

EVALUATING THE PERFORMANCE OF SELECTED NIFTY 50 EXCHANGE-TRADED FUNDS: AN EMPIRICAL ANALYSIS

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ABSTRACT

An ETF is a hybrid type of mutual fund that can be exchanged on the stock market as shares or stocks. The amount of money mobilized and the variety of products available have both increased significantly in the previous few years for the ETF sector. It was thought vital to assess the performance of Indian ETFs using a variety of widely used performance indicators. The analysis is conducted on a number of chosen ETFs that are listed on the NSE India. The three exchange-traded funds out of 17 Nifty 50 Index namely Quantum Nifty 50 ETF, ICICI Prudential Nifty 50 ETF, and HDFC Mutual Fund-HDFC nifty ETF are subject of this study. The nature of the current investigation is empirical. In order to rank the ETFs according to their exceptional performance, the study analyses the returns generated by the chosen ETFs and compares them to the returns generated by their respective benchmark indices using a variety of performance ratios (Sharpe, Treynor, Jensen's alpha, etc) calculated for three financial years (April 2020 to March 2023).

Keywords: Benchmark, ETF (Exchange – Traded funds), Jensen Ratio, Sharpe Ratio, Treynor Ratio.

Introduction

A closed-ended and open –ended index fund hybrid known as an Exchange Traded Fund (ETF) is publicly traded, just like a closed-ended index fund, and it issues and reimburses units in response to changes in demand, just like an open-ended fund. (Chandra, 2012)

Access to a whole index, market, or specified portfolio strategy is one of the advantages of an ETF while being far less complicated. Similar to a typical share that can be traded every day, an exchange traded fund offers diversity because its underlying assets are a comprehensive index or portfolio. Their investment objective is to provide results that equal those of a publicly available index in terms of price and yield. (Hehn, 2005)

ETFs' enhancement is regarded to be the cause of their growing popularity. ETFs and index monitoring funds, which are traded on a stock exchange like equities, have a lot in common. The majority of ETFs are registered open ended mutual funds in the countries where they are used. Every exchange traded fund is designed to monitor a particular index or stock portfolio. They offer a wide variety of asset classes, marketplaces, and important businesses, as well as investing strategies. (Hehn, 2005).

Even while ETFs typically fully replicate the underlying index, they can benefit from optimization and direct representation. ETFs replicate indices and employ representation sampling as their investing strategy.

Literature Review

Exchange Traded Funds (ETFs) are a prime example of financial innovation since they offer investors a special combination of advantages by combining the advantages of mutual funds and

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common stocks. The majority of studies examined the development and performance of equity funds. Some of the pertinent research has been carefully examined to ensure that the concept is fully understood:

In their research paper "Critical Evaluation of selected gold exchange traded funds with respect to benchmark indices" Wachasundar & Gidwani (2022) used average annualized returns, standard deviation, Jensen alpha, Sharpe ratio, Sortino ratio, and Treynor ratio to evaluate the performance of chosen ETFs from April 2011 to March 2020. The findings demonstrate that the ETFs significantly outperform both the additional benchmark S&P BSE Sensex and their underlying index, the London Bullion Market Association (LBMA) Benchmark.

In their article "A Study on Best Performance Selected Gold ETFs in India," Rn & Reddy (2021) examine gold ETFs in order to assess risk associated with new securities that are entering the stock market. The alpha, beta and standard deviation of the chosen ETFs were calculated using Treynor's performance index, Sharpe's performance index and Jensen's performance index. The study's findings indicate that all 11 gold ETFs have positive values, outperforming the market index as a whole.

In their study paper "Evaluating the Tracking Performance of Index Mutual Funds and Exchange Traded Funds in India", Dhabolkar & Reddy (2019) examined the effectiveness of index mutual funds and ETFs. The study found that compared to other mutual funds, index mutual funds have a substantially higher tracking error. Regression analysis has demonstrated that ETF fund managers can build a portfolio that more closely resembles the chosen index than its alternative.

Papers on Exchange Traded Funds (ETFs) literature review reveals that ETFs exceeded its benchmarks.

Statement of the Problem

From 8.26 trillion on April 30, 2013 to 41.62 trillion on April 30, 2023, the AUM of the Indian MF Industry climbed more than five times in ten years. (<https://www.amfiindia.com/indian-mutual>). Although the ETF market is expanding, there is still a long way to go.

Few studies have examined the performance of ETFs in India compared to the efficacy of mutual funds products; hence the research's objective is to assess ETF performance from a risk- return perspective. Performance analysis might be challenging for the average investor. Therefore, it is essential to assess ETF performance so that retail investors may choose which ETFs to invest in with knowledge.

Objectives

Present study is intended:

- To assess the chosen exchange-traded funds' performance to the Nifty 50.
- To make recommendations to ETF investors for better choices.

Methodology

The current study is based on secondary data that was obtained from official websites (NSE India, the RBI website, and yahoo finance) for Exchange Traded Funds the Nifty 50 and Treasury bill (risk free assets). This study concentrated on the risk and return elements of these schemes to compare them to the market. The performance of these Exchange Traded Funds was assessed using a variety of financial methods i.e. Beta, Standard deviation, Sharpe, Treynor and Jensen Ratio. The current study is using a descriptive research design.

Scope of the Study

Three Exchange Traded Funds were included in this analysis for the time frame of April 1, 2020 to March 31, 2023. To assess these schemes' performance, the annual returns of the chosen schemes were compared with the benchmark Nifty 50 returns.

A brief profile of the chosen ETFs is provided in Table 1:

Table 1

Name	Symbol	Underlying	Launch Date
ICICI prudential nifty 50 etf	ICICINIFTY	Nifty 50	20-03-2013
Quantum nifty 50 etf	QNIFTY	Nifty 50	10-07-2008
Hdfc Nifty 50 etf	HDFCNIFETF	Nifty 50	16-12-2015

Source: www.nseindia.com

Research Tools for Analysis

A variety of techniques, including average returns, standard deviation, beta, Sharpe, Treynor and Jensen ratios, are used to analyze the data.

- **Beta:** One of a mutual fund's most important characteristics is its "beta". A mutual fund's beta, which can be any value above or below zero, is a numerical indication of its relative risk. We can assess a mutual fund's risk level in relation to its benchmark using beta. (<https://zerodha.com>). A lower beta means that the investment has been less volatile than the benchmark and vice-versa.
- **Standard Deviation:** The degree to which a risk deviates from the anticipated result can be determined. The SD measures how far a group of data values deviate from the average (expected result). The volatility of a stock increases with the standard deviation.
- **Sharpe Ratio:** The ratio determines the amount of profit made for every unit of risk encountered. The performance of a fund is assessed by the Sharpe ratio. (<https://zerodha.com>)

$$\text{Sharpe Ratio} = \frac{\text{Fund Return} - \text{Risk free return}}{\text{Standard Deviation of the fund}}$$

- **Treynor Ratio:** the ratio measures the excess returns of a financial instrument or a portfolio for each additional unit of risk it assumes. (<https://groww.in>)

$$\text{Treynor Ratio} = \frac{\text{Fund Return} - \text{Risk free return}}{\text{Beta of the fund}}$$

- **Jensen Ratio:** Alpha is the mutual fund's excess return over the benchmark return on a risk-adjusted basis. (<https://zerodha.com>)

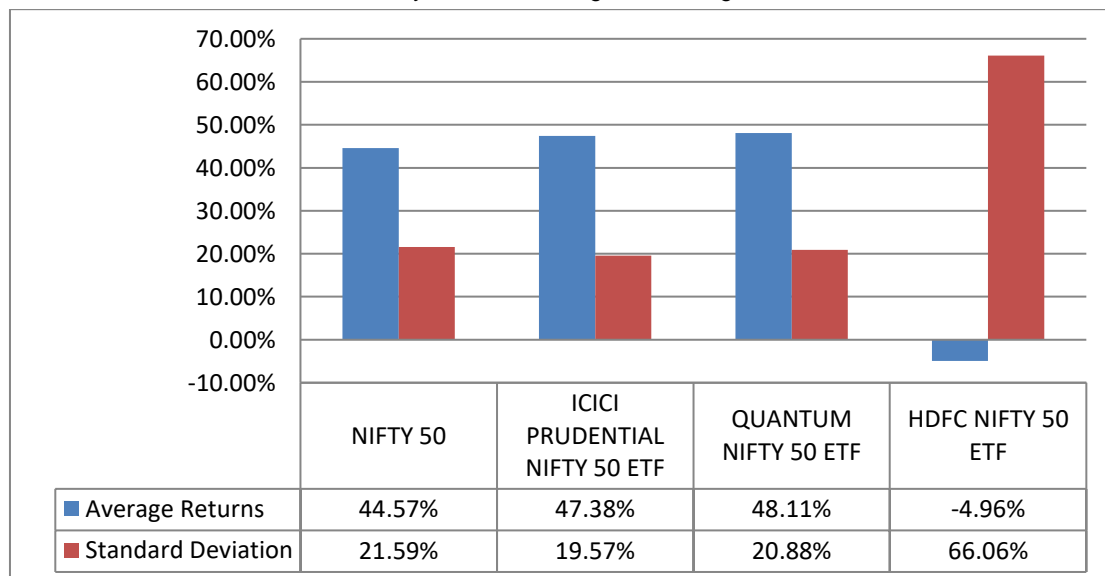
Mathematically,

Jensen ratio = (Portfolio return) – (Risk free return + beta * (benchmark return – Risk free return))

Data Analysis and Interpretation

Combined Average Returns and Standard Deviation

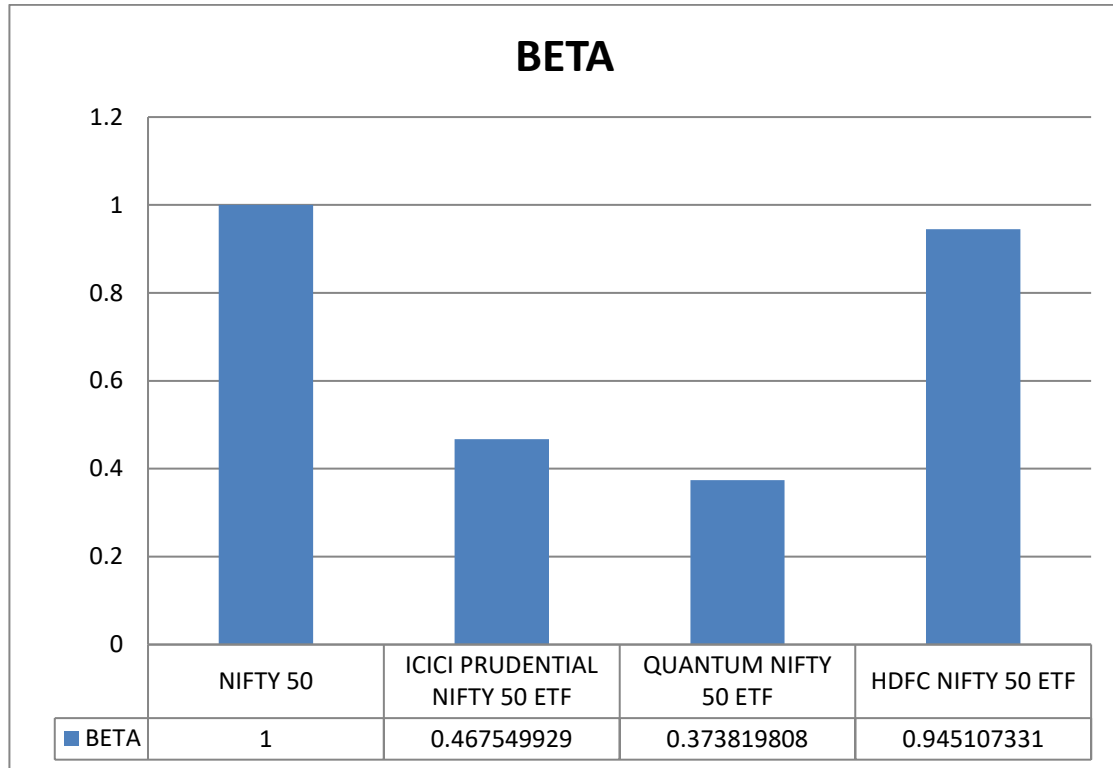
Nifty 50 has shown an average return of 44.57%, among the chosen equity ETFs the highest average return is given by Quantum Nifty 50 ETF at 48.11% followed by ICICI Prudential Nifty 50 ETF at 47.38%. On the other hand, HDFC Nifty 50 ETF has negative average returns i.e. -4.96%



Source: Computed by MS Excel

Nifty 50 has displayed a standard deviation of 21.59% whereas HDFC Nifty 50 ETF has the highest standard deviation of 66.06% among the chosen equity ETFs, making it the riskiest ETF. ICICI Prudential Nifty 50 ETF has the lowest standard deviation of 19.57%, making it the least risky ETF among the selected ETFs.

Beta



Source: Computed by MS Excel

According to the data, all ETFs have beta values lower than 1, which suggests that they are less volatile than the Nifty 50 and have links to market defense.

Sharpe Ratio

ETF	Sharpe Ratio	Rank
ICICI Prudential Nifty 50 ETF	-8.28011	3
Quantum Nifty 50 ETF	-6.74918	2
HDFC Nifty 50 ETF	-2.14214	1

Source: Computed by MS Excel

The Sharpe Ratio, as we all know, shows how well a fund has performed in relation to the risk it has taken. A negative Sharpe ratio means that an ETF would perform better than a risk-free asset.

The analysis found that all of the selected ETFs had negative Sharpe ratios, although HDFC Nifty 50 ETF had the good Sharpe Ratio of the three chosen ETFs, at -2.14.

Treynor Ratio

ETF	Treynor Ratio	Rank
ICICI Prudential Nifty 50 ETF	-3.46556	2
Quantum Nifty 50 ETF	-3.76921	3
HDFC Nifty 50 ETF	-1.49729	1

Source: Computed by MS Excel

We all know that the portfolio performs better the higher the Treynor Ratio. An ETF with a greater Treynor ratio has a higher risk-adjusted return than one with a lower Treynor ratio.

In comparison to the other two ETFs, HDFC Nifty 50 ETF has the best risk adjusted return (Treyner ratio: -1.497), while Quantum Nifty 50 ETF performs the worst and has the lowest risk adjusted return (Treyner ratio:- -3.769).

Jensen Ratio

ETF	Jensen Ratio	Rank
ICICI Prudential Nifty 50 ETF	-2.10036	2
Quantum Nifty 50 ETF	-1.79281	1
HDFC Nifty 50 ETF	-2.38544	3

Source: Computed by MS Excel

As we all know, an upward trend in the fund's alpha indicates that it surpassed its benchmark index. Alternatively, a negative alpha would indicate poor performance. Typically, advisors will recommend ETFs with high Jensen Alpha ratios to investors.

According to the analysis, all the three ETFs have negative alpha.

Findings

Through analyze the performance of a few selected ETFs; we calculated several ratios using data from April 1, 2020 to March 31, 2023. The results are as follows:

- The highest average return is given by Quantum Nifty 50 ETF at 48.11% followed by ICICI Prudential Nifty 50 ETF at 47.38%. On the other hand, HDFC Nifty 50 ETF has negative average returns i.e. -4.96%.
- HDFC Nifty 50 ETF has the highest standard deviation of 66.06% among the chosen equity ETFs, making it the riskiest ETF. ICICI Prudential Nifty 50 ETF has the lowest standard deviation of 19.57%, making it the least risky ETF among the selected ETFs.
- All ETFs have beta values lower than 1, which suggests that they are less volatile than the Nifty 50 and have links to market defense.
- The analysis found that all of the selected ETFs had negative Sharpe ratios, although HDFC Nifty 50 ETF had the good Sharpe Ratio of the three chosen ETFs, at -2.14.
- In comparison to the other two ETFs, HDFC Nifty 50 ETF has the best risk adjusted return (Treyner ratio:- -1.497), while Quantum Nifty 50 ETF performs the worst and has the lowest risk adjusted return (Treyner ratio:- -3.769).
- According to the analysis, all the three ETFs have negative alpha.

Summary and Conclusion

Three ETFs were compared in the study to the Nifty 50 index. Investors have a variety of exchange traded funds to pick from if they just wish to replicate the performance of the benchmark. To make sure that their predicted profits and risk tolerance are appropriately balanced, each investor should analyze certain fundamental financial measures used in the study before deciding which scheme to invest in. All three ETFs' performance was evaluated using return and risk analyses as well as risk – adjusted performance measures. In a three year performance comparison of all ETFs, the ICICI Prudential Nifty 50 ETF and HDFC Nifty 50 ETF both outperformed the Nifty 50 whereas Quantum Nifty 50 ETF saw losses. HDFC Nifty 50 ETF has the most variance in terms of standard deviation, making it the riskiest ETF of the group that was chosen. A beta of less than one indicates that all of the ETFs were less risky than Nifty 50 index. Regarding the ratios, all of the selected ETFs exhibit poor performance.

Limitations and Directions for Future Research

If they conduct any research on this topic, the researcher has the ability to offer assistance and suggestions to assist other researchers in gathering more useful data.

Some of the ideas include the following:

Only three ETFs from the list of Equity Exchange Traded Funds (ETFs) available on the NSE – namely, Quantum Nifty 50 ETF, ICICI Prudential Nifty 50 ETF, and HDFC Nifty 50 ETF are analyzed for the study. The study of more ETFs or an increase in the ETF sample size may be considered.

For the analysis of ETF performance, only a few methodologies are used. To generalize their findings, the researcher can also employ the Information ratio and Sortino ratio.

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