Research Paper
Impact Factor: 6.462
Peer Reviewed & Indexed Journal
www.ijmsrr.com

IJMSRR
E- ISSN - 2349-6746
ISSN -2349-6738

PERFORMANCE EVALUATION OF INDEX AND EXCHANGE TRADED FUNDS IN INDIA DURING COVID-19 PANDEMIC

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Abstract
This paper aims to assess the performance of Index and Exchange Traded Funds in India during the Covid-19 pandemic. Secondary data of Index and Exchange Traded Funds have been collected from various sources for the year 2020. Techniques of Beta, Standard Deviation, Sharpe ratio, Treynor's ratio, Jensen's Alpha and Kendall's Coefficient of Concordance have been used to evaluate the performance of these funds during the selected period. Major events linked with Covid-19pandemic are found to have a great impact on the performance of the selected funds. Implications for the investors are derived with the use of various analysis tools to evaluate these funds and take suitable decisions. The research may be extended in the future by using a wider time frame and additional tools for deeper analysis.

Keywords: Index Funds, Exchange Traded Funds, Mutual Funds, Covid-19

1. Introduction

Economic activities in different countries get affected by natural calamities, wars, lawlessness and pandemics. Covid-19 pandemic too, has impacted different economic sectors in many countries and stock exchanges have also exhibitedit through their indices. Indices of stock exchanges playan important role as indicators of the financial markets. Stock market indices measure the prices of markets or its subsets and offer valuable insights into the financial markets. Stock market indices are also investable and through different instruments; investors invest in these indices. Index Funds and Exchange Traded Funds (ETF) are considered for investments by a large number of investors throughout the world.

The Covid-19 outbreak has been traced back to December 31, 2019 in the Wuhan city of China(Dennison, Cheryl, & Baptiste, 2020). Withthe lack of awareness, carelessness and poor precautions, it gave rise to tremendous increase in Covid-19 infected cases.Covid-19 was declared a pandemic by World Health Organization on March 11, 2020(Aslam et al., 2020; Roxby, 2020). China enforced its first lockdown on January 23, 2020 and the rest of the world gradually moved to do the same due to emergence of severe health crisis(Sommervile, 2020). Followed by the disruption in the economic activities at worldwide level, the global economy was predicted to contract by an estimated 4.3% in 2020 which is over $6 trillion short of expected global output by the yearend estimated before the Covid-19 outbreak(Khurana, 2020; PTI, 2020). The severe impact of pandemic on the global trade was expected to have brought it down between 13% and 32% in the year 2020(World Trade Organization, 2020). With the strong impact on the global economy; the pandemic caused a severe downfall in global stock indices too, triggering the '2020 stock market crash' with stock indices such as USA's S&P 500 falling by 35% from the February 19, 2020 to March 23, 2020(Klement, Zubikova, Sevcik, & Lejsek, 2020). Indices in other countries also followed to register similar downside developments too.

The first Covid-19 case was recorded in the Indian state of Keralaon January 30, 2020 and the Indian Federal Government announced a complete national lockdown on March 25, 2020to contain the spread

of pandemic(Singh, 2020; Wikipedia, 2020).By the end of the 21 days lockdown, the government announced an additional 14 days of home quarantine as 'Lockdown 2.0' due to the little reduction in the tally of people infected(De, 2020). Alongside the total tally drastically shooting over 10,000 by mid-April, 'Lockdown 3.0' was launched with new zone restrictions, imposed from May 1, 2020 till May 31, 2020(Singh, 2020). On June 8, 2020 with the severe downfall in the Indian economy due to lockdowns, the government successfully enforced its phased reopening, also known as the 'Unlock 1.0'(Express Web Desk, 2021). Shortly after overtaking United Kingdom to being the fourth worst Covid-19 hit country, India imposed its 'Unlock 2.0' on July 1, 2020by relaxing night curfew, giving clearance for trains and more domestic flights, along with the provision for gathering of over five people at any shop(Singh, 2020). The Covid-19 positive cases having crossed the one million mark in the subcontinent, India launched its 'Unlock 3.0', revoking the night curfew by August 1, 2020; succeeded by 'Unlock 4.0' on August 29, 2020, allowing metro services to resume in the country and voluntary gatherings with 100 people including senior classes for schools (Singh, 2020).

In this scenario, with the widespread disruption in the economic activities including the loss of employment amongst 12.2 crore Indians; it was predicted that India is likely to go into a state of recession being forecasted by the U.N. to contract by 5.9% in 2020 alone, thus resulting in a permanent income loss(Nair, 2020; PTI, 2020).

Followed by the disruptions that emerged in the global markets during this time period, Indian financial markets also reacted and witnessed sharp volatility; with indices like BSE Sensex and Nifty 50 going from positive to showing a severe down trend with the imposition of the nationwide lockdown from February to the end of March 2020 by 38 per cent(Bora & Basistha, 2021). With certain sectors such as tourism and entertainment having their stocks plummeting by more than 40%, the total market cap is said to have lost 27.31% from the starting of the calendar year (Bora & Basistha, 2021a).According to Morningstar, all Indian equity scheme mutual fund categories such as large-caps, ELSS and multi-caps have witnessed their NAV fallen by around 25% between 19thFebruary and 18thMarch, 2020("The effect of COVID-19 on your mutual fund investments," 2020).

The pandemic disrupted economic activities through lockdowns and other restrictions imposed for containing the spread of Coviod-19. The financial markets also started getting affected and which was exhibited through different indicators like indices of various stock exchanges. Performances of these indices depend on many contributory factors of business environment. This paper aims to examine the Indian Index Funds and Exchange Traded Funds' performance during Covid-19 pandemic period.

2. Literature Review

Mutual Funds is a category of financial vehicles operated by professional money managers that give investors an opportunity to pool their money which is then further invested in various securities such as bonds, stocks, commodities, indices and other financial assets by the concerned Fund Managers as an attempt to produce desirable returns in order to circulate it back to the respective investors(Hayes, 2020). An Index Fund matches or tracks the financial market indices (Chen, 2020). An Exchange Traded Fund (ETF) is a funds that is traded on an exchange, often tracks an underlying index and allows trading on stock exchanges without having to buy all the components individually (Voigt, 2020; Chen, 2021; Wikipedia, 2021).

ETFs offer relatively better returns than Index Funds while both have high degree of similarity. The average percentage turnover of ETFs has increased across the years and has led to significant growth through increased interest of investors in ETFs.ETFs have demonstrated technical advantages over other Mutual Funds to attract small investors by providing them with a better diversified investable opportunities with even a small sum of money, lower risk, reduced tracking error, low expense ratio and low volatility; thus offering a better alternative(Mitra, 2011). ETFs have grown at a faster pace as compared with Index Funds in terms of AUMs; with the returns of the ETFs being slightly higher than those of the Index funds due to comparatively better average tracking error and preference towards some ETFs(Mahajan & Saxena, 2014).Impressive returns have been yielded with 37% CAGR (Compounded Annual Growth Rate) in ETFs during 2006-2011period by 82 Exchange Traded Funds which were traded in Indian Stock markets(Prasanna, 2012).ETFs have been found to outperform the market by generating higher returns with lesser volatility than the returns of the NIFTY in equity market and ETFs generated 3% excess annualized returns as compared with market returns; in addition to this Gold ETFs and overseas fund of fund have been reported as superior funds(Prasanna, 2012).

The outbreak of the Corona virus has contributed significant negative affect on the stock market returns all over the affected countries; whereas Asian financial markets reacted more quickly to the outbreak with some of them recovering gradually in the successive stages of the pandemic(Liu, Manzoor, Wang, Zhang, & Manzoor, 2020).The returns on the indices are discovered to be higher during the pre-pandemic period with respect to the declining trend observed up to the end of March after the outbreak of the virus in India(Bora & Basistha, 2021). The amount of confirmed Covid-19 cases having major adverse effects on the performances of various stock indices with those in Asia suffering greater in terms of abnormal returns(Liu et al., 2020). Indian stock markets have been volatile during the Covid-19 pandemic with special emphasis on the BSE Sensex along with NSE stock prices (Bora & Basistha, 2021). This volatility has also been reflected in Index and Exchange Traded Funds as well. The returns of the market reaching the bottom line from 24th March to 6th April suggests the adverse effect of the Covid-19 events on Indian stock markets(Bora & Basistha, 2021).ETFs in China have relatively performed better than index funds on both pre and post expense calculations (Wu, Xiong, & Gao, 2020). ETFs pre-expense returns on average have been seen to slightly perform better than the index funds and Index funds have been found to slightly underperform(Elton, Gruber, & de Souza, 2019). Tracking error of the ETFs is witnessed to have a positive relationship with risk and expenses; with the intraday volatility having a positive impact on the volume of the fund(Sethi, 2016). The decentralization effect of ETFs has been seen to be better than of index funds during the turbulent period(Wu et al., 2020).

Turnover, expense and the quantity of passive funds in a category influence the performance of index funds; while in ETFs the number of passive funds and the amount of security lending done by them under the same category is observed to be an important determinant(Wu et al., 2020). The deviations in the returns of ETFs are low for the funds in comparison to their benchmark return with the paired sample t test values being at 5% (Kurian, 2020). Expense is examined to have played a greater degree of influence on the post-expense returns of the funds(Wu et al., 2020).

Jensen Index, Sharpe Index and Treynor's Index models are generally used to evaluate performance of funds. These models broadly give similar outcomes in the evaluation of mutual funds (Patel, 2020). Hence, we hypothesize:
H_0: There is no significant difference among the outcomes of mutual funds' performance evaluation through Jensen, Sharpe and Treynor indices.

3. Objectives of the Study

This study aims to fulfil following objectives:

I. To examine the performance of selected Index Funds and Exchange Traded Funds (ETFs) during the Covid-19 pandemic.
II. To evaluate the relative performance of selected Index Funds and Exchange Traded Funds(ETFs) through Jensen Index, Sharpe Index and Treynor's Index models.
III. To examine the degree of agreement through Kendall's Coefficient of Concordance among ranks assigned to selected Index Funds and Exchange Traded Funds by Jensen Index, Sharpe Index and Treynor's Index models.

4. Methodology

Secondary data has been collected for this study. Secondary data for this study has been collected from the websites of Money control (www.moneycontrol.com), AMFI (Association of Mutual Funds of India) and the respective mutual fund companies. ETFs and Index Funds of Assets under Management (AUM) above INR 200 Crores (INR 2 billion) have been selected for the purpose of evaluation. Smaller funds have been excluded from the analysis. The evaluation of the performance of the selected ETF and Index funds has been done through Standard Deviation, Alpha (Differential Return), Beta, Jensen Index, Sharpe Index, Treynor's Index models and Kendall's Coefficient of Concordance.

Alpha indicates the excess returns delivered by an investment in comparison to the returns of the benchmark index(Pareto, 2021). The higher the alpha value, betteris performance of the fund as compared with benchmark index.

Betameasures a fund's volatility. A lower value of beta implies that the fund would be giving more predictable and similar returns in the future whereas a higher beta implies more risk and unpredictability but a higher return potential (McClure, 2020).

Standard deviation indicates the variation of an investment's returns from its average return. It measures volatility and risk. The higher the value of the standard deviation, the more unpredictable is the price action, and thus, the greater the risk(Allen, 2017; Marshall, 2020).

Jensen index is an index that whether an investment has outperformed the market index by using Capital Asset Pricing Model("Jensen Index Law and Legal Definition | USLegal, Inc.," n.d.).

The Sharpe ratio is a tool used by investors to assess the return of an investment by comparing to the amount of risk taken to generate it(Marshall, 2020; *Definition of Sharpe Ratio - The Economic Times*, n.d.). The higher the value of the ratio, the more superior it is considered to be in comparison with its peers.

Treynor ratio indicates the excess returns generated for each unit of risk taken in a portfolio(Kenton, 2020). The higher Treynor ratio shows the ability of the fund to deliver higher returns with respect to risk taken.

Kendall's W(Kendall's Coefficient of Concordance) is used to assess degree of agreement from 0 (no agreement) to 1 (perfect agreement) and is a non-parametric statistic(Garg & Gupta, 2014; Glen., 2016; Han & Fink, 2017).

These techniques give better insight into the performance of funds from different perspectives.

5. Data Analysis and Interpretation

Lockdowns have been imposed by various Governments from time to time to control Covid-19 pandemic. These lockdowns tend to slow down the economic activities and which get indicated through stock indices as well. Table-1 exhibits the timeline of lockdowns in India during the year-2020.

Table1. Timeline of Lockdowns in India (Year-2020)

Phase-1	25-03-2020 to 14-04-2020
Phase-2	15-04-2020 to 03-05-2020
Phase-3	04-05-2020 to 17-05-2020
Phase-4	18-05-2020 to 31-05-2021

Source: Adapted from"Covid-19 India timeline: Looking back at pandemic-induced lockdown and how the country is coping with the crisis | The Indian Express," 2021

The adverse impact of these lockdowns is visible on Index and Exchange Traded Funds' performance in Table-3.

Table-2 exhibits the timeline of unlocks in India during the year-2020 and which have triggered favourable impact on the Index Funds and Exchange Traded Funds in Table-3.

Table2. Timeline of Unlock

Unlock-1.0	01-06-2020 to 30-06-2020
Unlock-2.0	01-07-2020 to 31-07-2020
Unlock-3.0	01-08-2020 to 31-08-2020
Unlock-4.0	01-09-2020 to 30-09-2020
Unlock-5.0	01-10-2020 to 31-10-2020
Unlock-6.0	01-11-2020 to 30-11-2020
Unlock-7.0	01-12-2020 to 31-12-2020

Source: Adapted from"Covid-19 India timeline: Looking back at pandemic-induced lockdown and how the country is coping with the crisis | The Indian Express," 2021

Table-3 exhibits the monthly returns of Index and Exchange Traded Funds in India with Assets under Management (AUM) above INR 200 Crores (INR 2 billion) from December 2019 to February 2021. Phase-1 of lockdown started on March 25, 2020 and highest negative change has been seen in the month of March 2020. These funds recovered in the month of April. With the ease in restrictions due to unlock, many sectors started reviving and it was also reflected in the monthly Index and Exchange Traded Funds' performance from June 2020 to December 2020.

Research Paper
Impact Factor: 6.462
Peer Reviewed & Indexed Journal
www.ijmsrr.com

IJMSRR
E- ISSN - 2349-6746
ISSN -2349-6738

Table 3. Monthly returns of Index and Exchange Traded Funds

Scheme Name	Feb'21	Jan'21	Dec'20	Nov'20	Oct'20	Sep'20	Aug'20	Jul'20	Jun'20	May'20	Apr'20	Mar'20	Feb'20	Jan'20	Dec'19
BHARAT 22 ETF Index Funds/ETFs	9.40%	0.10%	7.88%	18.50%	0.70%	-10.77%	5.26%	0.18%	2.78%	-2.65%	12.27%	-23.45%	-9.98%	-3.76%	-1.73%
CPSE ETF Index Funds/ETFs	16.69%	-4.97%	7.26%	14.90%	-1.18%	-11.26%	6.48%	-1.09%	0.52%	-0.98%	11.32%	-14.22%	-8.95%	-12.40%	-0.36%
HDFC Index Fund - Nifty 50 Plan Index Funds/ETFs	1.85%	-2.73%	6.64%	11.39%	2.13%	-1.94%	2.93%	6.30%	4.84%	-2.78%	19.33%	-23.29%	-6.37%	-1.82%	0.91%
HDFC NIFTY 50 ETF Index Funds/ETFs	1.88%	-2.71%	6.67%	11.42%	2.15%	-1.92%	2.96%	6.35%	4.88%	-2.76%	19.47%	-23.24%	-6.33%	-1.80%	0.94%
ICICI Prudential Nifty ETF Index Funds/ETFs	1.89%	-2.71%	6.68%	11.42%	2.14%	-1.92%	2.95%	6.35%	4.87%	-2.75%	19.36%	-23.16%	-6.32%	-1.77%	0.94%
ICICI Prudential Nifty Index Fund - Growth Index Funds/ETFs	1.82%	-2.74%	6.61%	11.38%	2.10%	-1.98%	2.91%	6.31%	4.84%	-2.95%	19.29%	-23.06%	-6.40%	-1.78%	0.90%
Next 50 Index Fund - Growth Index Funds/ETFs	4.76%	-3.16%	5.69%	10.96%	0.32%	-0.52%	-0.14%	4.39%	5.20%	-0.19%	16.47%	-20.42%	-6.23%	-0.09%	-0.87%
LIC MF ETF - Nifty 100 Index Funds/ETFs	2.18%	-2.79%	6.54%	11.31%	1.89%	-1.74%	2.52%	6.12%	4.94%	-2.41%	19.09%	-22.77%	-6.33%	-1.56%	0.69%
LIC MF ETF - Nifty 50 Index Funds/ETFs	1.84%	-2.73%	6.68%	11.37%	2.16%	-1.87%	2.94%	6.40%	4.88%	-2.73%	19.45%	-23.18%	-6.31%	-1.76%	0.94%
LIC MF ETF - Sensex Index Funds/ETFs	1.12%	-3.29%	6.97%	11.40%	2.57%	-2.06%	2.79%	6.59%	4.86%	-3.76%	19.27%	-22.85%	-5.94%	-1.41%	1.18%
Motilal Oswal Nasdaq 100 ETF (Most Shares NASDAQ 100) Index Funds/ETFs	-1.36%	2.37%	4.03%	6.22%	-2.23%	-5.66%	9.60%	4.53%	4.16%	0.79%	4.19%	-1.20%	-2.57%	4.75%	3.55%
Nippon India ETF Junior BeES Index Funds/ETFs	4.81%	-3.11%	5.75%	11.02%	0.39%	-0.56%	-0.08%	4.46%	5.27%	-0.13%	16.63%	-20.10%	-6.18%	-	-0.83%
SBI - ETF Nifty 50 Index Funds/ETFs	1.00%	-2.72%	6.68%	11.42%	2.15%	-1.92%	2.96%	6.35%	4.88%	-2.74%	19.47%	-23.24%	-6.33%	-1.79%	0.94%
SBI - ETF Nifty Bank Index Funds/ETFs	5.17%	-2.12%	4.84%	23.87%	7.43%	-9.93%	9.75%	-1.54%	7.04%	-10.40%	18.25%	-35.21%	-5.46%	-3.95%	0.68%
SBI - ETF Nifty Next 50 Index Funds/ETFs	4.81%	-3.11%	5.76%	11.03%	0.39%	-0.59%	-0.08%	4.47%	5.28%	-0.17%	16.65%	-20.15%	-6.19%	-0.01%	-0.85%
SBI - ETF SENSEX Index Funds/ETFs	0.32%	-3.29%	6.95%	11.42%	2.55%	-2.12%	2.81%	6.60%	4.89%	-3.75%	19.28%	-22.84%	-5.93%	-1.40%	1.11%
SBI Nifty Index Fund - Regular Plan - Growth	1.84%	-2.79%	6.61%	11.41%	2.10%	-1.97%	2.92%	6.32%	4.84%	-2.86%	19.33%	-23.47%	-6.41%	-1.87%	0.87%
UTI NIFTY Exchange Traded Fund Index Funds/ETFs	-0.70%	-2.71%	6.68%	11.42%	2.15%	-1.92%	2.96%	6.35%	4.88%	-2.74%	19.47%	-23.25%	-6.33%	-1.79%	0.94%
UTI Nifty Index Fund - Growth Index Funds/ETFs	1.87%	-2.72%	6.66%	11.42%	2.14%	-1.94%	2.95%	6.35%	4.87%	-2.77%	19.45%	-23.27%	-6.36%	-1.81%	0.92%
UTI Nifty Next 50 Exchange Traded Fund Index Funds/ETFs	4.82%	-3.11%	5.77%	11.03%	0.39%	-0.45%	-0.07%	4.47%	5.35%	-0.15%	16.67%	-20.15%	-6.18%	0.01%	-0.83%
UTI SENSEX Exchange Traded Fund Index Funds/ETFs	1.16%	-3.29%	6.95%	11.42%	2.55%	-2.12%	2.81%	6.60%	4.89%	-3.74%	19.29%	-22.85%	-5.93%	-1.40%	1.11%

Source: Adapted from www.moneycontrol.com

Table-3 exhibits the impact of lockdowns and unlocking decisions on the Index Funds and Exchange Traded Funds.

Table 4.Risk Ratios

Index Funds/ETFs	AuM (Cr)	Standard Deviation	Beta	Sharpe Ratio		Treynor's Ratio		Jenson's Alpha	
				Value	Rank	Value	Rank	Value	Rank
BHARAT 22 ETF	7119.18	23.5	0.98	0	14	0	7	-0.06	12
CPSE ETFIndex Funds/ETFs	13986.36	25.7	0.81	-0.33	15	-0.1	8	-15.68	20
HDFC Index Fund - Nifty 50 PlanIndex Funds/ETFs	2576.78	21.35	0.99	0.49	6	0.1	4	-0.47	18
HDFC NIFTY 50 ETFIndex Funds/ETFs	828.82	21.39	0.99	0.51	4	0.11	3	-0.08	13
ICICI Prudential Nifty ETFIndex Funds/ETFs	2086	21.31	0.99	0.51	4	0.11	3	1.18	2
ICICI Prudential Nifty Index Fund – Growth Index Funds/ETFs	1375.23	21.18	0.98	0.48	7	0.1	4	0.53	8
ICICI Prudential Nifty Next 50 Index Fund – GrowthIndex Funds/ETFs	1007.88	20.12	0.98	0.17	13	0.04	6	-0.1	14
LIC MF ETF - Nifty 100Index Funds/ETFs	408.84	20.95	0.99	0.46	9	0.1	4	-0.28	16
LIC MF ETF - Nifty 50Index Funds/ETFs	659.23	21.39	0.99	0.51	4	0.11	3	-0.06	12
LIC MF ETF – SensexIndex Funds/ETFs	528.13	21.69	0.99	0.56	2	0.12	2	0.02	10
MotilalOswalNasdaq100 ETF	2989.46	25.81	0.3	0.93	1	0.8	1	21.35	1
Nippon India ETF Junior BeESIndex Funds/ETFs	1528.95	20.24	0.99	0.22	12	0.05	5	0.83	6
SBI - ETF Nifty 50Index Funds/ETFs	95066.8	21.45	1	0.49	6	0.11	3	0.86	5
SBI - ETF Nifty BankIndex Funds/ETFs	3852.39	29.56	1	0.39	10	0.12	2	-0.26	15
SBI - ETF Nifty Next 50Index Funds/ETFs	735.15	20.29	0.99	0.22	12	0.04	6	0.77	7
SBI - ETF SENSEXIndex Funds/ETFs	42465.91	21.68	0.99	0.55	3	0.12	2	0.92	4
SBI Nifty Index Fund – Growth Index Funds/ETFs	924.47	21.33	0.99	0.47	8	0.1	4	0.33	9
UTI NIFTY Exchange Traded FundIndex Funds/ETFs	24315.37	21.42	0.99	0.46	9	0.1	4	-0.94	19
UTI Nifty Index Fund – GrowthIndex Funds/ETFs	3291.85	21.38	0.99	0.5	5	0.11	3	-0.29	17
UTI Nifty Next 50 Exchange Traded Fund Index Funds/ETFs	471.82	20.28	0.99	0.23	11	0.05	5	1.05	3
UTI SENSEX Exchange Traded Fund Index Funds/ETFs	13027.79	21.69	0.99	0.56	2	0.12	2	0	11

Source: Adapted from www.moneycontrol.com

Table-4 exhibits Assets under Management, Standard Deviation, Beta, Sharpe Ratio, Treynor's Ratio and Jenson's Alpha of the selected Index/Exchange Traded funds. Standard Deviation indicates the volatility of the fund in the last three years. Lowest Standard Deviation is 20.12 of ICICI Prudential Nifty Next 50 Index Fund which indicates higher predictable performance while SBI - ETF Nifty Bank Index Fund/ETF has highest standard deviation of 29.56 which indicates low predictable performance. Beta indicates the volatility of the fund compared with similar funds. Lowest beta has been found to be 0.3 of Motilal OswalNasdaq 100 ETF amongst the selected funds which suggests higher predictive performance as compared with similar funds in the market. SBI - ETF Nifty 50Index Fund/ETF and SBI - ETF Nifty Bank Index Funds/ETF have highest beta of 1which suggests lowest predictive performance.

Sharpe ratio of MotilalOswalNasdaq 100 ETF has been found to be highest as 0.93 which suggests the fund has delivered better returns for the risk taken while it is lowest as -0.33 for CPSE ETF Index Fund/ETF which suggests that fund could not generate better returns for the risk taken. Treynor's ratio of MotilalOswalNasdaq 100 ETF has been found to be highest as 0.8 which suggests the fund has delivered excess returns for the risk taken while it is lowest as -0.01 for CPSE ETF Index Fund/ETF which suggests that fund did not generate excess returns for the risk taken. Jenson's alpha of MotilalOswalNasdaq 100 ETF has been found to be highest as 21.35 which suggests the fund has beaten the market in delivering returns while it is lowest as -15.68 for CPSE ETF Index Fund/ETF which suggests that fund did not beat the market to deliver returns.

Kendall's W Test

Kendall's W Test (Kendall's Coefficient of Concordance) has been used to evaluate the level of agreement among rankings of Sharpe Ratio, Treynor's Ratio and Jenson's Alpha for selected Index Funds and Exchange Traded Funds.Kendall's W Test has been used for the hypothesis testing.

Table 5. Ranks of Sharpe, Treynor and Jenson

	Mean Rank
Sharpe Rank	2.24
Treynor Rank	1.19
Jenson Rank	2.57

Table-5 exhibits mean rank of Sharpe Ratio as 2.24, Treynor Ratio as 1.19 and Jenson Alpha Rank as 2.57.

Table 6. Test Statistics

N	21
Kendall's W[a]	.559
Chi-square	23.487
df	2
Asymp. Sig.	.000

Table 6. Test Statistics	
N	21
Kendall's W[a]	.559
Chi-square	23.487
df	2
Asymp. Sig.	.000
a. Kendall's Coefficient of Concordance	

Table-6 exhibits the value of Kendall's Coefficient of Concordance as .559 and p value less than 0.05 which suggests significance in the relationships of Sharpe, Treynor and Jenson. Level of agreement between the ranks of Sharpe, Treynor and Jenson is moderate. Hence, hypothesis testing results do not support the hypothesis.

Conclusion

Lockdown and unlock phases have impacted the performance of the Index/Exchange Traded Funds. Maximum negative impact has been of the first lockdown in March 2020 while subsequent lockdowns have shown lesser negative changes. With unlock phases, monthly returns of Index and Exchange Traded Funds have improved. MotilalOswalNasdaq 100 ETF has shown best performance and CPSE ETF Index Fund/ETF as worst performance as per Sharpe Ratio, Treynor's Ratio and Jenson's Alpha.Level of agreement between the performance based ranks of Index and Exchange Traded Funds delivered by Sharpe, Treynor and Jensonratios has been found to be moderate in this study. These techniques can be used by investors to evaluate performance of Index and Exchange Traded Funds for informed decision making.

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