

A study on performance evaluation of select exchange traded funds and its benchmark aspects in Indian context

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Submitted: 05-10-2021

Revised: 18-10-2021

Accepted: 20-10-2021

ABSTRACT:

Mutual funds are financial entities that aggregate money from a number of different individuals and are managed by professional fund managers. Equity funds, Debt funds, Liquid funds, Balance funds, Exchange Traded Funds (ETFs), and other mutual funds are available in India. Aditya Birla Sun Life Gold ETF, Axis Gold ETF, HDFC Gold Exchange Traded Fund, and SBI-ETF Gold are the four Exchange Traded Funds (ETFs) examined in this study. The Nifty 50 is the benchmark for all of these ETFs. Average returns, Standard deviation, Beta, Sharpe ratio, Treynor ratio, Jensen alpha, Sortino ratio, and Information ratio were calculated over five financial years to compare the performance of these funds (April 1st 2015 to March 31st 2020). The results show that all of the schemes outperform the Nifty 50 and have a defensive connection with the market. As ETFs are purchased and sold throughout the day, their prices fluctuate. An ETF's net asset value (NAV) is not computed every day like a mutual fund's since it trades like a stock. You get the diversity of an index fund with the freedom to sell short, buy on leverage, and acquire as little as one share when you hold an ETF. Another advantage is that most ETFs have lower cost ratios than the average mutual fund. When buying and selling ETFs, you must pay your broker the same commission as if you were placing a conventional transaction.

Keywords: Exchange Traded Funds (ETFs), Information ratio, Jensen alpha, Mutual Funds, Risk-Return performance, Sharpe ratio, Sortino ratio and Treynor ratio

INTRODUCTION:

ETFs (exchange-traded funds) were initially established in the United States in 1993. ETFs are said to account for about 60% of

trading volume on the American Stock Exchange. According to the ETF landscape study issued by Blackrock Inc. (a US-based AMC), worldwide ETFs have risen by 33.2 percent compounded yearly in the last ten years and 26.1 percent in the last five years. ETFs had hitherto been restricted to broad indices. Concerns regarding ETF spreads arise as a result of the liquidity issue. In contrast to established nations, individual investors dominate the ETF market in emerging markets like India. As a result, securities authorities are even more hesitant to approve complex goods. Investors in India must have demat/broking accounts in order to trade ETFs and many Indian investors do not have these accounts and so do not consider ETFs. Banks are the largest wholesalers and play a significant role in the Indian financial markets. They prefer to sell open-end mutual funds that do not require demat accounts since they are easier to sell. They also don't want to be associated with selling stock market items because of the additional regulation and attention that would entail. ETFs, in effect, trade like stocks and so provide a level of flexibility that traditional mutual funds do not. ETFs, in particular, can be traded at any time throughout the trading day, much like stocks. In a typical mutual fund, investors may only buy units at the fund's net asset value (NAV), which is announced at the end of each trading day. Investors cannot, in fact, buy ETFs at their closing NAV. This distinction provides a significant benefit when comparing ETFs to other mutual funds.

Mutual Funds

Mutual funds are investment vehicles that pool money from a variety of investors in order to improve the returns on their holdings by adding a

variety of assets to their portfolio, such as bonds, money market instruments, gold, and equities.

Some of the major advantages are as follows:

- **Diversification:** A mutual fund can contain a variety of assets. When compared to investing in a single investment, diversification considerably minimizes the chance of loss.
- **Professional Management:** Many people feel they understand the market, yet they frequently lose money. The benefit of investing in mutual funds is that they are managed by skilled professionals, ensuring that your money is invested wisely. Investors have quick access to their money since mutual fund units can be purchased and sold on any business day as long as the market is open.
- **Flexibility:** Because mutual funds manage a variety of funds, an investor has the option of switching between them at little or no cost.

Some of the major disadvantages include:

- **Return Depends on Fund Manager:** As it is managed by professional experts, the return on investment is subject to manager's skill and judgment.

Exchange Traded Funds

"An ETF or exchange traded fund, as defined by the Association of Mutual Funds in India (AMFI), is a marketable product that follows an index, a commodity, bonds, or a basket of assets like an index fund." The key difference between ETFs and other index funds is that ETFs merely duplicate the Index's performance rather than attempting to outperform it. Because the fund manager just duplicates the performance of the underlying index, they have lower administrative expenses than actively managed portfolios and a lower expense ratio than other funds.

According to Association of Mutual Funds in India (AMFI), below are the advantages of investing in Exchange Traded Funds:

- ✓ Asset Allocation
- ✓ Cash Equitisation
- ✓ Hedging Risks
- ✓ Arbitrage (cash vs futures) and covered option strategies

Review of Literature:

Solanki A (et al., 2016) in their study work, attempted to analyse the performance of Reliance open-ended equity schemes with growth options. All schemes, with the exception of Reliance Focused Large Cap Fund, exhibited an average return greater than the market return (BSE 100 and SENSEX). Sukhwinder Kaur Dhanda, Dr. G.S.Batra, and Dr. Bimal Anjum (2012)

investigated the performance of a number of open-ended programmes from April 1, 2009, to March 31, 2011. For the period 2009-2010, all schemes, with the exception of one, were able to offer more reward for variability and volatility than the benchmark, whereas for the period 2010-2011, all schemes failed to offer more reward for variability than the benchmark, and only four schemes were able to offer more reward for volatility than the benchmark.

Dr.R.Narayanasamy and V. Rathnamani (2013) used several statistical characteristics to examine the performance of five selected equity big cap mutual fund schemes from January 2010 to December 2012. Despite the fact that the CNX NIFTY fell over the year 2011, this analysis found that all of the funds fared well in the high volatility market movement, with the exception of Reliance Vision.

Dr. Vikas Choudhary and Preeti Sehgal Chawla (2014) evaluated the performance of growth-oriented equity diversified schemes using a variety of financial tests.

All of the funds were judged to be less risky than the market portfolio. According to the findings, seven of the eight funds fared better in proportion to the risk they took. **Mr.U.Rambab, Smt.R.Jeya Lakshmi, and B.Kalyan Kumar (2018)** evaluated six mutual fund equity linked saving programmes. According to the findings, all of the funds are riskier than the market, have a more diverse portfolio, and have done better in proportion to the risk they take.

Dr. Khalid Ashraf Chisti and Mr. Amir Rahman (2018) evaluated the top 10 tax-saving mutual fund schemes' performance from April 2007 to March 2017. All ELSS funds beat the market, according to the findings.

Dr. Naliniprava Tripathy (2004) examines the performance of 31 tax planning schemes in India from 1994-1995 to 2001-2002 in terms of six performance measures, concluding that there was no proper balance between selectivity and diversification due to fund managers' poor selectivity and investment planning judgement.

Sharad Panwar and Dr. R. Madhumathi (2006) for the period May 2002 to May 2005, examined public-sector and private-sector sponsored mutual funds, finding that mean returns do not differ significantly, but average standard deviation, average variance, and average coefficient of variation do.

Geeta Rani and Dr. Vijay Singh Hooda (2017) evaluated the performance of CRISIL-ranked mutual fund schemes and discovered that all of the chosen funds beat the market and had greater

risk adjusted returns. The analysis found that all of the schemes had negative returns during the November 2016 demonetization phase.

Shefali Gupta, S.K Shrivastava, and Vinod Bhatnagar (2015) examined the performance of five sectoral mutual funds from 2008 to 2013 and discovered that all of the funds were profitable.

Major objectives of the present study:

1. To analyze the major risk and returns of both selected exchange traded funds
2. To effectively evaluate the significant relative performance of selected exchange traded funds to Nifty 50

Methodology adopted for the purpose of study:

The current analysis is based on secondary data from the official websites of mutual fund schemes, the Nifty 50, and a 10-year government bond (risk-free asset), as well as Moneycontrol. This study focuses on the risk and return characteristics of these schemes in order to compare them to the market. The performance of these mutual fund schemes was evaluated using a variety of financial techniques such as Beta, Standard deviation, Sharpe ratio, Treynor ratio, and so on.

Scope of the present study:

This research looks at four mutual fund schemes from April 1, 2015, through March 31, 2020. The NAV of the chosen schemes was compared to their yearly returns, and then the results were compared to the benchmark Nifty 50 returns to assess the schemes' performance.

Basic Concepts:

Standard deviation (SD):

The amount of a risk's departure from the expected outcome can be calculated. Standard Deviation can be used to calculate that magnitude. The standard deviation is the difference between a set of data values and its average (expected outcome). A low standard deviation indicates that the majority of the data is extremely close to the average, making it less dangerous, whereas a large standard deviation indicates that the majority of the data is far from the average value, making it more risky.

Hence, $S.D = \text{Square root of } \{ \text{Sum of squared difference between each monthly return and its mean} \}$

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Beta:

It compares the volatility of a fund to that of its benchmark. It depicts how much a fund's

performance would vary if the benchmark changed. When someone examines the beta of a mutual fund, they are determining how their investment's return will react to the benchmark's ups and downs. A smaller beta indicates that the investment has been less volatile than the benchmark, but it also means that the fund is taking on less risk with a lower potential return. Furthermore, a larger beta indicates a higher-risk investment with a higher potential return.

$$\text{Beta} = \frac{\text{Standard Deviation of Fund} \times \text{R-Square}}{\text{Standard Deviation of Benchmark}}$$

Sharpe Ratio

It assesses a fund's performance in relation to the risk it takes. It is calculated by dividing the excess return over the risk-free rate by the fund's standard deviation. A greater Sharpe Ratio indicates that the fund has done better in relation to the risk it has taken. If the Sharpe Ratio is negative, it means that a risk-free asset would outperform the security under consideration.

$$\text{Sharpe Ratio} = \frac{\text{Portfolio Return} - \text{Risk Free Rate}}{\text{Standard Deviation of the Fund}}$$

Treynor's Ratio

It is defined as excess return generated by a fund over and above the risk free return. A higher Treynor Ratio represents that the fund has performed better in proportion to the risk taken by the fund.

$$\text{Treynor's Ratio} = \frac{\text{Portfolio Return} - \text{Risk Free Rate}}{\text{Beta of the Fund}}$$

Jensen's Alpha:

It is used to measure risk-adjusted performance of a portfolio; to assist investors determine the risk-reward profile of a mutual fund. It measures the difference between a fund's actual returns and its expected performance, given its level of risk. If the alpha return is positive, it means the fund has outperformed its benchmark index. Similarly, if the alpha return is negative, it means the fund has underperformed its benchmark index.

$$\text{Jensen's Alpha} = (\text{Portfolio Return}) - (\text{Risk free return} + \text{Funds beta} * (\text{Benchmark return} - \text{Risk free return}))$$

Sortino Ratio:

It assesses the investment's success in relation to the risk of losing money. A greater Sortino ratio means the investor is being compensated for taking on more risk. A negative

Sortino ratio, on the other hand, may indicate that the investor is not being rewarded for taking on more risk.

$$\text{Sortino Ratio} = \frac{\text{Actual or expected portfolio return} - \text{Risk-free rate}}{\text{Standard deviation of the downside risk}}$$

Information Ratio:

This ratio displays excess returns in comparison to the benchmark, as well as the consistency with which the excess returns were generated. The tracking error is used to assess the consistency with which excess returns are generated. A higher information ratio indicates a better portfolio manager who is outperforming the benchmark in terms of return for the risk taken.

$$\text{Information Ratio} = \frac{\text{Portfolio Return} - \text{Benchmark Return}}{\text{Tracking error}}$$

**Major Findings and Discussion:
 Combined Average Returns and Standard Deviation**

The Nifty 50 has returned an average of 6.73 percent, with Aditya Birla Sun Life Gold ETF delivering the greatest average return of 18 percent and SBI Magnum delivering the lowest average returns of 17.30 percent among the chosen ETF schemes. However, we saw that the returns for all of the schemes ranged from 17 to 18 percent, with slight variations. Furthermore, all of the ETF schemes have outperformed the market by a significant margin.

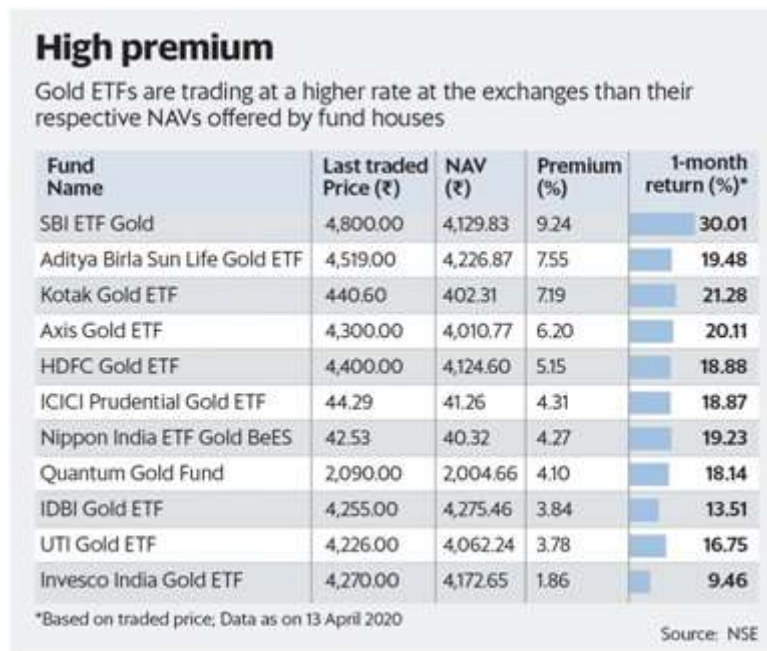


Figure above showing top 5 Gold ETF’s one should’ve had invested in 2020

The standard deviation of the Nifty 50 is 20.46 percent, while the standard deviation of the chosen ETF schemes is 15.15 percent, making Aditya Birla Sun Life Gold ETF the most hazardous plan. The Axis Gold ETF has the lowest standard deviation of 14.99 percent, making it the

least hazardous of the ETF strategies we looked at. Even here, we can see that the standard deviation for all of the schemes varied from 14.99 percent to 15.15 percent, with minimal variations, implying that all of the funds are almost equally hazardous.

Table I: Sharpe Ratio for all the funds

Fund	Sharpe Ratio	Rank
Axis Gold ETF	1.4861	3
		1

Aditya Birla Sun Life Gold ETF	1.5170	
SBI-ETF Gold	1.5141	2
HDFC Gold Exchange Traded Fund	1.5141	2

As we all know, the Sharpe Ratio indicates how well a fund has fared in relation to the risk it has taken.

When the Sharpe Ratio is negative, it means that a risk-free asset would outperform the

plan. According to the study, Aditya Birla Sun Life Gold ETF has the greatest Sharpe ratio of 1.5170, implying that it provides investors with the biggest excess return above the risk-free rate of return among the examined ETF schemes.

Table II: Treynor Ratio for all the funds

Fund	Treynor Ratio	Rank
Axis Gold ETF	-0.2736	1
Aditya Birla Sun Life Gold ETF	-0.2991	3
SBI-ETF Gold	-0.2961	2
HDFC Gold Exchange Traded Fund	-0.3060	4

As we all know, the greater the Treynor ratio, the better the portfolio's performance. A fund with a greater Treynor ratio has a higher risk adjusted return than a fund with a lower Treynor ratio. The greatest Treynor Ratio, -0.2736, indicates

that it has the best risk adjusted return, whilst the lowest Treynor Ratio, -0.3060, indicates that it is the least performing and has a lower risk adjusted return than the other ELF schemes.

Table III: Jensen Alpha for all the funds

Fund	Jensen Alpha Ratio	Rank
Axis Gold ETF	0.3182	3
Aditya Birla Sun Life Gold ETF	0.3197	1
SBI-ETF Gold	0.3194	2
HDFC Gold Exchange Traded Fund	0.3161	4

A positive alpha, as we all know, indicates the fund exceeded its benchmark index. A negative alpha, on the other hand, would imply poor performance. Choosing schemes with high Jensen

Alpha ratios is frequently recommended to investors. Table III indicates that the greatest Jensen alpha is 0.3197 for Aditya Birla Sun Life Gold ETF and the lowest Jensen alpha is 0.3161 for HDFC

Gold Exchange Traded Fund. We can also see that all of the selected schemes have a positive alpha,

implying that all of the schemes give a higher return than predicted.

Table-IV: Sortino Ratio for all the funds

Fund	Sortino Ratio	Rank
Axis Gold ETF	2.2968	4
Aditya Birla Sun Life Gold ETF	2.8390	1
SBI-ETF Gold	2.7790	2
HDFC Gold Exchange Traded Fund	2.7478	3

As we all know, a greater Sortino ratio is preferable to a lower one since it implies that the portfolio is running effectively by avoiding excessive risk that is not compensated with higher returns. A low Sortino ratio indicates that the investor is not compensated for taking on more

risk. Aditya Birla Sun Life Gold ETF has the highest Sortino ratio of 2.8390, while Axis Gold ETF has the lowest Sortino ratio of 2.2968, implying that Aditya Birla Sun Life Gold ETF has a low risk of significant loss, but Axis Gold ETF has a high possibility of huge loss.

Table V: Information Ratio for all the funds

Fund	Information Ratio	Rank
Axis Gold ETF	0.2738	4
Aditya Birla Sun Life Gold ETF	0.2873	2
SBI-ETF Gold	0.2857	3
HDFC Gold Exchange Traded Fund	0.2897	1

As we all know, a greater Information Ratio indicates a stronger portfolio manager who, given the risk taken, achieves a higher return in excess of the benchmark. As can be seen, HDFC Gold Exchange Traded Fund has the highest Information Ratio of 0.2897, indicating that the fund management of HDFC Gold Exchange Traded Fund outperformed the other schemes. The fund manager of the Axis Gold ETF, on the other hand, fared the worst of all the schemes since it has the lowest Information Ratio of 0.2738.

Investors who want to simply mimic the performance of the benchmark can choose from a number of Exchange Traded Funds. This study utilised some fundamental financial ratios that each investor should review before selecting which plan to participate in to ensure that their risk tolerance and projected returns are correctly balanced. Return and risk analysis, risk adjusted performance metrics, and fund manager performance were used to assess the performance of all four mutual fund schemes. The performance of all four funds in terms of cumulative average returns over the last five years shows that all four funds have outperformed the Nifty 50. All of the schemes are less hazardous than the market in terms of standard deviation. All

CONCLUSION

The study evaluated four Exchange Traded Funds (ETF mutual funds) against the Nifty 50 index.

of the schemes had a beta of less than one, indicating that they were less hazardous than the Nifty 50 index. All of the schemes have a positive Sharpe ratio, indicating that the fund under consideration has outperformed a risk-free asset. All of the schemes have a negative Treynor ratio, indicating that they have underperformed a risk-free asset. If systematic risk is taken into account, we may infer that all of the schemes have underperformed a risk-free asset, but if unsystematic risk is taken into account, we can conclude that all of the schemes have outperformed a risk-free asset. Because all of the schemes have positive Jensen alpha, they have beaten the Nifty 50. ETFs have grown tremendously during the last decade and have become a significant part of the equity market activity; hence, regulators are keeping a close watch on any potential impact of these products on financial stability and market volatility. In India, trading in ETFs has been quite limited relative to the U.S. and Europe. Because all of the schemes have a positive Sortino ratio, we may conclude that investors are being rewarded for taking on more risk. Because all of the Information ratio numbers are near to one another, we can assume that all of the portfolio managers have produced an excess return equal to the Nifty 50.

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