

Select Sectoral Indices Performance with Respective Exchange Traded Funds - A Comparative Study

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ABSTRACT:

The capital market exchange traded funds were playing vital role from the retail investors perspective. This segment is giving investment opportunity in all segments through electronic purchasing. In India ETF investments are in nascent stage which is having less history of investments. Granger causality test has been applied on johensons co-integrated stationary data and observed that all the ETFs were granger caused with index except CNXPSUBK. MAR ratio has been applied to measure the long term returns performance of select ETFs by considering the data from 2010 to 2015. The bivariate correlation result unveils between ETFs to select broader indices were largely positive correlated during the analysed period. This paper is useful to the investors of ETF, mutual funds, FIIS and long term investors.

Key Words: Exchange traded funds, Granger causality test, Johensons co-integration, psubankex, mutual funds and FII's.

INTRODUCTION:

An ETF is an investment product that allows an investor to buy and sell shares in a single security that represents a fractional ownership of a portfolio of securities. Legally, ETFs are open ended investment companies or unit investment trusts that are registered under the Investment Company Act of 1940. ETFs are one type of structured exchange-traded product. Our purchasing of shares limits to domestic stock exchanges, and through ETFs we can purchase the shares trading in foreign countries also. Diversified investments are possible through ETFs and they are comparatively less expensive.

As the name implies, an Exchange Traded Funds is a mutual fund whose shares are traded on the open market. For large or institutional investors, an ETF may be willing to sell or redeem shares directly, but this is generally done in large blocks and is of no significance to the average investor. Typically, an ETF represents a specific "basket" of investments that is generally held long-term by the fund. While it is possible for an ETF to be actively managed, a quirk in the regulations makes it difficult to establish an actively managed ETF, and the required degree of openness makes it difficult for a fund to operate secretly.

For that reason, most ETFs are married to market indexes, or purchase a specific class or variety of investment (such as large-cap stocks, high-yield bonds, or GOLD FUTURES) in pre-determined proportions that do not vary much over time. This also allows the investor to choose an ETF according to his risk tolerance or speculation about the performance of specific market sectors.

A grouping of equities, indexes or other factors combined in a standardized way, providing a useful statistical measure of overall market or sector performance over time. Also known simply as a "composite". Usually, a composite index has a large number of factors which are averaged together to form a product representative of an overall market or sector.

Regulation of this "new breed" of investment vehicle has been clumsy but well intentioned, as there are conflicting jurisdictions between the entities that govern the types of investments they may hold. The results have been both positive and negative and it may take years or decades to shake out.

REVIEW OF LITERATURE:

- 1. Ananth Madhavan (2014):** Exchange traded funds growth is reflected in this paper and the attention of investors towards rapid growth is significantly observed. This article identifies the importance of etfs to outweigh any perceived weakness in regulation of markets. This article has a limitation that it is not in comparison with sectoral indices. Investors are required to know the optimum growth factor. This research focuses on the performance of exchange traded funds in the market with respective indices, significantly providing a basis study on functioning of etfs for the benefit of investors.
- 2. Carl F. Luft, P. Plamondon (2012):** The comparison of etfs with their respective s&p industry GICS sector index is observed in this article. It also identified the sector risk as sector specific risk that cannot be eliminated through portfolio diversification. ETFs performance is mainly effected by their s&p gics sector index but the paper is limited to our research also compare the etfs with their sectoral indices but not confined to s&p industry. This paper is focused on the yield generated towards investors of exchange traded funds so that the risky interest is examined. We have measured returns adjusted for risk which is used to compare the performance of commodity. Our analysis indicates that etfs perform well than select sectoral indices.
- 3. S. Narend (2014):** This paper is a study of the performance of etfs and index funds till 2013 in terms of tracking error and active returns. The three terms have established a relationship between etfs, their underlying index and the index funds. Finally study revealed that index funds have done better than etfs. Our research is also a study of etfs and sectoral indices but till 2015. Our analysis is based on risk adjusted returns. Overall the study reveals the risk and return, performance evaluation and the relationship between etfs and sectoral indices.
- 4. Caitlin D Dannhauser (2014):** Corporate bond etfs have a negative impact on the liquidity of constituent bonds i.e. it will lower the yield. Etfs has an insignificant impact too on high yield

bond liquidity increasing the transaction costs of investment grade bonds. The study reveals that the traders exit the underlying market when a basket security exists. Our research shows that the above assumption on corporate bond ETFs is true and there is a positive impact on equity markets. The performance of ETFs is in turn based on sector indices and index funds. The risk of returns obviously affects the yield and liquidity. This nature of ETFs will have an impact on the investors as well as markets.

5. David Blitz, Joop Huij (2009): This study states that the European index fund did not reach the expected benchmark which are also affected by dividend withholding taxes and fund expenses. Result implies that the variation in fund performance is also due to above two reasons thereby affecting the returns. Our study of sectoral indices vs ETFs reveal that the yield is affected by liquidity of traders, of course fund expenses but to a small extent. Performance of ETFs is based on the performance of index funds in the functioning of markets.

6. Rompotis (2011): This paper deals with the comparison of ETFs with traditional mutual funds examining the first ETF launched in Greek market namely the “alpha ETF FTSE ATHEX 20” along with its mutual funds counterparts (1 index & 3 active mutual funds) so that they can examine various issues concerned. At first, mutual funds are more expensive than the ETF but they perform better and vice versa. Finally, the tracking error of the ETF is more than the tracking error of the index fund.

7. Ramnik Arora (2009): A trading strategy is designed to capture pricing relationships within a sector. Well suited for algorithmic trading system, profitable trades were observed. There is a limitation that it is concerned only with the performance of ETF with price determination of ETF. This paper fills the gap by measuring the performance with respect to sectoral indices by using statistical tools. ETFs got influenced by their indices but there is a superior performance by ETFs.

8. Prof. Vishal Sood (2013): This paper dealt in market efficiency and dynamics of relationship of the BSE SENSEX and sectoral indices of BSE for the period 2006-2013. Study stated that sectoral indices of BSE are not weak from efficient. The above study is limited to sectoral indices of BSE. Our research had an extension with addition of NSE and respective exchange traded funds. There is a comparison of ETFs with their select sectoral indices to reveal the performance.

NEED OF THE STUDY:

This paper examined the importance of exchange traded funds and their role in giving the returns in comparison with other broader indices from NSE & BSE. In Indian capital markets many investors from retail segments had lost money because of the complexity this market is having. Exchange traded funds evolution started filling the gaps which were created by the equity and commodity segments. The aim of the study is to benefit the retail investors by finding the performance measure of select exchange traded funds comparison with their counterpart indices.

OBJECTIVES:

1. To measure the relationship between select ETFs to broader indices.

2. To know the performance measure of select ETF returns.
3. To measure the impact of broader indices returns movement on select ETFs movements.

HYPOTHESIS:

H0 – Null Hypothesis – cnxnifty will not cause the niftybees.

H0 – Null Hypothesis – shariah500 will not cause the shariabees.

H0 – Null Hypothesis – Hngsindex will not cause the hngsngbees.

H0 – Null Hypothesis – Cnxpsubk will not cause the kotakpsubk.

SCOPE OF THE STUDY: This study has been emphasized on Indian ETFs which were considered from both national level stock exchanges such as BSE & NSE. The period of analysis is from 2010-2015 i.e. 67 months. The ETFs which were selected in the areas of commodities, indices, shariah, sectoral indices, bond market capital and foreign equity indices.

Empirical Study: Goldbees, Kotakpsubk(NSE), Qnifty, Hdfcmfg, Hngsngbees, Juniorbees, Infrabees, Liquidbees(NSE), M50, Shariabees, SBIgets, Religarego, Niftybees, Kotakpsubk(BSE), Kotaknifty, Cpseetf, Juniorbees(BSE), Liquidbees(BSE), SBI sensex, SBI gold.

RESEARCH METHODOLOGY: This analysis has been done on secondary data by using descriptive statistical tools. The following formulas were considered for the analysis.

Source of data: Websites, books, news papers and journals.

Johansen Co-integration: Co-integration is a statistical property of time series variables. Two or more time series are co-integrated if they share a common stochastic drift. If two time series x and y are co-integrated, a linear combination of them must be stationary.

$Y - Bx = u$, Where u is stationary.

2. Granger causality test: Granger causality test is a statistical hypothesis test for determining whether one time series is useful in forecasting another. A time series X is said to Granger-cause Y if it can be shown, usually through a series of t-tests and F-tests on lagged values of X (and with lagged values of Y also included), that those X values provide statistically significant information about future values of Y.

Null hypothesis: The null hypothesis refers to a general statement or default position that there is no relationship between two measured phenomena. Rejecting or disproving the null hypothesis- and thus concluding that there is a relationship between two phenomena.

Alternative hypothesis: In statistical hypothesis testing, the alternative hypothesis is applicable when probability is > 0.5 . Alternative hypothesis is that the quality is poorer in the second half of the record.

3. Augmented Dickey-Fuller Test: Augmented Dickey-Fuller Test is a test for a unit root in a time series sample. It is an augmented version of the Dickey-Filler test for a larger and more complicated set of time series models.

$$\Delta y_t = \alpha + \beta t + \gamma y_{t-1} + \delta_1 \Delta y_{t-1} + \dots + \delta_{p-1} \Delta y_{t-p+1} + \varepsilon_t,$$

4. Correlation: A correlation study is a research writing that attempts to relate an event to another events or sets of causality which precipitate the event.

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Regression: A statistical measure that attempts to determine the strength of the relationship between one dependent variable and the series of other changing variable.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon$$

LIMITATIONS:

1. Johensons co-integration analysis has not been applied between CBI and Liquidbees.
2. Hngsindex data, first quarter of 2010 i.e. jan-mar has not been considered for the analysis.

DATA ANALYSIS: The following analysis represents the sectoral indices interpretation with the top five exchange traded funds based on the objectives of the project.

Objective - 1.

		CBI	CNXNIFTY	HNGSINDEX	SHARIAH500	CNXPSUBK	LIQUIDBEES	NIFTYBEES	HNGSNGBEES	SHARIABEES	KOTAKPSUBK
CBI	Pearson C	1									
	Sig. (2-tailed)										
	N	22									
CNXNIFTY	Pearson C	.690**	1								
	Sig. (2-tail)	0									
	N	22	22								
HNGSINDEX	Pearson C	.612**	.802**	1							
	Sig. (2-tail)	0.002	0								
	N	22	22	22							
SHARIAH500	Pearson C	.692**	.993**	.791**	1						
	Sig. (2-tail)	0	0	0							
	N	22	22	22	22						
CNXPSUBK	Pearson C	0.12	0.175	0.259	0.143	1					
	Sig. (2-tail)	0.596	0.437	0.244	0.527						
	N	22	22	22	22	22					
LIQUIDBEES	Pearson C	0.363	0.289	0.007	0.253	-0.041	1				
	Sig. (2-tail)	0.097	0.192	0.975	0.256	0.855					
	N	22	22	22	22	22	22				
NIFTYBEES	Pearson C	0.736	0.988	.814**	.991**	0.236	0.262	1			
	Sig. (2-tail)	0	0	0	0	0.289	0.239				
	N	22	22	22	22	22	22	22			
HNGSNGBEES	Pearson C	0.36	.709**	.604**	.684**	-0.152	0.29	.656**	1		
	Sig. (2-tail)	0.099	0	0.003	0	0.499	0.19	0.001			
	N	22	22	22	22	22	22	22	22		
SHARIABEES	Pearson C	.656**	.988**	.792**	.996**	0.155	0.219	.983**	.673**	1	
	Sig. (2-tail)	0.001	0	0	0	0.492	0.328	0	0.001		
	N	22	22	22	22	22	22	22	22	22	
KOTAKPSUBK	Pearson C	0.045	0.12	0.2	0.086	.995**	-0.05	0.178	-0.179	0.1	1
	Sig. (2-tail)	0.842	0.594	0.371	0.703	0	0.825	0.428	0.425	0.659	
	N	22	22	22	22	22	22	22	22	22	22

Interpretation: The above analysis of bivariate co-relation has been applied between select ETFs and related broader indices. The analysis reveals that ETFs are having slightly positive relation to strongly positive co-related with indices except Hngsngbees and Kotakpsubk were observed in negative co-relation.

Objective - 2.

ETFs							
NSE	CAGR	MDD	MAR RATIO	BSE	CAGR	MDD	MAR RATIO
Goldbees	0.167097	0.150731	1.1085775	Niftybees	0.564322	0.267038	2.1132648
Kotakpsubk	0.020076	0.398468	0.050383	Kotakpsubk	206271.8	42035.62	4.9070717
Qnifty	0.309205	0.23912	1.2930955	Kotaknifty	0.46537	0.267038	1.7427108
Hdfcmfg	0.202011	0.15255	1.3242281	Cpseetf	-0.23239	0.355801	-0.65315
Hngsngbees	0.45482	0.129567	3.5103074	Juniorbees	85.48909	73.45712	1.1637958
Juniorbees	0.33693	0.305748	1.1019859	Liquidbees	0.002416	0.001001	2.4135864
Infrabees	-0.02091	0.314887	-0.0664048	SBI sensex	-0.12033	0.147142	-0.8177815
Liquidbees	0.0000004	0.0000004	1	SBIgoldetf	0.157549	0.151369	1.0408274
M50	0.122456	0.2525284	0.4849197				
Shariabees	0.382913	0.244746	1.5645322				
SBIgets	0.173569	0.150427	1.1538421				
Religarego	0.209745	0.147785	1.4192577				

Interpretation: The above analysis of MAR ratio has been applied on various select ETFs from both national exchanges. The MAR ratio result unveils the top five ETFs which are performed

superior which are Hngsngbees, Shariabees, Niftybees, Kotakpsubk and Liquidbees. Infrabees, Cpseetf, SBI sensx were observed negative performance during the study period.

Objective - 3.

Variables	Data Trend: None			Linear		Quadratic		AIC	SIC
	Rank or	No Intercept	Intercept	Intercept	Intercept	Intercept			
DCNXNIFTY DNIFTYBEES	No. of CEs	No Trend	No Trend	No Trend	Trend	Trend			
	0	-194.0781	-194.078	-193.899	-193.899	-193.077	20.85032	21.04915	
	1	-190.0248	-189.811	-189.788	-183.577	-183.411	20.84472	21.24238	
DDSHARIAH500 DSHARIABEES	0	-160.7268	-160.727	-160.651	-160.651	-160.355	18.30297	18.50083	
	1	-151.3628	-151.343	-151.294	-150.483	-150.47	17.70698	18.10270	
	2	-149.7746	-149.433	-149.433	-144.671	-144.671	17.97496	18.56854	
: DCNXPSUBK DKOTAKPSUBK	0	-207.6741	-207.674	-207.423	-207.423	-207.056	22.28148	22.48031	
	1	-200.9752	-200.598	-200.533	-197.924	-197.654	21.99739	22.39505	
	2	-195.117	-194.738	-194.738	-191.035	-191.035	21.80179	22.39828	
DDHNGSINDEX DHNGSNGBEES	0	-270.6978	-270.698	-270.428	-270.428	-270.177	32.31739	32.51344	
	1	-258.4391	-258.408	-258.145	-257.628	-257.497	31.34577	31.73787	
	2	-256.5418	-253.584	-253.584	-252.4	-252.4	31.59315	32.18130	

Interpretation: The johenson co-integration test has been applied on the augmented-dickey filler stationary data. The log of likelihood rank values were observed in decreasing mode between select broader indices to corresponding ETFs is both linear and quadratic trend models along with the alpha values. Hence data is stated to be co-integrated between select broader indices with ETFs.

Null Hypothesis:	Obs	F-Statistic	Prob.
DNIFTYBEES does not Granger Cause DCNXNIFTY	17	0.32706	0.8524
DCNXNIFTY does not Granger Cause DNIFTYBEES		0.70768	0.6089
DSHARIABEES does not Granger Cause DDSHARIAH500	16	0.38326	0.8144
DDSHARIAH500 does not Granger Cause DSHARIABEES		0.80269	0.5604
DKOTAKPSUBK does not Granger Cause DCNXPSUBK	17	3.90377	0.048
DCNXPSUBK does not Granger Cause DKOTAKPSUBK		2.55084	0.1209
DHNGSNGBEES does not Granger Cause DDHNGSINDEX	15	0.26414	0.8908
DDHNGSINDEX does not Granger Cause DHNGSNGBEES		0.63502	0.6562
LIQUIDBEES does not Granger Cause DCBI	17	NA	NA
DCBI does not Granger Cause LIQUIDBEES		NA	NA

Interpretation: The above analysis of granger causality test has been applied between select broader indices to ETFs. Ho- the null hypothesis has been rejected between cnxnifty-niftybees, shariah500-shariabees, hngsindex-hngsngbees and accept the alternative hypothesis because the probabilities of null hypothesis were observed greater than 0.5 nonsignificant. Cnxpsubk does not granger cause the Kotakpsubk because null hypothesis has been accepted and reject the alternative hypothesis.

FINDINGS:

1. Hngsngbees, Kotakpsubk were found to be negative correlation with Liquidbees and Cnxpsubk.
2. The returns performance measure MAR ratio depicted that Hngsngbees, shariahbees, niftybees, Kotakpsubk and Liquidbees found to be superior performance than the other select ETFs performance.
3. CnxPsubk failed to cross the Kotakpsubk ETF during the study period.
4. Niftybees, shariahbees, Hngsngbees got influenced with their indices during analysis period.

CONCLUSION: We conclude the analysis of India's exchange traded funds performance with their respective select indices for the period of 2010-2015. The paper has focused the impact of indices on the performance of ETFs. Returns of ETFs were observed superior compared with indices returns. Hence there is a further scope to do research in this area by considering various economic variables which can influence ETFs performance along with the indices.

BIBLIOGRAPHY:

1. <http://www.nseindia.com/>
2. <http://www.bseindia.com/>
3. www.investing.com
4. www.annualreviews.org
5. <http://papers.ssrn.com/>
6. www.forbes.com
7. www.cnbc.com
8. www.sec.gov
9. www.emeraldinsight.com
10. www.bloomberg.com
11. www.asecu.gr
12. cims.nyu.edu

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