EVALUATING THE PERFORMANCE OF SELECTED EXCHANGE TRADED FUNDS IN INDIA

Dr. K. Niranjanaa Devi[1] & K. Sangeetha[2]

[1]Professor, Department of Management Studies, G. R. Damodaran Academy of Management, Coimbatore, Tamilnadu.

[2]Research Scholar, Department of Management Studies, G. R. Damodaran Academy of Management, Coimbatore, Tamilnadu.

Abstract:

In the current economic scenario, even though many innovative investment options are at hand in the investors one finds it difficult to take decision on their investments this is primarily, because investments are risky in nature, in which Exchange Traded Funds are an emerging concept in Indian Stock Exchange. ETFs are gradually increased around 17% in India from 2003 to 2016. Based on this view, the present study aims to answer few questions, the performance of selected Equity Exchange Traded Funds in context to their risk and return during the study period, whether the selected ETFs outperform the Benchmark Index (CNX NIFTY) and 91-Day Treasury Bill used as surrogate for risk-free rate of return. The parameters for evaluating the performance are Net Asset Value, Return, Risk, Reward to Variability (Sharpe) and Treynor's Performance Evaluation Ratio. The statistical tools like Ordinary Least Square Model (OLS) were used for data analysis.

Keywords: **Exchange Traded Funds, OLS Model, Sharpe, Treynor's Ratio.**

1. INTRODUCTION

The Exchange-Traded Funds started growing in India since 2006, the investment industry required performance analysis of this newly available financial asset. Moreover, fund selection also requires investors to analyze returns, volatility and performance of the available funds. The purpose of this paper is to empirically assess the investigate the performance of selected equity Exchange Traded Funds in India in comparison with CNX NIFTY index over the period 2005 to 2017. (Narayan Rao. S, et. al.,) evaluated the performance of Indian mutual fund in a bear market through relative performance index, risk-return analysis, Sharpe, Treynor's, Jensen's and Fama

measures. In this present study, to rank the various categories of funds Sharpe, Treynor's, Jensen's ratios are used as risk-adjusted performance measures. To identify if there is any relationship among the past performance and future performance of individual return when compared to market return, we applied Ordinary Least Square. ARIMA Model were employed to forecast the past, present and future price movements of the fund's NAV.

1.1 OBJECTIVES:

- To study the performance of Exchange traded funds during the period 2013 to 2017.
- To compare the performance of Benchmark Index with Exchange traded funds in respect of their risk and return during the period.
- To evaluate and rank various categories of Exchange traded funds using Sharpe, Treynor's, Jensen's ratios.

1.2 HYPOTHESES OF THE STUDY:

In the light of the objectives the following hypotheses are framed.

- H1: There is a significant relationship between the Benchmark return and individual fund return.
- H1: There is a significant relationship among the Exchange Traded Fund schemes performance evaluation as per Sharpe, Treynor's, Jensen's ratios.

2.1 RESEARCH METHODOLOGY:

Research Methodology is a way to systematically solve research problems. It may be understood as a science of studying how research is done scientifically. The present research is an attempt to study the performance evaluation of selected equity Exchange Traded Funds (ETFs) in India.

2.2 DATA COLLECTION METHOD

Data Type: The secondary data was collected to analyze the study.

Period of Study: The period of study is 5 years from 2013 to 2017.

Sample Design: Convenience sampling method was adopted for the sample collection.

Sample Size: The sample size consists of 5 selected equity ETF schemes. The period under investigation varied across indices.

2.3 STATISTICAL TOOLS USED FOR THE STUDY

The present study aims to analyze the secondary data collected using the statistical tools like OLS Model, Sharpe, Treynor's, Jensen's ratio has been used.

3. REVIEW OF LITERATURE

John P. Plamondon & DePaul (2012)[1] This paper compares returns of ETFs holding physical commodities and ETFs holding derivative products to their respective spot commodity returns to identify significant performance differences based on the ETF assets. They regress ETF returns on spot commodity returns to estimate beta and R2 values. They use these Beta and R2 values to evaluate the relationship between the ETFs and their spot prices. They found that the physical ETFs perform more consistently with their spot commodities; these products are more likely to provide the expected risk exposure investors desire. Harip R. Khanapuri (2012)[2] Exchange traded funds (ETFs) have completed a decade of their presence in Indian capital markets although their popularity has grown very recently. Since the ETFs are issued based on their underlying assets, their price movements are supposed to follow those of the underlying index or other assets they represent. The paper evaluates co- movement between prices of ETFs in India and those of their underlying assets using the econometric technique of Vector Auto regressions. The findings suggest that while co-movements are stronger in equity-based ETF, such relation does not exist in commodity-based ETF markets. The findings have significant implications on investment style to be adopted by investors in ETF market. Krishna Prasanna P (2012)[3] This research paper examines the characteristics and growth pattern of all the 82 exchange traded schemes floated and traded on Indian Stock markets, and evaluates their performance using Data Envelopment Analysis (DEA). On an average, ETFs grew at 37% annually during the period 2006 - 2011in India. These funds consistently outperformed the market index and generated

[1] John P. Plamondon & DePaul (2012) —"*Commodity Exchange-Traded Funds: Observations on Risk Exposure and Performance*", Electronic copy available at: http://ssrn.com/abstract=2139711

[2] Harip R. Khanapuri (2012) —"Examining the Relationship between ETFS and their Underlying Assets in Indian Capital Market", 2012 2nd International Conference on Computer and Software Modeling(ICCSM2012)IPCSIT, Vol. 54(2012) © (2012) IACSIT Press, Singapore DOI: 10.7763/IPCSIT.2012.V54.20.

[3] Krishna Prasanna P (2012) -"*Performance of Exchange-Traded Funds in India"* —International Journal of Business and Management; Vol. 7, No. 23; 2012.

higher returns. ETFs generated excess returns of 3% p.a. as against CNX NIFTY. Gold ETFs provided 13% excess returns as compared to the returns on the equity market and attracted large investments in the post financial crisis years. These efficient funds are found to have higher Sharpe ratios, indicating that the DEA ranking is in broad consensus with the evaluation done using Sharpe ratios. However large funds were not found to be efficient funds. This infers that the fund size does not indicate superior performance. Dr. Kaushal Bhatt (2012)[4] Investment is the commitment of funds by buying securities or other monetary or paper (financial) assets in the money markets or capital markets, or in liquid real assets, such as gold, real estate, or collectibles. An investment can be described as perfect if it satisfies all the needs of professional investors. There are large numbers of investment avenues for savers. Some of them are marketable, liquid, while others are non-marketable. This paper addresses Exchange Traded Funds (ETFs), the index investments that are a cross between exchanges listed corporate securities and open-ended mutual funds. While ETFs are now competing with mutual funds, they have a very different history and operational structure. It is important for investors to know the difference between mutual funds and ETFs and few investors fully understand ETFs. This paper focuses on conceptual and theoretical aspects of ETFs in India. It covers its comparison with mutual funds.

4. DATA ANALYSIS & INTERPRETATION

ORDINARY LEAST SQUARE MODEL:

Table 4.1.1 shows the Ordinary Least Square of CPSEETF

H1: The individual fund return influences the market return.

Model 1: OLS, using observations 2014-2034 (T = 21)
Dependent variable: CNXNIFTY

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.444634	0.609783	0.7292	0.4748	
CPSEETF	0.348555	0.0911029	3.8259	0.0011	***

*** Significance at 5 per cent level of confidence
** Significance at 10 per cent level of confidence
*Significance at 25 per cent level of confidence

[4] Dr. Kaushal Bhatt (2012), *Exchange Traded Funds (ETFs): A Rising Investment Avenue*, Vol.1 Issue 5 Finance.

Mean dependent var	0.614762		S.D. dependent var	3.614320
Sum squared resid	147.5736		S.E. of regression	2.786939
R-squared	0.435160		Adjusted R-squared	0.405432
F(1, 19)	14.63784		P-value(F)	0.001140
Log-likelihood	−50.27066		Akaike criterion	104.5413
Schwarz criterion	106.6304		Hannan-Quinn	104.9947
rho	0.003498		Durbin-Watson	1.883873

Inference:

From the above table, the p value is .0011 which is less than 0.05 at 5 per cent level of confidence. The alternative hypothesis is accepted. Hence, the CPSEETF fund return influences the market return (S&P CNX Nifty).

Ordinary Least Square of CPSEETF

Table 4.1.2 shows the Ordinary Least Square of BANKBEES ETF

H1: The individual fund return influences the market return.

Model 1: OLS, using observations 2006-2122 (T = 117)
Dependent variable: CNXNIFTY

	Coefficient	***Std. Error***	***t-ratio***	***p-value***	
const	0.655562	0.351223	1.8665	0.0645	*
BANKBEES	0.61283	0.0363998	16.8361	<0.0001	***

*** Significance at 5 per cent level of confidence
** Significance at 10 per cent level of confidence
*Significance at 25 per cent level of confidence

Mean dependent var	0.775299		S.D. dependent var	7.039579
Sum squared resid	1659.092		S.E. of regression	3.798274
R-squared	0.711385		Adjusted R-squared	0.708875
F(1, 115)	283.4545		P-value(F)	8.16e-33
Log-likelihood	−321.1491		Akaike criterion	646.2983
Schwarz criterion	651.8226		Hannan-Quinn	648.5411
rho	−0.234205		Durbin-Watson	2.407787

Inference:

From the above table, the p value is .0001 which is less than 0.05 at 5 per cent level of confidence. The alternative hypothesis is accepted. Hence, the BANKBEES fund return influences the market return (S&P CNX Nifty).

Ordinary Least Square forecast of BANKBEES

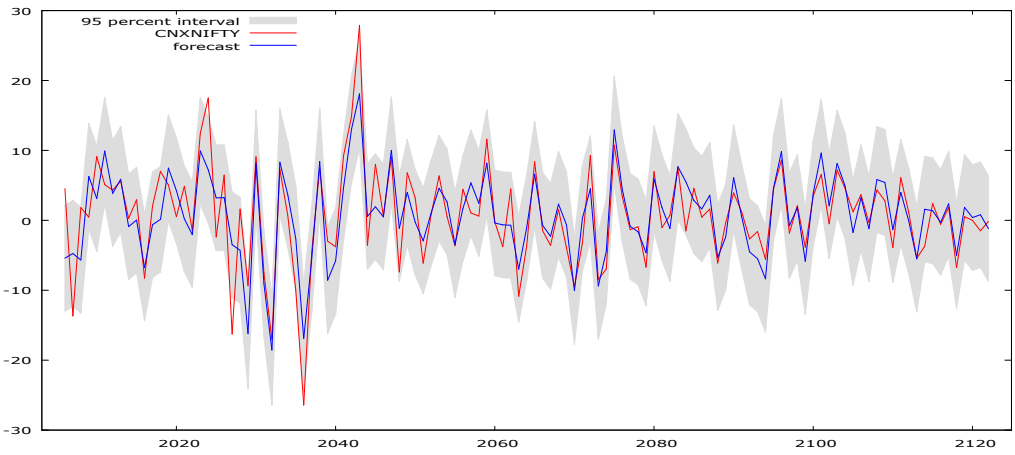

Table 4.2.3 shows the Ordinary Least Square of NIFTY BEES

H1: The individual fund return influences the market return.

Model 1: OLS, using observations 2006-2133 (T = 128)
Dependent variable: CNX NIFTY

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	0.883707	0.302275	2.9235	0.0041	***
NIFTY BEES	0.792119	0.0391326	20.2419	<0.0001	***

*** Significance at 5 per cent level of confidence
** Significance at 10 per cent level of confidence

*Significance at 25 per cent level of confidence

Mean dependent var	1.163672	S.D. dependent var	7.016574
Sum squared resid	1470.531	S.E. of regression	3.416267
R-squared	0.764809	Adjusted R-squared	0.762943
F(1, 126)	409.7353	P-value(F)	2.03e-41
Log-likelihood	−337.8704	Akaike criterion	679.7409
Schwarz criterion	685.4449	Hannan-Quinn	682.0585
rho	0.109061	Durbin-Watson	1.772075

Inference:

From the above table, the p value is .0001 which is less than 0.05 at 5 per cent level of confidence. The alternative hypothesis is accepted. Hence, the NIFTYBEES fund return influences the market return (S&P CNX Nifty).

Ordinary Least Square forecast of NIFTY BEES

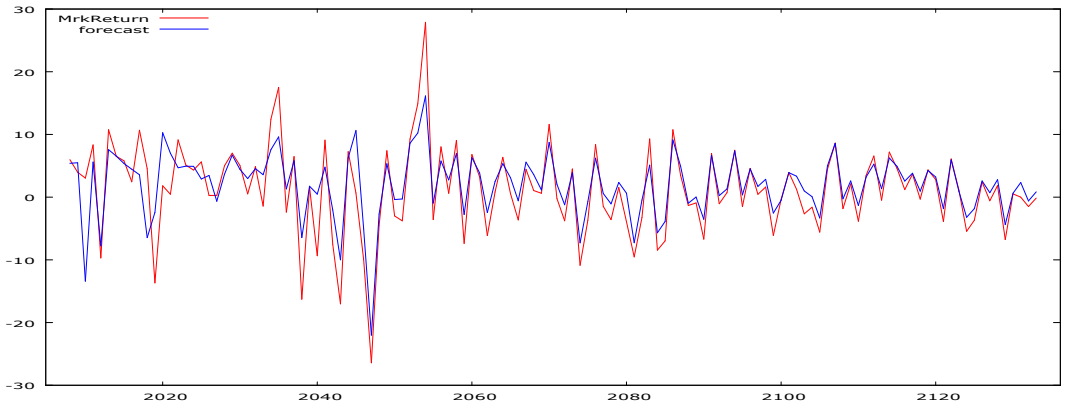

Table 4.1.4 shows the Ordinary Least Square of SBI SENSEX ETF

H1: The SBI SENSEX fund depends on CNX NIFTY

Model 1: OLS, using observations 1-34
Dependent variable: Market Return

	Coefficient	***Std. Error***	***t-ratio***	***p-value***	
Const	0.633466	0.594612	1.0653	0.2947	
Fund Return	0.266613	0.0937278	2.8445	0.0077	***

*** Significance at 5 per cent level of confidence
** Significance at 10 per cent level of confidence
*Significance at 25 per cent level of confidence

Mean dependent var	0.806765		S.D. dependent var	3.801460
Sum squared resid	380.6388		S.E. of regression	3.448908
R-squared	0.201825		Adjusted R-squared	0.176882
F(1, 32)	8.091435		P-value(F)	0.007691
Log-likelihood	−89.30725		Akaike criterion	182.6145
Schwarz criterion	185.6672		Hannan-Quinn	183.6556

Inference:

From the above table, it is inferred that the p value is 0.0077 which is less than 0.05 at 5 per cent level of confidence. The alternative hypothesis is accepted. Therefore, the SBI SENSEX fund return moves along with CNX Nifty return.

Ordinary Least Square forecast of SBI SENSEX ETF

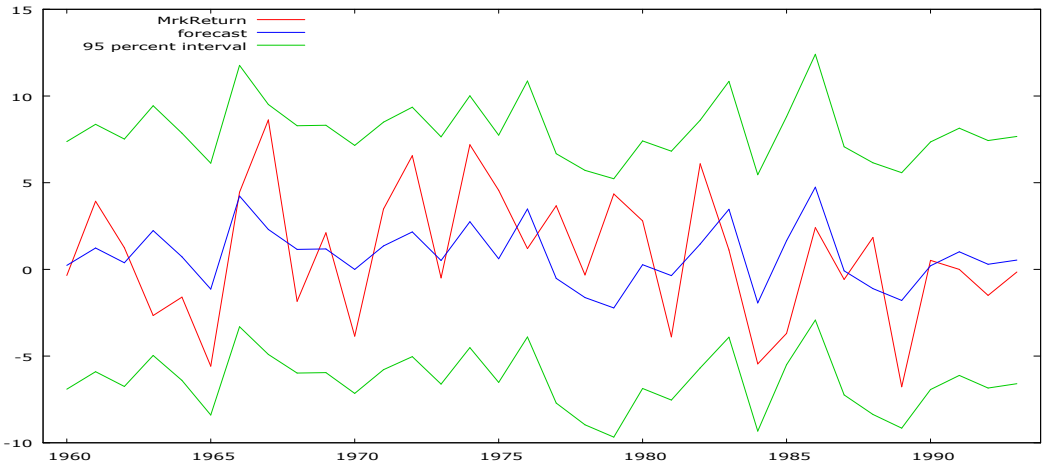

Table 4.1.5 shows the Ordinary Least Square of ICNX 100

H1: The individual fund return influences the market return.

Model 1: OLS, using observations 2014-2030 (T = 17)
Dependent variable: Market Return

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	−0.101849	0.712639	−0.1429	0.8883	
ICNX 100	0.305952	0.110368	2.7721	0.0142	**

*** Significance at 5 per cent level of confidence
** Significance at 10 per cent level of confidence
*Significance at 25 per cent level of confidence

Mean dependent var	0.026471		S.D. dependent var	3.491248
Sum squared resid	128.9563		S.E. of regression	2.932079
R-squared	0.338757		Adjusted R-squared	0.294674
F(1, 15)	7.684548		P-value(F)	0.014238
Log-likelihood	−41.34517		Akaike criterion	86.69033
Schwarz criterion	88.35676		Hannan-Quinn	86.85598
rho	−0.249374		Durbin-Watson	2.431584

Inference:

From the above table, the p value is .0142 which is less than 0.05 at 5 per cent level of confidence. The alternative hypothesis is accepted. Hence, the ICNX fund return influences the market return (S&P CNX Nifty).

Ordinary Least Square forecast of ICNX 100

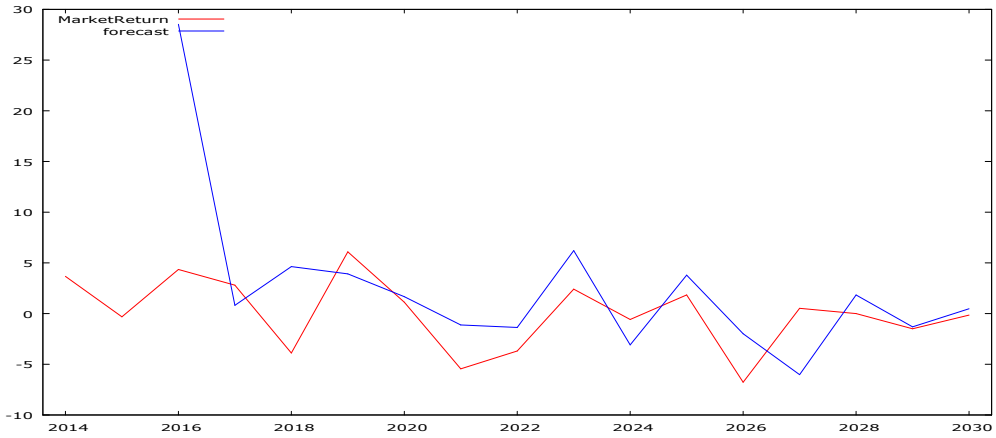

TABLE 4.3 shows the PERFORMANCE INDEX OF EXCHANGE TRADED FUND SCHEMES

S:No	Fund Name	Sharpe Ratio	Rank	Treynor Ratio	Rank	Jensen's Ratio	Rank	Weighted Average
1	ICNX100	0.48	2	13.81	1	-3.95	4	3
2	SBISENSEX	0.23	3	1.97	3	2.31	1	2
3	NIFTYBEES	1.17	1	9.48	2	-1.26	2	1
4	BANKBEES	-0.7	4	-5.86	4	-2.86	3	4

5	CPSEETF	-2.62	5	-14.33	5	-6.26	5	5

Findings:

This research paper evaluates the performance of 5 Exchange-Traded schemes floated and traded on the Indian Stock markets. ETFs have consistently outperformed the market index and have generated higher returns. The volatility of their returns was also found to be lesser than that of the returns of the bench mark index NIFTY in equity market. On an average, the ETFs were able to generate 3% annualized excess returns over the market returns.

- According to OLS Model there is a relationship between the fund return and market return of selected Exchange Traded Funds. The OLS model examined the level of significance between the dependent variable (FUND RETURN) and independent variable (CNX NIFTY). It shows the positive influence over the market and it is recommended to the investors for the investment.
- Ranking funds the performance evaluation measures like Sharpe ratio, Treynor's and Jensen's Ratio were used. Among the ETFs, Nifty Bees funds were found to be the efficient fund across all the years.

Conclusion:

The Exchange Traded Fund industry is gaining importance in the modern times. It has become the investment avenue number of investors in the recent years. Also, the stock market volatility is high. Therefore, this research paper evaluates the performance of 5 Exchange Traded schemes floated and traded on the Indian Stock Markets. The study also examined and forecasted the returns of each fund using Ordinary Least Square Model. It also observed and ranked every fund using various performance indicators like Sharpe, Treynor's, Jensen's ratio. This paper highlights the level of volatility and top returns given by each fund in the investment vehicle like Exchange Traded Funds.

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