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Performance analysis of exchange traded funds and open-ended mutual funds

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Abstract
The study evaluates the performance of Exchange Traded Funds (ETFs) and Open-Ended Mutual Funds using various financial metrics such as Sharpe Ratio, Treynor Ratio, Jensen's Alpha, Beta, and Standard Deviation over a period of five years. The research aims to compare ETFs and mutual funds in terms of returns, risk, and investment patterns, providing insights into their relative advantages and disadvantages.
Findings suggest that ETFs tend to be lower-cost and follow the market more closely, making them a less risky investment. On the other hand, mutual funds, though often more volatile, offer potential for higher returns if managed effectively. The study concludes that both investment options have their strengths, and investors should choose based on risk tolerance and financial goals.

Keywords: Exchange Traded Funds (ETFs), Open-Ended Mutual Funds, Risk-Adjusted Returns, Sharpe Ratio, Treynor Ratio, Jensen's Alpha, Beta, Standard Deviation, Annual Returns, Net Asset Value (NAV), Portfolio Performance, Investment Strategies, Market Volatility, Financial Metrics, Benchmark Index, Asset Management Companies (AMC), Systematic and Unsystematic Risk, Mutual Fund Industry, Capital Appreciation, Investor Decision-Making

Introduction

The Indian economy offers a wide range of investment options, including equities, bonds, deposits, cash equivalents, real estate, commodities, mutual funds, and exchange-traded funds (ETFs). Investors select their investment avenues based on factors such as age, income, risk appetite, and financial goals. With the increasing participation of small and medium investors, mutual funds have emerged as a preferred choice due to their ability to provide diversification, professional management, and liquidity. A mutual fund is a collective investment scheme where funds from multiple investors are pooled and managed by professionals to invest in various securities like stocks, bonds, and money market instruments. The introduction of economic liberalization in the early 1990s revolutionized the Indian financial sector, leading to significant changes in investment patterns and a growing mutual fund industry. Mutual funds offer numerous benefits such as tax advantages, lower investment costs, and risk diversification, making them an attractive investment vehicle for those unfamiliar with direct stock market participation. However, mutual funds also have certain limitations, including a lack of control over costs, the absence of personalized portfolios, and the challenge of selecting the right scheme.

On the other hand, ETFs provide an alternative investment option that combines the benefits of mutual funds and stock trading. Unlike mutual funds, ETFs trade on stock exchanges throughout the day at market prices, offering higher liquidity and lower expense ratios. They allow investors to diversify their portfolios while keeping costs low. ETFs track specific indices or sectors and include different categories such as bond ETFs, commodity ETFs, and inverse ETFs. While ETFs offer advantages like lower transaction costs and market transparency, they also have limitations such as single-sector exposure and liquidity concerns.

Literature Review

Dr. Sandeep Bansal, Deepak Garg, and Sanjeev K Saini (2018) [1] have studied Impact of Sharpe Ratio & Treynor's Ratio on Selected Mutual Fund Schemes. This paper examines the performance of selected mutual find schemes, that the risk profile of the aggregate mutual fund universe can be accurately compared by a simple market index that offers comparative monthly liquidity, returns, systematic & unsystematic risk and complete fund analysis by using the special reference of Sharpe ratio and Treynor's ratio. Rashi Goplani and Vishal Bohra (2018) [2] conducted an Analysis of Mutual Fund Performance with Respect to Investor Decision Making. This study analyzes the performance of various mutual fund schemes with respect to investor decision making. The mutual funds have been selected based on CRISIL rankings for the period ending December 2016. The top three ranked schemes under various categories of mutual funds have been selected for analysis. The data compiled from CRISIL is used to predict the future performance which will aid the investor in making an attainable portfolio where his risk and return are optimized. Measures like standard deviation and returns are put to chi-square analysis and further used for basing the future investment decisions with respect to investor perspective. The results of the research display optimum risk-return relationship and identify a diversified portfolio which an investor can make so far as his decisions regarding investments in mutual funds are concerned. The paper attempts to predict the future performance of mutual funds hased on the assumptions that are available in the financial markets. Muralidhar Prasad Ayaluru (Jan 2016) [3] conducted a study on Performance analysis of mutual fund schemes with reference to reliance mutual mutual fund schemes. He made a comparative study of top 10 performing mutual funds of the Reliance Group and identified funds with moderate and high risk. The analysis

was conducted based on NAVs. The benchmarking was done along NSE- Nifty and BSE-Sensex, 91-day treasury bills were considered for comparison with risk-free rates. Sharpe ratio, Jensen ratio and Treynor ratio were also considered to identify the risk and returns of the selected mutual funds. Prabhat Kumar Tripathi and Harmeet Kaur (2018) [4] have done a Performance analysis of the Debt funds available at SBI Mutual Fund and ICICI Prudential Mutual Fund. This paper analyzes the various debt funds of SBI mutual funds and ICICI prudential mutual funds and to compare the performance of the similar schemes of SBI Mutual Fund with ICICI Prudential based on risk and return. The Net asset values for analysing the performance are considered from the Year 2011 to Year 2017. The research affirms that the selected debt fund at SBI Mutual fund performed better as compared to selected ICICI Prudential mutual funds for the period of study under consideration. R. Kaur in his study (Kaur, 2014) [5] evaluates the performance of debt mutual fund schemes in India. The objective of the study is to analyze the risk return relationship among 23open ended mutual fund schemes considered for the purpose of study. The study also examines the return of the selected schemes against the benchmark return. For the purpose of analyses weekly NAV value of the selected schemes were studied from 1st July 2010 to 30th June 2011. The techniques employed for the purpose of study is average, standard deviation, beta, coefficient of determination, Treynor's ratio, Sharpe ratio, Jensen alpha and Fama's model. The study reveals that the debt schemes could not outperform the benchmark return. Mark Grinblatt and Sheridan Titman (2016) [6] conducted a study on mutual fund performance. This article employs the 1975-84 quarterly holdings of a sample of mutual funds to construct an estimate of their gross returns. This sample, which is not subject to survivorship bias, is used in conjunction with a sample that contains the actual (net) returns of the mutual funds. In addition to allowing us to estimate the bias in measured performance that is due to the survival requirement and to estimate total transaction costs, the sample is used to test for the existence of abnormal performance. The tests indicate that the risk- adjusted gross returns of some funds were significantly positive. Dr. Yogesh Kumar Mehta (Feb 2012) [7] has studied Emerging Scenario of Mutual Funds in India: An Analytical Study of Tax Funds. The present study is based on selected equity funds of public sector and private sector mutual fund. Corporate and Institutions who form only 1.16% of the total number of investors accounts in the MFs industry, contribute a sizeable amount of Rs. 2,87,108.01 crore which is 56.55% of the total net assets in the MF industry. It is also found that MFs did not prefer debt segment. Dr Surender Kumar Gupta and Dr. Sandeep Bansal (Jul 2012) [8] have done a Comparative Study on Debt Scheme of Mutual Fund of Reliance and Birla Sunlife. This study provides an overview of the performance of debt scheme of mutual fund of Reliance, and Birla Sunlife with the help of Sharpe Index after calculating Net Asset Values and Standard Deviation. Prof. V. Vanaja and Dr. R. Karrupasamy (2013) [9] have done a Study on the Performance of select Private Sector Balanced Category Mutual Fund Schemes in India. This study of performance evaluation would help the investors to choose the best schemes available and will also help the AUMs in better portfolio construction and can rectify the problems of underperforming schemes. The objective of the study is to evaluate the performance of select Private sector balanced schemes on the basis of returns and comparison with their benchmarks and also to appraise the performance of different category of funds using risk adjusted measures as suggested by Sharpe, Treynor and Jensen.

Objectives of the Research

- To evaluate performance of Exchange traded funds and Equity mutual funds using various performance measured.
- To compare the performance of selected ETFs and Equity mutual funds know the significant excess return over their benchmarks.
- To analyse the fund performance and suggest the best funds based on the results.

Research Design

This study adopts a quantitative research approach to evaluate and compare the performance of Exchange Traded Funds (ETFs) and Open-Ended Mutual Funds. The research focuses on analyzing historical data using various financial performance metrics to assess risk, returns, and investment patterns over a period of five years.

Data Collection

- Secondary Data: The study relies on data from financial sources such as AMC (Asset Management Company) websites, Investing.com, NSE, BSE, and RBI reports.
- Benchmark Data: The selected ETFs and mutual funds are compared against their respective benchmark indices, collected from NSE and BSE official sources.
- Risk-Free Rate: The 365-day Treasury bill yields from the Reserve Bank of India (RBI) serve as a proxy for the risk-free rate.

Statistical Tools Used

- Annual Return
- Standard deviation
- Beta
- Graham-Harvey II Measure

Ratio's

- Sharpe Ratio
- Treynor Ratio
- Jensen's Alpha Ratio

Types of Exchange Traded Funds (ETFs)

- **Bond ETFs:** Might include government bonds, corporate bonds, and stare and local bonds called municipal bonds.
- **Industry ETFs:** Track a particular industry such as technology, banking, or the oil and gas sector
- **Commodity ETFs:** Invest in commodities including crude oil or gold.
- **Currency ETFs:** Invest in foreign currencies such as the Euro or Canadian dollar
- **Inverse ETFs:** Attempt to earn gains from stock declines by shorting stocks Shorting is selling a stock, expecting a decline in value, and repurchasing it at a lower price.

Data Analysis

The study analyses the performance of Exchange Traded Funds (ETFs) and Open-Ended Mutual Funds over a period

of five years (2018–2023) using various financial metrics to evaluate risk, return, and investment efficiency.

Table 1: 2018

Fund Name	Rank	Total Funds
Birla Sun Life Nifty ETF Fund	1	5
Kotak Nifty ETF Fund	2	5
Nippon India ETF Fund	3	5

Table 2: 2019

Fund Name	Rank	Total Funds
Most Shares MSO ETF Fund	1	5
Nippon India ETF Fund	2	5
Kotak Nifty ETF Fund	3	5

Table 3: 2020

Fund Name	Rank	Total Funds
ICICI Pru Nifty ETF Fund	1	5
Birla Sun Life Nifty ETF Fund	2	5
Nippon India ETF Fund	3	5

Table 4: 2021

Fund Name	Rank	Total Funds
Kotak Nifty ETF Fund	1	5
Most Shares MSO ETF Fund	2	5
ICICI Pru Nifty ETF Fund	3	5

Table 5: 2022

Fund Name	Rank	Total Funds
Nippon India ETF Fund	1	5
Birla Sun Life Nifty ETF Fund	2	5
Kotak Nifty ETF Fund	3	5

Table 6: 2023

Fund Name	Rank	Total Funds
Most Shares MSO ETF Fund	1	5
ICICI Pru Nifty ETF Fund	2	5
Nippon India ETF Fund	3	5

Conclusion

This research showed that both ETFs and mutual funds can be good investments, but they work in different ways. ETFs are usually cheaper and follow the market closely, making them a safe choice for some investors. Mutual funds can be riskier but sometimes give higher returns if managed well. By looking at different measures like risk and returns, investors can choose the best option that fits their needs. Both types of funds have their pros and cons, so it's important to pick what matches your investment goals and comfort with risk.

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