

# Performance of Exchange Traded Funds in India

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**Abstract:** *ETF are hybrid type of mutual fund which can be traded as share or stock on the exchange. Exchange Traded Funds are one of the most preferred investment vehicle in the matured markets like USA, UK, Japan, Germany etc. Exchange Traded Funds were launched first in USA in 1993 and December 2001 in India. But so far it is not a popular investment in India. The reason why ETFs are not popular in India are lack of product variability in the ETFs. The market of ETFs in India has lack of liquidity and product knowledge about the product in the general public and with big shots such as Foreign Institutional Investors, Domestic Financial Institutions and High Net worth individuals. Keywords: ETFs Exchange Traded Funds, matured markets, product variability, liquidity, Foreign Institutional Investors*

## 1. Introduction

An investor today has various investment goals and objectives which have made him look for new investment avenues. This has led to the development of various complex instruments which derive their features as a hybrid of various financial instruments. These instruments can be even customized as per the needs of the investors. In the case of the Indian capital market, the new instruments are marking their appearance and gaining popularity day by day. The Exchange Traded Fund or the ETF is one such example. ETFs originated in Canada during 1989. The first ETF was named as TIP 35 (Toronto Index Participation Fund). ETFs were introduced in the US in 1993. The first ETF introduced in the US was named as Standard & Poor's 500 Depository Receipts (SPDRs) which passively mimics the S&P500 index. Asia followed suit in 1999 with the introduction of Hong Kong Tracker Fund. In India, Benchmark Mutual Fund Company launched the first ETF- Nifty BeES (Benchmark Exchange Traded Scheme) in 2001, which was listed on the NSE for trade. The ETFs started growing in the Indian economy only after 2006.

ETFs constitute about 60% of trading volumes obtained from the American Stock Exchanges. According to the Annual Report of Ameriprise Financial, ETFs grew at an average of 26.1% in the US and 42% in India compounded annually in the past five years. Over the past decade, exchange-traded funds (ETFs) have grown from a small, niche Index-tracking product to become one of the most successful innovations in the history of investment. As of the end of 2016, the combined assets under management (AUM) of all ETFs traded on exchanges in US were \$ 3-trillion (ETF.com), an increase of approximately 1,400 percent from the assets in 2001. Total AUM of ETFs benchmarked to Nifty indices now commands an impressive market share of 85% (Rs.12, 865 cores as on March 31, 2016 as against Rs.7, 055 cores as on March 31, 2015). There are now close to 4,000 different ETFs listed on over 50 exchanges all over the world. One of the oldest Exchange-traded funds are Standard & Poor's Depository Receipts (SPDRs or "spiders"), which began trading on the American Stock Exchange (AMEX) in the fall of 1992.

ETF or Exchange Traded Fund is an investment vehicle that tracks a commodity or an index but is traded like a stock on a securities exchange. ETFs are securities that closely resemble index funds, and can be bought and sold just like a

common stock. They offer the convenience of a stock with the diversification of a mutual fund. ETFs don't sell shares directly to investors. Instead, each ETF's sponsor issues large blocks (often of 50,000 shares or more) that are known as creation units. These units are then bought by an Authorised Participant, typically a market maker, specialist or institutional investor, which obtains shares of the underlying securities and places them in a trust. The authorised participant then splits these creation units into ETF shares each of which represents a legal claim to a tiny fraction of the asset in the creation unit and then sells them on a secondary market.

In the 1990s, most ETFs were funds that tracked market-wide equity indices, sector indices and fixed-income indices. As the market for these ETFs became saturated, ETF providers (or sponsors) came up with products that were based on other asset classes such as commodities and currencies.

Recent innovations (late 2000s) include ETFs that:

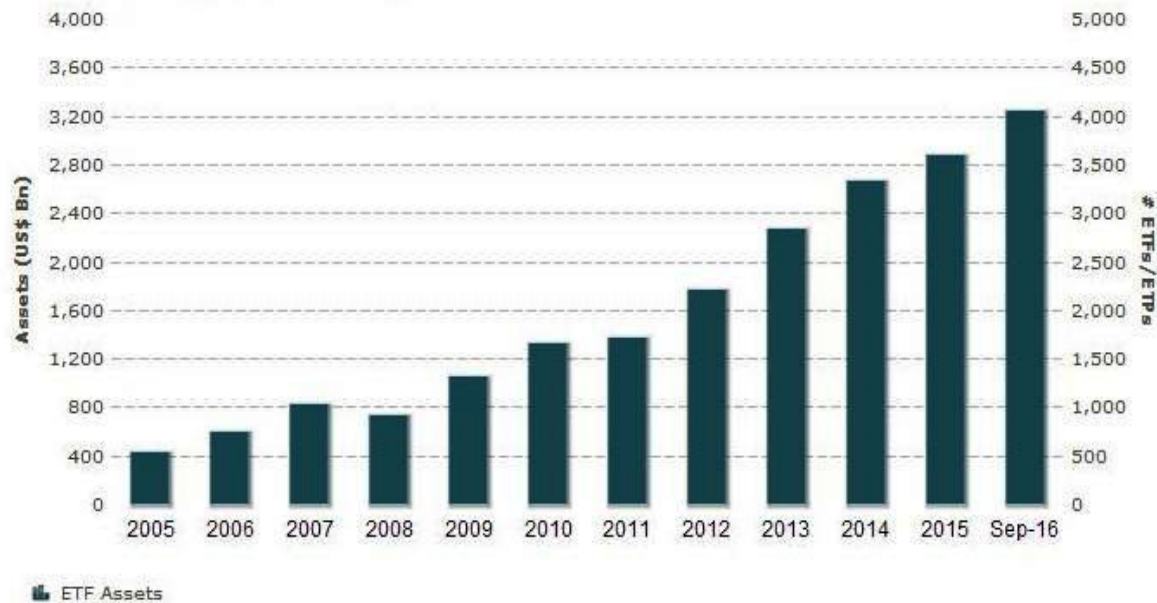
- Hold physical commodities such as gold and silver;
- Are actively managed, rather than passively tracking an index;
- Employ leverage to generate returns that are a positive or negative multiple of the index returns; and
- Combine a long position (in one index) with a short position (in another index).

The popularity of ETFs is due to their several benefits that distinguish them from other index-tracking products such as conventional mutual funds and closed-end funds. The major benefits are:

- intraday trading;
- tax efficiency;
- low expense ratios; and
- cost transparency.

On the other hand, ETFs have a few disadvantages, one of which is that investors have to pay commissions and bid-ask spreads when they buy/sell them. The bid-ask spreads can be significant for funds that have low liquidity. In addition, some recent ETFs such as actively managed ETFs have higher management fees, while leveraged ETFs are not designed to be held for a long period, which necessitates frequent trading.

Table 1: Global ETF Growth

**GLOBAL ETF and ETP GROWTH**

Source: ETFGI

## 2. Literature Review

Most of the empirical studies on performance of ETFs focus on US-listed ETFs that track domestic or international equity market indices and conduct comparisons with conventional index mutual funds. Particularly in early 2000s, academic reviews focused on Standard and Poor's Depository Receipts (SPDR). One of the initial studies on these funds was made by Elton et al. (2002). It is found that SPDR performs 28.4 basis points below its benchmark index S&P500 and 18 basis points below low-cost index funds in a similar category. The main reasons are (i) management fees and (ii) income lost due to the policy of holding dividends received on the underlying shares in cash.

Gallagher and Segara (2004) exhibited the performance and trading characteristics of exchange traded funds (ETFs) in Australia. The objective of the study is to investigate the ability of index oriented (classical) ETFs to track underlying equity benchmarks on the Australian Stock Exchange. The study found out that index-oriented ETFs closely track their respective benchmarks.

Poterba and Shoven (2002) examine the perception of ETFs as tax-efficient alternatives by comparing the pre- and post-tax returns of the largest ETF, the SPDR, with the returns of the largest equity index fund, the Vanguard Index 500 Fund. The results suggest that between 1994 and 2000, the pre- and post-tax returns of the two funds were very similar.

Kostovetsky (2003) compares two methods of passive investment using a theoretical model based on investor trading preferences, tax implications, and other variables that weigh the advantages and disadvantages of ETFs relative to index funds. Kostovetsky shows that the key areas of difference are management fees, taxation efficiency, and qualitative differences.

Recently, Hilliard's (2014) examination of mispricing associated with ETFs using the Ornstein-Uhlenbeck process augmented with jumps uncovered no mispricing in the case of local US ETFs and higher long-term mean premium and lower speed of adjustments in the case international equity ETFs and bond ETFs. In light of the fact that the public holding of domestic ETFs is much greater than that of international ETFs in the US

Qadan and Yagil (2012) investigated the price dynamics and tracking ability of 42 local US ETFs and the impact of 2008-09 financial crisis on the tracking ability of the local US ETFs using an error correction model. They find that except for the ETFs from the real estate and banking and finance sectors, the share price of all other ETFs and their underlying index prices are co integrated, indicating the absence of arbitrage opportunities and the prevalence of a long-run equilibrium. In addition, the tracking ability of ETFs were found to be positively related to the trading volume and negatively related to the daily volatility of ETF.

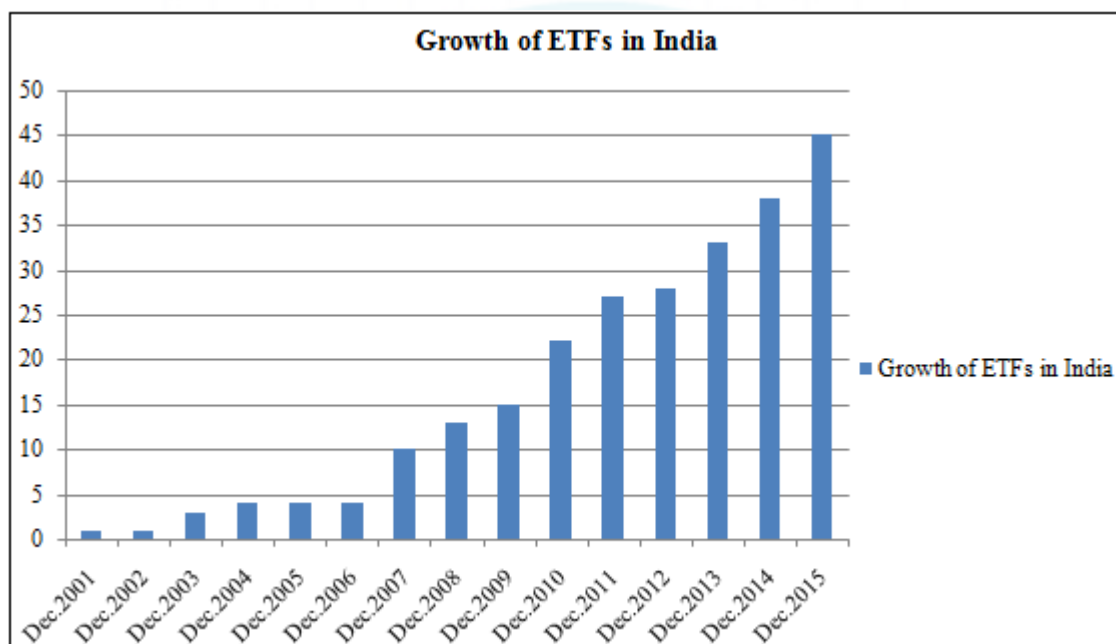
Prashanta Athma and K. Raj Kumar (2011) covered the trends and progress of ETFs and Index Funds in India and evaluate the performance of ETFs vis-a-vis Index Funds in India. The statistical tools like Standard Deviation, Beta, Alpha, R-squared and Sharpe Ratio are used for data analysis. It is concluded that ETFs have given better opportunity for the small investors compared to Index Funds.

## 3. Growth of ETFs in India

Table-1 depicts the growth of Assets under management (AUM) of ETFs till 2016 but the market crash of 2008 put a dent in the growth. Again in 2011 it gained momentum and grow at a rapid pace in the next years, and a sharp increase in 2016 almost double of previous year.

**Table 2:** Growths of ETFs

Year	No of ETFs	AUM (Rs.Crore)	Increase or Decrease	% of Increase or Decrease
Dec.2001	1	3.61	-	-
Dec.2002	1	7.23	3.62	200.2770083
Dec.2003	3	205.95	198.72	2848.547718
Dec.2004	4	498.54	292.59	242.0684632
Dec.2005	4	2855.82	2357.28	572.8366831
Dec.2006	4	7811.11	4955.29	273.5154877
Dec.2007	10	7141.74	-669.37	-91.43053932
Dec.2008	13	3119.11	-4022.63	-43.67437067
Dec.2009	15	2461.72	-657.39	-78.92379557
Dec.2010	22	4959.16	2497.44	201.451018
Dec.2011	27	10668	5708.84	215.1170763
Dec.2012	28	13668	3000	128.1214848
Dec.2013	33	10273	-3395	-75.16095991
Dec.2014	38	13260	2987	129.0762192
Dec.2015	45	17661	4401	133.1900452
Dec.2016	45	34353	16692	194.5133345



#### 4. Need of the Study

Exchange Traded Funds are hybrid financial instruments and are in its growth stages in India and very little literature on this instrument is available. The absence of empirical research on Indian ETFs, this study contributes to the literature by providing analysis of the performance and benchmark tracking capabilities of a relatively new financial product available to Indian investors. Much research has provided attention to the performance of mutual fund products in India but not on ETFs, so this study is to comprehensively evaluate the performance of ETFs with respect to risk-return perspective.

#### 5. Objectives of the Study

The following are objectives for present study:-

- 1) To compute and evaluate the performance (i.e. risk and return) of Index Exchange

Traded Funds listed in National Stock Exchange.

- 2) To analyse the tracking ability of ETFs with their respective benchmark Indexes.
- 3) To investigate the trading characteristics of Exchange Traded Funds.

#### 6. Research Methodology

The performance of ETFs is analysed in terms of whether it has been able to achieve its investment objectives of tracking or replicating the return of its underlying benchmark index. The study is based on secondary data. The secondary data source include Fact Sheet of ETFs, Research publications, SEBI Manuals AMFI reports and data collected from websites of National Stock Exchange and BSE, Bloomberg, Seeking Alpha and the respective fund houses. The daily closing prices of the funds were considered from 1<sup>st</sup> April 2012 to March 31, 2017.

**Table 3:** The Summarized Details of Various ETFs Listed in NSE on 31st March 2017

SL.No	Name	Issuer Name	Symbol	Underlying Indeses	Launch	AUM
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						Date	
1	INDEX ETFs	GS Nifty BeES	Goldman Sachs Asset Management	NIFTYBEEES	Nifty 50 Index	28-Dec-01	912.39
2		ICICI SENSEX Prudential Exchange Traded Fund	ICICI Prudential AMC	ISENSEX	S&P BSE Sensex	10-Jan-03	1662.79
3		GS Junior BeES	Goldman Sachs Asset Management	JUNIORBEEES	Nifty Next 50	21-Feb-03	124.56
4		GS Bank BeES	Goldman Sachs Asset Management	BANKBEEES	Nifty Bank	27-May-04	1472.46
5		GS PSU Bank BeES	Goldman Sachs Asset Management	PSUBNKBEEES	Nifty PSU BANK	25-Oct-07	73.64
6		Kotak PSU Bank ETF	Kotak AMC	KOTAKPSUBK	Nifty PSU BANK	08-Nov-07	4541.87
7		R*Shares Banking ETF	Reliance AMC	RELBANK	Nifty Bank	24-Jun-08	147804.44
8		Quantum Index Fund - Growth	Quantum AMC	QNIFTY	Nifty 50 Index	10-Jul-08	406.99
9		GS Shariah BeES	Goldman Sachs Asset Management	SHARIABEEES	Nifty50 Shariah Index	18-Mar-09	1.33
10		Kotak Nifty ETF	Kotak AMC	KOTAKNIFTY	Nifty 50 Index	02-Feb-10	60804.17
11		MOST Shares M50	Motilal Oswal AMC	M50	Nifty 50 Index	28-Jul-10	2042.58
12		GS Infra BeES	Goldman Sachs Asset Management	INFRABEEES	Nifty Infrastructure	29-Sep-10	16.68
13		MOST Shares M100	Motilal Oswal AMC	M100	Nifty Midcap 100	31-Jan-11	2581.95
14		Religare Invesco Nifty ETF	Religare AMC	RELGRNIFTY	Nifty 50 Index	13-Jun-11	1.62
15		Birla Sun Life Nifty ETF	Birla Sun Life AMC	BSLNIFTY	Nifty 50 Index	21-Jul-11	18196.03
16		ICICI Prudential Nifty ETF	ICICI Prudential AMC	INIFTY	Nifty 50 Index	20-Mar-13	91497.52
17		R*Shares CNX 100 ETF	Reliance AMC	RELCNX100	Nifty 100	22-Mar-13	722.42
18		ICICI Prudential CNX 100 ETF	ICICI Prudential AMC	ICNX100	Nifty 100	20-Aug-13	3108.81
19		R*Shares Nifty ETF	Reliance AMC	RELNIFTY	Nifty 50 Index	22-Nov-13	93555.58
20		CPSE ETF	Goldman Sachs Asset Management	CPSEETF	Nifty CPSE Index	28-Mar-14	569579.58
21		R*Shares Consumption ETF	Reliance AMC	RELCONS	Nifty India Consumption	10-Apr-14	1611.05
22		R*Shares Dividend Opportunities ETF	Reliance AMC	RELDIVOPP	Nifty Dividend Opportunities 50	15-Apr-14	1514.64
23		Kotak Banking ETF	Kotak AMC	KOTAKBKETF	Nifty Bank	04-Dec-14	278310.75
24		SBI ETF Banking	SBI AMC	SETFBANK	Nifty Bank	20-Mar-15	45449.94
25		SBI ETF Nifty Junior	SBI AMC	SETFNIFJR	Nifty Next 50	20-Mar-15	2.77
26		Edelweiss Exchange Traded Scheme - Nifty	Edelweiss AMC	NIFTYEEES	Nifty 50 Index	08-May-15	548.35
27		R*Shares NV20 ETF	Reliance AMC	RELNV20	Nifty50 Value 20 Index	18-Jun-15	1466.21
28		SBI ETF Nifty	SBI AMC	SETFNIFTY	Nifty 50 Index	23-Jul-15	#####
29		UTI Nifty ETF	UTI AMC	UTINIFTETF	Nifty 50 Index	03-Sep-15	172677.07
30		UTI Sensex ETF	UTI AMC	UTISENSETF	S&P BSE Sensex	03-Sep-15	46804.54
31	GOLD ETFs	Goldman Sachs Asset Management	Goldman Sachs Gold Exchange Traded Scheme	GOLDBEEES	Gold	Mar-07	2720.73
32		UTI Mutual Fund	UTI GOLD Exchange Traded Fund	GOLDSHARE	Gold	Mar-07	40491.55
33		Kotak Mutal Fund	Kotak Gold Exchange Traded Fund	KOTAKGOLD	Gold	Jul-07	46130.17
34		Reliance Mutual Fund	Reliance Gold Exchange Traded Fund	RELGOLD	Gold	Nov-07	279592.95
35		Quantum Mutual Fund	Quantum IndexFund (an ETF)	QGOLDHALF	Gold	Feb-08	5920.07
36		SBI Mutual Fund	SBI Gold Exchange Traded Scheme	SBIGETS	Gold	Apr-09	84151.30
37		Religare Mutual Fund	Religare Gold Exchange Traded Fund	RELIGAREGO	Gold	Mar-10	41.66
38		HDFC Mutual Fund	HDFC Gold Exchange Traded Fund	HDFCFMGETF	Gold	Aug-10	51615.73
39		ICICI Prudential Mutual Fund	ICICI Prudential Gold Exchange Traded Fund	IPGETF	Gold	Aug-10	11120.05
40		Axis Mutual Fund	Axis Gold ETF	AXISGOLD	Gold	Nov-10	19594.95
41		Birla Sun Life Mutual Fund	Birla Sun Life Gold ETF	BSLGOLDETF	Gold	May-11	7320.90
42		IDBI AMC	IDBI Gold ETF	IDBIGOLD	Gold	Nov-11	7979.08
43		Canara Robeco MF	Canara Robeco Gold ETF	CANGOLD	Gold	Mar-12	6471.50
44		al nde x	Goldman Sachs Asset	GS Hang Seng BeES	HNGSNGBEEES	HangSeng	09-Mar-10



		Management					
45	DEBT Etf's	Motilal Oswal AMC	MOST Shares NASDAQ 100	N100	Nasdaq 100	29-Mar-11	6842.81
46		LIC Nomura AMC	LIC Nomura MF G-Sec Long Term ETF - Reg - Growth	LICNMFET	Nifty 8-13 yr G-Sec Index	26-Dec-14	7780.68
47		Goldman Sachs Asset Management	GS Liquid Exchange Traded Scheme	LIQUIDBEES	Government Securities	Jul-03	1397.19

**Sample size**

In the present study universe of the study consists of 30 Index exchange traded funds listed in NSE. With regards to the performance evaluation of ETFs with their benchmark indices the present study takes the sample of 9 Equity index ETFs, which were listed in NSE before 1st April 2009. Out of 9, 8 ETFs track the CNX Nifty and 1 tracks BSE Sensex.

**Table 4:** Sample Size

Sl.No	Name of the ETF	Launch date	Underlying Index	AUM (Rs. crore)
1	GS Nifty BeES	28-Dec-01	Nifty 50 Index	912.39
2	ICICI SENSEX Prudential Exchange Traded Fund	10-Jan-03	S&P BSE Sensex	1662.79
3	GS Junior BeES	21-Feb-03	Nifty Next 50	124.56
4	GS Bank BeES	27-May-04	Nifty Bank	1472.46
5	GS PSU Bank BeES	25-Oct-07	Nifty PSU BANK	73.64
6	Kotak PSU Bank ETF	08-Nov-07	Nifty PSU BANK	4541.87
7	Reliance ETF PSU Bank Bees	24-Jun-08	Nifty Bank	147804.44
8	Quantum Index Fund	10-Jul-08	Nifty 50 Index	406.99
9	GS Shariah BeES	18-Mar-09	Nifty50 Shariah Index	1.33

**Statistical Techniques:** In the present study the data drawn from various sources has been analyzed to evaluate the performance of Index ETFs by computation of various performance parameters like systematic risk (Beta), R-Square, Returns, volatility (Standard Deviation) and Tracking error. Apart from these techniques, risk adjusted measures like Sharpe Ratio and Treynor Ratio are also being computed.

**Annualized Returns:** Is a non risk adjusted measure of performance and has been calculated for all the selected ETFs and their respective Benchmarks.  

$$= (\text{NAV on 31st Mar '17} / \text{NAV on inception date}) * (250/N) - 1$$

In a year approx. 250 or 252 days are considered to be the trading days after deducting Saturday, Sundays and other holidays. In our study we have taken 250 trading days for calculating annualized returns and annualized standard deviation.

**Compound Annual Growth rate:** CAGR is a geometric average of annual growth. It reflects compound, cumulative

returns over time. Notice that this geometric average rate of return is lower than the arithmetic average rate of return because it reflects compounding rather than simple averaging.  $= (\text{Final Amount} / \text{initial amount}) ^ (1/\text{no. of years}) - 1$

**Standard Deviation:** The standard deviation of a fund measures the risk by measuring the degree to which the fund fluctuates in relation to its mean return, the average return of a fund over a period of time.  $= (\sum (R_i - Mr)^2 \div (N - 1))^{1/2}$ .  
 Annualized Standard Deviation = Daily Standard Deviation  $\times (250)^{1/2}$ .

**Tracking Error:** Tracking error is defined as the standard deviation of the difference in returns between the fund and its target index. In simple terms, it is the difference between returns from the Index fund to that of the Index = St. Dev (Fund Return - Index Return)

**Beta:** The systematic risk or beta is a measure of volatility and can be defined as the tendency of a security's returns to respond to swings in the market.  
 $= \text{Covariance (stock vs. market index returns)} / \text{Variance (market index returns)}$

**Risk-adjusted performance Measures:** It measures the return of the fund, adjusted for the risk of the fund relative to that of some benchmark. In present study Sharpe and Treynor ratio is used for risk-adjusted performance measurement.

Both measure excess return above the risk-free rate per unit of risk. The main difference is that the Sharpe ratio used standard deviation as the risk measures, whereas Treynor ratio uses Beta.

**Sharpe Ratio:**  $= (R_f - R_f) / \sigma_i$   
**Treynor ratio**  $= (R_f - R_f) / \beta_i$

**Risk-free rate (R<sub>f</sub>):** The risk free rate is the rate of return that investors require for investment with no risk. In the present study Govt. Bonds 10 years are taken as a risk free securities and the rate is taken on an average 8% for the period under study.

**7. Results and Discussions**

**Analysis of performance of selected ETFs:** The performance of the ETFs under study is depicted in table 5. It shows the last 5 years returns of the selected ETFs. In last one year GS PSU Bank BeES has the highest returns (45.18%) whereas the Reliance ETF PSU Bank Bees have the lowest return (4.40%). In last two years most of ETFs have marginal returns. The reason might be the mild recession in August 2013.

**Table 5:** Returns of selected Exchange Traded Fund as on 31st March 2017

S. No.	Funds	1 Week	1 Month	1 Year	2 Years*	3 Years*	4 Years*	5 Year
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1	GS Nifty BeES	3.80%	8.10%	17.53%	-0.29%	11.26%	16.70%	16.44%
2	GS Junior BeES	0.90%	8.10%	35.87%	12.97%	23.66%	17.60%	20.2%
3	GS Bank BeES	1.00%	5.90%	33.76%	7.91%	19.36%	16.70%	16.29%
4	GS PSU Bank BeES	0.90%	-1.10%	45.18%	-1.12%	7.82%	5.50%	2.14%
5	Kotak PSU Bank ETF	0.80%	10.20%	34.15%	8.22%	3.70%	4.50%	5.40%
6	Reliance ETF PSU Bank Bees	0.90%	5.10%	4.40%	-2.10%	-13.85%	13.94%	10.50%
7	Quantum Index Fund -	0.80%	3.4%	17.79%	2.82%	11.69%	12.50%	13.11%
8	GS Shariah BeES	0.80%	8.00%	16.1%	5.05%	11.81%	13.50%	13.41%
	Average of Nifty ETF	1.23%	5.3%	22.75%	3.72%	8.39%	11.25%	11.68%
	CNX NIFTY	-1.4%	-4.33%	18.27%	14.67%	22.55%	13.09%	16.72%
9	ICICI SENSEX Prudential Exchange Traded Fund	2.1%	4.00%	16.18%	2.12%	8.04%	14.50%	11.31%
	Average of Sensex ETF	2.1%	4.00%	16.18%	2.12%	8.04%	14.50%	11.31%
	Sensex	-9%	-3.9%	17.80%	14.5%	22.10%	15.90%	16.80%

In **Table 5** we have calculated the compound annual growth rate (CAGR) for more than one year period. CAGR is an average growth rate over period of several years. It is a geometric average of annual growth. But CAGR does not reflect investment risk. Investments returns are volatile, meaning to say that they can vary significantly from one year to another and CAGR does not reflect that. So for that purpose we also used risk adjusted measures to evaluate the ETFs performance. It is important to note here that the period under consideration is from April 2012 to March 2017. From the Table-5 given above it is clear that in last 5 years non of the ETFs give return more than their Nifty . On the other hand GS Nifty has not succeeded in getting more returns than its benchmark CNX Nifty but quite close to it. Overall, on an average ETFs of both the indexes (Nifty and Sensex) have succeeded in outperforming their benchmark index in terms of compounded annualized returns.

**Risk-Return analysis of Index ETFs**

To analyze and evaluate the performance of Exchange Traded Funds (ETFs) individually and with respect to their benchmarks, we have taken into consideration various performance parameters like Systematic Risk (Beta), R-Square, Returns, Volatility (Standard Deviation), and Tracking Error. Apart from these techniques, risk adjusted measures like Sharpe Ratio; Treynor Ratio has also been computed to get a fair view of returns yielded by these ETFs with respect to risk associated with it.

**BETA (β):** The systematic risk or beta is a measure of volatility and can be defined as the tendency of a security's returns to respond to swings in the market. It is that risk which cannot be eliminated from the system. If the stock's price experiences movements that are greater - more volatile than the stock market, then the beta value will be greater than 1. If a stock's price movements, or swings, are less than those of the market then the beta value will be less than 1. The first column gives the Beta value of our focused ETFs and the market. The values of the 9 ETFs under consideration can be easily seen all the ETFs under consideration have beeta is equal to 1 or less than. It is clearly an indicator that the stocks or portfolios being represented in this ETF are less volatile or risky than their benchmark. Also if investor would like to beat the market on upside, it is best to invest in a high-beta fund. But one thing that an investor must keep in his mind that such a fund will fall more than a market on the way down. The market portfolio's Beta is always taken to be 1 because of the fact that market portfolio is considered to be representative of all the stocks and is well diversified. Also it appears from the both tables that all the funds have Beta values very near to the benchmark value of 1 indicating that the swings that happen in the market are more or less replicated in these ETFs

**Table 6: Risk Return Profile of Nifty ETF**

S. No.	Fund	β	R-Square	Annualized Return	Annualized Std.	Sharpe Ratio	Treynor Ratio	Tracking Error
1	GS Nifty ETF	1.0	0.997	16.30%	26.90%	0.59	.0953	3.866
2	GS Junior BeES	1.0	0.999	33.68%	17.40%	1.14	0.27	-1.321
3	GS Bank BeES	0.91	0.999	34.67%	17.60%	0.78	0.283	2.054
4	GS PSU Bank BeES	0.76	0.999	48.94%	17.60%	0.19	0.4892	3.84
5	Kotak PSU Bank ETF	0.42	0.999	45.93%	16.10%	0.01	0.6226	4.585
6	Reliance ETF PSU Bank Bees	0.987	0.99	7.69%	17.60%	.01	-0.036	8.511
7	Quantum Index Fund - Growth	1.0	0.999	23.07%	23.60%	0.62	0.0979	-2.85
8	GS Shariah BeES	1.0	0.99	14.61%	17.60%	0.7	0.081	8.514
	S&P CNX Nifty	1		16.70%	26.60%	.5	-0.042	

**Table 7: Risk Return Profile of Sensex ETF**

S. No.	Fund	β	R-Square	Annualized Return	Annualized Std.	Sharpe Ratio	Treynor Ratio	Tracking Error
1	CICI Pru Exchange Traded Fund	0.87	0.998	15.50%	27.00%	0.37	0.094	1.18
	BSE Sensex	1		3.80%	27.20%	-0.153	-0.041	

**R-Square:** Beta and R-square should be used together when examining a fund's risk profile. They are as inseparable as

risk and return. The R-squared value shows how reliable the beta number is. It should be varies between 0.8 and 1. Only

then it will bear a strong relationship with the benchmark index and hence beta will reflect movement of scheme accurately. An R-squared value greater than 0.8 is generally accepted to mean that the underlying beta value is reliable. Analysis of the results of both tables given below show that the R-square values of the selected exchange traded funds falls between 0.90 and 0.99. Hence, it indicates that beta values are reliable, and are closely performed in relation to the index.

**Annualized Returns:** Annualized Returns is considered as one of the important measures of performance. It is a non-risk adjusted measure of performance and has been calculated for all the selected ETFs and their respective Benchmarks from the 1st April 2012 to 31st March 2017. It is quite clear that all the ETFs have managed to outperform the market index in terms of better annualized returns. Kotak PSU Bank ETF (8.1%) in table- 6 has the highest annualized return among all the ETFs under study. GS Junior BeES, Quantum index fund and the S&P CNX Nifty have the second highest returns of 6.3% . However useful annualized returns may seem in view of performance evaluation but this measure of performance suffers from one major flaw in making investing decisions and that is its approach of non-accounting of risk element in fund returns. So it might happen that an ETF earns great returns but the risk exposure to earn that return is pretty high as well. So for a risk averse investor this measure of performance will in itself not suffice so as to make his investing decisions. Thus we need to study risk and return in tandem through following measures of performance to understand which Exchange Traded Funds (ETFs) is to be relied upon to earn great returns at minimum risk.

**Annualized Standard Deviation** means a fund's volatility, which shows the tendency of the returns to rise or fall drastically in a short-period of time. Security that is volatile has higher risk because its performance may change quickly in either direction at any moment. The standard deviation of a fund measures this risk by measuring the degree to which the fund fluctuates in relation to its mean return, the average return of a fund over a period of time. The priority therefore is to minimize this risk. If we look at the tables for ETFs, GS Nifty ETF (26.9%) of table-6 and CICI Pru Exchange Traded Fund (27.7%) of table-6 the standard deviation seems to be higher, meaning higher volatility than their benchmark index (26.6% and 27.2%) for their respective periods of observations which suggests that these funds are facing more risk exposure which can be compensated by the fact that they are delivering better annualized returns than benchmark index as shown in table no.5 and 6 given above. Hence the extra risk taken is justified.

**Risk-adjusted measures :** If we consider Sharpe measure or reward-to-variability ratio which is a measure of the excess return (or Risk Premium) per unit of risk in an investment asset or a trading strategy, we can see from the Table-6 and the Table-7 that among all the ETFs under study GS Junior BeES is giving out the best Sharpe ratio of 1.14 per unit of volatility or standard deviation. Also GS PSU Bank BeES ETF, Kotak PSU Bank ETF, Reliance ETF PSU Bank Bees is outperforming its benchmark S&P CNX Nifty (.5) quite comfortably for the same period. Thus GS Junior BeES

giving higher Sharpe ratio than their index suggests that this ETF has lived up to its promise of providing diversification to small investors by giving out good returns at less per unit risk. However all other ETFs of both the tables have negative Sharpe ratios for their respective periods indicating that there has been no risk premium or excess returns earned per unit of risk, rather there has been an erosion of invested value. Negative Sharpe also clearly suggests that an investor would have been better off in investing risk free investments like Govt. Bonds etc than in these ETFs. If we consider Treynor ratio, another risk adjusted returns measure of performance which is similar in principle to Sharpe Index as it also measures excess returns to per unit risk, except that here the portfolio's systematic risk or beta is considered as the measure of risk as opposed to the variance of portfolio returns. We can see that among all the ETFs, Kotak PSU Bank ETF (0. 0.6226) has the highest Treynor ratio which is indicative of the fact that for every per unit of market risk Kotak PSU Bank ETF gives out the maximum excess returns. Also Kotak PSU Bank ETF has higher Treynor value than benchmark index (-0.042) for the same period. All other ETFs of both the indexes show negative excess returns per unit of systematic risk because of the rough market situations since their inception. So it would have been better for an investor to invest in risk free instruments vis-a-vis these ETFs. Tracking Error: Exchange Traded Funds (ETFs) are expected to mirror the returns of an index minus the expenses, but sometimes they get off track. The percentage amount a fund's assets deviate from its benchmark index is referred to as the Tracking Error. The tracking error is usually expressed as a standard deviation, and a large deviation indicates that there are large inconsistencies between the return of a fund and its benchmark. This large divergence could be an indication of poor fund construction and/or large fund fees and high operating expenses. We just analyzed from both the tables given above that ICICI Pru ETF whose underlying index is Sensex has the lowest tracking error value which suggests that fund's returns are tracking the benchmark returns to the optimum. On the other hand Quantum Index Fund - Growth, whose underlying index is CNX Nifty has the highest tracking error. If the tracking error is negative, the fund has yielded lower returns than the benchmark. In table-6 Kotak Nifty ETF and R\*Shares Banking ETF shares has the negative tracking error and if we had a look on their annualized returns the returns of these both funds are below their benchmark returns.

## 8. Conclusion

In India, ETFs are being marketed as a new instrument possessing the attributes of both index mutual funds and an individual stock. In the present study we have evaluated the presence and performance of Indian Index ETFs. The trend of ETFs in India started with Index ETFs and hence they seem to be most popular among investors. The ETF market is still moving at such speeds and with new schemes offered continually. They represent an exciting product class that has exploded in asset size and interest in the recent years and are also making their presence felt in India. Small investors who do not have the time and expert advice could turn to ETFs. Factors such as low costs, low tracking error and intra-day trading appear to tilt in favour of ETFs. As far as



the performance of Index ETFs is concerned we can safely say on the basis of various non-risk and risk adjusted performance indicators that the ETFs on most counts have been performing better than the common benchmark CNX, Nifty and Sensex. They have given out better excess returns not only for per unit systematic risk but also for per unit of volatility or standard deviation. Even in cases where ETFs have faced turbulent times because of huge downturns in the market, ETFs managed to give out lesser negative returns when compared to benchmark for the same period. The average tracking error also seems to be on the lower side which is a reflection of its close movement with regards to the benchmark index. Hence for a small investor looking to make a less risky investment, these instruments offer an ideal way of diversification. In the present study it has been found that these forms of investments have much potential in the years to come and once these kinds of investments gain momentum with all its diverse features and huge advantages over mutual funds then there will be no stopping their growth.

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