A Study on Performance Evaluation of Gold ETFs in India

***Dr. J K Raju**
****Mr. Manjunath B R**
*****Mr. Rehaman M**

*Professor and Chairman, Institute of Management Studies, Davangere University,
**Research Scholar & Faculty, BIET-MBA Programme, Davangere,
***Student, MBA Programme, BIET-MBA Programme, Davangere,

Abstract

This paper is a study of the Performance evaluation of gold ETFs in India. GoldETFs were launched mainly with an objective to increase the liquidity for the better market efficiency. Mutual Fund is a trust that pools money from a group of investors sharing common financial goals and invest the money. This aims at discovering and analyzing risk in the emerging security in the stock market i.e. Gold ETFs. This paper will give focus on Gold ETFs as a strong and attractive investment option for investor.

Analysis is made by using performance evaluation techniques like Treynor's performance index, Sharpe's performance index and Jensen's performance index by calculating alpha, beta and standard deviation of the selected ETFs.

***Keywords**: Gold Exchange traded funds, Net Asset Value, Beta Treynor's index, Sharpe's index, Jenson's performance index.*

Introduction

As far as investment is concerned, an Exchange Traded Fund is just like a Mutual Fund and as far as trading is concerned; an Exchange Traded Fund is just like a stock or equity which can be traded on Stock Exchanges like BSE and NSE. Most ETFs track an index. ETFs are listed on the recognized stock exchange and trading of these units in stock exchange is at the trading hours. The investors who have small amount of savings or funds to invest will not be able to do this because of the prices and scarcity nature of gold. Gold investment requires a big amount to get adequate growth and return on investments. Therefore, to make investor have possibility of investment in gold, "Gold Exchange traded fund" has been launched.

Exchange traded fund (ETFs) is one of the investment fund in stock exchange. An ETF hold different assets such as bonds, commodities, stock that are traded at a same price as the net value of its underlying assets of the trading day. Gold ETF is an exchange traded fund that tracks the price of gold. They are the units that represent the physical gold that can be in paper or Demat form. Gold ETFs enables investors to participate in Gold bullion through trading of security on a stock exchange without buying physical gold. Every investor has a different perception regarding the return and risk. There is a general rule of return and risk and that is "higher the risk, higher the return and lower the risk, lower the return". The return and risk combination depends upon the investors choices and his or her actions. Thus, **Gold Exchange Traded Funds** or **Gold ETFs** are the exchange traded funds based upon the net asset value of the underlying asset gold.

Mutual Fund Industry-ETFs

The mutual fund industry started in 1963 with the formation of unit trust of India. Mutual fund is an investment made from the different investors' money for the determining investing in securities such as money market instrument, stocks, bond and other assets. These mutual fund are functioned by professional fund manager. These fund manager will invest funds into different sectors to diversify risk of the investment. A mutual fund manager will take an investment decision to fulfill objectives of investment. The investors of the mutual fund will subscribe to the units of funds. These mutual fund investor are called as unit holders.

The mutual fund industry is considered to be one of the fastest growing sectors in capital market and financial market of India. In the recent time, mutual fund industry has seen extreme progress in quality and quantity of service and products offering. The companies that functions in the mutual fund is recognized as Asset Management Companies (AMC's). Mutual fund earnings will change with the fund market value and those changes the annual distribution of dividend. These funds are calculated on the daily basis with net asset value (NAV) and that determined after the closure of market each day. These mutual fund has a different schemes of investment such as open ended fund, close ended fund, growth fund, income fund, balanced fund, index fund and other funds. For the growth of mutual funds in India, there were different phase of mutual fund industry that are establishment and growth of UTI, entry of public sector funds, emergence of private sector funds, growth and SEBI regulations, emergence of large and uniform industry, consolidation and growth. AMC will attract more investors and also save costs in there promotions and marketing in TV, newspaper, radio and other medium. Association of Mutual Funds in India (AMFI) promotes the campaign for mutual fund awareness and one of the campaign is "Mutual Funds SahiHai" that acts in different media and communicates to potential investors considering that mutual fund are the right preference for investment.

The first ETF is S&P SPDR that has started trading on Jan 1st, 1993.The American Stock Exchange that has released the S&P(standard and poor) 500 Depository Receipt (called the SPDR or "spider" for short) This investment fund has over $86 billion in assets under management and trades. There were a quarter billion shares on an average day. In 1992 the New York Stock Exchange was first to saw average daily volume about 200 million share per day. The second largest ETF is SPDR Gold shares that began trading on November of 2004. In the year 2007, investor drive demand of ETF growth with a record of 269 ETFs has been announced. The growth of ETF started in 1993 where market grew to 102 funds in 2002 and closely 1,000 at the end of 2009, in ETF database list has over 1400 ETF as of Dec 20, 2011. At the end of year 2011, it would look as though assets under management at ETFs, an interesting competition has sort in between of ETFs and Mutual funds.

Gold Exchange traded funds (ETFs) are those simple investment products that combines the flexibility of stock investment and the simplicity of gold investment. These ETFs will trade on the basis of cash market in National Stock Exchange (NSE) and other company's stock exchange. These ETFs can be bought and sold constantly at market prices. These gold ETFs are considered to be passive investment instruments that will be based on gold prices and invest in gold bullion because of direct gold pricing. There is a widespread transparency on holding of an ETF because of the lower expenses of an ETF as compared to physical gold of investment.

Table 1: List of Gold ETF stock listed on (BSE) Bombay Stock Exchange (INDIA)

Issuers	Name	Symbol	Launch date
Axis mutual fund	Axis Gold Exchange Traded Fund	AXISGOLD	Nov-10
Birla Sun Life mutual fund	Birla Sun Life Gold Exchange Traded Fund	BSLGOLDETF	May-11
HDFC mutual fund	HDFC Gold Exchange Traded Fund	HDFCMFGETF	Aug-10
RELIANCE mutual fund	CPSE Exchange Traded Fund	CPSEETF	Mar-14
CanaraRobeco's	CanaraRobeco Gold Exchange Traded Fund	CANGOLD	Mar-12
ICICI Prudential Mutual Fund's	ICICI Prudential Gold Iwin Exchange Traded Fund	IPGETF	Aug-10
IDBI Mutual Fund's	IDBI Gold Exchange Traded Fund	IDBIGOLD	Nov-11
Invesco Mutual Fund	Invesco India Gold Exchange Traded Fund	INVESCOGOLDETF	May-11
KOTAK mutual fund	Kotak Gold Exchange Traded Fund	KOTAKGOLD	Jul-07
QUANTUM mutual fund	Quantum Gold Fund - Exchange Traded Fund	QGOLDHALF	Feb-08
RELIANCE mutual fund	Reliance Exchange Traded Fund Gold Bees	RELGOLD	Nov-07
SBI mutual fund	SBI Gold Exchange Traded Scheme - Growth Option	SBIGETS	Apr-09
UTI mutual fund	UTI Gold Exchange Traded Fund	GOLDSHARE	Mar-07

Source: www.bseindia.com

Objectives of the Study

1. To evaluate the performance of Gold ETFs returns of Net Asset Value for the period
2. To understand and Focus the Gold ETF as a strong and attractive investment option
3. To study and evaluate the Risk-Return relationship.

Statement of the Problem

In India, gold ETFs have been launched with objective to increase the liquidity for the better efficiency of the market. Traditionally, Indians are fond of buying gold that they want to possess it that's the reason they do not invest in ETFs that they consider to be a piece of paper for them. Gold ETFs will be relying on the underlying asset of gold. Today investment in Gold ETFs have risen and investors are coming forward to invest in Gold ETFs. The study aims to provide awareness about Gold ETFs performance and returns to make them to invest.

Scope of the Study

As Gold ETFs price movements depend on global indicators and other factors, detailed study has been undertaken to analyze 5 years Gold ETFs performance with comparison to issuers of Gold ETFs Company. Physical gold is underlying asset to gold ETFs and benefited to investors that they can buy without holding of physical gold. The performance of Gold ETFs can ascertain and analyzed against benchmark Sensex.

Literature Review

Stein, David (1999): Introduces tracking error as an integral aspect of portfolio management. The research study explains tracking error in more depth so as to help investors understand the concept and establish their performance expectations.

Fisher (2008): In his article, he mentioned that Gold Exchange-Traded Funds (ETFs) have made investing in the yellow metal very convenient and inexpensive. The study expressed that they offer a way of participating in the gold bullion market without the necessity of physical delivery of gold. The study listed out six reasons why gold ETFs are considered as the best way to invest in the gold. The reasons mentioned are Wealth tax exemption, Income tax benefit, Investment in small denominations, Hedging Convenience and better holding of ETFs as compared to physical gold holdings.

Noblett, Jackie (2010): Suggested that Gold ETFs have witnessed massive flows as institutions, advisers and individual investors look to gain exposure to the precious metal and with it a hedge against currency volatility and inflation

Athma, Prashanta, & K, Suchitra (2011): Conducted the study which constitutes to fill the research gap with the objectives to focus on the Gold ETF as a strong asset class. The second objective is to stress upon the inclusion of Gold ETF in a portfolio for risk diversification and thirdly, to assist the investor in the selection of the best Gold ETF option and its tax implications. The findings revealed that Gold prices are less volatile compared to the equities market which instilled confidence in the minds of investors to possess gold proving it to be a strong asset class. Inclusion of Gold ETF in a portfolio would diversify the Portfolio risk.

Mukesh Kumar Mukul Vikrant Kumar and Sougata Ray (2012): Made a study on “Gold ETF Performance: A Comparative Analysis of Monthly Returns” revealed that Gold investment has been a very important aspect for ages across the globe. This paper attempts to analyze the performance of gold Exchange-Traded Fund (ETF) with respect to risk and return against the diversified equity fund and market portfolio. The study also examines the role of gold in hedging equity investment risk. The study is based on data for the period from January 2010 to August 2011. The analysis shows that gold ETF has given good return in comparison to a diversified equity fund during the study period.

P. Krishna Prasanna (2012): Analyzed 82 exchange traded schemes floated in Indian stock market and evaluated the performance using Data Envelopment method, it is found that large funds were not efficient and inferred that size does not indicate superior performance.

PrashantaAthma and B. Mamatha (2012): Compared the index funds, ETF based on tracking error, price transmission and return. It is suggested that ETF’s are good investment suitable to individual investors and professionals as they are low cost and more liquid. **Shefali Sinha and Mahua Dutta (2013),** analyzed the performance of Goldman Sachs ETF against the spot gold price by using tracking error and trend analysis. It is found that Goldman Sachs ETF generating better performance.

Ms. K S Nemavathi and Dr. V.R Nedunchezhian (2013): Analyzed the volatility of Gold and Gold ETF using return, standard deviation, Beta and EGARCH, it is concluded thatthe performance of product depends on volatility and one has to choose based on return and their performance.

Dr. M.Jayanthi, Ms. S.Malathy and Ms. T. Radhulya (2013): Studied performance of Gold ETF funds using returns, AUM and NAV. It is found that the gold ETF funds does not accurately reflect the movement of spot gold price and investor can hedge their asset against uncertain global market scenario.

S. Narend (2014): empirically studied the performance of exchange traded funds and index funds using tracking error, active returns and Jensen's Alphas. Over all study reveals that index funds have done better thanETFs in terms of tracking error and in terms of active returns ETFs performance is better.

Methodology

This paper makes an attempt to study the performance of 13 Gold ETFs listed on the Bombay Stock Exchange. The Gold ETFs were analyzed in detail from January 2013 till December 2017. The study is based on secondary data. For evaluating the performance of the gold ETF under study the adjusted monthly gold ETF data has been collected from www.bseindia.com for the period January 2013 till December 2017 has

Performance Evaluation Techniques:

Sharpe performance index is one of the performance indicator. The important aspect of this performance indicator takes into consideration the risk of the portfolio. It shows the return to variability. Higher the ratio, better would be the performance of the Fund in terms of the returns for the risk taken and investor will hold fund for higher returns. It indicates the risk premium per unit of total risk. It Uses Standard Deviation to Measure Risk, average portfolio returns and risk free rate of returns. This can be compared with two different portfolios performance even though they have different standard deviation or risk and uses Capital market line (CML) in analysis.

Sharpe ratio:

SR (p) = (Rp – Rf)/ Sd (p)

Where, Rp – Returns of the portfolio, Rf – Risk free rate and Sd (p) – Total risk

Application & its Uses:

- Based on the Slope of the Capital market line (CML)
- Uses Standard Deviation to Measure Risk
- The Higher the Index
- The better the performance
- Investors Only Hold the Mutual Fund

Treynor performance index is a measure of the variability of an investment with compared portfolio beta represented as risk. It shows risk adjusted performance of different funds and the higher ratio will be a better performance of the fund. This takes into account the systematic risk of the portfolio and investor will hold many assets. This is based on security market line (SML). It reflects excess return earned per unit of risk and this implicitly assumes that the portfolio is well diversified.

Treynor ratio:

Tn (p) = (Rp – Rf)/ βp

Where, Rp = Return on Portfolio, RF=Risk Free Rate and βp =Portfolio Beta

Application & its Uses:

- Based on security market line (SML)

- Uses Beta to measure Risk
- The Higher the Index
- The better the performance
- Investors Hold Many Assets
- For Investors Only Interested in Whether They Beat the Market

Jensen's Performance Index is based on the capital asset pricing model and it measures to track the performance of a hedge fund manager. Positive alpha is a good indicator whereas negative alpha is a bad indicator of the portfolio performance. The CAPM determines that required rate of returns and investor can evaluate expected returns on his investment. This index compare the performance of investment managers considering portfolio risk.

Jensen's Performance ratio:

Alpha = R (i) – [R (f) + B x (R (m) - R (f))]

Application & its Uses:

- Based on Capital Asset Pricing Model(CAPM)
- Uses Beta to Measure Risk
- Determines How Much One Fund Outperforms or Underperforms another Fund
- Determines the Significance of Results

Correlation Analysis:

Correlation is a statistical measures that reflects that relationship between two securities the change in the one variable may or may not change in the other variable. This statistic will help to evaluate where has one security will closely related to other security.

- The correlation co-efficient will be ***positive*** when both securities will move in the same direction that is up and down is positive correlation.
- The correlation co-efficient will be ***negative*** when both two securities move in opposite directions is negative correlation.
- The strength of a relationship between two variables and these two variable will have a ***strong*** relationship with each other is strong correlation.
- The variables which are hardly correlated to each other are ***weak*** correlation.
- The variables are ***equal*** to zero is zero correlation.

Table 2: Summary of the range of positive and negative correlation with values

Range	Correlation
0	Zero/ NO correlation
1	Perfect positive
-1	Negative correlation
0 to 0.3 0 to -0.3	Weak positive correlation Weak negative correlation
0.3 to 0.7 -0.3 to 0.7	Moderate positive correlation Moderate negative correlation
0.7 to 0.1 -0.7 to -0.1	Strong positive correlation Strong negative correlation

Source: Investopedia.com

Correlation has been applied for the selected Gold ETF Funds to study and understand the relationship between each and every funds selected for the study. Funds with positive correlation represents the strong relationship in terms of performance (returns) and similarly with the negative correlation represents no positive relationship movement in terms of performance (returns).

Data Analysis: Correlation Matrix

Table 3: Summary of correlation among the selected Gold ETFs

	Axis Gold ETF	*Birla Sun Life Gold ETF*	*HDFC Gold ETF*	*CPSEETF*	*CanaraRobeco Gold ETF*	*ICICI Prudential Gold IwinETF*	*IDBI gold ETF*	*Invesco India Gold ETF*	*Kotak Gold ETF*	*Quantum Gold Fund - ETF*	*Reliance ETF Gold Bees*	*SBI Gold ETF Scheme - Growth Option*
Axis Gold ETF	1											
Birla Sun Life Gold ETF	0.83	1										
HDFC Gold ETF	0.92	0.87	1									
CPSEETF	-0.27	-0.19	-0.31	1								
CanaraRobeco Gold ETF	0.85	0.84	0.91	-0.28	1							
Icici Prudential Gold IwinETF	0.24	0.24	0.25	-0.13	0.23	1						
IDBIgold	0.85	0.85	0.91	-0.23	0.83	0.17	1					
Invesco India Gold ETF	0.87	0.82	0.90	-0.28	0.86	0.26	0.80	1				
Kotak Gold ETF	0.29	0.32	0.33	0.03	0.25	0.08	0.30	0.35	1			
Quantum Gold Fund –ETF	0.94	0.86	0.98	-0.32	0.90	0.30	0.89	0.91	0.37	1		
Reliance ETF Gold Bees	0.93	0.87	0.99	-0.33	0.91	0.28	0.91	0.90	0.37	0.99	1	
SBI Gold ETF Scheme - Growth Option	0.92	0.87	0.99	-0.29	0.91	0.23	0.91	0.91	0.39	0.98	0.99	1
UTI Gold ETF	0.89	0.86	0.96	-0.28	0.91	0.30	0.89	0.88	0.38	0.95	0.97	0.97

Source: SPSS Output

Interpretation

Quantum Gold Fund - ETF is very strongly positively correlated with Reliance ETF Gold Bees (r = 0.99) and SBI Gold ETF Scheme - Growth Option (r = 0.98). Similarly, Reliance ETF Gold Bees is very strongly positively correlated with SBI Gold ETF Scheme-Growth Option (r = 0.99). UTI Gold ETF is positively correlated with SBI Gold ETF Scheme-Growth Option (r= 0.97).

HDFC Gold ETF is positively correlated with UTI Gold ETF (0.96), SBI Gold ETF Scheme - Growth Option (r = 0.99), Reliance ETF Gold Bees (r = 0.99) and Quantum Gold Fund – ETF (r = 0.98).

CPSE ETF is negatively correlated with CanaraRobeco Gold ETF (r= -0.28), Icici Prudential Gold Iwin ETF (r = -0.13), IDBI Gold (r = -0.23), Invesco India Gold ETF (r = -0.28), Quantum Gold Fund – ETF (r = -0.32), Reliance ETF Gold Bees (r = -0.33), SBI Gold ETF Scheme - Growth Option (r = -0.29) and UTI Gold ETF (r = -0.28).

Table 4: Descriptive Statistics

	Axis Gold ETF	**Birla Sun Life Gold ETF**	**HDFC Gold ETF**	**CPSE ETF**	**CanaraRobeco Gold ETF**	**ICICI Prudential Gold Iwin ETF**	**IDBI Gold ETF**	**Sensex**
Mean	-0.15	-0.06	-0.10	1.15	-0.19	-1.72	-0.09	1.01
Standard Error	0.55	0.60	0.54	0.92	0.57	1.58	0.59	0.48
Median	-0.92	0.25	-0.31	0.93	-0.46	-0.37	-0.41	1.12
Standard Deviation	4.25	4.65	4.21	6.13	4.41	12.22	4.58	3.75
Sample Variance	18.07	21.61	17.73	37.59	19.42	149.42	20.95	14.07
Minimum	-9.21	-11.60	-10.65	-12.56	-11.25	-89.50	-10.90	-7.51
Maximum	12.22	14.73	11.35	22.73	13.46	11.82	11.68	10.17

Source: SPSS Extract

Interpretation

Descriptive statistics will give a summary of funds for the selected list of funds for a period of five years. From the above table, it is clear that, the returns of CPSE ETFs funds compared with Sensex is more and other funds have a less average returns. Standard error of funds are deviated with that of mean proportion and the higher Standard Deviation (SD) Error occurs in CPSE ETFs and lesser SD error in HDFC Gold ETF. The median of value compared with Sensex lies within the distribution. The higher risk (SD) will have wider distribution and higher risk of ICICI ETFs are deviated from other funds. The variation from those observed means in case of ICICI and Birla life gold ETFs has higher variation. Compare to Sensex, there is a maximum growth in case of CPSE ETFs and minimum in HDFC Gold ETFs.

Table 5: Descriptive Statistics

	Invesco India Gold ETF	Kotak Gold ETF	Quantum Gold ETF	Reliance ETF Gold Bees	SBI Gold ETF	UTI Gold ETF	Sensex
Mean	-0.11	-1.66	-0.09	-0.07	-0.10	-0.09	1.01
Standard Error	0.67	1.59	0.53	0.55	0.54	0.55	0.48
Median	-0.34	-0.36	-0.28	-0.12	-0.62	-0.49	1.12
Standard Deviation	5.20	12.35	4.13	4.29	4.18	4.27	3.75
Sample Variance	27.01	152.61	17.07	18.41	17.51	18.26	14.07
Minimum	-12.15	-89.69	-9.86	-10.46	-10.47	-10.79	-7.51
Maximum	21.21	12.77	12.58	12.16	10.81	11.06	10.17

Source: SPSS Extract

Interpretation

The above table depicts Gold ETF funds are compared with Sensex. None of the ETFs average returns are more compared with benchmark Sensex returns. Standard error of funds are deviated with that of mean proportion among the distribution and higher deviation error occurs in Kotak gold ETFs and lesser in Quantum gold ETFs. The higher risk (SD) will have wider distribution and higher risk of Kotak gold ETFs are deviated from other funds. The variation from those observed means in case of Kotak and Invesco ETFs has higher variation. Compare with Sensex, there is maximum growth in case of Invesco and Kotak ETFs and minimum of Quantum Gold ETFs.

Table 6: Risk-Return Relationship

Funds	**Beta**	**SD**	**Avg Return**
Axis Mutual Fund - Axis Gold ETF	-0.264	4.251	-0.154
Birla Sun Life Mutual Fund - Birla Sun Life Gold ETF	-0.209	4.648	-0.057
HDFC Mutual Fund - HDFC Gold ETF	-0.317	4.210	-0.104
CPSE ETF	1.090	6.131	1.145
CanaraRobeco Gold ETF	-0.225	4.407	-0.185
ICICI Prudential Gold Iwin ETF	-0.265	12.224	-1.716
IDBI Gold ETF	-0.340	4.577	-0.095
Invesco India Gold ETF	-0.316	5.197	-0.112
Kotak Mahindra Mutual Fund - Kotak Gold ETF	0.186	12.354	-1.664
Quantum Gold Fund – ETF	-0.285	4.132	-0.092
Reliance ETF Gold Bees	-0.335	4.291	-0.075
SBI Mutual Fund – SBI Gold ETF Scheme - Growth Option	-0.328	4.185	-0.101
UTI Mutual Fund - UTI Gold ETF	-0.303	4.273	-0.093
Sensex	1.000	3.751	1.009

Source: SPSS Extract

Interpretation

The average returns of Gold ETF Funds should be higher than that of benchmark Sensex returns and then it is termed to be outperform. **For example:** If the expected return of Bank nifty has higher performed than that of benchmark of BSE Sensex. The investor will have higher returns than market returns. If the average returns of Gold ETF Funds is lesser than that of benchmark Sensex returns and then it is termed to be underperform. **For example:** If the investor have invested in stock that gives him a lesser expected returns that of market return is his stocks are underperform.

Table 7: Sharpe Performance Measure Index

Funds	Sharpe	Rank	SD
CPSE ETF	0.174	1	6.13
Birla Sun Life Mutual Fund - Birla Sun Life Gold ETF	-0.029	2	4.65
Reliance ETF Gold Bees	-0.036	3	4.29
Invesco India Gold ETF	-0.037	4	5.2
IDBI Gold	-0.038	5	4.58
UTI Mutual Fund - UTI Gold ETF	-0.041	6	4.27
Quantum Gold Fund - ETF	-0.042	7	4.13
SBI Mutual Fund - SBI Gold ETF Scheme - Growth Option	-0.043	8	4.18
HDFC Mutual Fund - HDFC Gold ETF	-0.044	9	4.21
Axis Mutual Fund - Axis Gold ETF	-0.055	10	4.25
CanaraRobeco Gold ETF	-0.060	11	4.41
Kotak Mahindra Mutual Fund - Kotak Gold ETF	-0.141	12	12.35
ICICI Prudential Gold Iwin ETF	-0.147	13	12.22

Source: Author's calculation

Interpretation:

The above are pertaining to the Sharpe performance index, gives a single value to be used for the performance ranking of various funds. In 13 ETF funds, as per Sharpe the best performance of ETF are CPSEETF (0.174) has rank 1, Birla Sun Life Mutual Fund - Birla Sun Life Gold ETF (-0.029) has rank 2 and Reliance ETF Gold Bees(-0.036) has rank 3.

There is a less variation in their best performance. The worst performance ETFs are ICICI Prudential Gold IwinETF(-0.147) has rank 13, Kotak Mahindra Mutual Fund - Kotak Gold ETF(-0.141) has rank 12 and CanaraRobeco Gold ETF (-0.060) has rank 11. There is a morevariation in these worst performance. The investor have to select best three performance ETFsfor better investment decision.

While selecting Gold ETFs, the investors should select those funds that has less variation and have more attractive returns. There is more variation of Gold ETFs performance ICICI Prudential Gold Iwin ETF(12.22),Kotak Gold ETF (12.35) and CanaraRobeco Gold ETF funds (4.41). There is less variation in CPSE ETF (6.13), Birla Sun Life Gold ETF (4.65) and Reliance ETF Gold Bees (4.29).

Table 8: Treynor Performance Measure Index

Funds	Treynor	Rank	Beta
ICICI Prudential Gold Iwin ETF	6.779	1	-0.26
CanaraRobeco Gold ETF	1.177	2	-0.23
CPSE ETF	0.977	3	1.09
Axis Mutual Fund - Axis Gold ETF	0.887	4	-0.26
Birla Sun Life Mutual Fund - Birla Sun Life Gold ETF	0.655	5	-0.21
Invesco India Gold ETF	0.610	6	-0.32
Quantum Gold Fund - ETF	0.604	7	-0.28
HDFC Mutual Fund - HDFC Gold ETF	0.581	8	-0.32
UTI Mutual Fund - UTI Gold ETF	0.572	9	-0.30
SBI Mutual Fund - SBI Gold ETF Scheme - Growth Option	0.553	10	-0.33
IDBI Gold ETF	0.514	11	-0.34
Reliance ETF Gold Bees	0.462	12	-0.33
Kotak Mahindra Mutual Fund - Kotak Gold ETF	-9.362	13	0.19

Source: Author's calculation

Interpretation:

The Treynor's Performance Index will measures the fund's performance in relation to the market performance of risk in funds. In these 13 ETF funds, the best performance with consideration of risk is Icici Prudential Gold IwinETF(6.779) has rank 1, CanaraRobeco Gold ETF(1.177) has rank 2 and CPSEETF(0.977) has rank 3.

While the worst performance are Kotak Gold ETF (-9.362) has rank 13, Reliance ETF Gold Bees (0.462) has rank 12 and IDBI Gold ETF (0.514) has rank 11. If selected funds are having negative Treynor's ratio as it is dependent of the market performance i.e. stock market performance. A positive beta means that the asset's returns generally follow the market returns. A negative beta means that the asset's returns generally move opposite to the market returns.

The lesser beta will have a better performance of Gold ETFs and higher beta will have significantly less performance. Beta funds will have an impact of market index. These Gold ETFs will have lesser beta are Birla Sun Life Gold ETF (-0.21), CanaraRobeco Gold ETF (-0.23) and ICICI Prudential Gold Iwin ETF (-0.26). The Gold ETFs are higher beta is Kotak Gold ETF (0.19) and CPSE ETF (1.09). The risk is higher when the beta is more than 1 and less than 1 will have risk is lesser.

Table 9: Jensen Performance Measure Index

Funds	**Jensen**	**Rank**	**Beta**
Reliance ETF Gold Bees	0.156	1	-0.33
IDBI Gold	0.141	2	-0.34
SBI Mutual Fund - SBI Gold ETF Scheme - Growth Option	0.123	3	-0.33
HDFC Mutual Fund - HDFC Gold ETF	0.110	4	-0.32
UTI Mutual Fund - UTI Gold ETF	0.108	5	-0.30
Invesco India Gold ETF	0.101	6	-0.32
Quantum Gold Fund – ETF	0.093	7	-0.28
Birla Sun Life Mutual Fund - Birla Sun Life Gold ETF	0.057	8	-0.21
CPSE ETF	0.053	9	0.09
Axis Mutual Fund - Axis Gold ETF	0.011	10	-0.26
CanaraRobeco Gold ETF	-0.056	11	-0.23
ICICI Prudential Gold Iwin ETF	-1.550	12	-0.26
Kotak Mahindra Mutual Fund - Kotak Gold ETF	-1.917	13	0.19

Source: Author's calculation

Interpretation:

From the above result considering 13 ETF funds as per Jensen, the ETF funds are Reliance ETF Gold Bees (0.156) has rank 1, IDBI Gold ETF (0.141) has rank 2 and SBI Gold ETF Scheme (0.123) rank 3 are the best performance of funds and performance of fund manager is well.

The ETF fundsKotak Gold ETF(-1.917) has rank 13, Icici Prudential Gold IwinETF(-1.550) has rank 12 and CanaraRobeco Gold ETF(-0.056) has rank11 that are worst fund performance. Through this analysis, investor may decide to invest their fundson the basis on Jensen measure ranking.

In Jensen, beta will have used to analysis to know fund manager performance and the lesser beta are Birla Sun Life Gold ETF (-0.21) and CanaraRobeco Gold ETF (-0.23). The higher beta are Kotak Gold ETF 0.19 and CPSE ETF (0.09). The systematic is beta of ETFs. The investor should invest their money in lesser beta and more of returns.

Table 10: Summary of Sharpe, Treynor and Jensen's Performance measures rank list for the selected funds.

Funds	Sharpe Rank	Treynor Rank	Jensen Rank
Axis Mutual Fund - Axis Gold ETF	10	4	10
Birla Sun Life Mutual Fund - Birla Sun Life Gold ETF	2	5	8
HDFC Mutual Fund - HDFC Gold ETF	9	8	4
CPSEETF	1	3	9
CanaraRobeco Gold ETF	11	2	11
Icici Prudential Gold IwinETF	13	1	12
IDBI Gold	5	11	2
Invesco India Gold ETF	4	6	6
Kotak Mahindra Mutual Fund - Kotak Gold ETF	12	13	13
Quantum Gold Fund –ETF	7	7	7
Reliance ETF Gold Bees	3	12	1
SBI Mutual Fund - SBI Gold ETF Scheme - Growth Option	8	10	3
UTI Mutual Fund - UTI Gold ETF	6	9	5

Source: Author's calculation

Conclusion

The closing prices of 13 Gold ETFs listed in the BSE have been studied and analyzed. The closing prices are from benchmark index of BSE Sensex. Gold ETF is a various funds offering that of investment alternatives available to the investor. This paper examine the performance of gold ETFsfunds with the help of performance tools such as Sharpe, Treynor and Jensen performance measures.The trading in Gold ETFs is increasing over the time as the gold prices are regularly touching new high and the investors are investing in these ETFs

Portfolio performance measures should be an important aspects of the investment decision process. These tools will provide the required information for the investors to evaluate their decision that where the money has to be invested. Without measurement of risk adjusted returns, the investors cannot be possibly consider the investment representation.

The Sharpe performance measures helps investors to analysis volatility in portfolio performance, Treynor performance measure will help an investor to decide about assessment of risk over the rate of returns and Jenson performance measures will support evaluation of fund manager and their performance. These three performance measures will make investor to take effective decision on investment of funds.

These three performance tool which make an investor to take an effective decision to invest his money into different funds that will have an increase in his returns. Due to volatility of market performance, it is difficult for investor for evaluation of funds and through this historical data and analysis will be useful information to investors. Market performance of funds invested in ETF can be studied. The correlation between one funds to another funds and the impact of one funds over the other funds can be detected.

References

- Athma, Prashanta& k, Suchitra (2011), gold ETFs: an emerging investment option, Asia pacific management journal of research in business management, 2(1), pp.66-78.
- AlokGoyal& Amit Joshi (2011), Performance appraisal of gold ETFs in India, Elixir International journal, ISSN 2229-2060.
- Dr. (Mrs.) PrashantaAthma and Ms. B. Mamatha (November 2013), performance of exchange traded funds in India, vol.2, issue 11.
- Dr. M Jayanthi, Ms. S Malathy and Ms. T. Radhulya (2013), a study on performance of gold ETF companies in India (vol 6), international research journal of business and management.
- Dr.PrashantaAthma (2011), "gold ETFs: an emerging investment option: aria pacific journal of research in business management" vol.2, issue 1.
- Dr. P Vidhyapriya and Dr. M Mohanasundari (August 2014), a study on the performance of gold ETF in India, volume 4, issue 8.
- Dr. M. M. Goyal (October, 2014.), accelerating growth of gold ETF in India, vol 3 issue 10.
- Dr. Vipin Kumar Aggarwal, Silky Jain and Anchal Aggarwal, gold vs gold ETFs: evidences from India, vol 2, issue 4.
- Dr. V Latha and D Deepa, investment in Indian gold ETFs soaring, volume 19, issue 5.
- Jayanthi M., Malathy S and. Radhulya T (2013), A study on performance of Gold ETF Companies in India , International Research Journal of Business and Management 6: 97- 102.
- James m. Poterba and john b. Shoven, (January 2002), "exchange traded funds: a new investment option for taxable investors", Massachusetts institute of technology, department of economics.
- Mukesh Kumar Mukul, Vikrant Kumar and Sougata Ray (2012) made a study on "gold ETF performance.
- Naylor, M., Wongchoti, U., & and Gianotti, C. (2011). Abnormal Returns in Gold and Silver Exchange Traded Funds. Journal of Index Investing, 2 (2).
- Prof. Y V Reddy, Ms. Namrata S Wagle and Ms. Maithili S Naik (October, 2014) "Performance evaluation of gold exchange traded funds listed on NSE" in amity case research journal 3.
- PrashantaAthma and b. Mamatha (2012), compared the index funds, ETF based on tracking error, price transmission and return.
- P. Krishna Prasanna (2012), performance of exchange-traded funds in India (vol 7), international journal of business and management.
- Prakash Neetu (August 2004), "exchange traded funds in India", the chartered accountant.
- S. Narend (2014), performance of ETFs and index funds: a comparative analysis, national stock exchange working paper series.
- Vidhyapriya and. Mohanasundari M. (2014), A study on performance of Gold ETFs in India. Volume: 4, Issue 8.