

# The Analysis of Net Asset Value (NAV) of Close-ended and Open-ended Mutual Funds in Pakistan

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## Abstract

*The study reflects the performance of close-ended and open-ended mutual funds in Pakistan using net asset values (NAVs) to highlight the dissimilitude in the funds' returns. The weekly data for NAVs of the funds are used from June 2015 to July 2020. The returns are calculated through the natural log (LN) function. The descriptive tests show that the data is not normally distributed as Kurtosis and Skewness values are significantly different from normal values. Also, the Kolmogorov-Smirnov and Shapiro-Wilk tests verified that the data is not normally distributed ( $P$ -value  $< 0.05$ ). Further, the non-parametric tests, namely the Mann-Whitney U and Kruskal Wallis test, are applied to probe the differences between independent variables. The non-parametric tests highlight the variation in NAV returns of the close-ended funds (CEF) ( $U = 579$ ) and open-ended funds (OEF) ( $U = 1759$ ). Hence it is examined that the performance of the funds is highly varied. However, there are chances of growth in the industry.*

**Keywords: Mutual Fund, Open-Ended Fund, Close-Ended Fund, Net Asset Value.**

**JEL Classification: C12, C14**

## INTRODUCTION

An investment pool is known as a mutual fund; the mechanism of mutual funds operates and is managed expertly to maximise the investment capital of shareholders. In the mutual fund model, money is cumulated from distinct stakeholders and ploughed into different profit-maximising activities and commercial assets such as stocks, bonds, money market, and other profitable instruments to maximise the investor's wealth.

A mutual fund is the most acceptable possibility for domestic and household individuals

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having limited knowledge and capital to boost their incomes. Mutual funds help to make a diversified portfolio with limited resources. Investors are drawn to mutual funds for various reasons, including liquidity, variety and professionally managed diversified portfolios for investment in various assets. Furthermore, stock buying is more hazardous than mutual funds. Usually, the asset management companies charge a small amount of management fee as expert fund managers manage funds. Shareholders return on a pro-rata basis by the earned income and the realised appreciation on invested capital.

The mutual fund commenced in the United States in the 1890s; initially, these funds originated as a CEF; in 1924, the first OEF was established in North America with redeemable shares by the Massachusetts Investors Trust. Mutual funds gained fame in the late 20th century. In 2019, there were almost 7,945 mutual funds with 21.29 trillion U.S. dollars in collective assets, that's 86% of the investment activities in the United States.

### ***Classifications***

In terms of investment pattern, mutual funds are further classified in;

1. Open-ended funds (OEF).
2. Close-ended funds (CEF).

Although these funds fall under the concept of the mutual fund, the two are highly distinct when it comes to trading.

### ***Open-Ended Mutual Funds***

An investment activity enables fund managers to invest in various securities and can issue an unlimited number of shares on demand. These funds do not sell in the secondary market. However, if any shareholder needs to liquefy their capital, the organisation is bound to purchase the units at their current value.

### ***Close-Ended Mutual Funds***

A CEF has shared similarities to listed companies. Trade of CEF operated by IPO (initial public offering). After issuing shares, a close-ended fund is traded in the stock market with a predetermined number of shares. Similarly, as a mutual fund, a closed-end fund has a professional manager supervising the portfolio and actively buying and selling the assets.

This industry has experienced tremendous growth in some past financial years. It continues to persist as an essential substitute investment avenue due to its extensive suite; the products are further divided into classes because of the diversity of investments.

Aggressive Fixed Income Fund Scheme is an ideal platform for long-term investments. They get a return by investing in long-term securities such as debentures, Pakistan Investment Bonds, etc.

Asset Allocation Fund is usually operated by investing in different asset classes to maintain a portfolio. The investment channel of this fund includes a variety of instruments such as bonds and stocks.

Capital Protected Fund makes its profit by investing in fixed income securities and equity. This fund works on a hybrid model that primarily invests in debt to ensure capital protection. Typically, the allocation depends on the term of the scheme.

Equity Fund firmly invests in stocks. Some funds specially target the real estate and health care sector.

Growth Fund is a diversified portfolio, the capital usually invested in organisation sons that seems the expansion or acquisitions and reinvest their revenue to maximise returns.

Income Fund usually invests in bonds or other fixed-income securities that give good dividends or interest.

Money Market Fund is a mutual fund; the capital is usually invested in treasury bills or investment bonds with a short-term maturity of less than a year. These funds are considered as safe as bank deposits. Investors seeking finite exposure to loss are generally investing their capital in this fund.

Sharia Compliant Fund typically invests in securities and equity according to Islamic principles.

The investment decision could be more appropriate and wealth maximised by analysing historical data. The shareholder and wealth manager both could enhance their welfare by evaluating of performance of the fund.

### ***Mutual Funds in Pakistan***

In 1962, the mutual fund initially originated by the IPO of NIT as OEF. In 1966, (ICP) "Investment Corporation of Pakistan" came into being. This industry used to manage twenty-six CEF. In the late 1990s, these twenty-six mutual funds floated and traded in the market. This investment activity has witnessed remarkable growth during 1999, resulting in the "Mutual Funds Association of Pakistan" (MUFAP) 2001 being publicly reckoned as one of the regulators of AMCs.

At the end of 2015, the MUFAP had 497 billion worth of assets under management, in which the bulk of the amount,467 billion invested in open-ended while 30 billion in the close-ended fund. Twenty-two asset management companies managed 214 funds, but till July 2020, the amount raised to 884 billion Pakistani Rupees managed by leading asset management companies, namely, Al Meezan Investment 157 billion, NBP Fund (NAFA) 153 billion, UBL Fund 83 billion, National Investment Trust 79 billion MCB-Arif Habib 74 billion and First Capital Investments 110 million. Besides the above, more than a dozen asset management companies in Pakistan. Therefore, the numbers reflect the rrealisedgrealised industry during this short period.

Asset management companies are being regulated by the Securities and Exchange Commission of Pakistan" (SECP). The Companies are registered under Companies Ordinance 1984. The wealth manager usually supervises the mutual fund, responsible for profit or loss-making. Managers are commonly qualified CFAs and have vast experience; their assessment helps make investment decisions. They must protect the wealth and investment of the investors.

## **Study Objectives**

The study's primary objective is to highlight the return on investment of CE and OE mutual funds. Nowadays, the point of debate for both investors and portfolio managers is which fund is performing well, whether OEF or CEF, so it is essential to assess and evaluate the returns. Hence, the study determines the difference between these two categories of funds.

## **LITERATURE REVIEW**

Mutual fund was introduced in the US market in the 1890s; Mutual Fund is continuing to be a preferred choice as the workstation for retirement plan. The two special funds are (Open-ended Fund, OEF and Close-ended Fund, CEF), running in parallel, and plenty of research has been done on the comparative performance between OEF and CEF. The fund's size and age are the main parameters used in estimating performance in past studies; for instance, (Sawicki & Finn, 2002) surveyed 55 Australian funds and observed that young funds are being affected by the age and size of the fund. In addition to this (Rao, 1996) analysed 964 mutual funds and reported a relation between age and expenses of mutual funds in the United States.

A comprehensive study was performed on the Swedish market by (Dahlquist, Engström, & Söderlind, 2000) and observed a negative relationship between equity funds and fees. The study reveals that small and medium equity funds outperformed significant equity funds. Furthermore, they also determined that actively managed equity funds are a more effective type or better than passively managed funds.

The relationship between mutual fund size and the total return is being studied. However, (Gorman, 1991) reported that smaller funds determined based on net assets achieved higher returns. In addition to this, he also mentioned that a higher risk could not be solely related to the superior performance of the portfolio.

Some studies based on historical data are also being conducted to determine the relationship between the expenses and returns of the funds. For example (Livingston & O'Neal, 1998) highlighted the importance of expenses and showed an inverse relationship between funds returns and fund expense. (Korkeamaki & Smythe Jr, 2004) analyse the behaviour of investors in their study that they are not satisfied against the ratio of return and expenses to a bank managed and funds fees. Furthermore, (Carhart, 1997) also explains that the expense ratio, portfolio turnover, and load harms the fund's performance in the US market. (Elton, Gruber, Das, & Hlavka, 1993) Study the performance of equity funds in the US mutual fund market. He found a negative relationship between the extent of the performance of stock funds and with expense ratio. (Sharpe, 1966) investigated the performance of 34 US open-ended mutual funds within ten years (1954-1963) and analysed the correspondence between these funds' former and existing performance. He concluded that the mutual fund's performance is more dependable to expense ratio than its investment size.

Otten & Bams (2004) evaluate the reason behind the limited performance of the fund is due to the higher amount of management fees charged. (Elton Gruber & Blake, 1996) have worked on data claims and USA mutual funds. Their results reflect that the underperformance of the mutual fund is mainly due to the excessive expenses charged by investors. Similarly (Wermers, 2000) also explains that the US mutual funds that seem to perform better in the

market (1.3% annually) underperformed. The reason behind this is due to the liable transaction costs.

Research conducted by (Ramasamy & Yeung, 2003) about factors that are ncannota Malaysian fund by financial analysts. The study mentioned several aspects that exploit the fund's performance: dimensions, expense ratio, and extensive prior returns.

(Glenn & Patrick, 2004) found in the study that more cash is required in open-ended than the close-ended fund at the time of redemption, which corresponds that the investment in the open-ended funds is relatively low, resulting in fewer returns. (Brown & Goetzmann, 1995) concluded that a forecast of mutual funds could be done by examining the former achievements. Moreover, they observed that returns are persistent after a specific interval.

(Hartzell, Mühlhofer, & Titman, 2010) Compared different styles of investment management in mutual funds. They hint that active investment management has the advantage of a timely decision by their managers compared to passive holding investment. In one of the studies, (Philpot, Hearth, & Rimbey, 2000)observed that the equity funds outperformed all the other funds. Also, they conclude that investors may seek diversification to start investing in mut-ual funds over bonds.

(Sondhi & Jain, 2010)studied the Indian stock market. They examined 36 Indian equity mutual funds for three years and investigated the market performance and the risk; in the end, they found out that several aspects like proportion and design significantly influence the fund's outcomes. Also, high risk must not associate with profitable returns. Another study (Jayadev, 1996) analyses two growth-oriented mutual funds using monthly returns and applied Jensen, Treynor, and Sharpe measures to determine their performance. It concluded that the MG fund outperformed Magnum express on all possible outcomes. Similarly, (McDonalds, 1974) investigated 123 funds, adopted the same methodology for a period of 10 years (1960-1969) by using monthly data, and showed the performance of these funds was not impressive compared to New York Stock Exchange (NYSE).

There are many types of research published on Pakistan's mutual fund industry (Cheema & Shah, 2006) worked on already researched to make it more comprehensive by taking the annual data set from (1994-to 2004) and concluded that the regulatory authority should step forward to set policies and enhance their efforts to uplift the mutual fund industry as the mutual funds perform one of the key segments to boost corporate governance. (Shah, Hijazi, & Hamdani, 2005)researched outcomes of Pakistani mutual funds and concluded that usually, diversification leads to underperformance. Moreover, they mentioned a comprehensive role in regulating bodies to obtain desired returns by the mutual fund industry. Furthermore, they stated in their article that the annual reports should be complete, concise, and clear so the investors can quickly figure out the risk with anticipated returns before making an investment decision.

(Sipra, 2006) worked on 33 CEF and evaluated that market was performing better than the fund. A minimal number of funds were performing better than the market, but the performance was not customary. Similarly, (Bilawal, Dilawar Khan, Yasir Hussain, & Akmal, 2016) conducted research and concluded that returns of funds indicate combined results, like some ratios exhibit that funds performing decently while other means reflect intense deprivation.

Furthermore, (Nafees, Shah, & Khan, 2011) study both OEF and CEF performance and evaluate n Asset management industry faces considerable macroeconomic call challenges stated on behalf of significant analysis that funds cannot be classified based on magnitude. Moreover, the selection of funds could be considered upon prior performance.

In his work (Iqbal, 2008) realised that if an investor tends to capitalise on the maximum gain on investment, then one should consider that return must be higher than risk. Moreover, fund returns and risk aspects are interrelated, and the future outcomes cannot be forecasted upon prior performance. (Razzaq, Gul, Sajid, Khan, & Razzaq, 2012) Research on 15 conventional funds and evaluate their risk and return also analyse that investors keep away from risky securities, returns and risk aspects are interrelated. Ahmad, Khoso, & Ahmed (2015) examine five close-ended and five open-ended mutual funds, and the study analyses the variation in (NAVs) returns of the (CEF) and (OEF) and concluded that NAV returns of OEF and CEF are almost the same. Ahmad, Salwa, & Dos-Santos (2019) study proclaim the contrast that NAV's return of OE and CE funds examines variance in (NAVs) returns of the (CEF) and (OEF). The outcomes consider a notable distinction between the funds' NAVs return.

## RESEARCH METHODOLOGY

### *Research Design and Sample*

The sample for the study is the NAVs of OEF and CEF running under the laws and regulations of the Islamic Republic of Pakistan, as the focus of the research is to discover the returns of OEF and CEF. The sample is gathered from numerous platforms, mainly the Pakistan stock exchange (PSX), the Mutual Fund Association of Pakistan (MUFAP), and asset management companies.

### *Data and Variables*

The data of this study pertain from the period June 2015 to July 2020. Variables for the research are the (NAVs) of OEF and CEF. The study refers to the Geometric mean or Natural log (LN) function. A group of five CEF and OEF are selected for the study. The selected funds are listed below;

**Table 1: Selected Funds for the study**

S. No	Open-Ended Fund	Type
1	ABL Stock Fund	Equity
2	AKD Cash Fund	Money market
3	Faysal Income & Growth Fund	Aggressive fixed income
4	First Habib Income Fund	Income
5	Meezan Cash Fund SCMM	Money market funds
Close Ended Fund		
1	First capital Mutual fund	Equity
2	First Dawood mutual fund	Balanced
3	Golden arrow selected stock fund	Equity
4	Tri-Star Mutual Fund	Equity
5	HBL growth	Growth

### **Research Model**

The ultimate goal is to determine the returns of a distinct mode of investments with diverse activities. The study refers comprehensive understanding of the performance of selected funds, the data collected from numerous platforms and transformed into time-series data, and all the analyses performed on that stabilised data for five fiscal years from June 2015 till July 2020. The dataset is on a weekly interval.

First, we have to check the normality of data through descriptive tests, Kolmogorov-Smirnov, and Shapiro-Wilk tests. The normality test is essential because we will conclude whether to run a parametric or non-parametric test based on these results. The parametric test will follow to compare the mean of two variables in case data is usually distributed. If data is not normally distributed, then the non-parametric test will follow for the comparison between two independent means. The test is named Mann-Whitney U.

### **Results and Discussion**

Initially, In SPSS, the normality of data was verified by rigorous analyses before comparing mean returns. The parametric or non-parametric tests will apply accordingly.

#### **Normality Test**

To verify the normality of the data, we performed the descriptive analysis in SPSS. For the normality test, the obtained values of mean, median, and mode must be identical, skewness have to be 0, and the threshold value of kurtosis is 3. But the obtained value of the descriptive test means is 39.23, which is not equal to the median value, 14.02. Skewness is 0.82. Moreover, the kurtosis value is -0.89, which is lower than three; that is our threshold value; hence we observe that data is not normally distributed.

**Table 2: Descriptive test results**

<b>Fund</b>	<b>Mean</b>	<b>Median</b>	<b>N</b>	<b>St.Dev</b>	<b>Variance</b>	<b>Kurtosis</b>	<b>Skewness</b>
Closed-End Fund	7.50	7.86	1121	4.18	17.49	-0.84	0.09
Open-end fund	66.47	52.59	1306	36.00	1296.31	-1.42	-0.05
<b>Total</b>	<b>39.23</b>	<b>14.02</b>	<b>2427</b>	<b>39.62</b>	<b>1569.94</b>	<b>-0.89</b>	<b>0.82</b>

Further, we performed Kolmogorov – Smirnov and Shapiro – Wilk in SPSS to examine the normality of data. The null hypothesis for these tests is to consider that the data is usually distributed. There is significant insignificance in results as the (P-value < 0.05). Hence, H0 will be rejected and conclude that data is not normally distributed.

**Table 3: Normality test result**

<b>Fund</b>	<b>Kolmogorov-Smirnov</b>			<b>Shapiro-Wilk</b>			
	<b>Statistic</b>	<b>Df</b>	<b>Sig.</b>	<b>Statistic</b>	<b>Df</b>	<b>Sig.</b>	
Return	Closed-end fund	0.093	1121	0.000	0.954	1121	0.000
	Open-end fund	0.227	1306	0.000	0.839	1306	0.000

#### **Mann Whitney U test**

The Mann-Whitney U test is applied to the data to compare independent means.

Mann Whitney U test is used to consolidate the data into ranks. After the consolidation of data, it computes the difference of values of the ranks, the highest variable will be picked to represent the condition, and the remaining variable will be grouped. So a minor difference can be noted in the final results.

$H_0=$ , The NAVs return of OEF and CEF is equal.

As shown in the table, the mean rank of CEF 579 is lesser than OEF 1759. A notable difference can be observed in the mean rank of the two funds. Overall, the returns of CEF 649,131 also differ from the returns of OEF 2,297,497. The exact significance values of 1 tailed and two-tailed are 0.00, which is lower than 0.05, the threshold value. So we cannot accept  $H_0$  because the mean of CEF and OEF is significantly different.

**Table 4: Non-parametric significance test**

		Ranks		
	Fund	N	Sum of Rank	
Return	Closed-end fund	1121	579.06	649131.00
	Open-end fund	1306	1758.99	227247.00
<b>Total</b>		<b>2427</b>		
		Returns		
	Mann-Whitney U		20250	
	Wilcoxon W		649131	
	Z		-41.35493106	
	Asymp. Sig. (2-tailed)		0	

### **Kruskal Wallis test**

Kruskal Wallis test was performed to verify divergence between the groups of CEF and OEF. This is known as one-way ANOVA on ranks and the augmented Mann-Whitney test. In this research, the group of OEF and CEF were examined by applying the Kruskal Wallis test, and the results are provided below:

### **Kruskal Wallis test on OEF**

$H_0=$ , The NAVs returns of OEF, are equal

In table 5, the highest mean ranking is possessed by the Faysal Income Growth fund (1154.05), whereas ABL Stock Fund is the last, having a value of (131.50). Furthermore, in table 6, the value of test statistics (1171.36) indicates the differences in independent variables of OEF. Here is the notable difference between the net asset values of OEF observed by the Asymp. Sig. Value.

**Table 5: Kruskal Wallis test on (OE**

		Ranks	
S. No	Open Ended Fund	N	
1	ABL Stock Fund	262	131.50
2	AKD Cash Fund	260	523.46
3	Faysal Income & Growth Fund	261	1154.05



4	First Habib Income Fund	262	936.36
5	Meezan Cash Fund SCMM	261	522.54
<b>Total</b>		<b>1306</b>	

**Kruskal Wallis test on CEF**

**Table 6: Non- parametric Kruskal Wallis significance test (OEF)**

Returns	
Kruskal- Wallis H	1171.366
df	4
Asymp. Sig.	2.567E-252

Ho=, The NAVs returns of CEF are equal.

In table 7, the highest mean ranking is possessed by the Golden Arrow Selected Stocks Fund (792.47), whereas First Dawood Fund is the last having a value of (158). Furthermore, in table 8, the value of test statistics (682.548) indicates the differences in independent variables of CEF. Here is the notable difference between the net asset values of CEF observed by the Asymp. Sig. Value.

**Table 7: The Kruskal Wallis test on (CEF)**

Ranks			
Close Ended Fund			
Return	First capital Mutual fund	260	751.72
	First Dawood mutual fund	262	158.46
	Golden arrow selected stock fund	262	792.46
	Tri-Star Mutual Fund	233	738.51
	HBL growth	104	461.29
<b>Total</b>		<b>1121</b>	

**Table 8: Non-parametric Kruskal Wallis significance test (CEF)**

Return	
Kruskal- Wallis H	682.54811
df	4
Asymp. Sig.	2.0938E-146

Kruskal Wallis test concluded that there are unusual hindrances in both groups of independent variables.

**CONCLUSION**

Initially, the mutual fund originated in Pakistan in 1962. By the public offering of NIT (National Investment Trust) as an open-ended mutual fund. Afterwards, a CEF named "Investment Corporation of Pakistan" (ICP) came into existence in 1966. In 2001, "The mutual Funds Association of Pakistan" (MUFAP) was publicly reckoned as a regulator for asset management companies. Further, remarkable progress was seen by the mutual fund industry over some time. This research evaluates the performance comparison of the NAVs return of five CEF and five OEF; the data pertain from June 2015 to July 2020. The result reflects the significant

distinction between the funds' NAVs return. The limited accessibility of data was a crucial hindrance. Numerous close-ended funds are converted or discontinued.

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