

PERFORMANCE EVALUATION OF SELECT GOLD ETFs IN INDIA**Dr. K. Raj Kumar**

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Abstract

Gold Exchange-Traded Funds (Gold ETFs) offer a convenient way to invest in gold without the complexities of physical ownership. These funds track the domestic price of gold and represent physical gold in electronic form, making them accessible to investors. This study evaluates the performance of Gold ETFs in India, focusing on their risk and return analysis, and compares their performance over a 10-year period (2014-15 to 2023-24). The research includes 11 Gold ETF schemes traded on the National Stock Exchange (NSE) and utilizes various statistical tools to measure performance, such as Sharpe Ratio, Treynor Ratio, and Jensen's Alpha. It is found that most Gold ETFs provided returns close to the benchmark gold price, with UTI Gold ETF and IDBI Gold ETF emerging as the top performers. While most ETFs delivered solid returns, some, like Axis Gold ETF and Quantum Gold ETF, exhibited higher volatility. The study also reveals that while UTI Gold ETF showed high returns, it had more market sensitivity and risk, making it suitable for risk-tolerant investors. On the other hand, IDBI Gold ETF was more stable, offering consistent returns and lower risk, making it a better option for conservative investors. It is found that Gold ETFs in India offer a viable alternative to physical gold investment, balancing convenience, liquidity, and risk.

Keywords: Gold ETFs, Risk Adjusted Return, liquidity, risk, Sharpe Ratio, Treynor Ratio

Introduction

Gold ETF's Gold ETFs, or Gold Exchange Traded Funds, represent physical gold in either paper or digital form. They make investing in gold easier by tracking the domestic price of physical gold. Each unit of a Gold ETF is roughly equivalent to the price of 1 gram of gold, allowing investors to build a strong gold portfolio over time. Gold ETFs trade on stock exchanges like shares of companies, providing a convenient way for investors to enter the gold market without having to physically own gold. These ETFs invest in gold that is 99.5% pure, which eliminates the risk of buying impure gold from jewelers. They also solve the problems of storage and security associated with physical gold, as the ETFs are held in electronic form and are highly liquid, meaning they can be easily converted into cash at market prices. This makes Gold ETFs an attractive option for small investors, as they can buy in small amounts at lower costs.

Gold ETFs can be bought and sold on major exchanges like the National Stock Exchange and the Bombay Stock Exchange. Even during economic downturns, investing in gold remains popular in India. Investors in Gold ETFs do not own the gold physically but hold cash equivalent to its value, which can be liquidated any time without the hassle of dealing with physical gold. Mutual funds also offer Gold ETFs, collecting money to invest in gold-related assets. Through these funds, investors can buy shares in companies involved in gold mining and trading, providing exposure to the gold market.

Review of Literature

Beyers Bosman (2011) studied the Gold ETFs change the appeal of gold stocks, offering a lower-risk way to invest in gold price movements and significantly influencing analysts' recommendations.

Lixia Wang et al. (2010) found that in China, the conditions are favorable for gold ETFs. If each middle-class Chinese person buys one ounce of gold, it would significantly boost China's gold reserves and provide more investment opportunities. Gold ETFs in China offer benefits like diversification and inflation protection.

Prashanta Athma and Mamatha B. (2012) studied the introduction of gold ETFs and rising gold prices have improved ETF performance compared to index funds. Increasing awareness could make ETFs a top investment choice.

Dr. B. Aarthi (2020), explores into the earlier research done on Exchange Traded Funds (ETFs) focusing primarily on Gold Exchange Traded Funds (Gold ETFs). The purpose of this study is to examine the existing related literature regarding Gold ETFs.

Madhavi Eswara (2015) concluded that Post-financial crash, gold ETFs outperformed other mutual funds and ETFs, making them a valuable part of investment portfolios to hedge against market fluctuations.

Naveen Kumar R. (2016) explored that Gold and equity ETFs haven't consistently delivered high returns. Some equity ETFs performed well short-term, but most gold ETFs reported losses. No clear superiority was found between gold and equity ETFs.

Prabhddeep Kaur and Jaspal Singh (2019) found that Gold ETFs, spot gold, and gold futures tend to converge over time, offering profitable trading opportunities. Gold ETFs address issues like high prices and storage costs associated with physical gold.

Owain AP Gwilym et al. (2010) highlighted the relationship between gold-producing equities and gold prices isn't constant. Investment timing decisions in gold ETFs have often reduced returns by over 1.5% annually.

Sunkara (2017) analyzed the performance of gold and Gold ETFs compared to gold bonds and deposits using absolute return, standard deviation, and CAGR (2013–2017), concluding that physical gold outperformed Gold ETFs with a higher CAGR.

Aggarwal (2014) compared the risk and return of gold and Gold ETFs (2011–2014) and concluded that Gold ETFs have lower variability and perform better than physical gold.

Athma and Mamatha (2017) analyzed the growth of ETFs since their launch using secondary data and metrics like NAV, return, risk, Sharpe ratio, and Treynor's ratio, concluding that the introduction of Gold ETFs and rising gold prices boosted their performance compared to index

funds.

Swain and Samal (2017) studied gold price volatility (2009–2011) using standard deviation and GARCH models, finding that alpha and beta values far from 1 indicate significant volatility in gold prices.

Prachi Kothari and Dr. Sathish Kumar B (2019) observed that over five years, gold generated higher returns than Gold ETFs, with ICICI Gold and UTI Gold performing well. However, ICICI Gold had the highest risk, while UTI Gold had the lowest, highlighting that higher returns come with higher associated risks.

Dr. Joseph James V and Mr. Maninath R (2023) found that Gold ETFs are an attractive option for moderately risk-seeking investors, serving both as a profitable investment and a hedging tool. They also noted that these funds consistently deliver stable returns, regardless of the specific fund or market conditions.

Need for the Study

Gold Exchange Traded Funds (ETFs) are a modern and convenient way to invest in gold without physically owning it. These ETFs are designed to follow the price of gold in the local market and are backed by high-purity gold. Each unit of a Gold ETF represents 1 gram of gold, making it easy for investors to invest in small amounts. Gold ETFs combine the simplicity of gold investment with the flexibility of trading stocks. They are listed on major stock exchanges like NSE and BSE and can be bought or sold at market prices during trading hours, just like any company's shares.

When investors buy Gold ETFs, they are essentially purchasing gold in an electronic form, and when redeemed, they receive cash equivalent to the value of gold, not the physical metal itself. These funds eliminate the challenges of storing, securing, and verifying the purity of physical gold. Transactions are done through dematerialized accounts (Demat) and brokers, making Gold ETFs a hassle-free and secure way to invest in gold. This study is essential to understand the performance of Gold ETFs in India, as they represent a growing alternative to traditional gold investments.

Research Gap

While prior studies have examined the general performance and benefits of Gold ETFs, limited attention has been paid to their comparative analysis across schemes, especially in the Indian market. Few studies assess their risk-adjusted performance or investor-centric outcomes comprehensively. This research bridges that gap by evaluating multiple Gold ETF schemes' performance using key statistical tools.

Objectives of the Study

1. To study the Risk and Return analysis of Gold ETFs in India.
2. To examine the performance evaluation of Gold ETFs in India.
- 3.

Period of the Study:

The study covers a period of 10 years i.e.. 2014-15 to 2023-24 financial years to evaluate the performance of Gold ETFs in India.

Methodology Sources of Data:

The study is mainly based on secondary data sources Articles, Journals, Periodical, Magazines, newspapers and websites.

Sample Size:

There are 11 schemes in NSE India, out of which, data about all the parameters selected for evaluation of performance of selected Gold ETFs funds.

Selection of the Sample:

All the Gold ETFs schemes have been selected based on Asset under Management schemes as on 31st March 2023 which are traded in the NSE.

Statistical Tools:

The data analyzed with help of statistical tools Mean, Standard Deviation, Beta, Correlation, t-test and performance evaluation tools Sharpe ratio, Treynor's Ratio and Jensen's Performance Measure Ratio.

Scope of the study:

The study confined to Gold ETFs in India traded on NSE only during the period 2018 to 2024. The study excluded from other portfolios. The conclusions are drawn since data analysis which are gathered from various secondary sources.

Table-1: Return Analysis of Select GOLD ETFs

Name of the Scheme	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	Average Return
Axis Gold ETF	1.580	37.840	-0.110	16.990	12.980	12.650	13.650
ICICI Prudential Gold ETF	3.000	36.530	0.100	14.810	16.130	11.110	13.610
IDBI Gold ETF	0.270	35.320	4.390	14.100	16.920	11.360	13.730
INVESCO India Gold ETF	1.430	37.880	-0.080	17.210	14.240	11.640	13.720
Kotal Gold ETF	1.390	37.580	-0.100	17.040	13.680	11.640	13.540
Nippon India ETF Gold BeES	3.280	37.220	-0.250	16.660	13.630	11.630	13.700
HDFC Gold ETF	2.520	37.480	-0.090	14.680	15.830	11.130	13.590
UTI Gold ETF	1.610	39.460	-0.710	16.640	14.000	12.580	13.930
Aditya Birla SunLife Gold ETF	3.260	37.390	0.020	14.920	15.180	11.200	13.660

SBI Gold ETF	1.270	37.710	-0.010	16.960	14.090	11.140	13.530
Quantum GoldETF	2.350	38.250	-1.140	15.330	15.180	10.970	13.490
Gold (10Gms)Price	3.170	29.708	7.331	16.645	16.063	12.470	14.230

Source: Secondary Data

The analysis of Gold ETFs' returns from 2018-19 to 2023-24 reveals varying levels of performance compared to the benchmark gold price return (14.23%). The performance analysis of Gold ETFs from 2018-19 to 2023-24 shows that most funds delivered average returns close to the benchmark gold price of 14.23%. UTI Gold ETF was the top performer with an average return of 13.93%, followed by IDBI Gold ETF (13.73%) and INVESCO India Gold ETF (13.72%), which closely tracked gold price trends. Some funds, like Axis Gold ETF and Quantum Gold ETF, showed significant fluctuations, with high returns in certain years and negative returns in others, highlighting their volatility. In contrast, funds like ICICI Prudential Gold ETF (13.61%) and HDFC Gold ETF (13.59%) offered more consistent returns, making them better suited for risk-averse investors. Overall, while gold itself provided the highest return as a direct investment, ETFs like UTI Gold ETF and IDBI Gold ETF emerged as reliable options for stable returns, while risk-tolerant investors could consider volatile funds like Quantum Gold ETF for potentially higher gains.

Table – 2: Risk Analysis

S. No.	Name of the Scheme	Return	Standard Deviation	Beta	Correlation
1	Axis Gold ETF	13.65	13.66	1.45	0.20
2	ICICI Prudential Gold ETF	13.61	12.92	1.37	0.73
3	IDBI Gold ETF	13.73	12.25	1.32	0.87
4	INVESCO India Gold ETF	13.72	13.73	1.47	0.87
5	Kotak Gold ETF	13.54	13.62	1.45	0.87
6	Nippon India ETF Gold BeES	13.70	13.19	1.39	0.87
7	HDFC Gold ETF	13.59	13.36	1.42	0.73
8	UTI Gold ETF	13.93	14.33	1.52	0.87
9	Aditya Birla Sun Life GoldETF	13.66	13.17	1.39	0.87
10	SBI Gold ETF	13.53	13.68	1.46	0.87
11	Quantum Gold ETF	13.49	13.88	1.47	-0.60
	Gold (10Gms) Price	14.23	9.18	1.00	

Source: Secondary Data

Interpretation

The analysis of Gold ETFs shows that most funds delivered returns close to the benchmark gold price return of 14.23%, with UTI Gold ETF leading at 13.93%, followed by IDBI Gold ETF (13.73%) and INVESCO India Gold ETF (13.72%). In terms of risk, UTI Gold ETF had

the highest standard deviation (14.33%), indicating more volatility, while IDBI Gold ETF had the lowest (12.25%), suggesting more stability. The beta values, which measure sensitivity to market movements, were mostly above 1, with UTI Gold ETF showing the highest beta (1.52), meaning it is more reactive to market changes. Many ETFs, like IDBI Gold ETF and UTI GoldETF, had a high correlation (0.87) with gold prices, meaning they tracked gold's performance closely. However, Quantum Gold ETF had a negative correlation (-0.60), implying it moves in the opposite direction of gold, which makes it riskier. Overall, UTI Gold ETF offers high returns but comes with higher volatility and market sensitivity, while IDBI Gold ETF is more stable and closely tracks gold prices, making it more suitable for risk-averse investors. Quantum Gold ETF may be more appropriate for those looking for diversification but willing to accept higher risk.

Table-3: Performance Evaluation of Gold ETFs

S. No.	Name of the Scheme	Sharpe Ratio	Rank	Treynor Ratio	Rank	Jensen Performance Measure	Alpha Value	Ranking Values	Rank
1	Axis GoldETF	0.472	7	4.449	6	17.391	-3.741	-2.581	6
2	ICICI Prudential Gold ETF	0.496	2	4.684	2	16.821	-3.211	-2.346	2
3	IDBI GoldETF	0.533	1	4.932	1	16.507	-2.777	-2.098	1
4	INVESCO India GoldETF	0.475	6	4.449	7	17.503	-3.783	-2.581	7
5	Kotak GoldETF	0.466	9	4.365	9	17.411	-3.871	-2.665	9
6	Nippon India ETF Gold BeES	0.493	3	4.677	3	16.970	-3.270	-2.353	3
7	HDFC GoldETF	0.478	5	4.510	5	17.161	-3.571	-2.520	5
8	UTI Gold ETF	0.470	8	4.425	8	17.892	-3.962	-2.605	8
9	Aditya Birla Sun Life GoldETF	0.491	4	4.645	4	16.977	-3.317	-2.385	4
10	SBI Gold ETF	0.463	10	4.329	10	17.480	-3.950	-2.701	10
11	Quantum Gold ETF	0.453	11	4.283	11	17.524	-4.034	-2.747	11

Source: Secondary Data

Sharpe Ratio

The Sharpe Ratio measures the risk-adjusted return of each Gold ETF. Among the funds, IDBI Gold ETF had the highest Sharpe Ratio (0.533), indicating that it provides the best return per unit of risk, making it the most efficient fund in balancing risk and return. ICICI Prudential Gold ETF followed closely with a ratio of 0.496, ranking second, showing it also offers a solid return for the risk taken. On the other hand, Quantum Gold ETF had the lowest Sharpe Ratio (0.453), indicating that it provides the least return for the amount of risk involved, making it the least efficient in terms of risk-adjusted returns.

Treynor Ratio

It is found that IDBI Gold ETF again took the top spot with the highest Treynor Ratio of 4.932, indicating that it provides the best return in relation to its market risk. ICICI Prudential Gold ETF ranked second with a ratio of 4.684, demonstrating good returns relative to its risk. Quantum Gold ETF, with the lowest Treynor Ratio of 4.283, suggests that it performs less well in terms of returns relative to its market risk compared to the other ETFs.

Jensen Performance Measure: The Jensen Alpha value indicates how well the fund has performed relative to its expected return based on its market risk. A positive alpha means the fund outperformed expectations, while a negative alpha suggests underperformance. IDBI Gold ETF led with the highest alpha of 16.507, meaning it outperformed expectations the most. ICICI Prudential Gold ETF followed with an alpha of 16.821, also showing strong performance relative to its risk. Quantum Gold ETF had the lowest alpha of 17.524, indicating it significantly underperformed relative to its expected return.

The overall rankings combine the Sharpe Ratio, Treynor Ratio, and Jensen Alpha, providing a comprehensive view of each ETF's performance. IDBI Gold ETF ranked the highest across all three metrics, indicating it is the best-performing fund in terms of risk-adjusted returns, market risk handling, and outperformance relative to expectations. ICICI Prudential Gold ETF and Nippon India ETF Gold BeES ranked second and third, respectively, showing that they are solid performers but with slightly lower returns compared to IDBI Gold ETF. Quantum Gold ETF consistently ranked at the bottom, reflecting its weaker performance across all metrics.

Significance of Mean Returns of Gold ETFs: A T-Test Analysis

The one-sample t-test is a statistical hypothesis test used to assess whether an unknown population mean differs from a specific value.

H₀: There is no significance difference between mean return of the select schemes and gold prices

H₁: There is a significant difference between the mean return of the select schemes and gold prices

Table – 4: Significance of Mean Returns of Gold ETFs: A T-Test Analysis

S. NO.	Name of the Fund	Test Value = 0				
		t	df	Sig. (2-	Mean	95% Confidence Interval of the

				tailed)	Difference	Difference	
						Lower	Upper
1	Axis Gold ETF	2.453	5	0.058	13.652	-0.652	27.956
2	ICICI Prudential Gold ETF5YEAR	2.581	5	0.049	13.613	0.056	27.171
3	IDBI of Gold ETF5Year	2.744	5	0.041	13.727	0.870	26.584
4	INVESCO India Gold ETF of5Year	2.448	5	0.058	13.720	-0.684	28.124
5	Kotal of Gold ETF 5Year	2.435	5	0.059	13.538	-0.755	27.831
6	Nippon India ETF Gold BeES	2.544	5	0.052	13.695	-0.143	27.533
7	HDFC Gold ETF5Year	-0.146	5	0.889	-2.893	-53.771	47.984
8	UTI of Gold ETF 5Year	2.289	5	0.071	13.662	-1.682	29.006
9	Aditya Birla Sum Life Gold ETF5Year	2.339	5	0.066	13.118	-1.301	27.538
10	SBI Gold ETF 5 YEAR	2.422	5	0.060	13.527	-0.833	27.886
11	Quantum Gold ETF 5Year	1.640	5	0.162	21.605	-12.263	55.473

Source: Secondary Data

Interpretation:

The t-test analysis of the mean returns of various Gold ETFs indicates that most funds, such as ICICI Prudential Gold ETF and IDBI Gold ETF, show significant positive returns compared to a test value of 0, with significance levels below 0.05, particularly IDBI Gold ETF (0.041), indicating its return is significantly different from zero. Axis Gold ETF, INVESCO India Gold ETF, and Nippon India ETF Gold BeES also show positive returns with significance values close to 0.05, suggesting their returns are marginally significant. However, HDFC Gold ETF stands out with a significance value of 0.889, which indicates no significant difference from zero, meaning its return is not statistically meaningful. Quantum Gold ETF also shows a higher significance level (0.162), suggesting its return is not significantly different from zero. Overall, most funds show promising returns, though some, like HDFC Gold ETF and Quantum Gold ETF, do not provide statistically significant returns over the period analyzed.

Conclusion

In conclusion, the analysis of Gold ETFs reveals a diverse performance landscape across different funds. While most ETFs, like IDBI Gold ETF and UTI Gold ETF, demonstrated solid returns closely tracking the benchmark gold price, some, like Quantum Gold ETF and HDFC Gold ETF, showed weaker returns or underperformed, as indicated by their lower Sharpe and Treynor ratios and non-significant t-test results. Risk analysis revealed that while gold itself remained less volatile, funds like UTI Gold ETF exhibited higher risk with greater fluctuations, as shown by their higher standard deviations. Performance evaluation further highlighted that IDBI Gold ETF excelled in risk-adjusted returns, outperforming its peers, while others like Kotak Gold ETF and SBI Gold ETF lagged behind. T-test results reinforced these findings,

showing that most ETFs, except for HDFC Gold ETF and Quantum Gold ETF, had returns significantly different from zero, indicating that they offer meaningful investment opportunities. The investors seeking stability may prefer ETFs like IDBI Gold ETF, while those willing to take on more risk could explore funds with higher returns but more volatility, like UTI Gold ETF. Overall, investors should weigh their risk tolerance and investment goals carefully. While some ETFs offer high returns, they come with varying levels of risk, making careful selection crucial based on individual investment preferences.

Suggestions

Based on the analysis of Gold ETFs, here are some suggestions for investors:

It is suggested that, if an investor prefer more consistent returns with lower risk, IDBI Gold ETF and ICICI Prudential Gold ETF are good options as they have shown stable performance and lower volatility compared to other funds. On the other hand, if they are willing to accept more risk for potentially higher returns, UTI Gold ETF could be a suitable choice, though it comes with higher fluctuations in its returns. It's also advisable to be cautious with HDFC Gold ETF and Quantum Gold ETF, as their performance was weak, and their returns were not statistically significant, meaning they might not offer reliable returns. To manage risk, diversifying your investments across multiple Gold ETFs could help, as it allows you to balance performance across different funds. In conclusion, it's important to regularly monitor the performance of these funds and make adjustments if necessary, as some ETFs may be more sensitive to market changes. By considering these factors, you can make more informed decisions that align with your risk tolerance and investment goals.

References:

1. Aggarwal, dr. vipin kumar aggarwal; silky jain; anchal. (2014). Gold vs Gold ETFs : Evidences from India. International Journal of Scientific Research and Managemant, 2(4), 758–762. Retrieved from www.ijstrm.in
2. Athma, P., & Mamatha, B. (2017). Performance of Equity Exchange Traded Funds in India: An Analysis. International Journal of Business and Management Invention , 59-66.
3. Beyers Bosman (2011), The influence of gold ETFs, Working paper, <http://www.econbiz.de/en/search/detailed>.
4. Dr. B. Aarthi, A Review of Related Literature on Gold ETFS (Gold Exchange Traded Funds), Journal of Engineering and Science”, Vol-11, Issue-5, May-2020.
5. Dr Joseph James V and Mr Maninath R (2023), Gold ETFs in India:- a Descriptive and Parametric Evaluation, International Journal of Novel Research and Development, Volume8, Issue 7 July 2023 | ISSN: 2456-4184
6. Lixia Wang et al, (2010), Gold Exchange Traded Funds: Current Developments and Future Prospects in China, Asian Social Science, Vol 6, No.7, Published by Canadian Centre of Science and Education, pp. 119- 125.
7. Madhavi Eswara, 2015, “An Empirical Study on Performance of Gold ETFs in India - PostCrash Period”, Research Journal of Finance and Accounting www.iiste.org ISSN 2222- 1697 (Paper) ISSN 2222-2847 (Online) Vol.6, No.13, 2015, pp 75-83, <https://pdfs.semanticscholar.org/d886/d631c5770330730c5da0264498384a5a41d8.pdf>

8. Naveen Kumara R , 2016, “Gold ETFs vs. Equity ETFs : Comparative Analysis of their Performance”. Int. J. Soc. Sc. Manage. Vol. 3, Issue-3: 222-227 DOI: 10.3126/ijssm.v3i3.15265, pp 222-227
9. Owain ap Gwilym et al (2010), Gold Stocks, the Gold Price and Market Timing, http://www.cass.city.ac.uk/__data/assets/pdf_file/0005/69935/Gold-Stocks,-the-GoldPrice-and-Market-Timing.pdf
10. Prabhddeep Kaur and Jaspal Singh, 2019, “Price Formation in Indian Gold Market: Analyzing the role of Gold Exchange Traded Funds (ETFs) against Spot and Futures Market”, IIMB Management Review, <https://www.sciencedirect.com/science/article/pii/S097038961730085X>
11. Prashanta Athma and Mamatha B. (2012), ETFs Vs Index Funds: Growth and Progress, Arth Prabhand: A Journal of Economics and Management, Vol 1 (4), pp. 54-65
12. Prachi Kothari & Dr. Sathish Kumar B, A study on the relationship between Gold price and Gold ETFs price, International Journal of Management, Technology And Engineering, Volume IX, Issue I, JANUARY/2019, ISSN NO : 2249-7455, pg no. :2901-2911.
13. Sunkara, S. S. R. (2017). A comparative study on the performance of physical gold, gold etfs, gold bonds and gold deposits. International Journal of Core Engineering & Managaement, 4(2), 1–7.
14. Swain, A. K., & Samal, G. P. (2017). PRICE VOLATILITY IN THE INDIAN GOLD SPOT MARKET: AN ECONOMETRIC ANALYSIS. International Journal of Advanced Research