NAV)

June 30, 2017 up 27% over last year using Rs. 574.29 billion in Open-end Lending, followed by Rs. 22.8 billion in closed-end lending and Rs. 25.26 billion in "Voluntary Pension Schemes".

Due to low interest rates out flow that was large was witnessed with bulk of it being from the Revenue class Shifted towards the Equity and Asset Allocation categories during the financial year. The equity fund group comprised of Rs. 270.69 billion upwards (37 %) from last year followed by earnings fund group at Rs. 101.46 billion downward (20 %) and money market group in Rs. 77.88 billion up 40 percent From the last year. This year witnessed an influx of Finance of Money (both traditional plus Shariah compliant).

Funds category of Rs. 87.01 billion of total inflows were seen from the industry. Continued to remain the investor's manner of investment as this class received net inflow of Rs. 81.96 billion. The Shariah compliant funds AUMs currently amount to Rs. 237.82 billion vs. Rs. 157.49 billion past years. The "Pension Scheme" recorded net RS. 11.81 billion of inflows through the year with the total mass of upward to Rs. 25.26 billion. About 51,000 individual stockholder accounts be there added throughout the fiscal year. The stock of entities in open-end mutual funds in duration of AUMs now positions at 40% versus 34% the last year.

2.2. Mutual Fund Categories

The mutual funds are spread in 4 main categories in term on underlying asset; fixed asset mutual fund, balance mutual fund, equity mutual fund, and money market mutual fund. Pakistani Investors note mutual fund routine, and study features upsetting performance to increase their profit. The numerous studies try to identify performance difference across funds and predict mutual fund performance. Asset valuation performance of an investment not only based on the level of profits generated, but also considers the risk generated. Further analysis is needed to identify factors related to performance of equity mutual funds.

Mutual Funds were introduced in Pakistan in 1962, with the public offering of NIT Unit (National Investment Trust). It's the only open-ended mutual fund operating in public sector. The formation of the Investment Corporation of Pakistan (ICP) in 1966 offered a series of closed-ended mutual funds which was subsequently divided into two lots in June 2000 and was then it was gone private. In the private sector, there are forty-three open-ended and twenty two closed-ended mutual funds. A phenomenal growth from 1995 to 2005 observed in Pakistani mutual funds (MUFAP[3]). The study shows that in 2005, the net asset value growth from Rs. 16 billion rupees to Rs. 137 billion rupees till 30th of June. That imposes to ascertain whether the growth in this sector is a real one or is just effervesce. However, it is of a small size while comparing Pakistani mutual fund industry (MUFAP) internationally. According to Khorana *et al.* (2005) Pakistan holds only 1.33% mutual fund assets to primary securities, in contrast to India with 3.7%, Malaysia 4.0%, Hong Kong 20.3%, and South Korea 16.5%. These facts indicate that mutual fund industry in Pakistan has significant room to grow. Paid-up capital may look substantial but the size is still too small as compared to international standards.

There are following different categories of mutual funds

1. Aggressive fixed income: Aggressive fixed income fund is the fund to aim with generate a high return to invest in fixed income securities, also taking exposure in medium to lower quality of assets also.

2. Asset allocation: Asset allocation fund is the type of fund that invest its asset in any type of securities at any time in order to diversify its assets across multiple type of securities & investment styles available in markets.

3. Balanced: These types of funds provide investors with a single mutual fund that invests in both stocks and debt instruments and with this diversification aimed at providing investors a balance of growth through investment in stocks and of income from investments in debt instruments.

[3] Mutual Fund Association of Pakistan (MUFAP)

4. Equity: An equity scheme or equity fund is a fund that invests in Equities more commonly known as stocks. The objective of an equity fund is long-term growth through capital appreciation, although dividends and capital gain realized are also sources of revenue.

5. Income: These funds focus on providing investors with a steady stream of fixed income. They invest in short term and long term debt instruments like TFCs, government securities like T-bills/ PIBs, or preference shares.

6. Money Market: Money Market Funds are among the safest and most stable of all the different types of mutual funds. These funds invest in short term debt instruments such as Treasury bills and bank deposits.

7. Shariah Compliant Asset Allocation: Shariah compliant asset allocation fund is the type of fund that invest its asset in Islamic securities & function as same as other asset allocation funds.

8. Shariah Compliant Equity: Shariah compliant equity scheme is a fund that invests in shariah complaint equities. The objective of an shariah compliant equity fund is long-term growth through capital appreciation, although dividends and capital gain realized are also sources of revenue.

9. Shariah Compliant Income: Shariah compliant income funds focus on providing investors with a steady stream of Islamic fixed income such as sukuk etc. They invest in short term and long term Islamic debt instruments.

10. Shariah Compliant Money Market: Shairah compliant money market funds are among the safest and most stable of all the different types of mutual funds. These funds invest in short term Islamic debt instruments.

3. RESEARCH METHODOLOGY

3.1. Data

Open ended and close ended mutual funds joined in Mutual Funds Association of Pakistan (MUFAP) were selected as population and which is 119 mutual funds' assets. Out of the complete 119 mutual funds, 100 mutual funds were designated for the model of the reading on the source of the accessibility of the information. For study the annual returns of the funds were obtained from the industry statistical section of annual report of Mutual Fund Association of Pakistan (MUFAP) 2017. The data of the others statistical data are extracted from mutual funds' manager report. The funds included in the sample invest in Pakistani securities.

3.2. Source of Data and Sample Size

The total population for the Open End mutual funds comprises of two hundred eleven funds under twenty Asset Management Companies (AMCs) as per MUFAP Annual report 2017. Since the present study is for the period 2015 to 2017 therefore from the mentioned population the funds incepted before 2015 are relevant for our study.

Hence the sample used for the calculation is 100 open end mutual funds. With 100 Funds the total observations are 300 observations.

Data for variables of study was collected from the annual financial statements, fund manager's report and from the official websites for the individual funds.

The data for the mentioned sample has been collected from the annual financial statement and Fund manager's report. These financial reports are maintained under the directive of SECP code of reporting, this is very elaborative code that guide AMC's for reporting standards

Director's report, Income statement, Balance sheet, cash flow statement and statement of movement of funds were of special importance as they were unanimous source for fund size, Annual return, Expenses, Cash position, Sale and Purchase of assets and N.A.V. the data thus collected has also been reassured from the Fund Manager's report of June of respective year.

The following Table 1 elaborates the data sources.

Table-1. Data sources of Mutual Funds Characteristics.

Variable	Data Source	Assurance source
Expenses	Industry statistics data	Mutual Fund Association of Pakistan (MUFAP) Annual report 2017
Fund age	Fund profile	Fund manager reports December 2017
Fund size	Fund profile	Fund manager report December 2017
Standard deviation	Industry statistics data	Mutual Fund Association of Pakistan (MUFAP) Annual report 2017
Risk return coefficient	Industry statistics data	Mutual Fund Association of Pakistan (MUFAP) Annual report 2017
Sharpe ratio	Industry statistics data	Mutual Fund Association of Pakistan (MUFAP) Annual report 2017
Return	Industry statistics data	Mutual Fund Association of Pakistan (MUFAP) Annual report 2017
GDP growth	Country statistics	https://data.worldbank.org/country/pakistan
Interest rate	Country statistics	https://data.worldbank.org/country/pakistan

3.3. Research Model

The study will employ a regression model to determine the relationship between identified factors. By using fund data from the period 2015 to 2017, we use correlation, simple and multiple regressions to see whether fund performance depends on the defined characteristics. The regression analyses are performed in Microsoft Excel & Eviews.

The multiple regression equation illustrated by the formula below.

$$y = \alpha + \beta 1x1 + \beta 2x2 + \ldots + \beta 8x8 + \varepsilon$$

Where y (dependent) variable can be expressed in terms of a constant α and slopes $\beta 1 \ldots \beta 8$ times the x1….x8 (independent) variable. The constant is also referred to as the intercept, and the slope as the regression coefficient or beta coefficient. In this study Return of mutual funds is used dependent variable, whereas Fund age, Fund size, Expense ratio, Standard deviation, Risk return coefficient, Sharpe ratio, GDP growth, and Interest rate are taken as independent variables.

A short description of each variable is given below

3.3.1. Fund Age

Age of mutual funds could play a role in deciding performance since younger funds may face significant higher costs in their startup period. This is due to marketing cost but also that the initial cash flows will place greater burden on the funds transaction cost. There is also evidence showing that return of mutual fund may be affected by an investment learning period (Gregory, 1997). Young fund tend to be smaller than older ones, which make the young funds' return and rating more vulnerable.

3.3.2. Fund Size

Large mutual funds have several advantages over small ones. First, big funds are able to spread fixed overhead expenses over a larger asset base. Further, managers of big funds can gain positions in beneficial investment opportunities not available to smaller market participants (Ciccotello and Grant, 1996). Liquidity means that a big fund needs to find more stock ideas than its small peers. Presumably, a large fund can afford to hire additional managers and thereby cover more stocks and generate additional good ideas; meaning that large mutual funds can take small positions in lots of stocks.

3.3.3. Expense Ratio

Expense for mutual funds includes operating expenses, Annual fees, Load Fees, Management Fees and Auditor's Fees. Operating expenses represents the expenditures incurred for translation of regular business operations. Annual

fees are payable to SECP[4] about amount equal to 0.095 Percent of the average net assets of the scheme for the funds those are categorized as equity scheme this payable amount is regulated under provisions of the Non-Banking Finance Companies and Notified Entities Regulations 2008. Load Fee is the charged amount against sales or purchase of units of mutual funds. There are two major types of load fee back end load (the load fee that is charged at redemption of mutual fund units) the other is front end load (the load fee that is charged when units are purchased). Different funds have different level of load fees but they all adheres the market forces. Some funds may charge both back end load and front end or they may charge any one. We have not came across any case where none is being charged. A management fee is calculated as a fixed percentage of Net asset Value (NAV) as the fees for consultation and advisory fees to the Asset Management Company (AMC). As per the directive of SECP every AMC is bound to publish it independently audited report which should be available to general public. In order to fulfill this regulatory requirement every AMC hires independent auditor and expense auditor's remuneration as auditor's fees. The sum of operating expenses, Annual fees, Load Fees, Management Fees and Auditor's Fees will be used as Expense. The measure that mirrors all the costs associated within a mutual fund is called Expense ratio. These costs are included in the price of the mutual fund, meaning that the investor never notices them directly & also charge separately.

$$\text{Expense ratio:} \quad \frac{\text{Total costs}}{\text{Average mutual fund wealth}}$$

3.3.4. Risk

It is impossible to avoid risk when investing in mutual funds. Academics believe that equity investors are rewarded for taking on risks in the long run (Peterson *et al.*, 2001). The most common ways of measuring risk in a mutual fund is to calculate its standard deviation. The standard deviation of a fund measures the risk by measuring the degree to which the fund fluctuates in relation to its mean return; the average return of a fund over a period of time and includes both systematic and unsystematic risk (Bodie *et al*, 1992).

3.3.5. Risk Return Coefficient

A coefficient of variation (CV) is a statistical measure of the dispersion of data points in a data series around the mean. It is calculated as follows: (standard deviation) / (expected value). The coefficient of variation represents the ratio of the standard deviation to the mean, and it is a useful statistic for comparing the degree of variation from one data series to another, even if the means are drastically different from one another (Investopedia).

$$\text{Risk return coefficient:} \quad \frac{\text{Standard deviation of investment}}{\text{Expected return of investment}}$$

3.3.6. Risk Adjusted Return

The Sharpe ratio developed by Nobel laureate William F. Sharpe, and is used to help investors recognize the return of a funding as compared to its risk. The ratio is the average return earned in extra of the risk-loose charge in keeping with unit of volatility or total risk. Subtracting the risk-free charge from the mean return allows an investor to higher isolate the profits associated with risk-taking activity. One instinct of this calculation is that a portfolio conducting "zero risk" investments, inclusive of the acquisition of U.S. Treasury Bills (for which the predicted return is the risk-free rate), has a Sharpe ratio of precisely zero. Generally, the more the value of the Sharpe ratio, the extra appealing the risk-adjusted return.

[4] Security and Exchange Commission of Pakistan (SECP)

3.3.7. GDP Growth

GDP refers to Gross Domestic Product, it is one of the indicator to find health of a country. It represent total value of goods and services produced in a specific time in a country. It tells about the size of the economy. Two types of GDP are: Nominal GDP refers to country economic output without inflation adjustment, while Real GDP equal to economic output adjusted the effect of inflation. In this research we used Real GDP growth rate data of Pakistan that has extracted from World Bank Website.

3.3.8. Interest Rate

The Karachi Interbank Offered Rate, or KIBOR, is the average interest rate at which banks can borrow money from the central bank. The interest rate is used to shape monetary policy and to control inflation. In Pakistan, interest rate decisions are taken by State Bank of Pakistan which depend on condition of overall economy. In this research we take average interest rate of Pakistan for relevant years that has also extracted from World Bank website.

4. EMPIRICAL RESULTS

This chapter discuss the results from descriptive and regression analysis. The results from each regression will be discuss in next chapter.

4.1. Descriptive Analysis

The descriptive statistics of each variable are mentioned in below Table 2.

Table-2. Descriptive Analysis.

Variables	N	Mean	Median	Min value	Max value
Return	300	12.7%	8.4%	0.7%	50.5%
STDEV	300	0.090	0.030	0.000	1.020
Expense ratio	300	0.020	0.017	0.004	0.100
Fund age	300	3751.58	3290.00	1656.00	20138.00
Fund size	300	3379.09	1732.50	63.94	46913.00
Risk return coefficient	300	0.53	0.28	-34.22	18.33
Sharpe ratio	300	0.090	0.030	0.000	1.020
GDP	300	5.32%	5.53%	4.73%	5.70%
Interest rate	300	3.94%	3.92%	3.73%	4.18%

*Research period 2015-2017.

The details of all variables are appear in appendix (available upon request) . This shows the mean, median, maximum and minimum value of all variable. For all attributes, except size, the median and the mean value are relatively close to each other, due to the fact that a few of the mutual funds are much bigger than the others.

Fund characteristics also have correlated with each other; for this we have correlated between each other mentioned below in Table 3.

Table-3. Correlation of Variables.

Variables	Return	Expense ratio	Fund age	Fund size	Risk return coeff	Sd deviation	Sharp ratio	GDP
Return								
Expenseratio	0.103							
Fundage	0.311	-0.018						
Fundsize	0.037	-0.024	0.001					
Riskretcoef	0.045	-0.020	0.036	-0.075				
Sddeviation	0.520	0.110	0.319	0.095	0.125			
Sharpratio	0.506	0.074	0.238	0.094	0.044	0.271		
Gdp	-0.113	-0.121	0.127	0.065	0.124	0.002	-0.081	
Interestrate	0.016	0.093	-0.135	-0.062	-0.091	-0.010	0.008	-0.964

The above tables shows the relation between all variables that we have selected as fund characteristics. In first column we can describe that expense ratio, fund age, fund size, risk return coefficient & interest rate have a weak but positive relation with fund return, however standard deviation & sharp ratio have strong positive relationship. Further GDP growth have weak negative relation with fund return. By this correlation we can describe that the mutual fund return have highly dependent on its risk factors, it means that more risk have more return. Also we can conclude that expense ratio, fund size & fund age have impact on return but not significantly. If we consider effect of other factors on expense ratio then we conclude that fund age, GDP & fund size have negative impact on expense ratio. No factors have strong positive impact on fund size, fund age, risk return coefficient. In view of the above discussion we simply conclude that mutual fund return are greatly drive due to risk rather than any other micro and macro factors that we had selected in our research.

4.2. Simple Regressions

A simple regression is performed to examine how the attributes influence the independent variable return individually. The results from the regressions are shown below in Table 4:

Table-4. Simple Regressions of Variables.

Variables	Coefficient	t-value	p-value	R2
STDEV	0.487	10.52	0.00	27.08%
Expense ratio	0.580	1.78	0.08	1.05%
Fund age	0.001	5.65	0.00	9.67%
Fund size	0.001	0.64	0.53	0.14%
Risk return coefficient	0.001	0.78	0.44	0.20%
Sharpe ratio	0.030	10.13	0.00	25.62%
GDP	-0.026	-1.97	0.05	1.28%
Interest rate	0.008	0.27	0.79	0.02%

Above table shows the simple regression of each independent variable with dependent variable (i.e return). Standard deviation and sharpe ratio is the factor that has the highest explanatory level; 27.08% and 25.62% of the return are explain by standard deviation and sharpe ratio accordingly, a fund have highest standard deviation and sharpe ratio seems to deliver the higher return.

4.3. Multiple Regression

Multiple regressions is performed to see how much of the return that the fund characteristics could explain together. We select different models to see the relationship of variables in different scenarios as mentioned in below Table 5.

Table-5. Multiple Regression of Models.

Dependent Variable	Value Description	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
		All Funds Ret.	Macro Ret.	Micro Ret.	Islamic Ret.	Conventional Ret.	Agg. Fixed Income Ret.	Asset allocation Ret.
Constant	Coefficient	3.349	4.563	0.074	2.805	3.021	0.690	0.380
	t-value	6.180	6.878	6.928	2.792	4.770	1.777	0.187
	p-value	0.000	0.000	0.000	0.007	0.000	0.101	0.856
Expense Ratio	Coefficient	0.022	-	0.179	-0.328	0.049	0.102	-2.47
	t-value	0.09	-	0.71	-0.71	0.18	0.25	-1.19
	p-value	0.928	-	0.479	0.481	0.858	0.808	0.266
Fundage	Coefficient	0	-	0	0	0	0	0
	t-value	2.54	-	2.06	2.11	1.67	-0.32	-0.53
	p-value	0.012	-	0.041	0.038	0.097	0.756	0.611
Fundsize	Coefficient	0	-	0	0	0	0	0
	t-value	-0.46	-	-0.83	-0.31	-1.84	0.04	-1.08
	p-value	0.646	-	0.408	0.757	0.068	0.971	0.310
Risk Return Coefficient	Coefficient	0.001	-	-0.001	-0.01	0.001	-0.068	-0.004
	t-value	0.4	-	-0.58	-2.84	0.97	-4.75	-0.76
	p-value	0.687	-	0.560	0.006	0.334	0.001	0.469
Sharperatio	Coefficient	0.018	-	0.023	0.012	0.027	0.016	0.11
	t-value	6.39	-	8.09	2.44	6.58	5.23	4.73
	p-value	0.000	-	0.000	0.017	0.000	0.000	0.001
Stdeviation	Coefficient	0.37	-	0.365	0.478	0.372	1.282	0.237
	t-value	8.62	-	8.01	3.74	8.13	5.06	0.83
	p-value	0.000	-	0.000	0.000	0.000	0.000	0.426
Gdp	Coefficient	-0.238	-0.318	-	-0.213	-0.207	-0.059	0.006
	t-value	-6.22	-6.83	-	-3.05	-4.59	-2.46	0.05
	p-value	0.000	0.000	-	0.003	0.000	0.030	0.963
Interest	Coefficient	-0.509	-0.695	-	-0.411	-0.467	-0.077	-0.057
	t-value	-5.87	-6.51	-	-2.51	-4.63	-1.15	-0.17
	p-value	0.000	0.000	-	0.014	0.000	0.273	0.866
R2		49.40%	13.60%	42.60%	60.70%	51.30%	97.20%	86.30%
Adjusted R2		47.97%	13.03%	41.41%	56.38%	49.45%	95.40%	74.19%
F		35.463	23.395	36.225	13.927	27.659	52.811	7.108
Sig.		375.810	295.675	356.969	110.758	279.732	79.715	37.163

Values of their respected test are shown in brackets under their statistics.

Dependent Variable	Value Description	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14
		Balanced funds Ret.	Equity funds Ret.	Income funds Ret.	Money market fund Ret.	Islamic asset allocation Ret.	Islamic equity Ret.	Islamic income Ret.
Constant	**Coefficient**	5.146	-0.701	0.135	0.134	2.606	-0.423	0.226
	t-value	1.615	-1.381	0.392	0.872	0.665	-1.001	1.874t
	p-value	0.141	0.173	0.697	0.388	0.531	0.333	0.072
EXPENSE RATIO	**Coefficient**	0.782	0.003	-0.007	0.034	-3.558	-0.209	0.075
	t-value	0.34	0.01	-0.04	1.29	-0.85	-0.45	1.58
	p-value	0.745	0.995	0.968	0.206	0.429	0.657	0.125
FUNDAGE	**Coefficient**	0	0	0	0	0	0	0
	t-value	-0.14	-1.54	-0.3	0.34	0.63	0.7	1.83
	p-value	0.895	0.131	0.768t	0.737	0.554t	0.498	0.078t
FUNDSIZE	**Coefficient**	0	0	0	0	0	0	0
	t-value	0.79	-2.09	-0.29	1.08	-0.66	-0.63	-0.39
	p-value	0.451	0.041	0.776	0.285	0.531	0.539	0.703
RISK RETURN COEFFICIENT	**Coefficient**	-0.008	0	-0.119	-0.068	-0.01	0	-0.024
	t-value	-0.2	-0.07	-2.82	-5.83	-0.83	0.42	-0.9
	p-value	0.848	0.946	0.007	0.000	0.437	0.680	0.376
SHARPERATIO	**Coefficient**	0.08	0.193	0.015	0.003	0.085	0.189	0.006
	t-value	1.38	33.61	4.38	3.7	1.01	28.24	8.34
	p-value	0.202	0.000	0.000	0.001	0.349	0.000	0.000
STDEVIATION	**Coefficient**	0.564	0.229	1.78	1.094	-0.053	0.819	-0.251
	t-value	1.84	9.36	4.44	5.73	-0.11	5.3	-0.74
	p-value	0.100	0.000	0.000	0.000	0.913	0.000	0.467
GDP	**Coefficient**	-0.357	0.023	-0.011	-0.018	-0.19	0.005	-0.029
	t-value	-1.68	0.68	-0.46	-1.65	-0.74	0.17	-3.48
	p-value	0.127	0.500	0.647	0.107	0.486	0.867	0.002
INTEREST	**Coefficient**	-0.823	0.155	-0.001	0.008	-0.381	0.079	-0.002
	t-value	-1.58	1.89	-0.02	0.33	-0.6	1.14	-0.1
	p-value	0.147	0.064	0.988	0.744	0.573	0.270	0.923
R2		83.60%	98.30%	77.20%	92.10%	79.50%	99.40%	86.80%
Adjusted R2		68.95%	98.02%	73.10%	90.54%	52.15%	99.05%	82.93%
F		5.720	365.220	19.005	57.226	2.907	302.091	22.256
Sig.		29.568	161.482	140.434	194.162	25.934	80.705	145.34

P Values of their respected test are shown in brackets under their statistics.

Model 1: we consider all variables also macro and micro factors. This model contribute 49.4% to its funds' return, however the major contributor are standard deviation and interest rate as it negatively correlated with return. Also interest rate shown the negative effect on this model. Adjusted R square are 47.97% this means contribute 47.97% to these variables. Likelihood sigma is higher in this model as compare to all other model so we can say that it is better than other models.

Model 2: we consider all macro factors. This model contribution has significantly decline from 49.4% to 13.6% to the funds' return, however the major contributor are interest as it negatively coefficient with return. It has adjusted R square 13,03%. However this model has high likelihood sigma so we can say that this model is better. In this model both variables have probability value Is less than .05 so we can conclude that this model does not support null hypothesis.

Model 3: we exclude all macro factors. This model contribute 42.6% to its funds' return, however the major contributor are standard deviation as it positively correlated with return. Adjusted R square of this model is 41.41% so this has no major contribution to these variables. Also this model have second highest likelihood sigma this shows the perfection of this model to others.

Model 4: When calculating this model we have only include 27 Islamic fund data from our 100 funds sample data & determine its effect on funds' return. This model contribute 60.7%to its return and major and minor contributor are standard deviation and fund age/size respectively. It has adjusted R square 56.38%. However this model has likelihood sigma 110.758 so we can say that this model has not better than other. In this model mostly variables have probability value Is less than .05 so we can conclude that this model does not support null hypothesis.

Model 5: we have included all conventional funds returns data of 73 funds from our sample of 100 funds. Conventional fund are contributed 51.3% to its funds' return. Also adjusted R square of this model is 49.45% this sows that this model is not so better than model 4. However this model has likelihood sigma 279.732 so we can say that this model better than other as it value is higher than many other models. In this model mostly variables have probability value Is more than .05 so we can conclude that this model supports null hypothesis.

Model 6: From here we have divided funds into their individual categories to find relationship of return with all factors of different categories of funds. In first category we find effect of seven aggressive income funds characteristics to its return as it contribute significantly 97.2% to its return. Its adjusted R square is 95.4% so this model has more contributor in its variables. But this model has likelihood sigma is only 79.715 so we can say that this model does not better than other models when we compare this with other those have high likelihood variable..

Model 7: As found in last model, this model also have consider only asset allocation fund category returns. In this model we take six asset allocation funds, It shows significant contribution of R2 (square) is 86.3%. 7 also its adjusted R square is 74.19%. This model has likelihood sigma is significantly less than other models that only 37.163 so we can say that this model does not better than other models when we compare this with other those have high likelihood variable.

Model 8: Before calculating this model data, we have excluded all funds except balanced fund category & we take data of six balanced funds. With the help of this analysis we found that 83.6% of return are effects by its characteristics. Also it has 68.95% adjusted R square. This model also have likelihood sigma 29.568 this shows that this model has not better than other when compare.

Model 9: When finding this model, we have excluded all other fund category data except twenty equity fund to find the effect of fund characteristics to equity mutual fund returns. This model seems to be perfect because its perfectness model because R2 increase significantly from 49.4% to 98.3%. Also its adjusted R square 98.02%.This model also have likelihood sigma is 161.482 so this can be elaborate as better than other that have less than this variable.

Model 10: For this model we get data of eighteen income funds to find the effect of different fund characteristics (macro and micro factors) to income fund returns. This model seems to be better because this model contribute 77.2% to its variables. Also its adjusted R square 73.1%.This model also have likelihood sigma is 140.434 so this can be elaborate as better than other that have less than this variable.

Model 11: We get data of sixteen money market funds and find the effect of fund characteristics to this category returns. It has effect 92.1% to its return. Standard deviation can explain big part of this type of funds' return. Its adjusted R square 90.54%, its likelihood sigma have 194.162 this shows the better of other those have lower than this.

Model 12: Now we will check the fitness of model of fund return for Islamic or Shariah complaint funds. Firstly we consider five Shariah compliant Islamic asset allocation funds from our sample, these fund contribute 79.5% to its return. Expense ratio are mainly effect to this model. Its adjusted R square is 52.15%. its likelihood sigma is 25.934 so this has lower than all model that we have.

Model 13: For this model we have eight Islamic or Shariah compliant equity fund characteristics that have significant contribution of 99.4% to its return than other models. Its adjusted R square is 99.05%. Standard deviation can explain big part of this type of funds' return. Also this model has likelihood sigma variable has 80.705.

Model 14: This model has twelve Islamic or Shariah compliant income fund data to find the effect of its characteristics to its return. We find the contribution of 86.8% to its return, its adjusted R square is 82.93%. Standard deviation are the largest contributor in this model. Its likelihood sigma also have 145.34 this shows the better of other models that have sigma value less than 145.34.

5. ANALYSIS

5.1. Fund Age

We have extracted effect of fund age in different models as mentioned in below Table 6.

Table-6. Results of variable (Fund Age).

All Funds Ret.		**All Funds Ret. (Macro)**		**All Funds Ret. (Micro)**		**Islamic Ret.**	
No relation	Significant			No relation	Significant	No relation	significant
Conventional Ret.		**Agg. Fixed Income Ret.**		**Asset allocation Ret.**		**Balanced funds Ret.**	
No relation	Insignificant	No relation	Insignificant	No relation	Insignificant	No relation	Insignificant
Equity funds Ret.		**Income funds Ret.**		**Money market fund Ret.**		**Islamic asset allocation Ret.**	
No relation	Insignificant	No relation	Insignificant	No relation	Insignificant	No relation	Insignificant
Islamic equity Ret.		**Islamic income Ret.**					
No relation	Insignificant	No relation	Insignificant				

Earlier studies shows the diverge result on relationship of fund age and return. Gregory (1997) found that mature funds did better than younger ones whereas found the opposite; that younger funds were the ones investors should put their money in. On the other hand, Peterson *et al.* (2001) found no relationship whatsoever between age and return in their study.

In our study we have the weak but positive correlation of fund age and return. While considering its coefficient obtain after analysis of different models we found that fund age have no effect on its returns in any model, if we observe p-value of our results so it also higher than our significance level in all models except when we consider all fund returns and when consider only micro factors. So this also an indication to accept that fund age have no effect

on mutual fund return. Hence these values of analysis indicates that there is no relationship between fund age and return.

5.2. Fund Size

We have extracted effect of fund size in different models as mentioned in below Table 7.

Table-7. Result of Variable (Fund Size).

All Funds Ret.		**All Funds Ret. (Macro)**		**All Funds Ret. (Micro)**		**Islamic Ret.**	
No relation	Insignificant			No relation	Insignificant	No relation	Insignificant
Conventional Ret.		**Agg. Fixed Income Ret.**		**Asset allocation Ret.**		**Balanced funds Ret.**	
No relation	Insignificant	No relation	Insignificant	No relation	Insignificant	No relation	Insignificant
Equity funds Ret.		**Income funds Ret.**		**Money market fund Ret.**		**Islamic asset allocation Ret.**	
No relation	Insignificant	No relation	Insignificant	No relation	Insignificant	No relation	Insignificant
Islamic equity Ret.		**Islamic income Ret.**					
No relation	Insignificant	No relation	Insignificant				

In previous research, some of researchers found that size does not have impact in fund return but some against this. In our study we have the very weak but positive correlation of fund size and returns. In simple regression, we found lower coefficient that means it had low effect of fund return. While considering its coefficient of multiple regressions in different models we obtain no relation between fund size and return in any model which means that fund size have no effect on its returns, if we observe p-value of our results so it also higher than our significance level so this also an indication to conclude the insignificancy of this variable. Hence these values of analysis indicates that there is no relationship between fund size and return.

5.3. Expense Ratio

We have extracted effect of expense ratio in different models as mentioned in below Table 8.

Table-8. Result of Variable (Expense Ratio).

All Funds Ret.		**All Funds Ret. (Macro)**		**All Funds Ret. (Micro)**		**Islamic Ret.**	
Positive Relationship	Insignificant			Positive Relationship	Insignificant	Negative Relationship	Insignificant
Conventional Ret.		**Agg. Fixed Income Ret.**		**Asset allocation Ret.**		**Balanced funds Ret.**	
Positive Relationship	Insignificant	Positive Relationship	Insignificant	Negative Relationship	Insignificant	Positive Relationship	Insignificant
Equity funds Ret.		**Income funds Ret.**		**Money market fund Ret.**		**Islamic asset allocation Ret.**	
Positive Relationship	Insignificant	Negative Relationship	Insignificant	Positive Relationship	Insignificant	Negative Relationship	Insignificant
Islamic equity Ret.		**Islamic income Ret.**					
Negative Relationship	Insignificant	Positive Relationship	Insignificant				

Earlier research stated that mutual funds with high expenses give superior return compared to low expense funds (Ippolito, 1992) while performing analysis we have the very weak but positive correlation between expense ratios and fund returns. In simple regression, we found positive coefficient that effects fund return. While considering its coefficient of multiple regressions in different models we obtain mainly positive values in mostly models however some of models have shown negative as well. This shows that expense ratio have positive effect on fund return if we consider it on overall basis but due to some it also shows negative effect. Hence these values of analysis indicates that expense ratio impact on fund return mainly have positive which means that fund with high

expense ratio have high returns. However if we consider p-values so all models have shown the insignificant effect so this means that p-values are higher the significance level. So these evidences are enough to prove to accept that higher the expense ratio have higher return except Islamic, asset allocation & income fund categories if we consider coefficient only.

5.4. Fund Risk

We have extracted effect of mutual fund risk in different models as mentioned in below Table 9.

Table-9. Result of Variable (Fund Risk).

All Funds Ret.		**All Funds Ret. (Macro)**		**All Funds Ret. (Micro)**		**Islamic Ret.**	
Positive Relationship	Significant			Positive Relationship	significant	Positive Relationship	significant
Conventional Ret.		**Agg. Fixed Income Ret.**		**Asset allocation Ret.**		**Balanced funds Ret.**	
Positive Relationship	Significant	Positive Relationship	significant	Positive Relationship	Insignificant	Positive Relationship	Insignificant
Equity funds Ret.		**Income funds Ret.**		**Money market fund Ret.**		**Islamic asset allocation Ret.**	
Positive Relationship	Significant	Positive Relationship	significant	Positive Relationship	significant	Negative Relationship	Insignificant
Islamic equity Ret.		**Islamic income Ret.**					
Positive Relationship	Significant	Negative Relationship	Insignificant				

Earlier research states that low risk provide investors with higher return, which is in accordance with our study when looking at the standard deviation (Chang, 2004). In performing correlation analysis we found strong positive correlation with return for this we use standard deviation to analyze risk. Also in simple regression analysis figures stated positive effect of risk with return. In multiple regressions, we analyze the effects with different models and found overall positive effect on fund return, except Islamic asset allocation and Islamic income fund models. Further while analyzing p-value we mostly found significance so we have confidently conclude that risk have mainly impact on return, in short more risk have more return. Hence we conclude that fund with high risk can generate high return.

5.5. Risk Return Coefficient

We have extracted effect of risk return coefficient in different models as mentioned in below Table 10.

Table-10. Result of Variable (Risk Return Coefficient).

All Funds Ret.		**All Funds Ret.(Macro)**		**All Funds Ret.(Micro)**		**Islamic Ret.**	
Positive Relationship	Insignificant			Negative Relationship	Insignificant	Negative Relationship	Significant
Conventional Ret.		**Agg. Fixed Income Ret.**		**Asset allocation Ret.**		**Balanced funds Ret.**	
Positive Relationship	Insignificant	Negative Relationship	significant	Negative Relationship	Insignificant	Negative Relationship	Insignificant
Equity funds Ret.		**Income funds Ret.**		**Money market fund Ret.**		**Islamic asset allocation Ret.**	
No relation	Insignificant	Negative Relationship	significant	Negative Relationship	Significant	Negative Relationship	Insignificant
Islamic equity Ret.		**Islamic income Ret.**					
No relation	Insignificant	Negative Relationship	Insignificant				

Risk return coefficient describes the risk per unit of return, correlation between risk return coefficient and fund return very low but positive. In simple regression, it has very low effect on return while p-value is greater than

significance level. When we analyze it on multiple regression in our 14 models so mostly it found very low positive effect & also some very low negative effect. Also we found overall p-value higher than significance level so it seems to accept the null hypothesis. We can conclude that coefficient of variation have no effect on fund return.

5.6. Risk Adjusted Return

We have extracted effect of risk adjusted return (sharpe ratio) in different models as mentioned in below Table 11.

Table-11. Result of Variable (Risk Adjusted Return).

All Funds Ret.		**All Funds Ret. (Macro)**		**All Funds Ret. (Micro)**		**Islamic Ret.**	
Positive Relationship	Insignificant			Negative Relationship	Insignificant	Negative Relationship	significant
Conventional Ret.		**Agg. Fixed Income Ret.**		**Asset allocation Ret.**		**Balanced funds Ret.**	
Positive Relationship	Insignificant	Negative Relationship	significant	Negative Relationship	Insignificant	Negative Relationship	Insignificant
Equity funds Ret.		**Income funds Ret.**		**Money market fund Ret.**		**Islamic asset allocation Ret.**	
No Relationship	Insignificant	Negative Relationship	significant	Negative Relationship	significant	Negative Relationship	Insignificant
Islamic equity Ret.		**Islamic income Ret.**					
No Relationship	Insignificant	Negative Relationship	Insignificant				

Sharpe ratio describes the risk adjusted return, correlation between sharpe ratio and fund return are positive and strong. In simple regression, it has positive coefficient while p-value is less than significance level. When we analyze it on multiple regression in fourteen different models so mostly it found negative effect except all fund return model & conventional fund return model. Also we found overall p-value is more than significance level so it seems to conclude that risk adjusted return (sharpe ratio) have negative affect fund return, when we conclude in terms of p-value so we find risk adjusted return have no effect on fund return.

5.7. GDP Growth

We have extracted effect of GDP growth in different models as mentioned in below Table 12.

Table-12. Result of Variable (GDP Growth).

All Funds Ret.		**All Funds Ret.(Macro)**		**All Funds Ret.(Micro)**		**Islamic Ret.**	
Negative Relationship	Significant	Negative Relationship	significant			Negative Relationship	significant
Conventional Ret.		**Agg. Fixed Income Ret.**		**Asset allocation Ret.**		**Balanced funds Ret.**	
Negative Relationship	Significant	Negative Relationship	Significant	Positive Relationship	Insignificant	Negative Relationship	Insignificant
Equity funds Ret.		**Income funds Ret.**		**Money market fund Ret.**		**Islamic asset allocation Ret.**	
Positive Relationship	Insignificant	Negative Relationship	Insignificant	Negative Relationship	Insignificant	Negative Relationship	Insignificant
Islamic equity Ret.		**Islamic income Ret.**					
Positive Relationship	Insignificant	Negative Relationship	significant				

In this research we also found impact of macroeconomic variables in funds return for this we select two variables i.e GDP and Interest rate, firstly we find the relationship between GDP and fund returns , in correlation between GDP and fund return we found weak negative relation. In simple regression, it has negative coefficient.

When we analyze it on multiple regression in different models so mostly it found negative effect except asset allocation, equity and Islamic equity type of funds. Also we found p-value is less than significance level in multiple regression while taking all variables & also in mostly models so it seems that GDP has effect on fund return. We can conclude that GDP have negative effect on fund return so it means that as GDP increases fund return decreases.

5.8. Interest Rate

We have extracted effect of interest rate in different models as mentioned in Table 13.

Table-13. Result of Variable (Interest Rate).

All Funds Ret.		**All Funds Ret.(Macro)**		**All Funds Ret.(Micro)**		**Islamic Ret.**	
Negative Relationship	Significant	Negative Relationship	significant			Negative Relationship	significant
Conventional Ret.		**Agg. Fixed Income Ret.**		**Asset allocation Ret.**		**Balanced funds Ret.**	
Negative Relationship	Significant	Negative Relationship	Insignificant	Negative Relationship	Insignificant	Negative Relationship	Insignificant
Equity funds Ret.		**Income funds Ret.**		**Money market fund Ret.**		**Islamic asset allocation Ret.**	
Positive Relationship	Insignificant	Negative Relationship	Insignificant	positive Relationship	Insignificant	Negative Relationship	Insignificant
Islamic equity Ret.		**Islamic income Ret.**					
Positive Relationship	Insignificant	Negative Relationship	Insignificant				

In this research we found impact of macroeconomic variables in funds return for this we select two variables i.e GDP and Interest rate, secondly we find the relationship between interest rate and fund returns , in correlation between interest rate and fund return we found weak positive relation. In simple regression, it has positive and very low coefficient. When we analyze it on multiple regression in different models so mostly it found negative effect except equity, money market & Islamic equity models. Also we found p-value is less than significance level in multiple regression in four major models but when we take impact on category wise models so it shows insignificance while taking all variables so seems that interest rate have effect on fund return. We can conclude that interest rate also have negative effect on fund return so it means that as interest rate increases fund return decreases.

6. CONCLUSION

6.1. Discussion

Extensive research exists in our subject of interest; however academics have attained divergent results. In our study hypotheses are defined regarding those attributes most frequently used by finance academics also some macroeconomic factors are used. The hypotheses are being tested by performing several regression analyses, both simple and multiple & also descriptive analysis techniques. By accepting or rejecting the hypotheses we find out whether this factor influence mutual fund return or not. Our empirical data exists of secondary sources mainly collected from each mutual fund's annual report and MUFAP website. The study covers the period 2015 – 2017 and only includes mutual funds invested in domestic securities.

This Study explores the factors those affect the performance of Mutual funds of Pakistan. The study has identified fund age, expense ratio, fund size, risk return coefficient, sharpe ratio, standard deviation, GDP & interest rate to be among the critical factors those may affect the performance of open end mutual funds in Pakistan. Data analysis has shown that expenses are positively correlated with returns. Previously studies have consistently pointed out that the Expenses are negatively correlated with the returns of mutual funds whereas this statement

cannot be generalized for all expenses as shown by Talat and Ali (2009); Massimo and Rajdeep (2009) and Wongsurawat (2011). Ultimately higher the expense and impacting the returns positively. Fund size has shown positive correlation with return, but the low level of significance suggest that they the relationship is not explained by the model. On other hand the same directional movement is the explanation of fund size and return is resultant of achievement of economies of scale. Analysis has supported the argument of Daniel *et al.* (1999); Chen (2004) and Yan (2008) that fund size does not erode the performance of fund but considering it as a non-distinctive determinant of fund's performance will be biasness towards contribution of factor in determination of returns. Gregory (1997) found that mature funds did better than younger ones. Risk has become the major contributor as the results shown the positive effect, high risk fund have high return. Risk return coefficient also have no effect on fund return as per our results. Risk adjusted return have negative effect on fund return. While our study found that there is no relationship between fund size, fund age, risk return coefficient, on fund return. However if we consider expense ratio & risk it found the strong relationship with positivity. Also if we consider risk adjusted return & other two macroeconomic factors so we found the negative relation of risk adjusted return, GDP & interest rate on fund return. The key determinate of the performance of mutual funds is the risk & expense ratio whereas the some identified factors are causing to impacting the returns negatively.

6.2. Conclusion

Mutual fund is better choice for small investors in this modern era for those who don't have easy to access knowledge, skills, knowledge to invest in stock market. This study discuss the effects of different mutual fund characteristics to fund returns, in this we have also analyzed the effect of macroeconomic factors to fund return. In many previous research that we have discussed in GAP analysis section in detail we observed that mostly papers have discussed the effect of fund return of a specific class of mutual funds. Many of funds have discussed the specific factor effect, mostly papers have found effects for mutual fund outside Pakistan, many papers have selected only specific category of funds in its research, and many does not categorize Islamic and conventional funds. To eliminate this gap we select 100 mutual funds of 10 different categories which comprises on six conventional and four Islamic funds. Further we select eight factors, six micro factors (expense ratio, fund age, fund size, standard deviation, risk return coefficient, sharpe ratio) & two macro factors (GDP growth & Interest rate). For finding the effect, we use multiple techniques like correlation, simple regression and multiple regressions. For finding the multiple effects we divided the fund into fourteen different models and then describe the effect of each variable in each model to find the effect of this variable in different ways. In conclusion of each variable we first describe fund age, fund size & risk return coefficient have no effect on mutual fund return, however in some models risk return coefficient have negative effect on fund return. Strong positive relation has been found for factors expense ratio and risk (i.e standard deviation), however Islamic funds shows the negative effect of expense ratio to Islamic mutual fund return. Also it shows negative effect of risk factor to some categories of Islamic mutual fund return. Further we conclude the negative effect of risk adjusted return, GDP growth, & Interest rate on fund returns. However risk adjusted return have shown positive effect if we consider all conventional funds return, also interest rate have shown positive effect on equity, money market and Islamic equity funds. On the basis of these finding it is assume that fund that have high expense ratio & invest in risky assets have more return than other factors, also age and size of funds have no impact on fund return.

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