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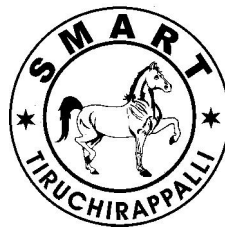
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# **NIFTY BENCHMARK EXCHANGE TRADED SCHEME (Nifty BeES) – A PROMISING INVESTMENT PRODUCT**

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## ***Abstract***

*Nifty BeES is the first Exchange Traded Funds in the Indian Capital Market and its daily returns are compared to benchmark returns. The Researcher found out that Nifty BeES basically overperformed their benchmark while they endorsed their investors with lesser risk than the standard deviation of the Nifty Index. Further, this paper analyses the relationship between portfolio returns and market returns by using Simple Regression Model. The Researcher discovered that returns of the Nifty BeES for price was not related to the index returns, but returns of the Nifty BeES for NAV was related to the index returns. This was due to the price of the Nifty BeES in the secondary market being based on supply and demand while NAV of the Nifty BeES was based on the underlying index. Finally, this paper examined the observed deviation between returns of the Nifty BeES and Nifty Index. Applying three methods, the Researcher concluded that the average tracking error fluctuates from approximately 0.59% to 0.907% for price and 0.049% to 0.549% for NAV. All the methods, which were used in this study for calculating tracking error, did not produce the same results. During the study period of 6 years, portfolio returns of the Nifty BeES beat the market returns and hence it can be considered as one of the investment products in the promising Indian capital market.*

## **Introduction**

ETFs are index tracking, open ended, registered funds or unit investment trust that invest in a portfolio of stocks designed to track the performance and dividend yield of a specific index. They are essentially Mutual Funds Schemes or Index Funds that are listed and traded on Exchange stock. It is a financial instrument, tradable on a Stock Exchange that invests in the stock of an index in approximately the same proportion as held in the index. And also it is a hybrid financial product, a cross between a Stock and a Mutual Fund. Like a stock, it can be traded on a Stock Exchange, and like a Mutual Fund, it behaves like a diversified portfolio. There are 16 ETFs in the Indian Capital Market. This paper investigates the efficiency of Nifty Benchmark Exchange Traded Scheme only.

## **Statement of the Problem**

Nifty BeES is the first Indian Exchange Traded Fund (open ended index scheme) which provides investment returns that, before expenses, closely correspond to the total returns of securities as represented by S&P CNX Nifty Index. However, the performance of scheme may differ from that of the underlying Index due to tracking error. The Initial Public Offer of Nifty BeES was available from December 12, 2001 to December 18, 2001 and the units were allotted on December 28, 2001. It has all benefits of index funds such as diversification, low cost and a transparent portfolio. No comprehensive study has been made on Nifty BeES and hence this Study.

## **Objectives of the Study**

The main purpose of this Study was to introduce the concept and explain the theoretical

framework of the Nifty BeES. Further, this paper aims to study the following objectives.

- | To analyze the daily returns of the Nifty BeES both for price and NAV in relation to daily market returns
- | To analyze the performance of the Nifty BeES both for price and NAV
- | To estimate the tracking error of the Nifty BeES both for price and NAV

### **Methodology**

It is an analytical study based on secondary data to evaluate the performance of the Nifty BeES. This Study considered only equity oriented ETF and Purposive Sampling was used to collect data. The Researcher has adopted the various descriptive statistical techniques to evaluate the performance of the pioneering ETF scheme, viz, Nifty BeES.

This Study was based on secondary data which were collected from the National Stock Exchange of India and Benchmark Mutual Funds website for a period of 1488 days i.e. 6 years. Six year period was chosen because the Nifty BeES was introduced only on January 8, 2002 and the attempt was made to study the Exchange Traded Funds on December 2007. The data variables used in this study were Closing Price, Net Asset Value and Nifty Index Value.

In this segment of the Study, the Researcher presents and compares the results of Nifty BeES and Nifty Index average daily returns and risks associated with that to analyze daily returns of the Nifty BeES, both for Closing Price and Net Asset Value. NAV of the Nifty BeES was collected from Benchmark Mutual Funds website and Nifty Index value from the NSE website. The total risk was measured with the help of standard deviation of returns for both Nifty BeES and Nifty index.

### **Analytical Results**

The results of various descriptive statistics of the Nifty BeES like Percentage Returns, Risk, and Risk / Returns Ratio for the period of 2002 – 2007 both for Closing Price and NAV are given in the following Table. The Table (1) reports the average daily returns of the Nifty BeES and Nifty Index. Returns was calculated in percentage terms by subtracting the successive price and dividing with the respective lagged prices. Risk was calculated as the Standard Deviation of Returns. Risk / Returns Ratio indicates the risk of one unit of returns.

The yearly returns and risk of the Nifty BeES for a six year period are recorded in the **Table -1** for both Closing Price and NAV. The Table (1) depicts the average daily percentage returns of the Nifty BeES both for Price and NAV as 0.128% and 0.127% respectively. These are almost equal to each other and indicates positive returns. In other words, the performance of the Nifty BeES, in both primary and secondary market, yielded equal returns. Even though there is little difference between Price and NAV of the Nifty BeES, it is statistically and economically insignificant. Relatively, the average percentage returns of the Nifty Index is 0.124% which is smaller than the average percentage returns of the Nifty BeES in terms of Price and NAV. This reveals that the Nifty BeES overperformed an average percentage returns of the underlying index.

The lowest returns of the Nifty BeES for both Price and NAV were 0.0039% and 0.0036 respectively in the year of 2002. In the same year, Nifty Index yielded the poorest returns equal to -0.004%. Even though Nifty BeES was introduced in the year of 2002, it performed well on an average over the Nifty Index. On the contrary, the best average percentage returns of the Nifty BeES both for Price and NAV, were 0.2177 and 0.2191 respectively in the year of 2003.

The corresponding risk level of the Nifty BeES was computed with the help of Standard Deviation for both Price and NAV and they were 1.52 and 1.49 respectively, while Index presented a risk which was equal to 1.40. The Nifty BeES recorded less risk in the year 2002 and recorded more risk in the year 2006 for both Price and NAV.

The average risk / returns ratio are quantified to 56.22 and 59.86 both for Price and NAV respectively. The Researcher observed a wide range between the minimum and the maximum records. Specifically, the lowest risk / returns ratio were equal to 5.79 and 5.63 both for Price and NAV in the year of 2003. This ratio indicates that the Nifty BeES provided investors with returns under the lowest risk. On the other side, the maximum risk / returns ratio were 271.025 and 294.722 in the year 2002 both for Price and NAV. From the above discussion, the Researcher concludes that on an average, performance of Nifty BeES was better than the Nifty Index performance in term of returns and risk.

### **Market Performance of Nifty BeES**

Market performance of Nifty BeES was ascertained with respect to Alpha and Beta Coefficients. The Table (2) records the estimation of Alpha and Beta Coefficient, the t test value for the statistically significant Alpha and Beta estimation, Standard Error, the R-square, which is an indication of the suitability of the regression, and the number of observations. The results were derived both for Closing Price and Net Asset Value. Alpha Coefficient indicated performance of Nifty BeES, which was not related to the performance of the tracking index. Since Nifty BeES follows passive investment strategy, the Researcher expected the Alpha to be statistically different from zero.

Beta Coefficient reflects the average systematic risk of Nifty BeES, which is

expressed as the sensitivity of Nifty BeES to the movement of the index. Since Nifty BeES is mainly fully invested on the index assets, the Researcher expects the beta to be strongly different from zero. Beta also reflects the aggressiveness of management strategy. If beta is larger than unity, the Nifty BeES moves more aggressively in comparison to the market and if beta falls below unity, the Nifty BeES follows a conservative investing policy.

From the table (2), alpha for the price is 0.2889, t- value is 8.816 and p- value is 3.23. The results show that the alpha value is statistically different from zero at 5% level of significance. In other words, performance of Nifty BeES was not related to the performance of the Nifty Index because the Nifty BeES price was determined by the supply and demand in the secondary markets. The alpha coefficient for NAV is 0.0379, t- value is 1.93 and the p- value is 0.053. The NAV results show that the alpha value is not statistically different from zero i.e. insignificant. In other words, the performance of the Nifty BeES was related to the performance of the Nifty Index because NAV of the Nifty BeES was determined by the underlying stocks. All the underlying stocks of the Nifty BeES are constituted in the Nifty Index. Hence the performance of the Nifty BeES was related to the performance of Nifty Index in the primary market.

The estimation of beta value both for Price and NAV are 0.754 and 0.989 respectively. The beta values are statistically significant and different from zero at 5% level both for Price and NAV. If returns of the Nifty Index increases at 1%, the returns of the Nifty BeES increases at 0.7545% in the secondary market and 0.989% in the primary market. Since the Beta value is less than unity for both Price and NAV, it is inferred that the Nifty BeES followed a conservative investment policy. This conservative posture of Nifty BeES caused dual effect on it. When the market declined, Nifty

BeES declined less and when the market picked up, Nifty BeES responded only marginally.

The t- test was used to determine the deviation of beta from the unity. The results indicate that the beta coefficients of the Nifty BeES materially deviated from unity. As it is recorded in Table (2), the t- test value is equal to 33.08 for Price and 72.45 for NAV and it is statistically significant at 5% level. This test reveals that there were gaps between the Nifty BeES and index compositions.

At the final review of Nifty BeES replication policy, the Researcher used the value of R- square. The measurement of this element was 0.424 for Price and 0.779 for NAV. This denotes that the regression was applied efficiently enough. On the other hand, the distance of R- square from unity indicates that Nifty BeES were not fully invested on the asset of their underlying index portfolio. Further, applying t- test, the Researcher established that the R- square on an average differs from unity. The size of the R- square confirms the deviation of Nifty BeES components from the respective index.

### **Tracking Error**

The results of tracking error's estimation by the application of three formulae have been described in the methodology. The calculations of tracking error are furnished in the Table (3). The first three columns of the Table introduce the results of each one of the three distinct methods and the last columns present the average tracking error of the Nifty BeES, both for Price and NAV.

It is inferred from the Table (3) that the average tracking error fluctuates from 0.59 to 0.907 for Price and 0.049 to 0.549 for NAV. The mean tracking error of all the formulae is equal to 0.758 for Price and 0.213 for NAV. This is considered to be significant, reflecting the substantial distance between Nifty BeES and Nifty Index performance.

Regarding the results of all the formulae, the minimum tracking error was in the year 2002 both for Price and NAV. The mean tracking error for 2002 was 0.421 for Price and 0.023 for NAV and the maximum tracking error was recorded in the year 2006, both for Price and NAV. Specifically, the Nifty BeES was the weakest tracker in the year 2006. The average tracing error in the year 2006 was 1.354 for Price and 0.931 for NAV. A close observation of the Table reveals that recorded Nifty BeES has sufficient tracking error in terms of Price and NAV.

### **Summary of Findings and Conclusion**

This paper has investigated the percentage returns and risk of the Nifty BeES in relation to the returns and risk of their tracking index. It reveals that the Nifty BeES recorded positive mean percentage. The risk of the Nifty BeES was held at a low level, indicating the greater diversification of risk. The returns and the standard deviation of tracking index mainly stood closely to Nifty BeES. From this, it is derived that Nifty BeES basically overperformed their benchmark and endorsed their investors with lesser risk than the standard deviation of the Nifty Index.

This paper also found out the relationship between Nifty BeES returns index both for Price and NAV. It shows that the returns of the Nifty BeES for Price was not related to the Index return, but returns of the Nifty BeES for NAV was related to the index returns. The reason was that the Price of the Nifty BeES in secondary market was based on supply and demand while NAV of the Nifty BeES was based on underlying index.

Finally, this paper reviewed the observed deviation between the returns of Nifty BeES and Nifty Index. Applying three methods, the Researcher discovered that the average tracking error fluctuated from approximately 0.59% to 0.907% for Price and 0.049% to

0.549% for NAV. All the methods used in this study for calculating tracking error did not produce the same results.

To conclude, this paper reveals that the Nifty BeES overperformed in relation to the Nifty Index. In short, portfolio returns of the Nifty BeES did better than the market returns. Hence it can be called as one of the promising investment products in the Indian Capital Market.

#### **Scope for further research**

The experience of the present work indicates a wide scope for further research in the field of Exchange Traded Funds. The research gaps are;

- | A comparative study of Nifty BeES with Sensex ETFs can be made.
- | A study can be undertaken to identify the significance of Equity oriented ETFs and Commodity oriented ETFs
- | A comprehensive study of the performance of all ETFs in India since its inception, may be tried.
- | A comparative study of Indian and International ETFs can be undertaken.

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**Table 1 : Returns and Risk Parameters of the Nifty BeES during 2002-2007**

Year	Return				Risk				Risk / Return ratio				No. of observe
	Price	NAV	Index	Index	Price	NAV	Index	Index	Price	NAV	Index	Index	
2002	0.0039	0.0036	- 0.0004	1.057	1.061	1.0623	271.025	294.722	-2655.75	244			
2003	0.2177	0.2191	0.2236	1.261	1.234	1.2298	5.792	5.6321	5.5	251			
2004	0.0608	0.0619	0.0562	1.809	1.749	1.7531	29.7532	28.255	31.1939	250			
2005	0.1386	0.1283	0.1286	1.281	1.131	1.1199	9.2424	8.8152	8.7083	249			
2006	0.1642	0.1631	0.1496	2.198	2.137	1.6569	13.3861	13.102	11.0755	247			
2007	0.1849	0.1863	0.1913	1.509	1.612	1.6080	8.1611	8.657	8.4056	245			
Total	0.7701	0.7623	0.7493	9.115	8.924	8.4298	337.3598	359.119	-2590.87	1486			
Mean	0.1283	0.1270	0.12488	1.5192	1.487	1.4049	56.2266	59.86	-431.811	247.6			
Mini	0.0039	0.0036	- 0.0004	1.057	1.061	1.0623	5.792	5.632	-2655.75	244			
Maxi	0.2177	0.2191	0.2236	2.198	2.137	1.7531	271.025	294.722	31.1939	251			

Data sources referred : [www.nseindia.com](http://www.nseindia.com) and [www.benchmarkfunds.com](http://www.benchmarkfunds.com)

**Table 2 : Performance of Nifty BeES**

Variables	Coefficient		S.E.		t- value		p- value	
	Price	NAV	Price	NAV	Price	NAV	Price	NAV
Alpha	0.2889	0.0379	0.03276	0.0196	8.8168	1.933	3.23	0.053
Beta	0.7545	0.989	0.0228	0.01365	33.087	72.45	2.7	0.00
R-square	0.424	0.779						
S.E.Regression	0.8704	0.5211						
No of Obs	1486	1486						

Data sources referred : [www.nseindia.com](http://www.nseindia.com) and [www.benchmarkfunds.com](http://www.benchmarkfunds.com)

**Table 3 : Tracking Error Estimations**

Year	TE <sub>1</sub>		TE <sub>2</sub>		TE <sub>3</sub>		Average TE <sub>1+2+3</sub>	
	Price	NAV	Price	NAV	Price	NAV	Price	NAV
<b>2002</b>	0.412	0.029	0.369	0.012	0.483	0.029	0.421	0.023
<b>2003</b>	0.566	0.046	0.506	0.028	0.691	0.163	0.588	0.079
<b>2004</b>	0.902	0.038	0.836	0.015	1.142	0.038	0.96	0.030
<b>2005</b>	0.752	0.109	0.666	0.018	0.909	0.110	0.776	0.079
<b>2006</b>	1.556	1.257	0.797	0.171	1.708	1.365	1.354	0.931
<b>2007</b>	0.450	0.169	0.391	0.040	0.512	0.208	0.451	0.139
<b>Average</b>	0.773	0.549	0.594	0.047	0.907	0.319	0.758	0.213
<b>Minimum</b>	0.412	0.029	0.369	0.012	0.483	0.029	0.421	0.023
<b>Maximum</b>	1.556	1.257	0.836	0.171	1.708	1.365	1.354	0.931

Data sources referred : [www.nseindia.com](http://www.nseindia.com) and [www.benchmarkfunds.com](http://www.benchmarkfunds.com)