

A PANDEMIC INFLUENCED RISK ADJUSTED AND DECOMPOSED EQUITY MUTUAL FUND PERFORMANCE: A COMPARATIVE ANALYSIS OF ISLAMIC AND CONVENTIONAL FUNDS

Mehnaz Noor¹, Shujah-ur-Rahman^{1*}, Muhammad Rafay¹, Sania Manzoor¹

¹ Division of Management and Administrative Sciences, UE Business School, University of Education Lahore, Jauharabad Campus, Khushab.

Abstract

Mutual fund is an investment device that encourages investors, especially in developing countries like Pakistan, which highly depend on foreign aid. Fund structures and benefits attract many small investors for investment in funds. The aim of this study is to determine the performance of mutual funds in Pakistan. The performance is analyzed by three different measurement tools i.e., Sharp ratio, Treynor ratio and Fama decomposition measures. This study covers the period from 2012 to 2022 and determines the performance of 27 funds, of which 20 are conventional funds and seven are Islamic mutual funds. Results prove that conventional funds performed better than Islamic funds. Fund selection was better than fund diversification. Fund cannot diversify properly. Pre covid performance of funds was better than post covid. It depicts that the covid 19 hit mutual fund industry badly.

Keywords: Pandemic; Mutual Fund Performance; Adjusted Risk; Pakistan

1. Introduction

Mutual funds are an investment vehicle that deposit the savings of investors and purchase securities like bonds, stocks and short-term financial instruments. It issues shares for investors to collect money and distribute profits. It is an investment scheme that professionally managed and authorized by an asset management company. It accumulates money from groups of people who have surplus and invest it. Profits of the fund are divided among all holders in according to securities owned. In Pakistan diversified professionally managed portfolio give great opportunity to both experienced and new investors and providing well managed legal security relative at low cost. Mutual funds were initially recorded and introduced in the form of trust i.e., trust act-1882 (Ismail, 2002). The Security and exchange commission of Pakistan (SECP) regulates the fund industry, which licensing each under the rules of NBFC 2003. It requires independent rating from AMCs. To gain good profit, fund managers used different schemes and strategies to create volatility in returns. Fund performance depends on manager's abilities to consistently beat the market. Investor's first concern is well management of assets, which depends on managers abilities. The Future prospects of fund industry is very auspicious and upbeat. It attracts skilled person and leading players from industrial sectors as sponsors. It offers excellent returns in form of dividends, yields and capital gains, providing a versatile investment scheme. In south Asia, Pakistan is considered pioneer in introducing the mutual funds. National Investment Trust Limited (NIT) introduced mutual funds in Pakistan in 1962. It was open-ended funds; later,

* Corresponding Author: Shujah-ur-Rahman

Email: shujah_rahman@yahoo.com

Investment Corporation of Pakistan (ICP) introduced close-ended fund scheme. Initially, ICP started as national entity but later on, they became private.

1.1 Benefits of Mutual Fund

Funds offer benefits like capital gains, convenience, risk reduction, portfolio management and fair pricing etc. Professional management - Mutual fund. Before choosing the securities, visit money manager and research about funds' performance. These managers selected by AMC who keenly observed the performance of mutual funds asset. Diversification is concept of intelligent investment is like a cliché "don't put all your eggs in one basket". Diversification of portfolio is easily gain by investment through mutual fund, irrespective of investment size. Diversification minimizes the fair of risk. Diversification it includes the study of various securities results contain single fund to maintain risk at lower level, Affordability is also available for milliners and for small investors who do not have enough money to invest. Liquidity concept mean in Pakistan most of fund are open ended and firstly introduced fund are also open ended that have opportunity to timely redeem investment. Professional investors always purchase the securities before the rise of market and sells it before it declines. Liquidity means how quickly assets turn into cash sells of securities Variety is the combination of securities, which is available for investors for selection. Convenience refers to the easy way of buy or sell of securities with the help of phone, internet, and mobile application or thorough broker.

The world describes itself as pre-COVID 19 and post-COVID 19, exactly similar with pre-WWII and post WWII. In 2020, the certainty of uncertain future, COVID put the whole world at a war against pandemic. No country from the most developed and under developed has been cut down with fatalities and reported case in millions. However, COVID 19 and its disaster effects, off all bets and down the forecast for 2020. COVID 19 severely affect the under developing country like Pakistan. It affects the stock market badly. Influenced of stock market is due to COVID 19 related recoveries fatalities and positive cases. Researches show that the recoveries of COVID 19 are the strongly forecast the performance of stock market. Positive cases and casualty have non-significant correlation with the market performance. Hence, clear report of pandemic shows the related variable affect the market performance in this regard.

Islamic mutual fund's purpose is to prevent the modern Muslims country from riba, gharar, and mayir. However, in Pakistan the performance of mutual fund is not good. It cannot defeat the conventional funds and market benchmark. Both funds Islamic and conventional are same in all aspects have only one difference that is Islamic fund only fit in shariah complaint investment. Shariah complaint investment follows the Islamic principle. In Pakistan, Islamic fund performance is not well but it; show less diversification in term of return funds condition is stable. However, conventional fund show volatility. On average, in 2022 total return was 14% in conventional market fund and in Islamic money market fund was 13.5% return. In this year, conventional funds show higher return than Islamic but the difference was not big.

The growth of funds is remarkable as other developing and developed nations mutual fund industry earned trillions of dollars on earth. Pakistan fund market record the notice able raising of RS 5121383 total fund, in which **4995106** was open-ended and **126277** was close ended in

period from 2013 to 2021. Although Pakistan industry is not grown as other, but also contain among other sectors of economy.

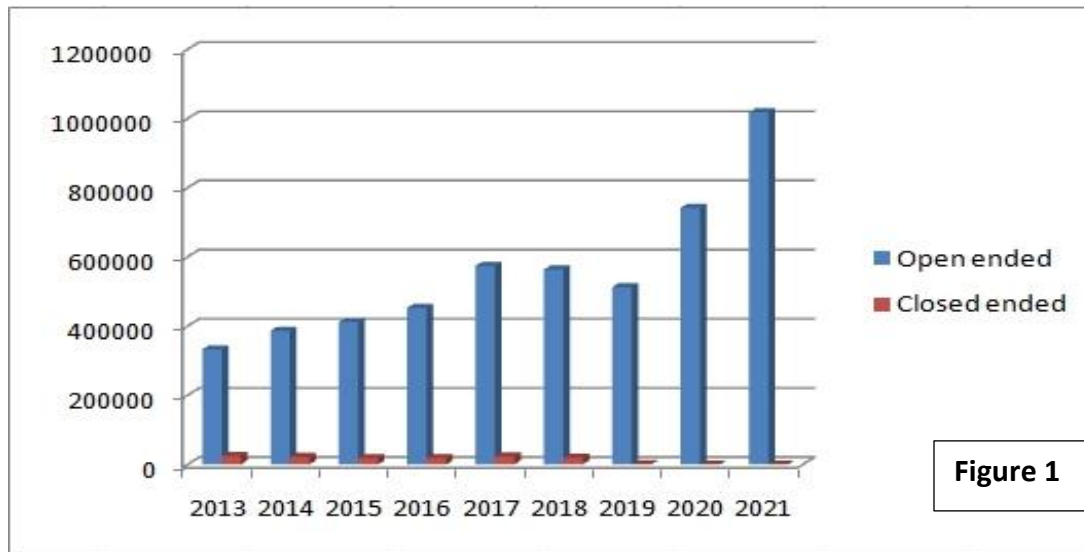


Figure 1: Mutual Fund Growth in Pakistan

2. Literature Review

The industry of mutual fund is rapidly increasing in these days. Researcher and academicians keenly observe performance of mutual funds industry. This is most discussing topic by several researchers. Financiers and different researchers compute the performance of mutual fund of various classes. They use different method to calculate the performance. Treynor, (1965) Sharpe, (1966) and Jensen, (1969) considers to be pioneer who address this issue and planned different method which are being used in different studies. Alqadhib et al., (2022) analyzed the performance of mutual fund of COVID 19 in Saudi Arabia. For analyzed the performance of 79 selected sample of mutual fund, authors use Fame and French five model factors. According to Xuezhou et al., (2020) the performance is risk adjusted. Saudi Arabia's mutual fund industry beat the market with significant positive alpha percentage 0.15%. Pant et al., (2022) computed the performance of mutual fund with internal and macroeconomics factors in Nepal. Results show that the performance of mutual funds was not adequate excluding NIBI pragati fund (NIBPF). Factors like cash ratio, expenses ratios, bank rates, Inflation factor and stock index were representing significant negative impact on mutual fund. Market index had neutral impact on mutual funds' performance. Age had benignant influence on mutual funds. Both forces are important factors of mutual fund performance in Nepal. Rahman & Al Mamun, (2022) analyzed the performance of mutual funds in Bangladesh and their major disadvantages. Performance had been measured by sharp ratio, Treynor ratio, Jensen alpha, M2 and information ratio. Total and systematic funds risk were examined separately. This study covered the period of 107 months (2013 to 2021). Outcome revealed that, during this period, mostly funds unable to beat

benchmark achievement. In down beat market situation, managers show good selection skills, when market was normal, they show poor selection skills.

Farid & Wahba, (2022) measured the performance of mutual funds, which influenced by fund size in Egypt. It covered the period of seven years (2012 --- 2017). Outcomes show that LogNAV (log fund size) gave negative result on mutual fund performance. In contrast, log total fund expenses show the positive result as well. Age factor also had negative impact on mutual fund performance. Omokehinde, (2021) measured the mutual funds' performance and risk adjusted performance in Nigeria (2016 to 2019) performance was evaluated with CAPM as well as descriptive statistics, Jensen alpha, and other risk adjusted factors such as Fama decomposition and sharp & Treynor ratios as well. Outcome of descriptive test show that 80.77% of funds were higher to market returns and 13.46% was riskier. The skewness and kurtosis of market and fund return varied from normal requirements and their behaved with asymptotic and lepturtic characteristics was abnormal. Normally test finding of Jacque Berra showed that "the return was not normally distributed at 1% significant level", 6.75% was the average risk-free rate. The comparison of risk adjusted portfolio returns by Sharp & Treynor ratio and Jensen alpha was 67.31% funds was under performed and 40.38% of outperformed market respectively. Fama decomposition showed that managers are 48% of risk averse and have superior selection ability. And inferior selection ability of managers is 52% that only earned 33% of superior risk adjusted return had fail to capture the desired goals. Song, (2020) analyzed the performance of mismatched between mutual funds skill and scale. Authors analyzed that the skill and scale had not related to each other in activity managed equity mutual fund. Mutual fund had positively responded to Fama French factor. Results, actively managed mutual fund with positive factor related past returns accumulated excessive AUM, which leads to significant negative future returns performance, this is due to larger trade size on price impact and execute. Inam et al., (2019) analyzed the performance of equity fund and Islamic income by different tools of evaluation i.e. Sharpe, (1966), Treynor, (1965) M-square Modigliani & Modigliani, (1997) and info Ratio. Authors also used Treynor & Mazuy, (1966), Henriksson & Merton, (1981) and Fama decomposition model (1973). Results proved that Islamic equity fund was better in performance than conventional equity fund. Sharp ratio, Treynor ratio and net selectivity measure was positive in all Islamic equity funds and have slightly less risky. Both Islamic equity and income fund behaved positively with Jensen Alpha and market timing ability. Islamic income fund show underperformance the market because if less Shariah complaint investment class assets in market. Inam et al., (2019) computed the performance of Greek equity mutual funds and continuance in annual performance of year (2008 to 2017) by different model of performance (single index model and multi factor model). Series of parametric Bollen et al., (2005) and non-parametric test Malkiel, (1995), Brown & Goetzmann, (1995) and Kahn & Rudd, (1995) had used for the assessment of persistence in annual performance. Results show that Greek equity mutual funds had not positive risk adjusted returns with respect to market index. Few managers were successful to add value to their portfolio with the use of large cap high book-to-market value ratio and eliminate explore to the momentum effect. Kumaraswamy & Al, (2018) measured the performance of equity mutual funds in Saudi Arabia. Fama decomposition model used to measure the performance of 82 mutual funds, covered the period from 2011 to 2016. Risk reward ratio of performance and future perform returns were also measured. Results

show that in term of expected sign and diagnostic test Saudi local equity performance followed by Arabia and global equity funds performance. Sadeghi Goghari et al., (2020) analyzed the performance of mutual funds in Iran measured by Fama decomposition model (1973). They used 55 mutual funds data and covering the period from (2014 to 2018). Initially, mutual fund divided into Fama components and then performance had evaluated. H. Hussain et al., (2012) Outcome show that the risk performance and diversification were negative, and positive result shown by net selectivity. Finally, to computed the effect of Fama component on funds' performance. When Panel method used, positive results had obtained and effect of net selectivity and risk are more than diversification. R. Y. Hussain et al., (2016) measured the performance of mutual fund in Pakistan by different tools of measurement i.e. Sharpe, Treynor, sortino, information jensn, alpha M2/RAP and Fama decomposition and covered the periods of 7 years (2005 to 2013). Bilawal et al., (2016) analyzed the performance of 27 mutual funds out of which seven closed ended and 20 are open ended. Under performance results founded and selection ability of funds manager were weak. Less diversification shown by portfolio. With respect to all measurement, none of fund had the same rank. However, it observed that the performance of closed ended funds was better than open ended in comparison performance.

3. Data and Methodology

In this portion, data and measurements discussed. It has two parts. First is about data and second section discussed about procedures (methodology) used in this paper.

3.1 Variables Measurements

This section provides a wrap up overview of mutual funds of Pakistan. To achieve the purpose of paper, data for 27 mutual funds collected from the official website of Pakistan mutual funds "mufap Nav" mutual fund association Pakistan. Period include FY 2013 to FY 2022. 20 funds are conventional mutual fund and the remaining seven is Islamic mutual funds. KSE, PSX, Risk is used as a benchmark and data of this benchmark is taken from yahoo finance. T-bill is present on the official website of financial markets association of Pakistan and consider risk free rate. Performance analyzed following by different measures,

- 1) Sharp ratio
- 2) Treynor ratio
- 3) Fama decomposition

3.1.1 Sharp Ratio

William E. Sharpe, (1966) introduced sharp ratio. Mutual fund or any other investment portfolios ratio is analyzed the risk adjusted return of fund. When an investment makes over and above the risk free returns it called risk adjusted return. Ratio and investment have direct relation with respect to attainable risk. Higher ratio makes good return. Sharp ratio categories the fund based on return per unit gain with overall risk i.e. unsystematic and systematic. It used to compare the performance of different funds and evaluate less diversified funds' performance.

Formula:

$$\text{Sharp Ratio} = \frac{R_p - R_f}{\sigma_p} \quad \dots \dots \dots \quad (1)$$

- R_p = Return of Portfolio
- R_f = Risk-free Rate
- σ_p = Standard Deviation of the Portfolio's Excess Return

3.1.2 Treynor ratio

Treynor, (1965) developed this ratio. It is also called reward to risk volatility ratio. Both sharp and Treynor ratio is quite similar, the slightly differences Treynor use beta instead of slandered deviation. It measures excess return per unit of risk comes with it. It used T-bill to calculate the risk-free returns. It used beta measurements generally measures the systematic risk. Better performance indicates the higher ratio. It is abstract from the CAPM capital asset pricing model it is more applicable for ranking the diversified portfolio.

Formula:

$$\text{Treynor Ratio Ratio} = (R_p - R_f) / \beta_p \quad \dots \dots \dots \quad (2)$$

- R_p = Portfolio Return
- R_f = Risk-free Rate
- β_p = Beta of the Portfolio

3.1.3 Fama Performance measure

Fama, (1972) develops it. Fama model analyzed not only overall performance but also analyzed diversification and net selectively. In low diversification, subtract reward from overall selectively gives net selectively. Funds which have low diversification get higher return and have less net selectively. Reward means more diversification; fully diversified fund shows no reward. In the case of low diversification, positive net selectively mean funds performed well and negative mean fund is inapt to recover return.

$$\begin{array}{l}
 R_p - R_f = \underbrace{\beta (R_m - R_f)}_{\text{Reward for systematic risk}} + \underbrace{(R_m - R_f) \left(\frac{\delta p}{\delta m} - \beta \right)}_{\text{Reward for low diversificati}} + \underbrace{(R_p - R_f) - \left(\frac{\delta p}{\delta m} \right) (R_m - R_f)}_{\text{Net}} \quad \dots \dots \quad (3) \\
 \downarrow \\
 \text{Overall performan} \quad \underbrace{\hspace{15em}}_{\text{Selectivity}}
 \end{array}$$

- R_p = Returns of the portfolio.
- R_f = Risk free rate.
- R_m = Return of the market.

4. Results and Interpretation

In this section, analysis of mutual fund performed by sharp ratio, Treynor ratio, fame decomposition model, and measure the performance of funds in Pakistan during 2013 to 2022. Also, interpret the results of post covid and pre covid.

Table 1: Descriptive Statistics

Variable	Obs.	Mean	S. D	Min.	Max.
SR	270	-7.612748	3.299872	-17.76403	-.7310051
TR	270	.6019798	15.03376	-131.6577	185.9321
OP	270	-.0863363	.0304062	-.1519349	-.0586546
RSR	270	-.0192292	.0334356	-.2464569	.0261978
RDR	270	-.0999264	1842154	-2.862656	.0898972
RNS	270	.032819	.1811014	.1811014	2.854712

Descriptive statistics used to understand the nature of data and provide basic information about variables, also detect the abnormal value. **Table 1** shows the descriptive analysis of selected data. The sample include the 270 observations for different period. Mean of sharp ratio is -7.612748, SD is 3.299872 and its mini and maxi values are -17.76403 and -0.7310050 respectively. Next come, Treynor ratio its mean is .6019798, SD is 15.03376. Its mini value is -131.6577 and maxi is 185.9321. Third variable is overall performance, its mean is -0.863363, SD is -0.0304062 and its mini and maxi values are -0.151934 and -0.586546. Mean value of reward for systematic risk is -0.192292, SD is 0.334356 and maxi & mini values are. 0.261978 And -0.2464596 respectively. Next is RD its mean value is -0.999264, SD is 0.1842154, mini value is -2.862656 and maxi value is 0.089872. Last is RNS, its mean value is -0.032819, SD is -0.1811014 and mini & maxi values are 0.1811014 and 2.854712 respectively.

Table 2: Pair Wise Correlation

	SR	TR	OP	RSR	RD	RNS
SR	1.0000					
TR	-0.0721 0.2374	1.0000				
OP	0.7338* 0.0000	-0.0384 0.05294	1.0000			
RSR	-0.0432 0.4797	0.0398 0.5151	0.0255 0.6772	1.0000		
RDR	-0.0766 0.2096	-0.0022 0.9714	0.3203* 0.0000	0.0374 0.5410	1.0000	
RNS	0.2091* 0.0005	-0.0116 0.8499	-0.1626* 0.0074	-0.2184* 0.0003	-0.9703* 0.0000	1.0000

Table2 explains the pair wise correlation between variable. Observation revealed that the correlation of sharp ratio (SR) with reward for net selectivity (RNS) is significant positive and

remaining all variable have negative & I significant correlation with sharp Ratio. Next is Treynor ratio (TR) correlation with all variable, except reward for systematic risk (RSR) all variable is negative and insignificant correlation. RSK have positive insignificant correlation with Treynor ratio. Third correlation of overall performance (op) with selected variable, RNS have negative and insignificant correlation and reward for diversification (RD) have significant positive correlation. RSR have positive insignificant correlation. Next is reward for diversification (RD) correlation with variable, RD have insignificant and positive correlation and with RNS have significant negative correlation. Last correlation is RD with RNS have negative insignificant correlation.

Table 3: Results for Risk Adjusted Measures

Fund Name	SR			TR		
	OP	Pre-covid	Post-covid	OP	Pre-covid	Post-covid
Conventional Fund						
1. ABL Stock fund	-7.4418	-6.1423	-9.3912	-0.2409	-0.1572	-0.3667
2. AKD Opportunity fund	-6.5873	-5.6305	-8.0225	-0.1500	-0.5961	0.5192
3. Golden arrow stock fund	-6.2820	-4.6027	-8.8011	2.4046	-0.0582	6.0989
4. AL Habib Stock fund	-9.0054	-7.4424	-11.3500	2.3426	0.6895	4.8223
5. Alfalah GHP Alpha Fund	-6.8545	-5.7216	-8.5538	0.4899	0.1653	0.9767
6. Alfalah GHP Stock Fund	-7.3066	-6.2924	-8.8279	1.4932	1.7659	1.0841
7. Atlas Stock Market Fund	-8.5919	-7.6926	-9.9410	-0.0777	-0.1258	-0.0057
8. Faysal Stock Fund	-8.6514	-8.8394	-8.3692	-0.2826	-0.1723	-0.4481
9. First Capital Mutual Fund (B)	-7.2855	-6.80566	-8.0053	-0.1777	0.92727	-1.8342
10. HBL Energy Fund	-5.6022	-6.0845	-4.8789	-1.7950	-0.3047	-4.0305
11. HBL Equity Fund	-6.2647	-5.0675	-8.0605	-13.2492	-22.0626	-0.0292
12. HBL Stock Fund	-7.1739	-6.3099	-8.4499	6.1303	0.6989	14.2779
13. JS Growth Fund	-8.2431	-6.7152	-10.5350	-0.0355	0.2848	-0.5158
14. JS Large gap Fund	-7.3194	-6.6855	-8.2702	-1.1255	-1.5372	-0.5079
15. Lakson Equity Fund	-8.1145	-6.7821	-10.1131	-2.1780	-2.4226	-1.8112
16. MCB Pak. Stock Market Fund	-6.9566	-6.9415	-6.9791	-0.2220	-0.3485	-0.0323
17. National Investment T LTD	-8.8060	-8.3013	-9.5631	0.1282	-0.6759	1.3343
18. NBP Stock Fund	-8.0706	-6.5098	-10.4118	0.1247	-0.3739	0.8717
19. UBL Stock Advantage Fund	-8.3544	-6.8233	-10.6510	0.2094	-0.2053	0.8316
20. AL Meezan Mutual Fund	-7.6837	-5.9875	-10.2279	0.4406	-0.6178	2.1032
Average	-7.5297	-6.5688	-8.9701	-0.2885	-1.2563	1.1669
Islamic mutual funds						
21. Meezan Islamic Fusnd	-8.2680	-7.2424	-9.8065	-3.0933	-2.6573	-3.7472
22. Alfalah GHP Islamic Stock Fund	-7.0631	-6.2267	-8.3178	1.2279	0.2824	2.6462
23. Atlas Islamic Stock Fund	-8.5452	-7.9403	-9.4525	5.6767	10.3755	-1.3716
24. HBL Islamic Stock Fund	-6.8943	-6.1518	-8.0081	0.6056	-2.4922	5.2524
25. JS Islamic Fund	-7.9092	-6.5377	-9.9666	-0.4585	-0.3174	-0.6701
26. Alhamra Islamic Stock Fund	-8.2698	-7.4415	-9.5124	0.1807	0.3925	-0.1369
27. Al Ameen SS Fund	-7.9986	-6.5666	-10.1466	17.8547	-0.6209	45.5679
Average	-7.8497	-6.8724	-9.3157	3.1419	0.7089	6.7915

SR used to compare the performances of different fund and evaluate diversified fund performance. Table 3: overall performance (op) of all funds has negative value. However, funds' performance are benediction and they beat the benchmark except al Habib stock fund value -9.0054. Hbl energy funds' performance was unbeatable and it beat psx value -8.8477 with -5.6022. It can also be determining the op of conventional fund was much better than Islamic fund. It can also clear from table that the best and poor performance of fund is the part of conventional fund. Pre covid performance was very well. Faysal stock fund was fail to beat the benchmark and had high value -8.8394. It performed poorly as compared to other funds that bung up the benchmark. Best pre covid performance shown by golden arrow fund value -4.60927. Post covid performance was iniquity. Most of fund cannot beat the benchmark. Less return and high risk as compare to benchmark create underperformance. Al meezan fund value -10.22798 that could not perform satisfactory as compare to other fund. Hbl energy fund -4.8789 have excellent performance and bung up the market benchmark. It is declared from the table that pre covid performance of fund is bountiful. Almost all the fund beat the market psx. However, post covid results were not good. Covid 19 hit the mutual fund industry in Pakistan badly. Conventional fund performance was well as compared to Islamic mutual fund. Op of TR have the mixture of positive and negative values. Al Ameen ss fund beat the benchmark with high positive value 17.8547. HBL equity fund have high negative value -13.2492 and cannot beat the benchmark. Market faced many ups and down fluctuation during pre-covid and post covid performance. Pre covid performance of HBL equity fund value -22.0626 was very crestfallen and during post covid, it performed slightly well as compared to its post covid situation. Atlas Islamic stock fund show excellent performance in pre covid value 10.3755 and beat the market benchmark but its performance in post covid was not good and could not beat market. High positive value of post covid is 45.5679, performance of al Ameen ss fund. It is observed from table Islamic mutual fund performance is better than conventional fund in TR measurement. Pre covid performance and post covid performance of Islamic mutual fund is unbeatable and some fund have high positive value, beat the benchmark.

Table 4: Selection and Diversification

Fund name	OP			RSK			RD			RNS		
	OP	Pre covid	Post covid	OP	Pre covid	Post covid	OP	Pre covid	Post covid	OP	Pre covid	Post covid
Conventional Fund												
1. ABL Stock fund	-0.0864	-0.0729	-0.1066	-0.0282	-0.0487	0.0025	-0.0869	-0.0710	-0.1108	0.0287	0.04683	0.00154
2. AKD Opportunity fund	-0.0861	-0.0725	-0.1064	-0.0293	-0.0448	-0.0060	-0.0874	-0.0657	-0.1201	0.0307	0.03803	0.01974
3. Golden arrow stock fund	-0.0863	-0.0729	-0.1063	-0.0085	-0.0173	0.0045	0.1061	-0.1082	-0.1029	0.0287	0.0526	-0.0080
4. AL Habib Stock fund	-0.0865	-0.0730	-0.1067	-0.0223	-0.0386	0.002611	-0.0647	-0.0414	-0.0998	0.0006	0.00736	-0.0094
5. Alfalah GHP Alpha Fund	-0.0864	-0.0728	-0.1068	-0.0077	-0.0149	0.0029	-0.1440	-0.1608	-0.1188	0.0654	0.1029	0.0090
6. Alfalah GHP Stock Fund	-0.0862	-0.0726	-0.1067	-0.0079	-0.0091	-0.0060	-0.0821	-0.0716	-0.0978	0.0038	0.0082	-0.0027
7. Atlas Stock Market Fund	-0.0862	-0.0730	-0.1065	-0.0233	-0.0175	-0.0319	-0.0691	-0.0555	-0.0893	0.0061	3.6798	0.0153
8. Faysal Stock Fund	-0.0867	-0.0732	-0.1060	-0.0208	-0.0242	-0.01569	-0.0873	-0.0714	-0.1112	0.0215	0.0225	0.0199
9. First Capital Mutual Fund (B)	-0.0865	-0.0729	-0.1069	-0.0322	-0.0303	-0.0351	-0.3701	-0.0811	-0.8035	0.3158	0.0386	0.7317

10. HBL Energy Fund	-0.0866	-0.0731	-0.1069	-0.0255	-0.0399	-0.0041	-0.1097	-0.1011	-0.1230	0.0488	0.0678	0.0201
11. HBL Equity Fund	-0.0855	-0.0713	-0.1069	-0.0047	-0.0061	-0.0024	-0.1052	-0.0952	-0.1201	0.0243	0.03015	0.01570
12. HBL Stock Fund	-0.0855	-0.0713	-0.1069	-0.0047	-0.0061	-0.0024	-0.1052	-0.0952	-0.1201	0.0243	0.0301	0.0157
13. JS Growth Fund	-0.0864	-0.0727	-0.1067	-0.0233	-0.0186	-0.0304	-0.0731	-0.0779	-0.0660	0.0101	0.0238	-0.0102
14. JS Large gap Fund	-0.0860	-0.0723	-0.1067	-0.0191	-0.0097	-0.0331	-0.1093	-0.0862	-0.1440	0.0424	0.0237	0.0704
15. Lakson Equity Fund	-0.0865	-0.0730	-0.1067	-0.0069	-0.0114	-4.6287	-0.1012	-0.1014	-0.1010	0.0216	0.0399	-0.0056
16. MCB Pak. Stock Market Fund	-0.0863	-0.0727	-0.1066	-0.0263	-0.0441	0.00047	-0.1255	-0.0576	-0.2274	0.0655	0.0290	0.1202
17. National Investment T LTD	-0.0861	-0.0724	-0.1067	-0.0139	-0.0219	-0.0019	-0.0737	-0.0518	-0.1066	0.0015	0.0013	0.0018
18. NBP Stock Fund	-0.0862	-0.0727	-0.1066	-0.0385	-0.0411	-0.0351	-0.0603	-0.0588	-0.0627	0.0128	0.0272	-0.0087
19. UBL Stock Advantage Fund	-0.0862	-0.0726	-0.1065	-0.0321	-0.0302	-0.0348	-0.0613	-0.0604	-0.0626	0.0072	0.0181	-0.0091
20. AL Meezan Mutual Fund	-0.0862	-0.0730	-0.1061	-0.0010	-0.0002	-0.00213	-0.1028	-0.1032	-0.1023	0.0176	0.0305	-0.0017
Average	-0.0863	-0.0727	-0.1066	-0.0191	-0.0244	-0.2424	-0.0958	-0.0807	-0.1449	0.0392	0.2165	0.0493
Islamic Mutual Fund												
21. Meezan Islamic Fund	-0.0863	-0.0727	-0.1067	-0.2948	-0.0222	-0.0403	-0.0641	-0.0633	-0.0652	0.0072	0.0128	-0.0010
22. Alfalah GHP Islamic Stock Fund	-0.0865	-0.0730	-0.1068	-0.0119	-0.0199	3.4747	-0.0987	-0.0818	-0.1240	0.0241	0.0287	0.0172
23. Atlas Islamic Stock Fund	-0.0862	-0.0726	-0.1066	0.00599	-0.0074	-0.0038	-0.0833	-0.0694	-0.1041	0.0030	0.0041	0.0014
24. HBL Islamic Stock Fund	-0.0865	-0.0730	-0.1068	-0.0068	-0.0110	-0.00063	-0.1086	-0.0965	-0.1266	0.0289	0.0345	0.0204
25. JS Islamic Fund	-0.0863	-0.0726	-0.1067	-0.0349	-0.0386	-0.0293	-0.0650	-0.0599	-0.0726	0.0136	0.0259	-0.0047
26. Alhhamra Islamic Stock Fund	-0.0864	-0.0729	-0.1067	-0.0199	-0.0335	0.00048	-0.0789	-0.0597	-0.1076	0.0123	0.0203	0.00046
27. Al Ameen SS Fund	-0.0862	-0.0729	-0.1067	-0.0276	-0.0219	-0.0362	-0.0701	-0.0730	-0.0657	0.0115	0.02226	-0.0045
Average	-0.0863	-0.0728	-0.1067	-0.0557	-0.0221	0.4806	-0.0812	-0.071	-0.0951	0.0144	0.0212	0.0041

Fama decomposition model is apt to find the selection ability and diversification extension achievement by each fund. All conventional funds have negative RD (reward for diversification) value except Golden arrow stock fund, which have high diversification value 0.10610. NBP stock fund worst diversified value-0.06038. This means poor diversification shown by all mutual funds. In the case of RNS (reward for net selectivity), HBL energy fund performed well as compared to other funds and have high reward for selectivity value 0.31586 but not fully diversified. AL Habib stock fund have less reward of selectivity value 0.00064 and undiversified portfolio value -0.06579. Average value of post covid value -0.14492 is higher than average. Pre covid -0.0807 that show that the performance of fund post covid is better than pre covid. Similar in RNS, pre covid result is higher than post covid 0.216544 and 0.049306 respectively. HBL Islamic fund have high diversification value -0.1086 and Meezan Islamic fund have worst RD value -0.06410. RNS of JS Islamic fund is in better condition with high value 0.01364 as compared to other fund. Less reward for Atlas Islamic Stock Fund shows net selectivity is 0.00306. Islamic funds' performance in pre covid was better; all funds have positive RNS value. However, post covid performance was not well. Meezan Islamic fund, JS Islamic

fund and Alhamra Islamic fund was not good in diversification as well as in RNS. Pre covid average value 0.02125 is higher than post covid average value 0.00471, which show that the performance of fund before covid is better than post covid. Similarly, in SD avg value of pre covid -0.071 is greater than post covid value -0.09518. As compared the performance of RD with RNS, it is clear that the performance of RNS is very well and all fund have positive value show that the selection of fund made carefully. RD performance is not well. This revealed that the selection of fund is good but funds diversification is in worst condition. Average value RD of conventional fund (-0.09584) is slightly less diversified than Islamic average RD value (-0.08126). However, in the case of RNS average value 0.03927 is higher than Islamic RNS average value 0.0144. This show that the conventional fund in Pakistan performed very well than Islamic fund.

5. Conclusion

The mutual funds industry is growing day by day in developing country like Pakistan. Decomposition of mutual funds' performance evaluated in this paper. Underperformance is depicted by three-measure TR, SR and FAMA decomposition measurement during this period. Results prove that all conventional funds performed better than Islamic fund. It is clear from observation that best and poor performance of fund is the part of conventional fund. Overall performance of SR show that all funds have negative value. OP of Treynor ratio is a mixture of positive and negative value. In TR, Islamic fund performed very well. Observation clear that the pre covid performance of funds was unbeatable then the post covid. RD have negative values and RNS have positive values that depicts selection of funds was made carefully but diversification of fund was worst in condition. In order to improve the diversification of funds, managers should improve security selection of funds and diversification of portfolio. Manager should keep eye on risk-adjusted performance and make sure the availability of funds in market at low cost for the improvement in diversification. For investors, they should move their portfolio toward financial investment, pandemic situation in which physical business is not possible. Government should make finds favorable rules and regulation in order to improve the diversification.

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