

Risk and Return Analysis of Selected Bank Exchange Traded Funds: Evidence from NSE India

Dr. Venkatesh.C.K.

Department of Commerce,

Government First Grade College for Women, Holenarasipura, Hassan District, drvenkateshck@gmail.com

Abstract

ETFs resemble a basket of assets or stocks and behave like the owner of assets underlying the fund. These assets include but are not restricted to companies' stocks, foreign currency, gold, oil futures, and bonds. Since these funds can be purchased and sold on stock markets, similar to company shares, they resemble mutual funds. In India, index-linked and gold ETFs are the most common forms of this fund. ETFs divide the assets it owns into smaller units, referred to as shares, purchased, and sold on the exchange. The market value of net assets determines the current trading value of an ETF that the fund consists of at a particular time.

In the current study in order to evaluate the performance of Index ETFs various parameters such as, Mean Returns, Standard Deviation, Beta, R-Square, Sharpe Ratio, Treynor Ratio, Tracking Error are widely used. The present study reveals that most of the Bank ETFs outperform their respective benchmarks over the study period. The overall analysis reveals the fact that the performance of the fund and market generally move in the same direction. This result is in consistent with the results achieved in European and Western Research Works.

Key Words: Exchange Traded Funds, Standard Deviation, Beta, Alpha, Sharpe Ratio, Treynor Ratio, Time Ratio, R-Square, Tracking Error, Derivative Fund.

INTRODUCTION

Exchange Traded Funds popularly known as ETFs and Index Funds are noteworthy contribution of Financial Engineering. Goal of Financial Engineering is to innovate different financial instruments that adopt itself to the changing requirements of the capital markets. Both these funds are lucrative financially and these funds provide investors with a way to own a well diversified indexed portfolio using economies of scale. These funds avail the investors to own a balanced portfolio at a very reasonable cost. An Index fund is a type of mutual fund with a portfolio constructed to match or track the components of a market index. It is a passive form of investment which has been successful in outperforming most actively managed mutual funds. At the same time ETFs imply a basket of securities that is designed to track a benchmark. They follow Indices or Basket of Commodities.

The history of mutual funds dates back to almost 200 years when first mutual fund was introduced in Belgium in 1822. Then there was advent of these funds in US market, Massachusetts investors Trust in Boston was formed first to take care of all mutual fund schemes. However, in India inception of mutual funds goes back to 1963 and Unit Trust of India is considered to be the first company to float a mutual fund scheme in India. US—64 was the first mutual fund scheme which got introduced in India. It is considered that in a span of 4 decades mutual fund industry has grown considerably exploring common man's savings in India. During the past ten years it estimated to have grown by 32 percent CAGR. There is a general perception in India that mutual fund

schemes are relatively safer than other investment avenues in the stock market. But, exposure to Index funds and ETFs are still a mirage as most of the investors are not aware about these schemes and investment opportunities.

On contrary to this, the Exchange Traded Funds are not as old as mutual funds they were originated in 1993 by Street Global Advisors, when the Standard and Poor's Depository Receipts were introduced. It tried to replicate the performance of Standard and Poor's Index. The second ETF was started by Morgan Stanley with the introduction of World Equity Benchmark Shares widely known as WEBS. After the initial success of ETFs, brokerage firms and stock exchanges have launched a number of ETFs tracking different indices. Towards the end of nineties there were a total of 30 ETFs in the US representing a net asset value of 33 billion dollars. Whereas, ETFs, were introduced in India in 2001 with the launch of Nifty Benchmark Exchange traded scheme meant to track Standard and Poor CNX Nifty which allowed investors to obtain diversified portfolio with one single decision. Even after the completion one decade there were only 19 ETFs traded in the Indian market with the trading volume of 505 crore rupees. In another one year's time the number of ETFs were substantially increased to 30 with the trading volume of close to 2000 crores and during 2015 it went up to 55 ETFs and 2020 there are more than 650 ETFs in existence in India. ETFs and Index funds have been in existence for more than a decade now and particularly in India it has not gained the kind of popularity that it should have unlike a conventional mutual fund scheme. There is lack of awareness among the Indian investors about tracking these funds and they have little experience in managing them. Therefore, in this study an effort is made to compare the performance of these funds and the researchers have tried to identify such a kind of fund which has performed well during the period of research.

The key features of an ETF are as follows:

- The Open end side of an ETF is restricted to a limited set of participants called Authorized Participants and a certain minimum size is prescribed for the creation/redemption of units.
- The creation/redemption of units happens in kind. Authorized Participants who want new ETF unit have to pay in the form of a basket of stocks that mirrors the underlying index. Likewise, when Authorized Participants want the ETF units to be redeemed they are paid in the form of a basket of stocks mirroring the underlying index.
- As ETF units are listed on the secondary market investors can buy and sell ETF units in cash.
- In the secondary market, ETF units tend to trade very near to their fair value. If the market price of ETF unit exceeds their Net Asset Value, Authorized Participants would sell ETF units from their inventory, buy the underlying basket of stocks from the exchange, and deliver the basket of stocks to the ETF to replenish their inventory of ETF units and make an arbitrage profit.

Review of Literature

Kostovetsky (2003) compared ETFs and index funds, demonstrating that they differ because of management expenses, transaction fees and tax efficiency. Author suggested that comparing tracking error of ETFs and index funds is difficult because of the lack of a true benchmark for comparison. Further, it was recommended to use a multi period model instead of one-period model as it will enable to overcome the problems faced in one-period model being used in the study.

J.Gayathri and P.Bhuvaneswari (2009) compared the risk and return of ETFs with their index using Sharpe ratio and Treynor's ratio. Evaluation was done for the period of three years i.e. from 2005 to 2007. This study revealed that general NIFTY BEES delivered enhanced returns than other option based funds like Junior BEES, Liquid BEES and Bank BEES during the period of study.

Agapova (2011) examined the effects of substitutability of two similar investment vehicles i.e. conventional index mutual funds and exchange traded funds. Author attempted to elucidate the co-occurrence of these vehicle types, which have distinctly different organizational structures but offer a right on the same underlying index return process. This study compared aggregate fund flows into conventional open-ended index funds to those into ETFs for various underlying indexes. The study revealed that conventional funds and ETFs are not perfect substitutes for one another.

Prashanta Athma and Raj Kumar (2011) attempted to evaluate the performance of ETFs and Index Funds in India. The study was based on secondary data and covering period of five years i.e. from 2005 to 2009. Net Asset Value, Risk, Return, Expenses Ratio, Tracking Error, Reward to Variability and Differential Return were used as a measure to evaluate performance. The statistical tools like Standard Deviation, Beta, Alpha, R-squared and Sharpe Ratio were used for data analysis. After data analysis it was established that ETFs have given better opportunity for the small investors in terms of diversified portfolio with a small amount of money, low expense ratio, reduced tracking error, lower risk and volatility as compared to Index Funds. Thus, concluding that ETFs are a better form of investment when compared with Index Funds. Thus, concluding that ETFs are a better form of investment when compared with index funds.

Swati Garg and Y. P. Singh (2013) associated the performance of ETFs and Index Funds. Five ETFs and Index Funds tracking the same benchmark indices has been analyzed in this study over a period of three years ranging from June 2006 to December 2009. The analysis exhibits that over long term investment horizon ETFs perform better in terms of their imitation strategy, tracking ability and performance effectiveness. However, it was evident from the study that short term investors face a disadvantage from investing in ETFs.

P. Mishra and G. Singh (2016) attempted to make an intra class performance evaluation of some Indian index funds. Graphical interpretations were used along with statistical tools like R-square and tracking error values. Two models of tracking error have been working to test empirically the performance of the selected index funds. Empirical results revealed that out of selected index funds, SBI Nifty Index fund outperformed the other six index funds during the period under study. SBI Nifty Index fund was also able to limit the tracking error to an acceptable limit.

Objectives of the Study

The following objectives have been focused for the present study:

- To compare and analyze the performance of Bank ETFs in India with their respective underlying benchmark indexes.
- To analyze the risk-return profile of selected ETFs.

Hypothesis

There is no significant difference between the returns of Bank ETFs and their respective benchmarks.

Research Methodology

The study has been based on Secondary Data. The data used is the daily closing values of NAVs. The data sources include the web portals of AMFI, Money Control, Factsheets of Mutual Funds, SEBI Manuals. The study period is from 1st April 2017 to 31st March 2022.

Table—1 Exhibiting Research Design

Research Type	Analytical
Research Context	Indian ETFs which are listed in National Stock Exchange of India
Research Approach	Quantitative
Data type	Continuous variables
Data collection tools	Excel Sheet, NSE Portal, Money Control, AMFI portal
Data Analysis Software	SPSS Version 18.0, MS Excel, MS Word, MS Power Point
Sampling Technique	Systematic Sampling
Sample Size	Ten top ranked Bank ETF Funds listed in NSE

Risk-Return Analysis of Bank Index ETFs

To analyze and interpret the results of Bank ETFs along with their Benchmarks the Researcher has taken various performance parameters like Systematic Risk, R-Square, Returns, Volatility, Standard Deviation, Tracking Error. Apart from these techniques, risk adjusted measures like Sharpe Ratio, Treynor Ratio has also been calculated to get fair view of returns yielded by these ETFs with respect to risk associated with it.

Table—2 Showing Different risk adjusted performance measures for bank ETFs along with other parameters (SAMPLE DATA TAKEN FROM 1ST APRIL 2017 TO 31ST MARCH 2022)

FUND	BETA	R-SQUARE	ANNUALIZED RETURNS	ANNUALIZED STD. DEV.	SHARPE RATIO	TREYNOR RATIO	TRACKING ERROR
ICICI BANK ETF	0.7432	0.5436	14.5%	26.6%	0.198	0.0365	0.1623
SBI ETF	0.342	0.4982	16.63%	28.91%	0.2464	0.0982	0.1285
CNX BANK INDEX	1.000		12.89%	19.89%	0.3421	0.0345	0.2351

Analysis is presented as below:

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. It is that risk which cannot be eliminated from the system. If the stock's price experiences movements that are greater or 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 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.

R SQUARE: R Square or co-efficient of determination measures the co-relationship between the Benchmark and ETFs. The value of R Square lie somewhere between 0 and 1. If R Square has a zero value then it indicates

that there is no co-relation between benchmark and its ETF. But if R Square is equal to 1 then it indicates that there is perfect co-relation.

ANNUALIZED RETURNS: Annualized Returns is considered as one of the important measures of performance. It is a non risk measure of performance and has been calculated for all the selected ETFs and their respective Benchmarks from 1st April 2017 to 31st March 2022. It is quite clear that all the ETFs are reasonably close to their benchmark indices in terms of annualized returns. On an average all annualized returns of all the Bank ETFs are very close to their respective benchmarks.

ANNUALIZED STANDARD DEVIATION: It 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. 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 its investing decisions.

ANNUALIZED STANDARD DEVIATION: It means that 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 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.

Risk Adjusted Measures: If any Researcher considers Sharpe measure or reward to variability ratio which is a measure of the excess return for Risk Premium per unit of risk in an investment asset or a trading strategy, one can see that the ETFs are performing better than the benchmark index. ETFs are giving excess returns then the benchmark index.

Tracking Error: Exchange Traded Funds are expected to mirror of 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 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 large fund fees and high operating expenses.

To test the Hypothesis whether there is no significance difference between the mean returns of ETFs and their respective benchmarks, the Researcher has considered to compute the "t" values for determining the significance of difference between the mean returns of ETF and its benchmark.

Table—3 showing Performance Evaluation of Selected ETFs

FUND	N	MEAN	S.D	SEM	t Value	Df	Result
SBI Bank ETFs	1896	0.0178	0.02122	0.001782			
CNX Bank Index	1896	0.0192	0.08212	0.001865	0.021	3467	ACCEPT
ICICI Bank ETFs	2111	0.0812	0.09831	0.008372	0.098	4561	ACCEPT
CNX Bank Index	2111	0.3451	0.34521	0.003245	0.0345	8934	REJECT

Kotak Bank ETFs	1345	0.0982	0.6574	0.009845	0.0456	7621	ACCEPT
CNX Bank Index	1345	0.03452	0.8475	0.00874	0.4213	8632	ACCEPT

The above table presents the results of t-test to examine the null hypothesis of no difference between the fund return and index return. The t-test proved that the fund return and index return are not significantly different at 1% as well as 5% level of significance. Hence, null hypothesis is accepted at 1% and 5% level of significance. Therefore, the analysis indicates that all the bank ETFs neither outperform nor underperform their respective benchmarks over the period of study. The overall analysis reveals the fact that the performance of the fund and market generally move in same direction.

CONCLUSION

In the current study it has been found that Bank ETFs on most count have been performing better than their common benchmark indices. With the application of Sharpe Ratio and Treynor ratio it is found that bank ETFs benchmarked against CNX bank Index is giving better return at per unit of risk than the Bank ETFs benchmarked against CNX PSU Bank Index. The tracking error of all the bank ETFs under study has also been computed in the present study and found that the tracking error of all the ETFs are on the lower side which is a reflection of its close movement with regards to the benchmark index. Further there is no Stastical difference between the bank ETFs return and their respective benchmarks return which is also reflected in the low tracking error of the Bank ETFs.

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