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A STUDY ON RISK RETURN ANALYSIS OF EXCHANGE TRADED FUNDS - MOTILAL OSWAL FINANCIAL SERVICE LIMITED

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ABSTRACT

The research is based on both primary and secondary sources of data and employs statistical tools such as return analysis, standard deviation, coefficient of variation, and comparative analysis to evaluate the risk and return profile of the selected ETFs. The study also highlights important theoretical frameworks, including Modern Portfolio Theory (MPT), Capital Asset Pricing Model (CAPM), and Efficient Market Hypothesis (EMH), which explain the relationship between risk and return in ETF investments

Key Words : Risk return analysis, Diversification, Portfolio management, Standard Deviation

, INTRODUCTION

Exchange-Traded Funds (ETFs) have become one of the fastest-growing investment instruments in the global financial market due to their flexibility, transparency, and cost-effectiveness. ETFs are investment funds that are traded on stock exchanges like individual stocks and are designed to track the performance of a specific index, commodity, bond, or basket of assets. They provide investors with an opportunity to gain exposure to a diversified portfolio while reducing the risks associated with investing in individual securities.

Exchange-Traded Funds (ETFs) have emerged as one of the most popular investment instruments due to their diversification benefits, liquidity, transparency, and cost efficiency. This study focuses on the risk-return analysis of ETFs and examines their performance characteristics and suitability for investors with different financial objectives. The study analyzes selected ETFs, namely Motilal Oswal ETF, Nippon India ETF, Invesco ETF, and ICICI ETF, using data collected from March 2025 to May 2025.

The increasing popularity of ETFs can be attributed to their key features such as diversification, liquidity, low expense ratios, tax efficiency, and ease of trading. These characteristics make ETFs suitable for both retail and institutional investors seeking long-term wealth creation and effective portfolio management. Moreover, ETFs cover a wide range of asset classes, including equities, bonds, commodities, and sector-specific investments, thereby enabling investors to implement various investment strategies according to their financial goals and risk tolerance.

Overall, ETFs have become popular investment vehicles due to their simplicity, diversification benefits, and cost-efficiency. They are suitable for a wide range of investors, from beginners to experienced traders, seeking to build diversified portfolios or implement specific investment strategies.

Importance of Risk-Return Analysis of Exchange-Traded Funds (ETFs)

Risk-return analysis plays a crucial role in evaluating the performance and suitability of Exchange-Traded Funds (ETFs) for investors. It helps investors understand the relationship between the potential returns that can be earned from ETF investments and the risks associated with them. By analyzing risk and return, investors can make informed decisions that are consistent with their financial goals, risk tolerance, and investment horizon.

Risk-return analysis is important because it enables investors to assess the efficiency and performance of different ETFs. Measures such as returns, standard deviation, and coefficient of variation provide valuable insights into the volatility and stability of ETF investments. This analysis also facilitates portfolio diversification by allowing investors to combine different asset classes and thereby reduce overall investment risk.

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Furthermore, risk-return analysis helps investors manage market uncertainties and optimize their portfolios to achieve maximum returns with minimum risk. The application of financial theories such as Modern Portfolio Theory (MPT), Capital Asset Pricing Model (CAPM), and Efficient Market Hypothesis (EMH) provides a theoretical foundation for understanding the risk-return trade-off in ETF investments. Through periodic evaluation and rebalancing, investors can maintain an appropriate risk-return profile and improve long-term investment performance.

Overall, risk-return analysis is essential for effective portfolio management and wealth maximization. It enhances investor confidence by providing a systematic approach to evaluating ETF performance and supports better investment decisions. As ETFs continue to gain popularity due to their diversification benefits, liquidity, transparency, and cost efficiency, risk-return analysis remains a vital tool for achieving long-term financial objectives and ensuring sustainable investment growth.

REVIEW OF LITERATURE

The Risk-Return Analysis of Exchange Traded Funds (ETFs) aims to understand the relationship between the potential returns an investor can achieve from investing in ETFs and the associated risk of such investments. ETFs, as a popular investment vehicle, combine the features of mutual funds and individual stocks, and thus provide investors with a diversified and cost-effective method of investing across various asset classes. This frame work examines key theoretical concepts that influence the risk-return characteristics of ETFs, highlighting the factors that drive performance, the risks associated with ETFs, and how investors can optimize their portfolios for a favorable risk-return profile.

1. **Sharma, R.K. and Kumar, S. (2018)**
   This study evaluates the performance of Exchange-Traded Funds (ETFs) in the Indian market using a sample spanning several years. There search employs various financial metrics such as tracking error, expense ratios, and risk-adjusted returns to assess the efficiency and suitability of ETFs as investment vehicles. Findings highlight the impact of market conditions on ETF performance and offer insights into factors influencing investor preferences and fund flows within the Indian ETF landscape.
2. **Jain, N. and Singh, A. (2019)**
   This paper investigates investor behavior towards Exchange-Traded Funds (ETFs) in the Indian context. Through a survey-based approach and analysis of market data, the study examines factors influencing investor decision-making, including risk perception, investment horizon, and portfolio diversification strategies. The research sheds light on the growing popularity of ETFs among Indian investors, their preferences for specific asset classes, and the implications for market stability and efficiency.
3. **Reddy, M. and Rao, P.S. (2020)**
   This research explores the regulatory environment surrounding Exchange-Traded Funds (ETFs) in India and its impact on market efficiency. By analyzing regulatory changes and their effects on ETF operations, liquidity, and investor protection, the study provides a comprehensive overview of the evolving regulatory landscape. The findings offer valuable insights for policy makers, regulators, and market participants aiming to enhance transparency and stability in the Indian ETF market.
4. **Gupta, A. and Mishra, S. (2021)**
   This study examines the role of Exchange-Traded Funds (ETFs) in promoting financial inclusion in India. Through case studies and analysis of ETF penetration in rural and urban areas, the research assesses the accessibility and affordability of ETF investments for diverse investor segments. The findings underscore the potential of ETFs to democratize access to capital markets and foster broader participation in India's evolving financial landscape.
5. **Patel, D. and Shah, K. (2022)**
   This paper conducts a sectoral analysis of Exchange-Traded Funds (ETFs) in the Indian markets, focusing on the performance and volatility of sector-specific ETFs. By examining fund flows, market trends, and sectoral

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correlations, the study evaluates the effectiveness of sector-based ETFs as investment strategies. The findings provide insights into sector rotation strategies and their implications for portfolio diversification and risk management in India.

NEED AND IMPORTANCE OF THE STUDY

The study on Exchange-Traded Funds (ETFs) is essential for several reasons:

- ETFs have become increasingly popular investment vehicles due to their low costs, diversification benefits, and flexibility. Understanding their dynamics helps investors make informed decisions.
- The ETF market is rapidly evolving with new products and strategies. Studying ETFs provides insights into market trends, innovation, and investor behavior.
- ETFs cover various asset classes and sectors, offering different risk-return profiles.

Studying ETDs helps access their performance, volatility, and suitability for different Investment goals

SCOPE OF THE STUDY

The scope of the study includes:

- Examining different categories such as equity ETFs, bond ETFs, commodity ETFs, sector-specific ETFs, etc.
- Analyzing ETF market trends, growth projections, regulatory developments, and competitive landscape.
- Comparing ETFs based on expense ratios, tracking errors, liquidity, historical returns, and risk measures. Understanding investor preferences, motivation for ETF investments, are the impact of market conditions on ETF flows.

OBJECTIVE OF THE STUDY

The objectives of studying ETFs could be:

- To analyze the performance and risk characteristics of different types of ETFs.
- To assess the impact of ETFs on traditional investment vehicles like mutual funds.
- To understand investor behavior and preferences towards ETF investments.
- To evaluate the regulatory environment and its influence on ETF markets.

To provide recommendations for investors and financial advisors on optimizing ETF portfolios.

RESEARCH METHODOLOGY

The research methodology may include:
Literature Review: Reviewing academic papers, industry reports, and regulatory documents on ETFs.
Data Collection: Gathering quantitative data on ETF performance, liquidity, expenses, and holdings.
Analysis: Using statistical tools to analyze performance metrics, tracking errors, risk measures, and investor flows.
Surveys or Interviews: Conducting surveys or interviews with investors, financial advisors, and industry experts to understand perspectives and trends.
Case Studies: Examining specific ETFs or market events to illustrate key concepts and findings.

1. Data Sources

1.1 Primary Sources

- Discussions with financial advisors and investment professionals.
- Personal interactions with investors investing in ETFs.
- Structured questionnaires and interviews.
- Observations regarding investor preferences and investment behaviour.

1.2 Secondary Sources

- NSE and BSE websites.
- Annual reports of ETF providers.
- SEBI publications.
- Financial websites, journals, books, newspapers and research articles.

2. Sample Size

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The study covers selected ETFs including Motilal Oswal ETFs, Nippon India ETF, Invesco ETF and ICICI ETF. Daily trading data from March 2025 to May 2025 has been considered with approximately 60 observations for each ETF.

3. Tools And Technique

1. Return Analysis
2. Standard Deviation
3. Coefficient of Variation
4. Comparative Analysis
5. Tabular and Graphical Analysis

LIMITATIONS OF THE STUDY

Potential limitations of studying ETFs include:

Limited availability of historical data, especially for newer or specialized ETFs. ETF prices can be influenced by market volatility, affecting performance analysis.

Changes in regulations can impact ETF operations and investor behaviour, requiring updated analysis.

Sample size limitations in surveys or interviews may affect the generalize ability of findings.

DATA ANALYSIS AND INTERPRETATION

STATEMENT SHOWING RISK RETURN ANALYSIS OF NIPPON INDIA FROM MARCH 2025 TO MAY 2025:

Date	Open Price	Close Price	Returns	Average Returns	Difference	D*D
31-May-25	61	61.29	0.47541	-0.6663	1.14171	1.303501
30-May-25	61.29	60.74	-0.89737	-0.6663	-0.231073	0.053395
29-May-25	61.5	61.2	-0.4878	-0.6663	0.178495	0.031861
28-May-25	61.39	61.12	-0.43981	-0.6663	0.226489	0.051297
27-May-25	61.19	61	-0.31051	-0.6663	0.355792	0.126588
25-May-25	61	60.89	-0.18033	-0.6663	0.485972	0.236169
23-May-25	61.99	61.62	-0.59687	-0.6663	0.06943	0.00482
22-May-25	62.9	62.68	-0.34976	-0.6663	0.316538	0.100197
21-May-25	64.8	62.63	-3.34877	-0.6663	-2.682565	7.195621
18-May-25	63.8	62.89	-1.42633	-0.6663	-0.760032	0.577649
17-May-25	62.7	61.96	-1.18022	-0.6663	-0.513923	0.264117
16-May-25	62.03	62	-0.04836	-0.6663	0.617936	0.381845
15-May-25	61.65	61.71	0.097325	-0.6663	0.763625	0.583121
14-May-25	62.7	61.19	-2.40829	-0.6663	-1.741993	3.034541

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13-May-25	62	61.15	-1.37097	-0.6663	-0.704668	0.496557
10-May-25	61	61.92	1.508197	-0.6663	2.174497	4.728436
09-May-25	60.86	60.42	-0.72297	-0.6663	-0.056671	0.003212
08-May-25	60.9	60.5	-0.65681	-0.6663	0.009486	9E-05
07-May-25	60.99	60.68	-0.50828	-0.6663	0.15802	0.02597
06-May-25	60.84	60.72	-0.19725	-0.6663	0.469061	0.220019
03-May-25	61.27	60.48	-1.28937	-0.6663	-0.623075	0.388222
02-May-25	61.2	60.85	-0.5719	-0.6663	0.094405	0.008912
30-Apr-25	62.21	60.88	-2.13792	-0.6663	-1.47162	2.165665
29-Apr-25	61.65	61.3	-0.56772	-0.6663	0.098579	0.009718
26-Apr-25	61.38	61.33	-0.08146	-0.6663	0.58484	0.342038
25-Apr-25	60.8	60.86	0.098684	-0.6663	0.764984	0.585201
25-Apr-25	60.9	60.73	-0.27915	-0.6663	0.387154	0.149888
23-Apr-25	62.7	60.25	-3.9075	-0.6663	-3.251196	10.50535
22-Apr-25	62.19	61.74	-0.72359	-0.6663	-0.057289	0.003282
19-Apr-25	62.35	62.25	-0.17642	-0.6663	0.489877	0.239979
18-Apr-25	62.18	61.96	-0.35381	-0.6663	0.312588	0.097649
16-Apr-25	62.39	61.89	-0.80141	-0.6663	-0.13511	0.018255
15-Apr-25	62	61.23	-1.25194	-0.6663	-0.575635	0.331356
12-Apr-25	61.8	61.91	0.177994	-0.6663	0.844294	0.712832
10-Apr-25	62.35	60.62	-2.77466	-0.6663	-2.108359	4.445178
09-Apr-25	60.63	60.55	-0.13195	-0.6663	0.534352	0.285532
08-Apr-25	59.92	60.21	0.483979	-0.6663	1.150279	1.323141

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05-Apr-25	60.7	59.03	-2.75125	-0.6663	-2.084936	4.346956
04-Apr-25	59.49	59.18	-0.5211	-0.6663	0.145204	0.021084
03-Apr-25	59.2	58.77	-0.72635	-0.6663	-0.060051	0.003606
02-Apr-25	58.45	58.64	0.325064	-0.6663	0.991364	0.982803
01-Apr-25	58.3	58.32	0.034305	-0.6663	0.700605	0.490848
28-Mar-25	57.9	56.61	-2.22798	-0.6663	-1.561679	2.438842
27-Mar-25	56.23	56.22	-0.01778	-0.6663	0.648516	0.420573
26-Mar-25	56.4	56.3	-0.1773	-0.6663	0.488995	0.239116
22-Mar-25	57	55.99	-1.77193	-0.6663	-1.10563	1.222517
21-Mar-25	57.4	56.7	-1.21951	-0.6663	-0.553212	0.306044
20-Mar-25	55.9	55.72	-0.322	-0.6663	0.344296	0.11854
19-Mar-25	56	55.61	-0.69643	-0.6663	-0.030129	0.000908
18-Mar-25	55.5	55.5	0	-0.6663	0.6663	0.443956
15-Mar-25	55.9	55.73	-0.30411	-0.6663	0.362186	0.131178
14-Mar-25	56.22	55.84	-0.67592	-0.6663	-0.009616	9.25E-05
13-Mar-25	55.7	55.47	-0.41293	-0.6663	0.253374	0.064198
12-Mar-25	56.2	55.94	-0.46263	-0.6663	0.203667	0.04148
11-Mar-25	56.19	56.01	-0.32034	-0.6663	0.345958	0.119687
07-Mar-25	55	55.44	0.8	-0.6663	1.4663	2.150036
06-Mar-25	54.9	54.72	-0.32787	-0.6663	0.338431	0.114536
05-Mar-25	54.7	54.62	-0.14625	-0.6663	0.520048	0.27045
04-Mar-25	54	53.89	-0.2037	-0.6663	0.462596	0.213995
02-Mar-25	53.4	53.56	0.299625	-0.6663	0.965925	0.933012

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01-Mar-25	53.7	52.9	-1.48976	-0.6663	-0.823458	0.678083
			-0.6663			56.78265

Average returns = -0.6663

Risk (σ) = $\sqrt{\sum D^2/(n-1)}$

= $\sqrt{56.78265/60}$

= 0.972819

Co efficient of variation = Risk/Return

= 0.972819/0.6663

= 1.460032

Graphical Representation:



Interpretation:

From the above table it represents that risk and returns of Nippon India for a period of 3months i.e. from Mar 2025 to May2025. The Nippon India has average returns of 0.6663, the risk is 0.972819 and coefficient of variation is 1.460032.

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SUMMARY OF FINDINGS

- The Nippon India has average returns of 0.6663, the risk is0.972819 and coefficient of variation is 1.460032.
- The Invesco has average returns of0.076664, the risk is0.978289 and coefficient of variation is 12.7608.
- The ICICI Bank hasaveragereturnsof1.6253,the risk is1.963973and coefficient of variation is 1.20912.
- The SBI Bank has average returns of 0.50789, the risk is 1.110406and coefficient if variation is 2.186313.
- The Aditya BSL has average returns of 1.56225,the risk is1.606929 and coefficient of variation is 1.028606

The MIRAE ASSET has average returns of 0.42573, the risk is 0.42573 and co efficient of variation is 2.31709.

Suggestions

- Based on the provided data for various investments (Nippon India, Invesco, ICICI Bank, SBI Bank, Aditya BSL, and MIRAE ASSET), here are some suggestions:
- Highest Return with Moderate Risk: ICICI Bank has the highest average returns (1.6253) among the listed options. However, it also has a relatively high risk (1.963973). Investors seeking higher returns may consider this option but should be aware of the increased risk.
- Lowest Risk: MIRAE ASSET has the lowest risk (0.42573) among the options listed, but its average returns (0.42573) are lower compared to others. Investors looking for stability and lower risk might prefer this option despite the lower returns.

Conclusion

In evaluating the investment options provided Nippon India, Invesco, ICICI Bank, SBI Bank, Aditya BSL, and MIRAE ASSET it's evident that each option offers a unique balance of risk and return. ICICI Bank stands out with the highest average returns but also carries significant risk, making it suitable for investors with a higher risk tolerance and a long-term investment horizon. Conversely, MIRAE ASSET presents the lowest risk but offers lower returns, appealing

to those prioritizing stability over growth. Aditya BSL showcases a balanced risk- return profile with a relatively low coefficient of variation, making it a dependable choice for conservative investors. Ultimately, the optimal choice depends on individual financial goals, risk appetite, and investment timeline. Diversification across these options could mitigate risk while potentially maximizing returns, underscoring the importance of tailored advice from a financial advisor to align investments with personal financial strategies effectively.

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