THE PERFORMANCE DETERMINANTS OF PAKISTANS MUTUAL FUNDS INDUSTRY

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PIDE2018FMPHILEAF10

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2022

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CERTIFICATE

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Author's Declaration

I, **Irum Ramzan**, hereby state that my MPhil thesis titled **"The Performance Determinants of Pakistan Mutual Fund Industry"** is my own work and has not been submitted previously by me for taking any degree from Pakistan Institute of Development Economics or anywhere else in the country/world.

At any time if my statement is found to be incorrect even after my Graduation the university has the right to withdraw my degree.

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Dedication

*To my **"beloved family"** who gave me lessons in many things. To the men and women surrounded me, who are in the community in quest to have a healthy living. To the **"Mentor and velvety personality"** my supervisor in particular with bright-eyed and bushy-tailed, to the lady who I loved the most, **"My mother",** to my friend **Muhammad Hassan** and **Bilal Hassan** for unlimited support, and most especially to **"Al-Mighty Allah",** this Research is dedicated to you.*

ACKNOWLEDGEMENT

I am thankful to Al-Mighty Allah who bestowed blessing and power to me for completing this provocative Research. I am thankful to my parents especially to my mother whose prayers, courage and help made my research efficaciously completed. I also want to pay a special thanks to my friends who encouraged me and helped me in pursuing this tremendous achievement. Finally, I am grateful to all those who helped me in completing my thesis.

I feel pride in expressing my genuine sense of gratitude to my mentor and dedicated personality honorable supervisor "**Dr. Farhat Mahmood"** and **"Dr. Ahsan ul Haq Satti"** Senior Research Economist at **"Pakistan Institute of Development Economics (PIDE), Islamabad"** who is the source of initiation for this research.

Most importantly, I present my obligations and heartfelt admirations to my loving parents, sisters, and brothers because; my success is the fruit of their support and devoted prayers. Their wishes and prayers made me to complete my thesis.

ABSTRACT

There exist several mutual fund characteristics as potential determinants of mutual fund performance. The objective of this study is to examine the impact of various micro and macro variables on the returns of Pakistani mutual funds. For this purpose, data of 119 mutual funds from 2010 to 2019 were taken to estimate five different models based on different categories of funds. The results show that exchange rate, interest rate, money supply, and GDP growth rate have a negative significant impact on mutual fund returns whereas, and risk-return co-efficient, Sharpe ratio, and fund size show a positive significant impact on the returns.

Keywords: Mutual fund Returns, Exchange Rate, Inflation Rate, Money Supply, GDP Growth Rate, Risk-Return Co-Efficient, Sharpe Ratio, Fund Size, Return Volatility

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ABBREVIATIONS

Acronym	Prolongation
MF	Mutual Fund
INFRA	Inflation Rate
ER	Exchange Rate
FS	Fund Size
MS	Money Supply
SR	Shape Ratio
IR	Interest Rate
GDPGR	Economic Growth
RR	Risk Return Coefficient
RV	Return volatility
FA	Fund Age

CHAPTER 1

INTRODUCTION

1.1 Background

Investment in mutual funds means investment in diversified holdings that are professionally managed and this is why mutual funds are considered a safer, reliable, and easy way to gain financial rewards from the market. Mobius (2007) defines mutual fund as a professionally managed investment in which money is supplied by the investors to purchase securities and the availability of securities is determined by the fund manager. This allows investors to add a considerable number of securities in their portfolios at lower prices than procuring each security individually (Reilly and Brown, 2003). The earnings from mutual funds are distributed to the investors that were outstanding in return on their capital gains.

Pakistani capital market is comparatively younger with lower level of information efficiency and lower liquidity relative to developed economies. With the emergence of various pioneering methods of financial products, services, regulatory bodies, and businesses the market has become more liquid and capable to face global challenges than before. One of the major development that has been initiated in Pakistan's economy is the emergence of the increasing role of the mutual fund industry in financial intermediation following financial structural reforms.

In Pakistan during the last two decades, investment in mutual funds has rapidly increased, and currently, there are almost 279 active open market mutual funds where assets of almost 741,869 million rupees are currently managed by Asset Management Companies of Pakistan. Mutual funds play an important role in the best allocation and channelization of available resources in the economy. The effectiveness of the mutual fund industry is dependent not only on internal factors but also on macroeconomic variables as argued by Bekaert and Harvey (1998). Banegas

et al., (2013) also stated that for determining the funds' performance the fund-level variables and macroeconomic factors are useful. Therefore, this study aims to find the impact of fund-related characteristics (microeconomic variables) and macroeconomic variables on mutual fund performance.

In those economies where investors have less or no information about investment and related facilities, mutual funds role becomes stronger and so with the rapid growth of the mutual fund industry of Pakistan investors get confidence in the market. They receive different benefits from investing in mutual funds such as diversification, expert management, convenience, reinvestment, liquidity, and affordability. Now the question arises for many investors that which factors of mutual funds affect its return. Bialkowski and Otten (2011) considered fund age, fees and expenses and board size the potential determinants of fund performance. For examining the performance trends, it is important that investors keep an eye on the exchange rate, interest rates, money supply, and GDP growth rate so called macro variables as well. Therefore, this study takes five fund-specific factors (return volatility, risk-return co-efficient, Sharpe ratio, fund age, and fund size) and five macro factors (inflation rate, exchange rate, money supply, interest rate, and economic growth) to test their impact on mutual fund returns by developing different models.

1.2 Research Objective

The study has the following objectives.

- To empirically assess the impact of macroeconomic variables such as inflation, exchange rate, money supply, interest rate, and economic growth on mutual funds' returns.

- To empirically assess the impact of micro factors such as return volatility (risk), risk- returns co-efficient, fund age, fund size, and Sharpe ratio on mutual funds returns.

1.3 Research Questions

The followings are the research questions that have been made after the problem was stated.

I. How do various macro-economic factors affect the mutual fund industry performance?

II. How do various micro-economic factors affect the mutual fund industry performance?

1.4 Significance and Contributions of the Study

This study contributes in the literature as little research is available on the mutual fund performance of developing countries like Pakistan. This study's findings are useful for investors, mutual funds managers, and market makers. Firstly, this study is a guide for investors as they can consider the determinants that affect a fund's performance and so can make careful investments in mutual funds. Secondly, this study helps mutual fund managers as the empirical findings of this study can be used to predict mutual fund performance based on the fluctuation of different variables. By knowing the possible factors that affect mutual fund performance, the managers can better perform by maximizing funds return. Therefore, the study allows all the market participants to better understand important micro and macro-economic factors affecting the mutual fund performance.

1.5 Research Gap

The success of the mutual funds industry is dependent not only on internal factors but also on macroeconomic variables. Pakistan's economy has recently witnessed macroeconomic instability such

as a high inflation rate of 9%, a 7% policy rate, and a depreciated exchange rate. Many studies evaluate the impact of various factors on mutual funds' performance. The first empirical study of Friend (1962) investigated the performance of mutual funds, then Sharpe (1966) tested the performance of mutual funds by considering risk-adjusted return as a benchmark. Ciccotello and Grant (1996) considered fund age as a factor affecting investors' decisions regarding investment. Another study by Chen et al. (2003) tested the impact of fund size performance of mutual funds. Dash (2008) and Gay (2008) studied mutual fund's performance by considering only macroeconomic factors. In Pakistan's context, few researchers found the impact of determinants on mutual funds' performance such as Sipra, 2006; Afza & Rauf, 2009; Nazir & Nawaz, 2010; Arshad, 2013.

These studies do not include the macroeconomic factors' impact on mutual funds' performance and focus only on the single-factor model and traditional ratios. Therefore, this research aims to find the impact of numerous fund attributes influencing returns of Pakistani mutual funds as little research is done on this topic. However, Asad and Siddiqui (2019) attempted to find the impact of both macroeconomic and microeconomic factors, but this study had covered only two macroeconomic factors, GDP growth and interest rate along with six micro fund-specific variables. Whereas, in current study we have extended the time span from 2010 to 2019 and used exchange rate, money supply, and inflation rate along with five fund-specific variables.

1.6 Organization of the Study

The study is organized as follows: Chapter 2 examines the existing literature. The data and technique are explained in Chapter 3. In Chapter 4, the findings are discussed. The conclusion and recommendations are presented in Chapter 5.

CHAPTER 2

2.1 Mutual Fund Industry of Pakistan

Globally, the growth of mutual funds is accelerated by increasing globalization of finance and widens presences of large multinational financial groups in many countries as well as the solid performance of equity and bond markets during most of the 1990s. Another factor of mutual funds growth is the increasing demand of investors for the financial instrument that is stable and liquid while still promising high long-term returns (Fernando et al., 2003).

A mutual fund is an asset that pools money from consumers who buy stocks to invest in a set of securities, as well as sell and buy them. A fund supervisor determines the presence of securities (Frank K. Reilly, 2011). This frontier is effective since every stage has a portfolio, which results in the risk associated with the predicted yield.

The first Mutual Fund was established in the Netherlands in 1774, during a period of severe deterioration in the country's banking system. It was followed by North America in 1924, and since 1980, Mutual Funds have been an important source of investment all over the world. Investment Corporation of Pakistan (ICP) launched the first mutual fund in Pakistan in 1962. In 1966, the Pakistan Investment Corporation (ICCP-closed terminated) provided 26 mutual funds. Following privatization in 1991, these funds were sold to investors. Many were bought by JS Group and integrated, while others were bought by PICIC Group (ICP-6). The number of mutual funds (MF) was expanded to 25 in 1992-1994. Later on, the number of mutual funds climbed to 55 between 2002 and 2004. Between 2008 and 2010, the number of MF were increased to 100 and currently there are 210 mutual funds exist in Pakistan.

The mutual fund industry is growing progressively in Pakistan. There are almost 279 active open market mutual funds and assets of almost 741,869 million that are currently managed by various Asset Management Companies. The responsibility of the mutual fund industry is

increasing in financial intermediary is one of the main developments in Pakistan's economy. The reports show that the net asset value grows about more than 30% from 2005 to 2017. As of 2017, there are 20 asset management companies handling 233 funds including pension schemes. However, the mutual fund industry size of Pakistan is lesser in comparison to other developing countries. Pakistan holds 1.33% of mutual funds' assets to primary securities whereas 3.7% of India, 4.0% of Malaysia, 20.3% of Hong Kong, and 16.5% of South Korea (Khorana et al., 2005). These statistics show there is significant room for mutual fund industry expansion in case of Pakistan.

Over the last decade, mutual funds have remained the world's fastest-growing institutions as they manage risk management techniques. Mutual funds are an excellent investment option in Pakistan because they have shown phenomenal growth. From 2008 to 2017, the net asset value (NAV) increased by more than 30%. Mutual funds are becoming a popular investment option, as seen by the increasing number of shares sold and rising NAV.

In terms of an underlying asset, mutual funds are divided into four categories: fixed asset mutual funds, balanced mutual funds, equity mutual funds, and money market mutual funds. Pakistani investors pay attention to mutual fund routines and research aspects that show unpleasant performance to boost their profits. Numerous research has been conducted in an attempt to detect performance differences between funds and predict mutual fund performance. An investment's asset valuation performance is based not only on the degree of profits made but also on the level of risk incurred. To uncover factors that influence the performance of equities mutual funds, more research is required.

Mutual funds, also known as common investment funds, are financial intermediaries that buy and sell stocks on the open market and then invest the proceeds in a wide portfolio of securities. The funds can be capitalized in a grouping of the assets that are related to cash, bonds, stocks, underlying securities, and portfolios which combine and form a single mutual fund (Asad and

Siddique, 2019). This allows investors to add a considerable amount of securities in their portfolio at lower prices than procuring each security individually (Reilly and Brown, 2003). The benefit investor receives from investing in mutual funds are diversification, expert management, convenience, reinvestment, liquidity, and affordability. Similar to other financial instruments, the mutual funds are also exposed to different risk factors i.e. liquidity risk, exchange rate risk, inflation, etc. but the mutual funds have higher operational transparency relative to other instruments as they provide financial services to households as well (Fernando et al., 2003).

There are several types of mutual funds available in Pakistan that include open-ended, close-ended, income funds, growth funds, money market funds, equity funds, balanced funds, index funds, specialty funds, balanced funds, funds of funds, and fixed income funds.

1. **Open-Ended and Close Ended MF**

   Open-ended are those funds which sell and re-purchase its units. This sale and purchase price is done on daily basis and their prices are displayed on NIT. Close Ended are those whose units are not re-purchased by the fund and so traded in the subsequent market. The door is closed for re-purchase so-called closed-ended.

   The capital of a closed-ended fund is fixed while that of open-ended capital is not fixed because someday fewer units are sold so less capital.

2. **Income VS Growth VS Balance Fund**

   a) **Income Fund**

      Those funds invest in fixed income securities. A mix of government, municipal, and corporate debt obligations, preferred stock, money market instruments, and dividend-paying stocks are typically held by such funds.

   b) **Growth Fund**

These mutual funds invest in equity with above-average growth, rather than producing income and dividend payouts, with the goal of capital appreciation.

c) **Balance Fund**

Mutual funds that invest in both equity and as well as in fixed income, also called blended funds. Once decided that you want to invest in a growth/equity fund then it can further be divided into **Large Cap, Mid Cap, Small Cap, and Micro Cap investment**.

- Large Cap; invests in companies with large capitalization. This is preferred by risk-averse investors/institutions because loss chances are very low in such companies.
- Those investors which are risk lovers will invest in small-cap.

3. Index Tracker Fund

Those funds that replicate the stock market index, i.e. these funds have the same investment composition/ portfolio as of stock market. Furthermore, it is designed to adhere to a set of pre-determined guidelines for the fund to track a specific basket of underlying investments. While index providers frequently highlight that they are for-profit businesses, they do have the power to act as "reluctant regulators" when deciding which companies should be included in an index. These funds offer the same returns as of stock market.

4. Money Market Fund

Funds that invest in money market securities i.e. investments whose life is less than one year like commercial papers, T-bills, re-purchase agreements. Money market funds are managed to maintain a very stable asset value by investing in liquid assets and delivering dividends to investors.

5. REIT (Real Estate Investment Trust)

The objective of these funds is to invest only in the development of land and property.

6. **Islamic Fund**

Those funds that only invest in Shariah Compliant securities. It also explains the Shariah-Compliant Securities as;

- The nature of the business should be Halal. I.e. cannot invest whose source of income is Haram.
- In conventional business, there are interest-bearing accounts or maybe some portion of the business is against Shariah-compliant.
- In Pakistan, if the 1/3 or less is only against Shariah-compliant then one can invest in that business. For example, if 25% is non-Shariah and the company pays a dividend of Rs.4 then in this case Rs.3 should be considered as revenue and Rs.1 should be given in charity, but neither in the construction of mosque nor in the printing of the Quran. This process is called purification.

7. **Capital Protection Fund**

Funds that invest only in those securities which are highly secured i.e. have a protected capital. For example, invest in T-bills, etc. Its major goal is to protect clients' money during market downturns while also allowing them to gain capital appreciation by participating in equity market upswings.

8. **Funds of Funds**

Those funds only invest in units of other funds. This is so because these are highly diversified. It is often referred to as multi-manager investment.

9. **Inventory Fund**

Funds that only invest in a specific industry or segment.

10. **Hedge Fund**

These mutual funds invest in extremely risky investments and then hedge the risk by investing in derivatives.

11. Cash /Liquidity Fund

Those mutual funds that invest in cash or cash equivalents i.e. those financial instruments having lifeless than or equal to 3 months.

12. Vulture Fund

That invests in those securities that are in distress situation and near bankruptcy. They purchase shares of such firms that are near bankruptcy and try to move up the firms' status i.e. recover it. They have a specialty in improvements of performance. These funds have financial capabilities to solve the issues with the firm.

13. Aggressive Fixed Income

Aggressive fixed income fund aims to create a high profit by investing in fixed income securities while also acquiring coverage to assets of medium to lower quality.

14. Asset Allocation

Asset allocation funds invest their assets in a variety of securities at any moment to diversify their holdings across the various types of securities and investment styles accessible in the market.

15. Shariah Compliant Asset Allocation

Shariah-compliant asset allocation funds invest their assets in Islamic securities and operate similarly to other asset allocation funds.

16. Shariah Compliant Equity

A shariah-compliant equity plan is a mutual fund that invests in shariah-compliant stocks. Long-term growth through capital appreciation is the goal of a shariah-compliant equities fund. However, dividends and capital gains earned are other sources of income.

17. Shariah Compliant Income

Shariah-compliant income funds aim to provide investors with a consistent source of Islamic fixed income, such as Sukuk and other Islamic bonds. They make short and long-term investments in Islamic debt securities.

18. Shariah Compliant Money Market

Money market funds that are Shariah-compliant are among the safest and most reliable of all the many forms of mutual funds. These funds invest in Islamic debt products with a short maturity.

CHAPTER 3
LITERATURE REVIEW

Mutual Fund is a fast growing industry and has gained researcher's attention. Bulk of literature can be found internationally and also on Pakistani Mutual Fund Market. This section discusses the literature on the determinants of mutual funds and the impact of the macro and micro-economics variable on return. In the case of Pakistan, this chapter discusses different studies that have been conducted on determinants of mutual funds' performance, performance evaluation and the impact of macro and micro-economic indicators on mutual fund returns. The literature is divided into two sub-sections. Section 2.1 covers the theoretical literature while section 2.2 covers empirical literature review concerning. Finally, in section 2.3 a summary of the literature is given.

3.1. Theoretical Literature Review

Two theories Modern Portfolio Theory (MPT) and Efficient Market Hypothesis (EMH) are related to the study.

3.1.1 Modern Portfolio Theory (MPT)

The theory of diversification describes the action by an investor to include more assets in the portfolio. This means that when investors apply diversification in their portfolio it can eliminate the risk of the portfolio. However, to reduce the entire risk is almost impossible even if an investor includes a high number of assets and this can be explained by the macroeconomic factors that will still affect the securities (Bodie et al., 2011). In the Markowitz model diversification is explained by the "the relationship between correlations and portfolio risk". No amount of diversification has the possibility to eliminate systematic risk, which is a risk that can be seen to affect companies and countries at the same time (Mangram, 2013).

This theory is interesting to incorporate into our study since the diversification effect states that it is good to invest in a diversified portfolio.

3.1.2 Efficient Market Hypothesis (EMH)

Fama (1991), mentioned that the efficient market hypothesis (EMH) is a way to consider that the security prices will reflect all available information. In a competitive market prices follow a random walk, therefore, it can be stated that the stock price today will reflect information in past stock prices (Brealey et al., 2014). EMH is described in three levels, weak market efficiency, semi strong market efficiency, and strong market efficiency. The weak form of market efficiency only reflects the past prices Semi strong market efficiency reflects past prices and shows public information. Strong market efficiency includes all past prices, all public information and it can be argued that investors are rational, meaning no one would be able to repeatedly beat the market (Brealey et al., 2014).

The EMH is of great importance in our study since the purpose is to see what determines the risk-adjusted performance of mutual equity funds in Pakistan. If findings show that variables have a positive relationship with alpha, this means the market is not efficient. Therefore, throughout the study the EMH will place a large role in the study

3.2. Empirical Literature Review

In the last two decades, investment in mutual funds has rapidly increased, by allowing small investors to take advantage through portfolio diversification and fund management. Estimating the performance of a fund is also an important aspect of portfolio management. This is difficult to do considering that the various factors affect mutual funds' performance and are seen to yield high returns in the public eye. The literature looks at how these factors affect investment decisions and at their relative importance.

The mutual fund industry's effectiveness is dependent on macro and microeconomic variables' stability. Macroeconomic volatility and uncertainty harm private investment (Ramey and Ramey, 1994).

Many studies evaluate the impact of various factors on mutual funds' performance. The first empirical study of Friend (1962) investigates the performance of mutual funds, then Sharpe (1966) tests the performance of mutual funds by considering risk-adjusted return as a benchmark. The study shows the impact of past performance and expense ratios in explaining the diversity in the performance of mutual funds. After this, Jensen (1968) examines mutual funds and argues that to ensure higher returns, the mutual fund must estimate their trading activity, cost, and research benefits at acceptable levels of risk. Carhart (1997) finds a significant negative relationship between expense ratios and portfolio turnover. Another important finding of the study is that load fee, expense ratios, and transactions costs affect fund performance.

Ciccotello and Grant (1996) consider fund age as a factor affecting investors' decisions regarding investment. Apart from deciding the category, investors also need to assess the growth and size of the mutual funds market. Fund performance is a key determinant of such decisions, making it important to examine not only performance trends but also the factors affecting fund performance (Mahmood & Rubbaniy, 2016).

Another study by Chen et al. (2003) tests the impact of fund size performance of mutual funds. Dash (2008) and Gay (2008) study mutual fund's performance by considering only macroeconomic factors. In Pakistan's context, few researchers find the impact of determinants on mutual funds' performance (Sipra, 2006; Afza & Rauf, 2009; Nazir & Nawaz, 2010; Arshad, 2013).

These studies do not include the macroeconomic factors' impact on mutual funds' performance and focus only on the single-factor model and traditional ratios. There is limited literature exists that examine the impact of both macro and micro-economic factors on mutual funds' performance. Asad and Siddiqui (2019) attempt to find the impact of both macroeconomic and microeconomic factors. They consider six micro fund-specific variables and two macroeconomic factors i.e. GDP and interest rate on mutual fund performance and suggest that both macro factors inversely impact the returns in the case of Pakistan.

Asad and Siddique (2019) defined mutual funds or common investment funds as financial intermediaries that buy and sell stocks in the open market and then invest the proceeds in a wide portfolio of securities. In the context of Pakistan, Ali et al., (2009) analyzed the fundamental association amongst macroeconomic indicators and stock exchange prices however, no such affiliation was found that infers macro-economic factors cannot predict stock prices. Other studies of macro-economic variables and stock prices in the case of Pakistan are done by Hussain and Mehmood (2001), Nishat and Shaheen (2004), Saleem (2007), Ihsan, et al., (2007) found mixed results. Using the data of 44 mutual funds, Rehman and Baloch (2014) investigated different factors affecting mutual fund performance and found fund size, asset turnover, expense ratio have a positive impact on mutual fund returns.

Risk consider being an important factor while investing in any financial instrument. Different macroeconomic factors i.e. inflation, interest rate, etc. may influence the return negatively or increase risk factors (Chen et al., 1986; Miller and Fang, 2001; Humpe and Macmillan, 2009; Najarzadeh et al., 2009). There is no satisfactory theory that closely analyzes the relationship between the financial market and macroeconomic factors in one direction. However, the market always responds to external forces (Chen et al., 1986). Furthermore, Chen et al., (1986) considered all the economic variables as endogenous in some specific sense and view natural forces such as earthquakes are truly exogenous and sates that only general economic state

variables can affect the pricing of large stock market aggregates through the diversification statement implied in the capital market theory. Any variable that can affect the pricing operator of the economy or control dividend will also leave an impact on the return of the stock (Chen et al., 1986).

Before 1965, the only method to evaluate mutual fund return is by comparing it with other returns. Then Brown and Vickers (1963) realized that different types of funds require different performance criteria. Therefore, input from the pioneering work of Modern Portfolio Theory (MPT) and CAPM (e.g. Treynor, 1965; Lintner, 1965; Sharpe, 1966; Mossin, 1966) was taken.

1965 proved to be a turnaround year for the evaluation of fund performance. Treynor (1965) introduced a new graphical method to view and present performance results. Then Sharpe (1966) presented a quantification method in the form of Sharpe ratio and argue that higher Sharpe ratios are desirable. After Sharpe (1966), Jensen (1968) by practically adapting CAPM introduced a model for mutual fund performance in which Jensen (1968) statistically related a fund's performance to a benchmark (Jensen's Alpha). Carlson (1970) and Lehman and Modest (1987) criticized that Jensen's measures have higher unexplained variance on a broader market index, and that can further reduce when a specific type of mutual index is sued as a market proxy. Miller and Gressis (1980) also argue that Jensen's measures can provide misleading information despite their popularity. Grinblatt and Titman (1993) also criticize Jensen's measures due to their sensitivity to the choice of the benchmark portfolio.

In finance, the CAPM theory determines the risk and return for different assets or portfolios (Copeland et al., 2005). The Capital Asset Pricing Model, developed by Sharpe (1964) determines the required rate of return of an asset, given the risk of an asset. The risk is further decomposed into systematic and specific risks. Systematic risk refers to the part of the total

risk that is determined by market risk. This risk can be estimated by conducting regression analysis of asset return $r_t$and market returnr_{mt}.

The specific risk or unsystematic risk refers to the risk unique to an individual asset. It is a component of an asset's return that is uncorrelated with general market movements. According to the model, the marketplace compensates investors only for taking a systematic risk not for specific risk as the specific risk can be diversified. An individual asset in the portfolio exposed to the specific risk can be minimized through diversification and left with systematic risk. The expected return of a portfolio is equal to the risk-free rate with the addition of β multiplied by the expected return of the market portfolio

Globally, the growth of mutual funds is accelerated by increasing globalization of finance and widens presences of large multinational financial groups in many countries as well as the solid performance of equity and bond markets during most of the 1990s. Another factor of mutual funds growth is the increasing demand of investors for the financial instrument that is stable and liquid while still promising high long-term returns (Fernando et al., 2003).

The macroeconomic variables' impact on the performance of mutual funds was observed by (Yadav et al., 2016). Variables such as consumer price index, oil prices, foreign exchange reserves, and exchange rates have a noteworthy impact on mutual funds returns. The study applied multiple regression and correlation techniques to identify the relationships. The CPI and exchange rates showed a negative relationship while foreign reserves show a significant positive relationship.

Lemantile (2017) in his work studied the impact of macro-economic indicators on the performance of mutual funds in Kenya. They examined how inflation, interest rate affect mutual funds from the period of 2011 and 2016. The study discovered that there is a positive relationship between the interest rate and performance of mutual funds but due to sudden

changes in interest rates there may have a mixed effect. The regression results showed interest rates have a high impact on the performance of mutual funds. Last but not least, the exchange rate hurts the mutual fund's performance.

Dalimunthe & Lestari (2019) studied the impact of the equity index and inflation on Islamic fixed income mutual funds. They used secondary data i.e. inflation, share price index, and historical data applying Net asset value. The study used panel regression. The results were consistent with the literature that inflation and equity price index indicated a simultaneously significant impact on the net asset value of mutual funds (Sharia). Further, it was revealed that there is a negative impact of inflation on NAV while there is a positive impact of share price equity on the NAV of mutual funds.

Sumantyo and Savitri (2019) studied Sharia Mutual funds in Indonesia and Malaysia. Their research was to analyze the impact of macroeconomic factors on the sharia capital market. They used Money supply, GDP, and Inflation for the period from January 2012 to December (2016). The estimation results show a significant positive impact of all macroeconomic variables on Net asset value (NAV) of sharia funds (simultaneously).

Agarwal and Sangeeta (2019) investigated the macroeconomic variables' impact on the performance of the Indian Stock market. They used ten variables such as interest rates, industrial production, exchange rates, inflation, foreign exchange, money supply, gold prices, silver prices, oil prices, and trade balance. They applied different statistical techniques and interpreted various trends in the market. It was found that the Nifty index has a positive association with oil prices, inflation, silver prices, industrial production, interest rates while negative relation with trade balance, exchange rate, and money supply. The period used was from April 2008 to March 2018.

Rehman and Baloch (2014) examined the various factors affecting the mutual fund performance in Pakistan. The study employed random- fixed effect model on 44 mutual funds from 2010 to 2014. The results infer that fund size, expense ratio, asset turnover, and free management have a positive impact on fund returns however, load fee and liquidity inversely influence the fund returns.

According to Golec (2003), fund managers are paid primarily as a proportion of the assets under management. This remuneration plan gives fund managers a significant incentive to grow fund assets, regardless of whether or not such expansion is in the best interests of shareholders. Few investors pay for professional financial guidance and support in the purchasing of mutual funds (Collins, 2004; Livingston & O'Neal, 1998; O'Neal; 1999). These studies report that brokers provide a valuable service to investors by resolving asymmetric information and completing and preserving the necessary paperwork to complete the transaction.

One of the striking findings of Sipra's (2008) analysis is the weak connection between the funds and the market portfolio. The correlation between the stock market and mutual funds is frequently 0.9 or higher in US studies. A high degree of diversification is indicated by a high correlation with the market (Afza and Rauf, 2009). The weak correlation in Pakistan demonstrates that mutual funds aren't doing a fine job of diversification. The low correlation and low betas are likely due to the inclusion of fixed income instruments like Term Finance Certificates (TFCs) in the portfolios of these funds. The fund's makeup isn't known to the general public, so it is impossible to go further into this problem.

According to Saeed (2004), the mutual fund market in Pakistan has more than tripled in size in the last two years, reaching Rs. 112 billion (as of December 31, 2004). The firm is expected to increase by 200 percent in the next five years, according to industry experts. Several elements

will determine the sector's success, one of which will be regulators' role and attempts to keep the mutual fund industry's code of corporate governance up to date.

Risk consider being an important factor while investing in any financial instrument. Different macroeconomic factors i.e. inflation, interest rate, etc. may influence the return negatively or increase risk factors (Chen et al., 1986; Miller and Fang, 2001; Humpe and Macmillan, 2009).

The average cost of owning mutual funds has increased by more than 100 percent in the last few decades, according to Bogle (2004). Mutual fund advising and management fees are high, according to Freeman and Brown (2001) and Ang et al (1998), producing a dispute between the Mutual Fund board and asset management, and this rise in fund management has a negative influence on investor motivation.

However, studies by Molson (2003), Tang Cheong (2007), and Zeraet et al. (2007) have discovered that fund's size has a considerable influence on its expense ratio. The expense ratio of a larger fund is lower due to economies of scale and a decline in marginal cost. As a result, fund size is commonly thought to have a positive link with fund performance (Gorman, 1991, Grinblatt Titman, 1994; Peterson et al, 2001, Nazir & Nawaz, 2010). Some academics, however, have discovered a negative association between fund size and fund return (Jang & hung, 2003, Karlson & Persson, 2005; Haslem, Baker, & Smith, 2008; .and Bablos et al, 2009). The expense ratio is another important factor in determining fund performance. Similarly, there are differing viewpoints on the impact of expense ratio on fund performance. High expenses, according to Ippolito (1989); Droms and Walker (1996); Dowen and Mann (2007); Afza and Rauf (2009); Nazir and Nawaz (2010) have a beneficial impact on the fund return.

Shazia (2010) looked at mutual fund execution evaluations. She used a sample of 23 closed-end mutual funds from 2001 to 2010. The research employed Jensen Alpha, Treynor ratio, Sharpe index, Sortino measure, and informational measure. Aside from the Sortino ratio, which

only looked at downsizing risk, the other indicators indicated a similar link between risk and mutual fund return. Because all of the ratios were negative, it implied that the Pakistani mutual fund business has a long path and that fund managers should create plans that would attract larger investors by providing maximum benefits and returns.

Afza and Rauf (2009) investigated the factors that influence mutual fund execution. They use a quarterly Sharpe percentage to try to understand and explain open-ended mutual fund execution over the years 1999–2006. They discover that there aren't many components that appear to be enormous on the surface, and the results show the importance of historical returns in predicting upcoming returns, although various elements, such as cost proportions or the size of funds asset are not huge. The study's major goal was to discover the causes of the mutual fund industry's growth and performance in Pakistan.

Nazir and Nawaz (2010) took 13 mutual funds with family or group proprietorship to identify crucial components that influence the business's success. They discover that asset estimation has a favorable impact on execution. They had drawn investors' attention to a variety of elements that affect fund development, including management, business ratios, fund size, MER etc. The above-mentioned factors have been found to have a considerable impact on fund growth, while MER harms growth.

Rehman and Bloch (2016) used the random effect OLS method to analyze the performance of 44 mutual funds operating in Pakistan and found that expense, management fee, and asset turnover have a positive effect on mutual fund returns, while loading fee and liquidity has a negative effect on mutual fund returns.

Nafees, Shah, and Khan (2011) used Treynor, Sortino, Johnson measures, and Sharpe ratios to analyze the performance of closed-ended and open-ended mutual funds. They found that sharp

and Sortino measures showed negative returns for investors, while Treynor measures showed positive returns for some funds but negative returns for the rest.

In Pakistan, Bahtti, Tanveer, and Sial (2015) did a study to determine the conditional performance of equity mutual funds and to determine whether manager skills and selection capabilities contribute to higher returns. According to their findings, mutual funds in Pakistan perform poorly when compared to the benchmark due to a lack of managerial skills and selection capabilities.

Salim, Takibur, and Sharmeen (2010) used the risk-return model to examine the performance of equities mutual funds in Bangladesh and found that performance is inconsistent due to time horizon. When it comes to funding size, Busse, Chordia, Jiang, and Tang (2014) found that larger funds profit less than smaller funds. Small investors can profit from a variety of equities, including small caps, high book-to-market ratios, and momentum, while larger investors are unable to do so. The fund outperforms the market benchmark because it is well-managed (Chi, 2015).

Njuguna and Arnolds (2010) discovered that smaller funds are more efficient than larger ones. Fund managers utilize their limited financial resources wisely, resulting in improved results. Financial efficiency does not always imply profitability, according to the experts.

Dawe et al., (2014) investigated the consistency of mutual fund performance and found that fund size is an important element that determines mutual fund performance because a high fund size distributes overall costs and lowers per-unit costs due to economies of scale. In his analysis, Nyanamba (2015) found that assets had a considerable impact on mutual fund performance. Funds with a large number of investments make the best use of them and are more likely to produce higher returns. This return and performance have been credited to economies of scale.

Miller and Fang (2001) examined the impact of exchange rates on the stock market of South Korea and concludes that exchange rate depreciation negatively impacts stock return. Any variation and fluctuation in exchange rate lead to a stock market return fluctuation.

Chen et al., (1986) choose a set of different economic state variables such as short-term and long-term interest rate spread, expected and unexpected inflation, industrial production, and high low-grade bond spread as a source of systematic asset risk. The final results show that these variables are significant in explaining stock returns and must be priced following the economic news.

Gay (2008) examined the impression of macroeconomic variables on stock returns of four emerging economies i.e. Brazil, Russia, India, and China. The variable taken by the studies is the exchange rate and oil price. The results show the insignificant effect of exchange rate fluctuation and oil price on the stock market index.

The impact of the macroeconomic variable on USA and Japan stock price is examined by Humpe and Macmillan (2009). The study used a standard discounted value model. Moreover, the co-integration analysis is used among consumer price index, money supply, long-term interest rate, stock price, and industrial production. Single co-integration is found among stock prices, industrial production, long-term interest rate, and inflation. The stock prices are positively and negatively related to industrial production and CPI, long-term interest rate respectively. The insignificant but positive relationship witness between stock price and money supply in the case of the USA. Two co-integration are found In Japanese data. Industrial production and money supply positively and negatively influence the stock price in the first co-integration whereas in the second co-integration consumer price index and interest rate affect negatively industrial production. The study produced contrasting results and reported a

slump Japanese economy in the 1990s and a liquidity trap in the late 1990s and early 2000s as the major reason.

Comparing the impact of inflation and exchange rate shock, exchange rate shocks have a stronger impact on stock returns. On contrary, taking the same Tehran stock exchange data, Mashayekh et al., (2012) witness the positive affiliation of inflation and stock return. Moreover, the study generates an index of guaranteed interest rates using the interest rate of one-year bank deposits and the interest rate of securities. The index generated through a one-year bank deposit has an inverse and significant relationship with inflation and composed index using securities interest rate found a positive relation. Another long-run relationship is examined by Sajjad et al., (2010) using the growth rate of stock cash return index, inflation rate, money supply growth rate, exchange rate, and oil revenues. The co-integration test indicates the positive and long-run relationship between inflation rate and cash return stock index growth rate. The negative relationship is found among exchange rate, oil revenues, and cash return stock index growth rate. Pal and Mithal (2011), studied the long-term relationship between Indian capital markets and macroeconomic variables. Quarterly time series data from 1995 to 2008 has been used. The authors concluded that there is cointegration between Indian stock indices and macroeconomic variables which represents a long-run relationship. The paper reveals that inflation affects both stock market indices.

(BSE Sensex and S&P CNX Nifty). The interest rates have a significant impact on S&P CNX Nifty while the exchange rate is only effective on BSE Sensex thus rejecting the Null hypothesis. The overall conclusion of the study is that capital market indices are dependent on macroeconomic variables.

Makan et al (2012), investigated that macroeconomic factors affect the performance of the Indian stock market. The study includes five sectors while the period was from April 2005 to

March 2012. Seven variables were used, among them, three showed significant results i.e. exchange rate, foreign institutional investment (FII), and call rate. The conclusion of the result was built on the Granger causality test that call rate affects the stock market in all sectors except one sector while the regression analysis showed that exchange rate and FII affects all the sectors. They concluded that the Indian stock market is affected by domestic macroeconomic variables.

Ibrahim and Aziz (2003) analyzed the macro-economic variables' impact on the Malaysian equity market using the vector autoregressive technique. The results witness the long-run relationship between the variables and stock prices. The exchange rate has a negative relationship with stock prices, whereas the money supply has a positive relationship with stock prices.

Bai (2014) explored the relationship between inflation and returns. From the theoretical perspective, the study claims the relationship can be explained through the Fisher effect i.e inflation rate = nominal rate of return – actual rate of return. For this purpose, the study introduces the Shanghai Composite index of stock prices and takes the consumer price index to measure inflation. Vector autoregressive model, impulse response function, and variance decomposition. The study finds a weak correlation between the two variables. However, how weak the impact is, cannot be ignored. As the inflation in the economy increased, it began to influence the stock price and returns.

Boyd et al., (2001) tried to investigate the theoretical literature that a higher rate of inflation influences the financial sector's ability to effectively allocate resources. According to the research, there is a large and economically significant negative association between inflation and the development of the banking sector and equities market activity. The affiliation is also non-linear. The peripheral effect of inflation on banking lending activity and stock market

development declines fast as inflation rises. Furthermore, they discover evidence of thresholds. There is a noticeable decline in financial sector performance in economies with inflation rates above 15%. Finally, while data show that higher inflation is not matched by higher nominal equities returns in low-inflation countries, nominal stock returns in high-inflation economies move almost one-for-one with marginal rises in inflation.

The impacts of inflation, GDP, unemployment, and money supply on the stock price of the industrial sector are examined by Shiblee (2009). To investigate the varying levels of sensitivity of equities depending on which industry they belong to. The research is conducted on the New York Stock Exchange. The results reveal that the four independent variables have distinct effects on this industry. Money supply has the largest variable effect among the other variables; it has a substantial positive influence on most companies. The second variable was CPI, which, like inflation and unemployment, has a minor impact on most businesses.

The market reacts differently to a variety of economic, political, and socio-cultural issues. Several things occurring within or outside the economic system have an impact on the stock values of mentioned firms, either positively or negatively and to check this, Reddy (2012) takes the data from the period 1997 to 2002. The variables taken are Real Gross Domestic Product (RGDP), Interest Rate (INT), and Inflation Rate (INF) and examine their impact on the stock prices of stated businesses. As per the regression result, the explanatory factors accounted for 95.6 percent of the fluctuation in stock prices. Increased RDGP has a favorable influence, while lower interest and inflation rates resulted in higher stock values. Reddy (2012) concludes that the government should enact policies that will lower inflation and raise citizens' living standards. The interest rate should be kept low to stimulate stock investments and transactions.

The relationship between inflation and the stock index in Vietnam, a developing country with a rising stock market, is investigated by Bui (2019). Data is collected quarterly for fourteen

years. To examine the association between inflation and stock index, the author uses the Autoregressive Distributed Lag (ARDL) approach, which is ideal for empirical study with short data series. The findings show that inflation has a negative unidirectional influence on stock indexes in both the short and long run.

Inflation is one such economic condition that has an impact on stock values. The influence of inflation on share market prices in the two SADC countries of South Africa and Namibia is calculated by Geyser and Lowies (2001). The analysis concludes that neither South African nor Namibian businesses can provide investors with a flawless inflation hedge.

Khumalo (2013) examined South African stock prices and investigates the impact of inflation on them for the period 1980Q1 to 2010Q4. The analysis is carried out with the help of the Auto-Regressive Distributed Lag Model (ARDL). The study first examines the time-series properties of data. unit root test shows that Stock prices, interest rates, economic growth, and the real effective exchange rate are all integrated to order zero I(0), while money supply growth and inflation are both integrated to order one I(1). A single directional association from inflation to stock prices is suggested via a causality test. And lastly, the study uses VECM to construct short-run and long-run relationships dynamics. Inflation has a huge and negative effect on stock values in South Africa, according to the findings.

Fahlevi (2019) checked the impression of different macro-economic indicators on stock price in the case of Indonesia. The study uses the monthly data from 2013 to 2017. The variables used are exchange rate, inflation rate, and interest rate. The findings reveal that the stock price is influenced by the foreign exchange rate and the interest rate, both of which have substantial explanatory power. Inflation rates, on the other hand, have no major impact on stock prices.

Ma and Kao (1990) used data from six nations and examine the impact of exchange rate on stock prices and states that domestic money appreciation (strengthening) had a negative

influence on domestic stock price movements in export-dominated economies and a positive effect on domestic stock price movements in import-dominated economies. Furthermore, the required rate of return of equities under a floating rate regime is demonstrated to reflect two forms of foreign exchange risks. First, transaction exposure from changes in foreign exchange rates affects the investment intrinsically. This is mostly due to gains or losses resulting from the settlement of foreign currency investment transactions. Second, the economic exposure determines the expected return, which is linked to differences in enterprises' discounted cash flows when exchange rates move, As a result, the equilibrium relative stock price is affected by both exchange rate levels and fluctuations.

For Hong Kong, Mok (1993) investigated the relationship between interest rates and stock prices. The research employs the ARIMA and Granger Causality approaches. Although the Granger causality results indicate that interest rates hurt stock prices, the Arima analysis model finds no meaningful association between these two variables. The substantial effect of interest rates on stock prices, as discovered by Granger, is that interest rates have a negative impact on stock prices. Low-interest rates will result in cheaper borrowing costs since they will boost investment and economic activity, which will lead to an increase in stock values.

Using monthly data from the Nigerian Stock Exchange's All Share Price Index and the Nigerian Consumers Price Index from January 1997 to 2010, Ibrahim and Agbaje (2013) explored the long-run correlations and dynamic interactions between stock returns and inflation in Nigeria. The Autoregressive Distributed Lag (ARDL) analytical technique is applied. It is clear from the findings that there is a long-term relationship between stock returns and inflation. The short-run dynamic model also shows that the rate of convergence to equilibrium is limited, meaning that stock returns and inflation have a short-run relationship.

The constant growth dividend discount model (DDM) showed that the growth rate of dividends is the essential component that determines whether common stocks can be used as an inflation hedge. The aggregate return on equity, in turn, has a significant impact on dividend growth (ROE). To examine this, Reilly (1997) takes the data of return on investment for the period 1956-1995. The analysis shows that the aggregate ROE is the same as it was in the 1960s, but the components have altered, total asset turnover and profit margin have decreased. However, the increase in financial leverage has more than compensated for the decreases in turnover and profit margin. It is also demonstrated that there have been periods of high and low inflation since 1956, as well as the negative impact of inflation on the assumed growth rate, which helps to explain why researchers consistently find that common stocks are poor inflation hedges.

The question of whether common stocks are a good inflation hedge has been argued for a long time. Li et al., (2010) investigate the relationship between inflation and stock returns in the short and medium-term, as well as under other inflationary regimes, utilizing data from the United Kingdom. In the medium run, empirical data reveals that the UK stock market fails to hedge against inflation. In the medium term, however, the effects are mixed. The link between inflation and returns varies between inflationary regimes, as evidenced by the results from several inflationary regimes.

Floros (2002) used a standard causality test to conduct the same study on the Greek economy and concluded that inflation and stock returns in Greece should be treated as independent variables because the results of the various tests show that there is no relationship between inflation and stock return Lee et al., (2000) examined the effect of German hyperinflation on stock returns in the 1920s using the Auto-Regressive Integrated Moving Average (ARIMA) model. This study's findings suggest that hyperinflation in Germany in the early 1920s was correlated with stock returns. The basic link between stock returns and inflation, both achieved and predicted, is quite positive.

Choudhry (2001) employed an ARIMA model in his analysis of the influence on stock returns of inflation in a few Latin and Central American nations from 1981 to 1996, including Argentina, Chile, Mexico, and Venezuela. For Argentina and Chile, the current rate of nominal return and inflation have a one-to-one relationship, according to the results. Their findings also show that inflation lag values affect stock returns, implying that stocks operate as a hedge opposite to inflation.

Patra and Poshakwale (2006) studied the impact of economic variables on market returns in Greece from 1990 to 1999 using the error correction model (ECM). Some macroeconomic variables, such as money supply, inflation, trade volume, and exchange rate, have both a short-run and long-run link with a stock price in equilibrium in Greece, according to empirical findings. Moreover, there was no evidence of a short- or long-term link between exchange rates and stock values.

In the case of Turkey, Ugur and Ramazan (2005) discovered that expected inflation and real returns are unrelated. The findings indicate an inverse link between inflation and stock returns, which could be due to the negative effect of unexpected inflation on stock returns. Because of the non-correlation between inflation and real returns, this conclusion does not invalidate the Fisherian hypothesis, but it does support the proxy hypothesis that the two variables have a negative significant relationship.

Geske and Roll (1983) tested the hypothesis that there is a negative link between inflation and stock returns. Random real shocks either positive or negative affect market returns, which leads to a signal of higher or lower unemployment and lower or higher corporate earnings, according to empirical findings. This has an impact on personal and corporate tax collections, resulting in the government's treasury increase or decrease through public borrowing. The economy repaid the debt by increasing or decreasing money growth, which resulted in higher or lower

inflation. They concluded that in the United States, arbitrary shocks on stock returns are both fiscal and monetary.

To explore the influence of inflation on stock returns, Roohi and Khalid (2003) used the Efficient Market Hypothesis and Rational Expectation Theory. The study's empirical findings imply that there is a negative association between real stock returns, unanticipated inflation, and unexpected growth. They concluded that controlling real production growth eliminates the negative link between these two variables over time.

Dinenis and Staikouras (1998) investigated the influence of interest rate fluctuations on the common stock returns of financial institution portfolios in the United Kingdom. Banks, insurance companies, investment trusts, property investment businesses, and finance corporations are the five types of financial institutions studied. In addition, for comparison purposes, a large sample of non-financial enterprises is taken into account. To examine the impact of both current and unanticipated interest rate changes, a two-index model is used. A three-index model includes a component of market yield volatility to quantify the impact of interest rate fluctuation on the returns of various financial intermediaries. The research has two key consequences for both financial and non-financial organizations. First, there appears to be a large negative link between common stock returns and interest rate movements. Second, there is a large positive correlation between common stock returns and interest rate variability.

Llahi et al., (2015) aimed to analyze the link of macroeconomic variables such ad inflation rate, exchange rate, and interest rate on stock market returns in Pakistan. As a proxy for stock market returns, the Pakistan Karachi stock exchange 100 index is used. Between January 2007 and December 2012, secondary data was gathered. For data analysis, a Multiple Linear Regression was used. The research found a weak link between macroeconomic variables and stock market outcomes.

The research used data from Pakistan's interest rates, exchange rates, and stock returns from 2007 to 2017. When employing multiple regressions, the data demonstrate that interest rate and exchange rate have a significant impact on stock returns. Stock returns have a negative link with interest rates, whereas stock returns have a positive association with exchange rates.

Al-Abdallah and Alijarayesh (2017) cover the impact of interest rates, exchange rates, and inflation on the ASE Free-float index's stock returns in the case of Jordan. The three macro variables that are taken into account are considered to be extremely important for any country's economy. As a result, each change in these variables has a variety of effects on the economy. Monthly data from 2005 to 2015 are considered throughout ten years. The data is subjected to multiple regression models, with the results revealing that firms are negatively connected with interest rates and positively correlated with inflation, with no association between exchange rate and stock returns. R square also reveals a weak link between independent and dependent variables.

Kasman et al., (2011) used the OLS and GARCH estimating models to explore the effects of interest rate and foreign currency rate changes on Turkish bank stock returns. The findings imply that changes in interest rates and currency exchange rates have a negative and considerable influence on the conditional bank stock return. Market return sensitivities for bank stocks are found to be higher than interest rates and currency rates, showing that market return is a key factor in shaping the dynamics of bank stock conditional returns. The findings also show that interest rate and exchange rate volatility are the two most important predictors of conditional bank stock standard deviation.

Faff et al., (2005) examined the dual impact of interest rate movements and interest rate volatility on the distribution of Australian financial sector stock returns, adding to the current research. In addition, the impact of deregulation on the financial institutions' sector is examined

using a multivariate GARCH-M model. Over the various regulatory periods, it was discovered that there is a consistent inter-temporal trade-off between risk and return. . Furthermore, it is found that finance corporations are extremely sensitive to new shocks in the financial sector, and deregulation raises the risk experienced by finance corporations and small banks, effectively raising the required rate of return. In addition, deregulation has shifted the underlying link between interest rates and large bank stock excess returns from positive to negative in the post-deregulation period. This reflects the shift in the institutional context from one of tightly controlled credit rationing to one of increased competition.

Funds with higher fees and expenses, according to Golec (1996), should be avoided since they produce poorer returns. According to Ippolito (1989), funds with a low transaction cost perform better than funds with a larger transaction cost. According to Barber et al., investors have become more conscious of the costs of investing and are less willing to pay up-front fees. Ennis (2005) proposed a model that depicts the relationship between a few key variables, such as fund managers' competency, expense ratio, and the likelihood of investor success, and found that managers must be skilled in their talents while minimizing expenses to provide better results.

The relationship between stock returns, interest rates, and exchange rates in the Pakistani economy is investigated by Ahmad et al., (2010). Data on interest rates, exchange rates (Rs/US $), and stock market returns (KSE-100) from 1998 to 2009 are gathered for this. To determine the influence of interest rate and exchange rate changes on stock returns, a multiple regression model is used. The findings reveal that across the sample period, both interest rate and exchange rate changes had a considerable impact on stock returns.

The connection between stock returns, interest rates, and exchange rates in the Pakistani economy is investigated by Ahmad et al., (2010). Data on interim interest rates, exchange rates

(Rs/US $), and stock market returns (KSE-100) from 1998 to 2009 are gathered for this. To determine whether interest rate and exchange rate changes influence the returns of the stock market, a multiple regression model is used. The findings reveal that across the sample period, both interest rate and exchange rate changes had a considerable impact on stock returns.

Llahi et al., (2015) aimed to analyze the association of macro-economic indicators such as inflation rate, exchange rate, and interest rate on stock market returns in Pakistan. As a proxy for returns of the stock market, the Pakistan Karachi stock exchange 100 index is used. Between January 2007 and December 2012, secondary data was gathered. For data analysis purposes, a Multiple Linear Regression was used. The research found a weak link between macroeconomic variables and stock market outcomes.

3.3 Summary of Literature

Most of the literature available focuses on the determinants of mutual funds or either examine the impact of the macroeconomic variable on stock prices or return (Sajjad et al., 2010; Mashayekh et al., 2012; Humpe and Macmillan, 2009; Dash, 2008; Gay, 2008; Chen et al., 1986). In the case of Pakistan, hardly any literature is available that analyzes the impact of macroeconomic variables on mutual funds. Different studies have been conducted on determinants of mutual funds' performance (Nazir, 2010; Nazir and Nawaz, 2010; Asad and Siddiqui, 2019), performance evaluation (Afza and Rauf, 2009; Alam and Qadar, 2014; Khalid et al., 2010; Shah, 2005; Sipra, 2006) or either the impact of macro-economic indicator on stock exchange prices (Ali et al., 2010; Badar et al., 2013). This study tries to fill this gap in the literature.

CHAPTER 4

DATA AND METHODOLOGY

The section is divided into two sub-sections. Section 3.1 data description. Section 3.2 explains the methodology in detail.

4.1 Data Description

4.1.1 Population and Sample

The study covers a period of about 10 years from 2010 to 2019. There is a total of 210 mutual funds, all of those funds that have missing data for the given period are excluded and finally, a sample of 119 funds is selected in which 89 funds are conventional and 30 are Islamic.

Secondary data is used for empirical analysis. Both conventional and shariah-compliant mutual funds are taken. The study uses net asset value to examine the mutual fund industry. Net asset value presents the entity's assets value minus its liability values. It tells the worth of one share fund and identifies the potential investment opportunities of mutual funds.

Data is composed of different macro and micro-economic factors such as inflation, GDP, money supply, interest rate, exchange rate, return volatility (risk), risk-returns coefficient, Sharpe ratio, fund size, fund age, and mutual funds returns. The data of mutual funds are taken from the Pakistan stock exchange (PSX) and the Mutual funds association of Pakistan (MUFAP). Moreover, the data of inflation GDP, money supply, interest rate, the exchange rate is taken from the world development indicator.

4.2 Variable Description

4.2.1 Independent Variable

4.2.1.1 Return Volatility (Risk)

While investing in any mutual funds, the risk factor is always associated with it. Academics beliefs in the higher the risk, the higher will be the returns (Peterson et al., 2001). Return volatility is the common way to measure risk and measured as standard deviation of the returns of mutual funds. It includes both unsystematic and systematic risk over the period of consideration (Bodie et al., 1995).

4.2.1.2 Risk Return Coefficient

It is also known as the coefficient of variation that measures the dispersion of data points around the mean line. It is calculated as the proportion of standard deviation to expected values and used to compare the degree of variation from one data series to others.

$$risk\ return\ coefficient\ = \frac{standard\ deviation}{expectted\ return\ of\ investment}$$

4.2.1.3 Sharpe Ratio

Nobel laureate William Sharpe developed the Sharpe ratio to help investors analyze the return in comparison to the risk factors. The higher the Sharpe ratio is more appealing the risk-adjusted return. It is measured as the average return earned exceeding the risk-free rate per unit of volatility.

$$Sharpe\ Ratio = \frac{R_p - R_f}{\sigma_p}$$

$R_p\ is\ the\ returns\ of\ fund, R_f\ is\ the\ risk\ free\ return\ while\ \sigma_p is\ the\ total\ risk.$

4.2.1.4 Fund Size

Fund size plays a great role in affecting the returns, moreover, there are several benefits of larger mutual funds. Fixed overhead expenses can be dispersed over a wider asset base by large funds. Big fund managers can take advantage of lucrative investment opportunities that are not accessible to smaller market participants (Ciccotello and Grant, 1996).

4.2.1.5 Fund Age

It plays a crucial role in determining the mutual fund performance as younger funds have higher costs in the initial period. The primary cash flows will weigh more heavily on the fund's transaction cost. Gregory (1997) draws attention towards the mutual fund returns are more affected in the investment learning period, more so in comparison to old funds, the young fund tends to be smaller and that's what makes them more vulnerable.

4.2.1.6 Inflation

Inflation refers to the persistent increase in the general price level of goods and services in a country (Mishkin, 2006). Higher inflation reduces the individual's purchasing power and leads to decrease aggregate demand by lowering investment and productivity. It negatively influences the mutual fund industry. The study uses the Consumer price index is used to measure inflation.

4.2.1.7 Money Supply

The money supply is the total value of money in an economy at a given point in time. Money supply includes cash and deposits that can be used as conveniently as cash. In theory, it can affect returns both positively and negatively. Mukherjee and Naka (1995) suggest a positive relation due to the expansionary effect of money supply on real economic activities but if money supply creates inflation and gives rise to inflation uncertainty, then it may affect return inversely (Bulmash and Trivoli, 1991).

4.2.1.8 Economic Growth

Economic growth tells about the increase or decrease in the production of economic goods and services. It can be measured in either nominal or real terms. The study uses the data of GDP growth rate as economic growth. The empirical studies suggest an inverse association between economic growth and fund returns (Asad and Siddique, 2019).

4.2.1.9 Interest Rate

The Interest rate is the amount charged by a lender to a borrower for the use of assets. The purpose of the interest rate is to design monetary policy and administer inflation. The study uses lending interest rates. It is suggested to have a negative impact of interest rate on fund returns. As interest rate increases, fund returns decrease (Asad and Siddique, 2019).

4.2.1.10 Exchange Rate

The exchange rate is the price of domestic currency in terms of foreign currency. The higher the exchange rate, the lower will be the domestic currency value or depreciated currency. The depreciated currency severely affects the investors as they lower their confidence in the economy and thus impact the mutual fund industry. The higher exchange rate also induces investors to invest in the domestic economy as the price of foreign goods and services becomes high. The study uses the official exchange rate (LCU per USD).

4.3 Model Specification

Following Asad and Siddiqui (2019), this study estimates the following regression equations.

$$\boldsymbol{MFRt}_{.i.t} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1 RV_{i,t}} + \boldsymbol{\beta_2 RR_{i,t}} + \boldsymbol{\beta_3\, SR_{i,t}} + \boldsymbol{\beta_4\, FS_{i,t}} + \boldsymbol{\beta_5 FA_{i,t}} + \boldsymbol{\beta_6 INF_t} + \boldsymbol{\beta_7 \beta_6 MS_t} + \boldsymbol{\beta_8 \beta_6 GR_t} + \boldsymbol{\beta_9\, \beta_6 IR_t} + \boldsymbol{\beta_{10} \beta_6 ER_t} + \boldsymbol{\varepsilon_{i,t}} \quad (3.1)$$

$\boldsymbol{MFRt}$. Is the return of mutual fund $\boldsymbol{i}$ by time $\boldsymbol{t}$ and is taken as the dependent variable. The independent variables of the study comprise return volatility $\boldsymbol{RV_{i,t}}$ of fund i during time t, $\boldsymbol{RR_{i,t}}$

is the risk-return coefficient of fund i during time t, $\boldsymbol{SR_{i,t}}$ is the Sharpe Ratio of fund i during time t, $\boldsymbol{FS_{i,t}}$ is fund size of fund i during time t, $\boldsymbol{FA_{i,t}}$ is the fund age of fund i during time t, $\boldsymbol{INF_t}$ is the inflation rate of fund i during time t, $\boldsymbol{MS_t}$ is the money supply during time t, $\boldsymbol{GR_t}$ is the GDP growth rate during time t, $\boldsymbol{IR_t}$ is the interest rate f during time t, and $\boldsymbol{ER_t}$ is the Exchange rate during time t.

All the main independent variables (micro and macro) that could affect mutual funds' returns are included in this study as main variables. Hence, the model has no control variables.

Model 1:

The study runs five models. The first model is based on equation (3.1), which finds the influence of both micro and macro-economic variables on each type of mutual fund.

To thoroughly analyze the impact of micro and macro-economic factors on mutual funds, the study formed four more models. The models of the study are inspired by the research work of Asad and Siddiqui (2019). The models are written as follow:

$$\boldsymbol{MFRt_{.i.t}} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1 RV_{i,t}} + \boldsymbol{\beta_2 RR_{i,t}} + \boldsymbol{\beta_3\, SR_{i,t}} + \boldsymbol{\beta_4\, FS_{i,t}} + \boldsymbol{\beta_5 FA_{i,t}} + \boldsymbol{\beta_6 INF_t}$$
$$+ \boldsymbol{\beta_7 \beta_6 MS_t} + \boldsymbol{\beta_8 \beta_6 GR_t} + \boldsymbol{\beta_9\, \beta_6 IR_t} + \boldsymbol{\beta_{10} \beta_6 ER_t} + \boldsymbol{\varepsilon_{i,t}}$$

Model 2:

The second model only considers the micro factors such as return volatility, risk-return co-efficient, fund age, fund size, and Sharpe ratio on all types of mutual funds. The reason is to analyze how much micro factor alone influences the mutual fund returns.

$$\boldsymbol{MFRt_{.i.t}} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1 RV_{i,t}} + \boldsymbol{\beta_2 RR_{i,t}} + \boldsymbol{\beta_3\, SR_{i,t}} + \boldsymbol{\beta_4\, FS_{i,t}} + \boldsymbol{\beta_5 FA_{i,t}} + \boldsymbol{\varepsilon_{i,t}} \qquad (3.1.1)$$

Model 3:

This model only analyzes macro-economic factors' influence on all types of mutual funds returns.

$$\boldsymbol{MFRt_{.i.t}} = \boldsymbol{\beta_0} + \boldsymbol{INF_t} + \boldsymbol{\beta_7\beta_6 MS_t} + \boldsymbol{\beta_8\beta_6 GR_t} + \boldsymbol{\beta_9\,\beta_6 IR_t} + \boldsymbol{\beta_{10}\beta_6 ER_t} + \boldsymbol{\varepsilon_{i,t}} \quad (3.1.2)$$

Model 4:

The fourth model assesses the overall impact of all micro and macroeconomic on conventional mutual funds.

$$\boldsymbol{Conv.MFRt_{.i.t}} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1 RV_{i,t}} + \boldsymbol{\beta_2 RR_{i,t}} + \boldsymbol{\beta_3\, SR_{i,t}} + \boldsymbol{\beta_4\, FS_{i,t}} + \boldsymbol{\beta_5 FA_{i,t}} + \boldsymbol{\beta_6 INF_t} + \boldsymbol{\beta_7\beta_6 MS_t} + \boldsymbol{\beta_8\beta_6 GR_t} + \boldsymbol{\beta_9\,\beta_6 IR_t} + \boldsymbol{\beta_{10}\beta_6 ER_t} + \boldsymbol{\varepsilon_{i,t}} \quad (3.1.3)$$

Where, $\boldsymbol{Conv.MFRt_{.i.t}}$ is returns of conventional mutual funds.

Model 5:

The last model evaluates the overall impact of all micro and macroeconomic on Shariah-compliant mutual funds returns.

$$\boldsymbol{Isl.MFRt_{.i.t}} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1 RV_{i,t}} + \boldsymbol{\beta_2 RR_{i,t}} + \boldsymbol{\beta_3\, SR_{i,t}} + \boldsymbol{\beta_4\, FS_{i,t}} + \boldsymbol{\beta_5 FA_{i,t}} + \boldsymbol{\beta_6 INF_t} + \boldsymbol{\beta_7\beta_6 MS_t} + \boldsymbol{\beta_8\beta_6 GR_t} + \boldsymbol{\beta_9\,\beta_6 IR_t} + \boldsymbol{\beta_{10}\beta_6 ER_t} + \boldsymbol{\varepsilon_{i,t}} \quad (3.1.4)$$

Where, $\boldsymbol{Isl.MFRt_{.i.t}}$ is Shariah-compliant mutual fund returns.

4.4 Panel Data Regression Model

The current study is based on panel data, a combination of both "cross-sectional and time-series data". Panel data gives more degree of freedom, less collinearity, more information, and more efficiency. Panel data employed three basic techniques and these models talk about intercept behavior. These techniques include the common effect/pooled OLS model, the fixed-effect model, and the random effect model. According to the specification of our data Pooled OLS is

not an appropriate model for our data as our data has same time period across all cross sections. Pooled OLS is used when different samples of cross section are used for our time period (Wooldridge 2010). On the other hand FEM and REM are used when fixed sample of cross section is used for our time period. To select between FEM and REM we use Hausman test to check the validity of these two models on our data.

4.4.1 Common Effect Model

The common Effect Model is also known as the pooled OLS method. In this model, both slope and intercept remain constant over the time series and cross-section.

4.4.2 Fixed Effect Model

Fixed Effect Model (FEM) is applied when there is a possibility that the issue of association may arise between the individual-specific intercept and the other regressors.

$$\boldsymbol{Cov}\ (\ \boldsymbol{\alpha_i},\ \boldsymbol{X_{i,t}}) \neq \mathbf{0} \qquad (3.2)$$

This model uses fixed dummies to solve the problem of heterogeneity.

The equation for the fixed effects model is as follow:

$$\boldsymbol{Y_{it}} = \boldsymbol{\beta_o} + \ \boldsymbol{\beta_1 X_{1it}} + \boldsymbol{\beta_2 X_{2it}} + \cdots + \ \boldsymbol{\beta_k X_{kit}} + \boldsymbol{\alpha_i} + \ \boldsymbol{u_{it}} \qquad (3.2.1)$$

Where, Y_{it} is a dependent variable, β_o is intercept, X_{1it} is the first independent variable, X_{2it} is the second independent variable, α_i is unobserved heterogeneity, and u_{it} is a combined cross-section and time-series error term. In FEM, α_i is an individual-specific intercept?

4.4.3 Random Effect Model

The fixed Effect Model is criticized because it captures individual-specific effects using fixed dummies, it involves a large number of parameters with a large cross-section set. “Due to this, the problem of loss of a degree of freedom occurs. The intercept term is the random effect model that expresses time-variant dummy variables.”

This model is appropriate to use where the regressors are uncorrelated with the intercept of each cross-sectional unit.

$$\boldsymbol{Cov}\left(\boldsymbol{\epsilon_i},\ \boldsymbol{X_{i,t}}\right) = \mathbf{0} \tag{3.3}$$

The equation for the random-effects model is as follow:

$$\boldsymbol{Y_{it}} = \boldsymbol{\beta_o} + \ \boldsymbol{\beta_1 X_{1it}} + \boldsymbol{\beta_2 X_{2it}} + \cdots + \ \boldsymbol{\beta_k X_{kit}} + \boldsymbol{\epsilon_i} + \ \boldsymbol{u_{it}} \tag{3.3.1}$$

Where, Y_{it} is a dependent variable, β_o is intercept, X_{1it} is the first independent variable, X_{2it} is the second independent variable, ϵ_i is unobserved heterogeneity, and u_{it} is the error term of cross-sectional and time-series data. In REM, ϵ_i is a random firm-specific error term?

In REM, the intercept values of individual units are drawn from a much larger population with a constant mean, where the means of each individual are considered as deviations from the constant mean. In REM, it is possible to have time-variant regressors that are not possible in FEM because of the problem of the "collinearity" of these variables with the subject-specific intercept.

4.4.4 Choice among FEM and REM through "Hausman Test"

For the selection between the fixed-effect model and random-effect model, various criteria are mentioned in the literature. However, this study follows Hausman (1978), a statistical test for the selection between both models. This statistical test is advantageous over any other judgmental criteria.

The Hausman statistical test for the selection of "fixed effect" and "random effect" follows the following model.

$$\boldsymbol{w} = (\widetilde{\boldsymbol{\beta}}_{\boldsymbol{FEm}} - \widetilde{\boldsymbol{\beta}}_{\boldsymbol{REM}})'\left[\boldsymbol{v}(\widetilde{\boldsymbol{\beta}}_{\boldsymbol{FEM}}) - \boldsymbol{v}(\widetilde{\boldsymbol{\beta}}_{\boldsymbol{REM}})\right]^{-1}(\widetilde{\boldsymbol{\beta}}_{\boldsymbol{FEm}} - \widetilde{\boldsymbol{\beta}}_{\boldsymbol{REM}}) \approx \boldsymbol{\chi^2} \tag{3.4}$$

The above equation checks both models statistically to explain the better one. The selection criteria follow the model with more consistent results and a statistical approach of chi-square.

4.5 Qualitative Analysis

Qualitative approach is another lens that helps exploring a phenomenon in depth. If quantitative is about breath, qualitative is about the depth. After analyzing results obtained from the secondary data it was deemed important to authenticate these results in the context of the study. Qualitative research helps in exploring and explaining the contextual factors at play. It provides an in-depth understanding of the way people make sense of some of their day to day situations in particular settings. It aims of explicating the phenomenon by asking 'why' and 'how' something is happening.

A qualitative approach also tolerates the generation of inclusive insights, and for the purpose of this study, the experts' perception and experiences on Mutual Funds were assembled. Various approaches exist for collecting data in qualitative research, however, interview is among the most widely used methods. For this research, expert interviews were conducted with officials from Mutual Funds Association of Pakistan. Expert interview as a method of qualitative data collection has been greatly discussed in political and social research since early 1990s. The main objective of expert interview is to get an understating about a particular field of interest, focusing on the knowledge in a particular field of action. Experts are thought to be knowledgeable individuals identified by virtue of their specific knowledge, their community position, or their status (Kaiser, 2014) as seen in The problem-centered expert interview' which combines qualitative interviewing approaches for investigating implicit expert knowledge.

Expert interviews are methodologically situated in subjective paradigm "in practice, individual relevancies of experts tend to be overshadowed by the researchers' interest in collecting information about a particular social field" (the problem centered expert interview'. Combining qualitative interviewing approaches for investigating implicit expert knowledge; 2020: 266). It can be used as a part of a more complicated set of methods used in a study or a stand-alone

method in its own right. For the current study it has been used in a combination with document analysis, however, it remained dominant.

4.5.1 Interview Analysis

The interviews lasted for 30-60 minutes and various probing questions were asked after the opening open ended questions. The interviews were conducted on call and through emails with the consent of the experts however a few experts opted to be anonymous. Following information collected from the experts of Mutual Funds Association of Pakistan (MUFAP).

4.5.1.1 Why Invest in Mutual Funds?

Investment requires fulltime attention to numerous factors that can affect the value of your hard-earned money. Fund managers at asset management companies are supported by dedicated research teams responsible for monitoring the performance of a fund's portfolio.

You need not worry about the day-to-day management of your portfolio. Diversification offered by mutual funds simply cannot be achieved by a small investor with limited investment funds.

Mutual funds can provide you with regular income and an opportunity for increasing your savings through reinvestment. Here are **the benefits of investing in mutual funds:**

i. **Professional Management**

   Asset management company (AMC) evaluates investment opportunities by researching, selecting and monitoring the performance of the securities purchased by the fund. AMCs employs qualified investment professionals who make calculated investment decisions on your behalf. This is not an easy task for an individual without specialized knowledge.

ii. **Diversification**

By spreading your investment across a number of securities and investment sectors, a mutual fund can help lower your risk if a company or sector fails. Diversification can be neatly summed up as "Don't put all your eggs in one basket.

iii. Affordability

Mutual funds accommodate investors who do not have a lot of money to invest by setting relatively low Rupee amounts for initial purchases and subsequent monthly purchases. For example, you can add funds at set amounts of say PKR 1000- 5000 per month or other intervals. Mutual funds buy and sell large amounts of securities at a time. Your costs for transactions and management fees are shared with fellow unit holders.

iv. Liquidity

Mutual fund unit holders can readily convert their units into cash on any working day. They will promptly receive the current value of their investment within six working days. Investors do not have to find a buyer, the fund buys back (redeems) the units at the current net asset value (NAV).

v. Well Regulated

The SECP carries out continuous monitoring of mutual funds through reports that the mutual funds are mandated to file with the SECP on a regular basis. In addition, SECP conducts on-site inspections of the AMCs.

vi. Transparency

The performance of a mutual fund is carefully reviewed by various publications and rating agencies, making it easy for investors to compare the performance of a fund. As a unit holder, you are provided with regular updates, for example, daily NAVs, as well as information on the fund's holdings and the fund manager's strategy.

vii. Tax Benefits:

Investment in mutual fund schemes entitles the investor to avail tax credit that enhances the overall return on their savings

4.5.1.2 Key Players in a Mutual Fund

A mutual fund is set up either in the form of a trust or an investment company. The trust is established by the Asset Management Company (AMC). The trustee holds the property of the trust for the benefit of its unit holders. Whereas, under the investment company structure, the mutual fund is established as a public listed company. The AMC, as sponsor of the mutual fund, appoints its board of directors to manage its affairs, and a custodian for holding all the assets of the investment company. An AMC is licensed by the SECP and is eligible to operate the mutual fund and manage its investments.

- Asset Management Company
- Participants
- Trustee
- Custodian
- Registrar
- Shariah Scholar

4.5.1.3 Constitutive Documents

The constitutive documents of a mutual fund include the Trust Deed and the Offering Document. **Trust deed** is a principal document for formation, and management of the mutual fund that is executed between the AMC and the trustee. The trust deed specifies the responsibilities of the trustees and the Investment Advisor/ Asset Management Company which need to be strictly adhered to by each concerned party. **Offering Document** a standard offering

document of a mutual fund is a fairly comprehensive document covering at a minimum the following;

- Regulatory Approvals;
- Constitution of the Scheme;
- Objectives and investment Policy;
- Trust Deed;
- Category and Benchmark of the Fund;

4.5.1.4 Structure of a Mutual Funds

Mutual Funds are operated by Asset Management Companies (AMC) which exists in the form of a public limited company registered under Companies Ordinance 1984. The AMC launches new funds through the establishment of a Trust Deed, entered between the Asset Management Company and the Trustee with due approval from the SECP under the Non-Banking Finance Companies (Establishment and Regulation) Rules, 2003 (the "Rules"). The Trustee performs the functions of the custodian of the assets of the Fund. The trustee ensures that the Fund Manager takes the investment decisions within the defined investment policy of the mutual fund. Under Pakistan law banks, and central depository companies, approved by the SECP, can act as trustee. At present Central Depository Company of Pakistan (CDC) is acting as Trustee of most of the funds of the industry.

4.5.1.5 Strategy for Investing in Mutual Funds

- For Long Term Horizon
- For Medium Term Horizon
- For Short Term Horizon

4.5.1.6 Regulatory Framework for Mutual Funds

Following is the list of governing ordinance for mutual fund establishment:

1. Non-Banking Finance Companies (Establishment & Regulation) Rules, 2003 (the Rules)
2. Non-Banking Finance Companies & Notified Entities Regulations, 2008 (the Regulations)
3. Part VIII of The Companies Ordinance, 1984 (the Ordinance) and
4. Circulars and Directives issued by the SECP under the provisions of the Ordinance.

4.5.2 Documentary Analysis

Organizational and institutional documents have been a staple in qualitative research for many years. Along with expert interviews, the other source of qualitative data consulted was policy document(s) available on mutual funds for Pakistan. Documentary analysis is a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning around an assessment topic (Bowen, 2009). "Documentary analysis is a systematic procedure for reviewing or evaluating documents both printed and electronic (computer-based and Internet-transmitted) material…document analysis requires that data be examined and interpreted in order to elicit meaning, gain understanding, and develop empirical knowledge." (Bowen, 2009). Through documentary analysis, the researcher gets an opportunity to look at the messages the policy conveys or policy goals and the practices taking place in the local context. For the current research, the mutual funds policy documents and guidelines of the Mutual funds association of Pakistan were consulted to understand the initiatives taken by the MUFAP to promote and grow mutual funds in the country. To carry on the documentary analysis for the present research, step wise process was followed. In documentary analysis the first step is finding and getting access to the document, this was not difficult, being a part of the setup, the researcher was able to find the relevant documents and get a chance to read

through it. The next step is to get the relevant data from the document and organize it. While, reading through the policy documents on mutual funds in Pakistan, the researcher took note of the relevant information or sections adding to the knowledge about role of mutual funds on economic growth. The data was latter-on compared with the findings from the expert interviews. Some excerpts of the policy document are presented within the Results and Discussion chapter of this research.

CHAPTER 5

RESULTS AND DISCUSSION FROM QUANTITATIVE AND QUALITATIVE ANALYSIS

The section is divided into four sub-section. Section 5.1 and 5.2 explain descriptive statistics and correlation of variables respectively. Section 5.3 covers a simple regression model. Section 5.4 analyzes the multiple regression model.

5.1 Descriptive Statistics

Table 5.1 Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
MFRt.	0.077905	0.076056	0.56984	-0.32743	0.133311	0.111512	4.217348
RV	0.09675	0.1	1.018007	0	0.094318	1.836097	15.96345
RR	0.224764	0.183726	18.32869	-34.2162	2.256748	-5.69229	105.08
SR	-0.19875	-0.07326	8.81	-9.19698	1.988241	-0.51317	6.536763
FS	3295.942	1356.414	68383.13	18.4777	6784.466	6.573084	55.86321
FA	9.890411	9	57	1	5.863294	4.246345	31.80964
ER	114.7826	105.4552	150.0363	101.1001	17.50212	1.237804	2.969075
INF	5.555496	5.078057	10.57836	2.529328	2.674155	0.869277	2.476644
IR	9.895528	8.755	12.23305	8.21	1.585129	0.406949	1.458491
MS	56.27905	57.1821	59.03668	51.82739	2.602553	-0.69224	1.876342
GR	4.548481	5.526736	5.830242	0.988829	1.678152	-1.49581	3.594368

Note: MFRt is the return of mutual funds. RV is the return volatility used to capture risk. RR is risk return-coefficient. SR is the Sharpe ratio. FS is the fund size and FA is the fund age. ER is the Exchange rate, INF is the inflation rate, IR is the interest rate, MS is the money supply and GR is the GDP growth rate.

Table 4.1 highlights self-explanatory descriptive statistics. The table shows the mean, median, maximum value, minimum value, standard deviation, skewness, and kurtosis of all variables. The return has a mean of 0.077 with a standard deviation of 0.133. The mean and standard deviation of risk-return co-efficient, return volatility, Sharpe ratio, fund size, and fund age are

0.224 (2.256), 0.096 (1.836), -0.198(1.9882), 3295.9 (6784.46), and 9.890 (5.863) respectively. The mean and median value of return, return volatility, and Sharpe ratio are relatively close except fund size and fund age, weighing the fact that some mutual funds are bigger than others. The mean value of the exchange rate is 114.78 with a standard deviation of 17.502. The mean value of inflation and interest rate is 5.555 and 9.8955 with the standard deviation of 2.674 and 1.585 respectively. Money supply and GDP growth rate have a mean value of 56.279 and 4.548 with a standard deviation of 2.602 and 1.678 respectively. The values of skewness kurtosis, minimum and maximum are also given in the table for all variables.

5.2 Correlation of Variables

Table 5.2 Correlation of Variables

	MFRt.	**RV**	**RR**	**SR**	**FS**	**FA**	**ER**	**INF**	**IR**	**MS**	**GR**
MFRt.	1										
RV	0.000585	1									
RR	0.264135	0.000303	1								
SR	0.439221	0.114087	0.102549	1							
FS	0.095764	0.075265	-0.02345	0.09859	1						
FA	-0.07828	0.319269	-0.05471	-0.03776	0.61418	1					
ER	-0.52512	0.21932	-0.08837	-0.37311	-0.03668	0.238897	1				
INF	-0.31105	0.18978	-0.02425	-0.05746	-0.02611	0.133368	0.803125	1			
IR	-0.04047	0.149682	0.003072	0.223231	-0.01025	-0.01685	0.462314	0.767015	1		
MS	-0.51172	0.120144	-0.04037	-0.53511	-0.02809	0.263203	0.686729	0.286389	-0.29218	1	
GR	0.260046	-0.23023	-0.00167	0.02444	0.018976	-0.12703	-0.81481	-0.84568	-0.81994	-0.2489	1

Note: MFRt is the return of mutual funds. STDEV is the return volatility used to capture risk. RR is risk return-coefficient. SR is the Sharpe ratio. FS is the fund size and FA is the fund age. ER is the Exchange rate, INF is the inflation rate, IR is the interest rate, MS is the money supply and GR is the GDP growth rate.

Table 4.2 shows the correlation of all eleven variables. The first column infers that return volatility (risk) and risk-return co-efficient have a weak but positive relationship with the return. The results are in contrast with the financial theory that states higher the risk, the more the return. However, the Sharpe ratio has strong and positive relationships with returns. Fund age, exchange rate, inflation rate, and money supply have an inverse impact on the mutual funds returns. Exchange rate fluctuation or higher inflation negatively impacts the returns. GDP growth rate has positive but weak relation with mutual funds returns. Risk –return co-efficient, Sharpe ratio, fund size, fund age, exchange rate, inflation, interest rate, and money supply has a positive and weak relationship with return volatility. Only the GDP growth rate has a negative but insignificant impact on return volatility. Sharpe ratio and the interest rate have a positive impact on the risk-return coefficient. Fund size, interest rate, and GDP growth rate have positive and weak relations with the Sharpe ratio. Fund age has a strong and positive correlation with fund size, GDP growth rate also has a positive impact on fund size. Interest rate and GDP growth rate have a negative impact on fund age. Interest rate and money supply have a positive relationship with inflation and support economic relations.

5.3 Regression Analysis

To find the impact of independent variables on mutual fund performance, panel data analysis has been used. The independent variables are return volatility (RV), risk-return coefficient of fund (RR), the Sharpe Ratio (SR), fund size (FS), fund age (FA), money supply (MS), the Exchange rate (ER), interest rate (IR), GDP growth rate (GR) and inflation rate (INF). The study has no control variables as all possible micro and macro variables are included as the independent variables.

5.3.1 Hausman Test

The Hausman test is applied in panel data analysis for appropriate model selection in the panel data analysis. This test suggests the best and suitable model for the study that either uses a fixed effect or random effect.

Table 5.3 Hausman Test

Test Summary	Chi-square	Prob.
Cross-Section Random	1.82	0.9861

H0: Random effect model is appropriate

As the prob. of Chi-square is greater than 0.05 which suggests not to reject the null. Therefore, the random effect model is the appropriate model to use in this study.

5.3.2 Common Coefficient Model

First of all, in the common coefficient model, a pooled OLS (simple regression) is run for return volatility, risk-return coefficient of the fund, the Sharpe Ratio, fund size, fund age, money supply, the Exchange rate, interest rate, GDP growth rate, and inflation rate and dependent variable mutual fund return. A sample of 119 funds for a period of 210 to 2019 is used. The common coefficient model is based on the assumption that slope and intercept coefficients are constant across time series and cross-sections.

Results for 119 funds with mutual funds' return as the dependent variable are shown in Appendix a (simple regression Common coefficient model) and Appendix B (multiple regression Common coefficient models).

5.3.3 Fixed Effect Models

Fixed effect models are based on the assumption that coefficients of a slope will remain constant whereas intercept varies over the cross-section. In the multivariate regression equation, all independent are regressed with mutual funds' return to check whether independent variables return volatility, risk-return coefficient of the fund, the Sharpe Ratio, fund size, fund

age, money supply, the Exchange rate, interest rate, GDP growth rate, and the inflation rate has an impact on mutual funds' return or not.

Results for 119 funds with mutual funds' return as the dependent variable are shown in Appendix C (simple regression Fixed effect models) and Appendix D (multiple fixed effect models).

5.3.4 Random Effect Models

To identify the relationship among return volatility, risk-return coefficient of the fund, the Sharpe Ratio, fund size, fund age, money supply, the Exchange rate, interest rate, GDP growth rate, and inflation rate and dependent variable mutual fund return, pooled OLS regression is used. It is assumed in the random effect model that the intercept is random not fixed, in each cross-section. Hausman test (between random and fixed effect) is applied to choose the best and appropriate model for this study. The insignificant value of chi-square confirms that the random effect model is the best model for this study.

5.4 Simple Regression

Table 5.4 Simple Regression

(Random Effect Models)

Variables	Co-efficient	t-value	p-value	R-square
RV (Risk)	0.000947	0.15	0.884	0.0002
RR	0.01614	6.31	0.00	0.0484
SR	0.038962	16.79	0.00	0.2491
FA	-0.00358	-4.36	0.00	0.0008
FS	1.87E-06	2.46	0.014	0.0088
ER	-0.00295	-14.72	0.00	0.1502
INF	-0.00152	-1.41	0.16	0.0014
IR	0.007129	4.04	0.00	0.014
MS	-0.01558	-14.74	0.00	0.1512
GR	0.010708	4.44	0.00	0.0152

The results in Table 4.4 are from simple regression model where there is only one independent variable. Return Volatility RV has insignificant impact on mutual fund return. The P-value of RR is 0.00 and coefficient value is 0.016 so risk return has minor but significant impact on MFRt. SR is also significant at 5% significance level with coefficient value of 0.038 that indicate a one unit increase in SR will affect MFRt 0.03 units positively. FA has significant and negative affect on MFRt. FS has very minor but significant effect on MFRt. ER and MS has P-value of 0.00 for both that indicate significant impact on MFRt and both variables has negative coefficient that indicate inverse relationship with MFRt. IR and GR both have positive and significant impact on MFRt. INF has insignificant effect on MFRt.

These results shows that the exchange rate and money supply have the highest explanatory level; 14% and 15% of the returns are explained by the exchange rate and money supply. Moreover, both variables have a significant but inverse impact on the mutual funds returns. The findings are similar to Adam and Tweneboah (2008) that infers increase in exchange rate causes a decline in mutual fund "performance. Similar yet insignificant results were found by Marfo (2017) and also by Ibrahim and Aziz (2003) in which an inverse relationship between returns and exchange rate was found in the case of Malaysia. Moreover, similar results are found for Singapore (Mayasami & Koh, 2000) and South Korea (Kwon & Shin, 1999). The negative association between exchange rate and returns is common in economies that are highly reliant on international trade such as import and export for capital and intermediate goods. Depreciation of the currency boosts exports while increasing production costs by raising domestic prices of imported capital and intermediate goods. The latter effect of currency depreciation on actual output and, as a result, predicted cash flows of firms appears to be more powerful (Ibrahim and Aziz, 2003). Kwon and Shin (1999) and Ibrahim and Aziz (2003) found an opposite relationship between returns and money supply, similar to the findings of this study. On contrary, the studies were done by Mukherjee and Naka (1995) and Mayasami and Koh (2000) provide evidence of a positive relation for japan and Singapore respectively. According to the theory, the money supply can affect returns both positively and negatively. Mukherjee and Naka (1995) suggest a positive relation due to the expansionary effect of money supply on real economic activities but if money supply creates inflation and gives rise to inflation uncertainty, then it may affect return inversely (Bulmash & Trivoli, 1991).

Inflation has a weak negative and insignificant impact on mutual fund returns. Only 0.12 % of the variation in returns is explained by the inflation rate. The inflation rate influences the returns in the same ways as the exchange rate (Adam et al., 2008); an increase in the inflation rate causes a decline in mutual fund returns. The inverse effect of inflation on return can be

understood as the negative relationship between inflation and real economic activity, more so, the returns are forecasted taking the more real variables. Thus, the negative relation of real activities and inflation can be the reason for the opposite relationship of inflation and returns (Fama, 1981). The results are similar to the findings of Purwaningsih et al., (2017). GDP growth rate has a significantly positive impact on fund returns. This refers to as the GDP growth rate of the economy increase, it gives rise to mutual fund return though, and the impact is very low. Contradictory findings are obtained by Asad and Siddique (2019) who suggest that an increase in GDP decreases fund returns. The simple regression model results infer the weak, positive yet significant impact of interest rate on fund returns. The finding are similar to Purwaningsih et al., (2017). Well, Asad and Siddique (2019) suggest the negative effect on returns in the case of Pakistan; as the interest rate increases, fund returns will decrease.

The co-efficient of standard deviation shows a positive but insignificant impact. The results are in contrast with the finding of Asad and Siddique (2019) who conclude the positive significant relation, the higher the risk higher the return. The risk-return coefficient has a positive and significant impact on funds returns. It describes the risk per unit of returns. The value of co-efficient and r-square point outs a weak relation between the two variables. The results are in contrast with the finding of Asad and Siddique (2019).

Fund size has a weak yet positive impact on mutual fund returns and it is statistically significant at a 5% significance level. This infers that mutual fund returns will increase as the fund size increases but, the lower value of the coefficient indicates that it has a low impact on returns. Similar results are obtained by Rehman and Baloch (2014) and Asad and Siddique (2019). The co-efficient of fund age shows a negative impact on funds returns, however, it is insignificant. Mixed results are found in the literature about the relationship between fund age and mutual fund returns. Gregory (1997) discovered that older funds outperformed younger ones, but suggest investors invest in younger funds. The results of the model are similar to the findings

of Peterson et al., (2001) and Asad and Siddique (2019) in the case of Pakistan that also found no relationship between fund age and mutual fund returns. Sharpe ratio measures the risk-adjusted return. The study found a positive and significant effect of the Sharpe ratio on fund returns. The finding is similar to the simple regression analysis done by Asad and Siddique (2019).

5.5 Multiple Regression

Table 5.5 Multiple Regression

(Random Effects Model)

Variables	**Value Description**	**Model 1 All fund Returns**	**Model 2 Micro Returns**	**Model 3 Macro Returns**	**Model 4 Conventional Returns**	**Model 5 Shariah Complaint Funds Return**
Constant	Coefficient p-value	5.348262* (0.0000)	0.103402* (0.0000)	1.941885* (0.0000)	5.268489* (0.0000)	5.303808* (0.0004)
STDEV	Coefficient p-value	0.091994* (0.0441)	-0.016985 (0.7427)	_	0.140005* (0.0086)	-0.053759 (0.5861)
RR	Coefficient p-value	0.012042* (0.0000)	0.012948* (0.0000)	_	0.011780* (0.0000)	0.014906* (0.0012)
SR	Coefficient p-value	0.006389* (0.0154)	0.026713* (0.0000)	_	0.008346* (0.0178)	0.004210 (0.3451)
FA	Coefficient p-value	0.000451 (0.6381)	-0.00313* (0.0031)	_	-0.000466 (0.6717)	0.003919 (0.1289)
FS	Coefficient p-value	9.80e-07 (0.1995)	2.89e-06* (0.0009)	_	1.55e-06 (0.0909)	4.32e-07 (0.7671)
ER	Coefficient p-value	-0.001757 (0.1138)	_	-0.000537 (0.2400)	-0.001118 (0.3875)	-0.003109 (0.1665)
INFRA	Coefficient p-value	0.027319* (0.0000)	_	-0.005685 (0.1125)	0.027725* (0.0000)	0.025708* (0.0262)
IR	Coefficient p-value	-0.13714* (0.0000)	_	-0.02403* (0.0434)	-0.136506* (0.0000)	-0.13218* (0.0034)
MS	Coefficient p-value	-0.06197* (0.0000)	_	-0.02592* (0.0000)	-0.062372* (0.0000)	-0.05902* (0.0044)
GR	Coefficient p-value	-0.08644* (0.0000)	_	-0.015305 (0.0527)	-0.080889* (0.0000)	-0.09330* (0.0001)
R^2		0.4518	0.257757	0.213725	0.444478	0.494143
Adj R^2		0.4433	0.252056	0.210283	0.432856	0.461923
F-statistic		53.24651	45.21420	62.08877	38.24521	15.33646
Log-likelihood		589.6424	490.0772	786.0147	438.9290	154.9174

Model 1

The model considers all variables both micro and macro-economic factors. The value of r-square highlights the 45.18% variation in returns explained by the model. Exchange rate, interest rate, money supply, and economic growth have a negative and significant impact on mutual fund returns. However, inflation, standard deviation, risk-return co-efficient, fund age, and fund size have positively influenced the returns. The adjusted r-square of the model is 44.33%.

Model 2

The 2nd model only takes micro variables into account and excludes all macro variables. The results shows that STDEV does not have significant impact on MFRt. RR, SR, FS have significant and positive impact on MFRt and FA has significant and negative impact on MFRt. The R-square significantly drop to 25.77% from 45%. However, the major difference that can be seen from the previous model is both standard deviation and fund age has negative co-efficient but only fund age is statically significant at 5%. The model has an adjusted r-square of 25.02%.

Model 3

Model 3 exclusively addresses all macro variables and ignores micro variables. The results shows that ER, INFRA, and GR have insignificant impact on MFRt. IR, and MS have negative and significant impact on MFRt. Compared to both models 1 and 2, this model has the lowest r-square and contributes only i.e., 21.3% to its fund returns. Interest rates, money supply, and economic growth have a significant and negative impact on mutual fund returns. The major difference from model 1 can be seen in the inflation co-efficient. The inflation co-efficient is negative in this model, nonetheless, it is not statistically significant.

Model 4

From here, the sample size of 119 mutual funds is sub-divided into two models; Shariah-compliant and conventional funds, and analyze how their returns are affected by micro and macro factors. Model 4 consider only the conventional funds returns data of 89 mutual funds from 119 fund sample. The results depict that STDEV, RR, SR, and INFRA, have positive and significant impact on MFRt. FA, FS, and ER have insignificant impact on MFRt. IR, MS, and GR have significant and negative affect on MFRt. 44.44% of the variation in returns is explained by this model. The model has an adjusted r-square of 43.2%. The major contributors are standard deviation, risk-return co-efficient, Sharpe ratio, inflation, interest rate, money supply, and economic growth, and are statistically significant at 5%. The co-efficient of significant variables is in line with the theory and empirical evidence.

Model 5

This model took into account the 30 Shariah complaint fund returns while conducting the analysis. Results of this model shows that STDEV, SR, FA, FS, and ER, does not have significant impact on MFRt. RR, and INFRA have positive and significant impact on MFRt. IR, MS, and GR have negative and significant impact on MFRt. The model contributes 49% to its fund returns. The likelihood sigma of 154 shows that model is not better than other models. Only risk-return co-efficient, inflation, money supply, and economic growth have a significant impact on Shariah-compliant mutual fund returns.

5.6 Results Discussion

From the above two regression result, it can be noticed that variables behave differently in the simple and multi regression models. The correlation, simple regression results of inflation show insignificant negative relation. In multi regression results, out of 5 models, only the macro returns model shows a negative but insignificant impact on returns. So, the study suggests that inflation has no impact on mutual fund return. The exchange rate has a negative impact on

returns, in correlation, simple and multi-model results. Thus, the study concludes exchange rate influence the mutual fund returns negatively. The correlation and multi regression show interest rate has negative significant impact opposite to the simple regression results. Thus, the study infers a negative relationship between fund returns and interest rates. Similarly, money supply and GDP growth rate show a negative significant impact on returns in correlation, simple and multi regression models. As far as microeconomic variables discussion is concerned, all results i.e., correlation, simple and multi-model, risk-return co-efficient, Sharpe ratio, and fund size shows a positive significant impact on returns. The probability value of Standard deviation in simple and multi regression models shows an insignificant positive relation with fund returns. A negative correlation is found between fund age and return, the same is witnessed by simple and multi regression models. Thus, the study concludes negative relation between fund age and mutual fund results.

CHATER 6

CONCLUSION AND RECOMMENDATION

6.1 Conclusion

In the past various studies have been conducted to analyze the determinants of mutual funds (Nazir, 2010; Nazir and Nawaz, 2010; Asad and Siddiqui, 2019) and different macro-economic factors that impact the returns (Sajjad et al., 2010; Mashayekh et al., 2012; Humpe and Macmillan, 2009; 2008; Dash, 2008; Gay, 2008; Chen et al., 1986). However, such type of studies are minimal in the case of Pakistan. So, this Study explores the factors those affect the performance of Mutual funds of Pakistan. This study fills the gap in the literature by analyzing the impact of micro and macroeconomic factors that affect the mutual fund based on two broad categories of mutual funds i.e. conventional vs Islamic mutual funds. The study covers the period of 2010 to 2019 and selects five micro factors (return volatility, risk-return co-efficient, Sharpe ratio, fund age, and fund size) and five macro factors inflation rate, exchange rate, money supply, interest rate, economic growth. Mutual fund returns are taken as the dependent variable.

The simple regression, multi regression, and correlation results show that four out of five macro-economic factors i.e. exchange rate, interest rate, money supply, and GDP growth rate have a negative significant impact on mutual fund returns. Inflation has an inverse but insignificant impact on fund return. From the micro factors risk-return co-efficient, Sharpe ratio, and fund size show a positive significant impact on returns. Return volatility and Fund age have insignificant positive and negative impacts on return respectively.

The study also provides implications to common people. When it comes to the performance of mutual fund returns, investors should keep an eye on the exchange rate, interest rates, money supply, and GDP growth rate. It's crucial since the results of the investigation demonstrate that

the four variables have a considerable negative impact on mutual fund returns. As a result, the investor can avoid losing money due to a drop in mutual fund returns. Furthermore a compare

6.2 Policy Implication

The mutual fund industry has great potential; it can bring positive implications for the economic growth of the country. Mutual Fund is the best investment choice for small investors in the modern day investment especially for those investors who don't have access to information, skills, or knowledge about investing in the capital markets.

This study provides implications to the policymakers as they ensure the created policies strengthen the regulation of mutual funds and help them identify the key factors and then target growth in the mutual fund industry.

- The results of this research suggest that the risk-return co-efficient, return volatility, and sharp ratio have a positive impact on the returns of mutual funds. So, "the risk-return tradeoff states that the potential return rises with an increase in risk." Based on this, it is implied from the study that fund managers and investors should invest in more risky securities. This will help to increase the return of the fund, which will benefit both mutual fund managers and investors.
- The findings of this study will provide compelling evidence to the government of Pakistan, State Bank of Pakistan, Securities and Exchange Commission of Pakistan (SECP) about the relation between micro and macroeconomic factors and mutual funds' returns. The link provides an understanding to policymakers to make more informed fiscal and monetary policy decisions aimed at increasing the prices of mutual funds and also providing a suitable environment for better performance and enhancing the stability of the mutual fund industry. This will support the capital growth and capital preservation objectives of the investors.

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Appendix: A (Simple Regression)

Common Coefficient Model

Variables	Co-efficient	t-value	p-value	R-square
RV (Risk)	0.000947	0.15	0.884	0.0002
RR	0.01614	6.31	0	0.0484
SR	0.038962	16.79	0	0.2491
FA	-0.00358	-4.36	0	0.0008
FS	1.87E-06	2.46	0.014	0.0088
ER	-0.00295	-14.72	0	0.1502
INF	-0.00152	-1.41	0.16	0.0014
IR	0.007129	4.04	0	0.014
MS	-0.01558	-14.74	0	0.1512
GR	0.010708	4.44	0	0.0152

Note: probability values are significant at 0.05.

Appendix: B (Multiple Regression)

Common Coefficient Model

Variables	Value Description	Model 1	Model 2	Model 3	Model 4	Model 5
		All fund Returns	Micro Returns	Macro Returns	Conventional	Shariah Complaint Funds
					Returns	
Constant	Coefficient	5.348262*	0.103403*	1.946701*	5.268489*	5.303808*
	p-value	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
STDEV	Coefficient	0.091994*	-0.01698		0.140005*	-0.05376
	p-value	(0.044)	(0.743)		(0.008)	(0.585)
RR	Coefficient	0.012042*	0.012948*		0.01178*	0.014906*
	p-value	(0.000)	(0.000)		(0.000)	(0.001)
SR	Coefficient	0.006389*	0.026713*		0.008346*	0.00421
	p-value	(0.015)	(0.000)		(0.017)	(0.344)
FA	Coefficient	0.000451	-0.00313*		-0.00047	0.003919
	p-value	(0.638)	(0.003)		(0.672)	(0.127)
FS	Coefficient	9.80E-07	2.89E-06*		1.55E-06*	4.32E-07
	p-value	(0.199)	(0.001)		(0.09)	(0.767)
ER	Coefficient	-0.00176		-0.00053	-0.00112	-0.00311
	p-value	(0.113)		(0.231)	(0.387)	(0.165)
INFRA	Coefficient	0.027319*		-0.0057*	0.027725*	0.025708*
	p-value	(0.000)		(0.097)	(0.000)	(0.0250)
IR	Coefficient	-0.13715*		-0.02432*	-0.13651*	-0.13218*
	p-value	(0.000)		(0.033)	(0.000)	(0.003)
MS	Coefficient	-0.06198*		-0.02594*	-0.06237*	-0.05902*
	p-value	(0.000)		(0.000)	(0.000)	(0.004)
GR	Coefficient	-0.08645*		-0.01561*	-0.08089*	-0.0933*
	p-value	(0.000)		(0.039)	(0.000)	(0.000)
R^2		0.4518	0.2578	0.2144	0.4445	0.4941

Note: Probability values in ( ),* represents significance level at 5%.

Appendix: C (Simple Regression)

Fixed Effect Model

Variables	Co-efficient	t-value	p-value	r-square
STDEV (Risk)	-0.00921	-1.33	0.184	0.0002
RR	0.018724	6.86	0	0.0484
SR	0.037619	15.12	0	0.2491
FA	-0.01598	-12.2	0	0.0008
FS	9.30E-06	3.33	0.001	0.0088
ER	-0.00291	-14.4	0	0.1502
INF	-0.00166	-1.51	0.131	0.0014
IR	0.006707	3.75	0	0.014
MS	-0.0153	-14.34	0	0.1512
GR	0.010936	4.49	0	0.0152

Appendix: D (Multiple Regression)

Fixed Effect Model

Variables	Value Description	Model 1	Model 2	Model 3	Model 4	Model 5
		All fund Returns	Micro Returns	Macro Returns	Conventional	Shariah Complaint Funds
					Returns	
Constant	Coefficient	0.031851	0.38824*	1.94537*	0.161603	-0.23848
	p-value	(0.943)	(0.000)	(0.000)	(0.755)	(0.789)
STDEV	Coefficient	0.115688	0.005404		0.177824	-0.1257
	p-value	(0.246)	(0.957)		(0.117)	(0.573)
RR	Coefficient	0.01315*	0.01399*		0.012468*	0.015763*
	p-value	(0.000)	(0.000)		(0.000)	(0.003)
SR	Coefficient	0.003418	0.01117*		0.003753	0.003547
	p-value	(0.266)	(0.000)		(0.359)	(0.484)
FA	Coefficient	1.64E-01*	-0.03295*		0.155874*	0.176796*
	p-value	(0.000)	(0.000)		(0.000)	(0.000)
FS	Coefficient	3.25E-06	4.27E-06*		4.07E-06	1.30E-06
	p-value	(0.142)	(0.072)		(0.132)	(0.760)
ER	Coefficient	-0.02009*		-0.00051	-0.01898*	-0.0221*
	p-value	(0.000)		(0.246)	(0.000)	(0.000)
INF	Coefficient	-0.01135*		-0.00534	-0.00893	-0.01661
	p-value	(0.019)		(0.120)	(0.114)	(0.100)
IR	Coefficient	0.11951*		-0.0250*	0.108733*	0.141333*
	p-value	(0.000)		(0.028)	(0.000)	(0.001)
MS	Coefficient	-0.0073		-0.02588*	-0.00966	-0.0012
	p-value	(0.340)		(0.000)	(0.277)	(0.939)
GR	Coefficient			-0.0155		
	p-value			(0.041)		
R^2		**0.0201**	**0.0382**	**0.2143**	**0.018**	**0.0376**