



A STUDY ON CO-INTEGRATION BETWEEN CNX NIFTY AND SECTROAL INDICES OF NATIONAL STOCK EXCHANGE

K. Prabakaran¹

Assistant professor,
Department of B.Com IT&BI,
Hindustan College of arts and science,
Coimbatore

S.Deepika²

Assistant professor,
Department of Commerce with Computer Application,
K.S.G College of Arts and Science,
Coimbatore

R.Banupriya³

Head &Assistant professor,
Department of Commerce,
K.S.G College of Arts and Science,
Coimbatore

ABSTRACT

This paper studies the co-integration between CNX Nifty and Sectoral indices of national stock exchange (minimize the risk and maximize the return). The study is primarily based on empirical research to investigate the co-integration cause and effect among the Nifty and Sectoral Indices of National Stock Exchange. Tools used for the study are Descriptive Statistics, Karl Pearson's Correlation, Unit Root Test and Granger Causality test. The present study has been based on the secondary data from daily reports of CNX Nifty and 11 Sectoral Indices through National Stock Exchange Official websites, magazines and Journals. From the analysis it is found that the study implies that Stock Market Indexes are useful for a variety of reasons. They provide a historical comparison of returns on money invested in the Stock Market against other forms of investments such as gold or debt. They can be used as a standard against which to compare the performance of an equity fund. They are an indicator of the performance of the overall economy or a sector of the economy. Stock Indices reflect highly up to date information. Since stock markets are a barometer for the economy, the results examine the overall economic situation and the existence of problems in the financial system. The study concludes that to explore market efficiency and dynamics of relationship of NSE Nifty and Sectoral Indices of National Stock Exchange.

Key words: Sectoral Indices, Stock Exchange and CNX Nifty

Introduction

A stock market is measured to be efficient if it exactly reflects all the relevant information in determining security prices. In international stock markets, if the assets with equal risks offer comparable level of expected returns, then markets are said to be integrated. The efficient market hypothesis states that asset prices in financial markets should reflect all available information as

a result; prices should always be reliable with fundamental. Efficient stock market is that wherever innovative information is rapidly and accurately fascinated by investors resulting in a suitable share price adjustment. An efficient and integrated stock market is an important infrastructure that influences capital formation and strengthens the capital market in a dynamic business environment. The capital formation process largely depends upon the efficiency of the stock market; whereas, market co-integration helps in strategic investment and portfolio management.

Stock markets have emerged as the major channel for financial integration of emerging market economies amid globalization, deregulation and advances in information technology. It is generally perceived that financial integration can be associated with several benefits, including development of markets and institutions and effective price discovery, leading to higher savings, investment and economic progress (Rai and Dhal, 2010). Thus, a study has been made empirically to explore market efficiency and dynamics of relationship of NSE Nifty and Sectoral Indices of National Stock Exchange, so as to guide investors to make innovative investment opportunities by managing their portfolio in a dynamic business environment.

Statement of Problem

With the integration of capital markets, new areas of research have emerged of particular interest is global investing, where, portfolio managers are seeking opportunities for investing across countries for maximizing investment returns. Yet, without the means for diversifying risks these efforts would be futile. Several challenges for fund managers include, Increased global competition, attractive emerging markets, huge cross border transfer of investable funds, mysterious primary and derivative products, and knowledgeable investors, to name a few. To face these challenges and ensure efficiency of markets, they need to develop active, dynamic strategies. Derivative products are crucial to reducing transaction and information costs in financial markets. Hence, appropriate use of derivative products will be instrumental in attaining market efficiency, which would diversify the risk in all possible ways. Thus the present study is made to analyses the market efficiency and dynamics of relationship between CNX Nifty and Sectoral Indices of National Stock Exchange.

Objectives of the study

- To analyze the relationship between CNX Nifty and Sectoral Indices of National Stock Exchange of India.
- To check the Co-Integration movement between Nifty and the Sectoral Indices of National Stock Exchange of India.
- To study the cause and effect relationship between Nifty and Sectoral indices of National Stock Exchange of India.

Scope of the study

The present study empirically explores market co-integration and dynamics of relationship between NSE Nifty and Sectoral Indices of National Stock Exchange, so as to guide investors to make innovative investment opportunities by managing their portfolio in a dynamic business environment.

Research Methodology

The study is primarily based on empirical research to investigate the co-integration cause and effect among the Nifty and Sectoral Indices of National Stock Exchange. The present study has been based on the secondary data. The data used for analysis has been collected from daily reports of CNX Nifty and 11 Sectoral Indices are through National Stock Exchange Official websites, magazines and Journals. The selected Sectoral Indices are CNX Nifty index, CNX Auto index, CNX Bank index, CNX Energy index, CNX Finance index, CNX FMCG index, CNX Information Technology index, CNX Media index, CNX Metal index, CNX Pharma index, CNX PSU Bank index, and CNX Realty index for the study. The period of study covers from 1.4.2012 to 31.3.2017 i.e., for Five years. Tools used for analyzing the data are Daily Return, Descriptive Statistics, Karl Pearson's Correlation, Unit Root Test and Granger Causality test.

Sampling Technique

The National Stock Exchange consists of four major category namely Broad indices, Sectoral indices, thematic indices and strategy indices. In this researcher select particularly the sectoral indices for her study purposefully. So, the purposive sampling technique is adopted for this study.

HYPOTHESIS FOR THE STUDY

- 1. H_0 :** There is no significant relationship between NIFTY and Sectoral Indices of National Stock Exchange.
- 2. H_0 :** There is no Co-Integration among the NIFTY and Sectoral Indices of National Stock Exchange.
- 3. H_0 :** NIFTY and Sectoral Indices of National Stock Exchange do not Granger Cause each other.

Significance of the Study

An efficient and integrated stock market is an important infrastructure that influences capital formation and strengthens the capital market in a dynamic business environment. Stock Market Efficiency is a necessary condition for the economic efficiency, as the stock prices provide signals for igniting thoughts of investors about the profitability of investment opportunities in different stock market indices leading to a paradigm change in a vibrant business environment. Thus, this study will be beneficial for the policy makers, academicians and information seekers undoubtedly.

Limitations of the Study

- The study is based on the secondary data taken from stock exchange websites. So, the findings entirely depend on the accuracy of such data only.
- The study is applicable only to S&P CNX Nifty index and its sectoral indices only.

REVIEW OF LITERATURE

- **Prof. Dr. S. Rajamohan and M. Muthukamu (2014)^a,** "Bank Nifty index and other sectoral indices of NSE- A comparative study" intended to recognize the nature and extent of influence by banking sector with other sectors during the bull and bear market phase. It concluded that the Bank Nifty index is positively influencing almost all the sectoral indices of NSE in both bull and bear phase market movement. The study recommended that before

making any investments in equity market, the investing community must look the behavioral pattern of banking sector stocks as they influence the behavior of the other sector stock.

- **Dr. C. Nateson (et, al) (2013)^b**, “Spillover Effect of Volatility in BSE Sensex on BSE Sectoral indices” found that not much attention has been contributed to volatility transmission to the sectoral indices from the major indices, that has contributed to find the spillover effect of volatility in Sensex on BSE sectoral indices. It results in the study that there is a volatility transmission from the BSE Sensex to the select sectors. On the other hand shocks to the stock returns in BSE Sensex do not transmit to BSE power and BSE tech.
- **Guglielmo Maria Caporale and Nicola Spagnolo (2011)^c**, “Stock Market Integration between Three CEECs, Russia and the UK” examined linkages between the stock markets of three Central and Eastern European countries. The study results have important implications for portfolio management strategies. First, hedge funds and institutional investors should be cautious in considering CEEC stock returns for diversification purposes when forming a portfolio including Russian and UK stock returns as well. Second, it appears that the EU accession has further reduced the benefits of portfolio diversification, since it has resulted in a much higher degree of integration, in particular with the UK.

DESCRIPTIVE STATISTICS

Table 1- Descriptive Statistics of the CNX NIFTY and the Sectoral Indices of National Stock Exchange from 1.4.2012 to 31.3.2017

	N I F T Y	A U T O	B A N K	E N E R G Y	F I N A N C E	F M C G
M e a n	0.00035	0.000658	0.000535	0.00023	0.00054	0.00079
S t d . D e v .	0.01665	0.01546	0.021944	0.01778	0.02149	0.013485
S k e w n e s s	0.11459	0.007517	0.147205	-0.18083	0.15621	-0.21768
K u r t o s i s	12.3877	9.439595	7.44419	11.753	8.17047	6.923382
Jarque-Bera	6396.81	3008.202	1439.045	5567.27	1946.39	1130.378
Probability	0	0	0	0	0	0
S u m	0.61502	1.145397	0.931449	0.39381	0.94472	1.375902
Sum Sq. Dev.	0.48262	0.415876	0.837874	0.55021	0.80324	0.316431

	I T	M E D I A	M E T A L	P H A R M A	P S U B A N K	R E A L T Y
M e a n	0.00037	6.23E-06	0.000106	0.000611	0.000347	-0.00077
S t d . D e v .	0.01858	0.018399	0.023577	0.012283	0.022731	0.031582
S k e w n e s s	-0.09528	-0.16509	-0.1489	-0.31446	0.109661	-0.41149
K u r t o s i s	7.87713	8.14235	7.11651	11.87349	6.282262	9.308968
Jarque-Bera	1728.14	1926.184	1235.699	5740.543	780.0388	2936.513
Probability	0	0	0	0	0	0
S u m	0.64747	0.010841	0.18453	1.063064	0.600371	-1.34296
Sum Sq. Dev.	0.60069	0.589059	0.967253	0.262514	0.893379	1.735546

Source: Compiled and calculated from National Stock Exchange

The above table 1 depicts the Descriptive statistics of the CNX NIFTY and the Sectoral Indices of National Stock Exchange for the period of 1.4.2012 to 31.3.2017. The mean value of return on sectors stood high in CNX FMCG index and low return in CNX Realty index. The returns of CNX Realty index cannot be predicted as it gets highly deviated whereas the returns of CNX Pharma index is less deviated. The skewness of return is negative for all the sectors

except CNX Energy, CNX FMCG, CNX IT, CNX Media, CNX Metal, CNX Pharma and CNX Realty. There is platykurtic for all sectors in returns. The JarqueBera test statistic of all the sectors are exceeds the critical values for any reasonable significance level to lead to the conclusion that the daily returns do not follow a normal distribution.

CORRELATION ANALYSIS

H₀: There is no significant relationship between NIFTY and Sectoral Indices of National Stock Exchange of India.

Table 2- Results of Correlation Analysis from 1.4.2012 to 31.3.2017

	Nifty	Auto	Bank	Energy	Finance	Fmcg	I t	Media	Metal	Pharma	Psubank	Realty
N i f t y	1											
A u t o	.806**	1										
B a n k	.885**	.722**	1									
E n e r g y	.912**	.698**	.755**	1								
F i n a n c e	.914**	.740**	.980**	.783**	1							
F m c g	.683**	.577**	.571**	.592**	.602**	1						
I t	.700**	.530**	.525**	.557**	.559**	.446**	1					
M e d i a	.709**	.644**	.638**	.656**	.661**	.526**	.447**	1				
M e t a l	.856**	.724**	.730**	.777**	.754**	.543**	.543**	.667**	1			
Pharma	.674**	.590**	.549**	.613**	.577**	.564**	.504**	.557**	.567**	1		
Psu Bank	.787**	.667**	.911**	.692**	.874**	.510**	.426**	.621**	.676**	.487**	1	
R e a l t y	.799**	.677**	.762**	.716**	.774**	.520**	.468**	.679**	.732**	.523**	.725**	1

** Correlation is significant at the 0.01 level (2-tailed).

Source: Compiled and calculated from National Stock Exchange

The Table 2 shows Correlation analysis between CNX NIFTY and the Sectoral Indices of National Stock Exchange, taking CNX NIFTY and the Sectoral Indices individually at 1% level of significance. It is also conferred that there is high positive correlation individually among all the sectoral indices of National Stock Exchange and on analysis, it is result that CNX NIFTY, has very high degree of positive correlation with all the sectoral indices individually. Thus, the null hypothesis (H₀) that there is no significant relationship between CNX NIFTY and the Sectoral Indices of National Stock Exchange is rejected.

Table 3-Results of Correlation Analysis from 1.4.2012 to 31.3.2013

	Nifty	Auto	Bank	Energy	Finance	Fmcg	I t	Media	Metal	Pharma	Psubank	Realty
N i f t y	1											
A u t o	.830**	1										
B a n k	.861**	.728**	1									
E n e r g y	.955**	.781**	.795**	1								
F i n a n c e	.894**	.755**	.977**	.827**	1							
F m c g	.756**	.697**	.629**	.745**	.672**	1						
I t	.710**	.587**	.521**	.605**	.561**	.456**	1					
M e d i a	.783**	.757**	.681**	.779**	.703**	.702**	.517**	1				
M e t a l	.894**	.787**	.741**	.841**	.775**	.671**	.593**	.764**	1			
Pharma	.738**	.698**	.600**	.712**	.646**	.671**	.545**	.703**	.687**	1		
Psu Bank	.805**	.716**	.926**	.767**	.895**	.633**	.479**	.703**	.702**	.570**	1	
R e a l t y	.820**	.720**	.763**	.787**	.787**	.658**	.519**	.744**	.750**	.664**	.736**	1

** Correlation is significant at the 0.01 level (2-tailed).

Source: Compiled and calculated from National Stock Exchange

The Table 3 shows Correlation analysis between CNX NIFTY and the Sectoral Indices of National Stock Exchange, taking CNX NIFTY and the Sectoral Indices individually at 1% level of significance. It is also conferred that there is high positive correlation individually among all the sectoral indices of National Stock Exchange and on analysis, it is result that CNX NIFTY, has very high degree of positive correlation with all the sectoral indices individually. Thus, the null hypothesis (H₀) that there is no significant relationship between CNX NIFTY and the Sectoral Indices of National Stock Exchange is rejected.

Table 4- Results of Correlation Analysis from 1.4.2013 to 31.3.2014

	Nifty	Auto	Bank	Energy	Finance	Fmcg	I t	Media	Metal	Pharma	Psubank	Realty
N i f t y	1											
A u t o	.827**	1										
B a n k	.899**	.768**	1									
E n e r g y	.963**	.775**	.822**	1								
F i n a n c e	.927**	.782**	.985**	.851**	1							
F m c g	.733**	.676**	.703**	.656**	.714**	1						
I t	.797**	.662**	.683**	.711**	.717**	.607**	1					
M e d i a	.770**	.726**	.705**	.731**	.730**	.636**	.588**	1				
M e t a l	.870**	.734**	.737**	.830**	.766**	.588**	.657**	.690**	1			
Pharma	.731**	.659**	.663**	.672**	.669**	.635**	.649**	.630**	.624**	1		
P s u B a n k	.819**	.715**	.945**	.751**	.910**	.652**	.598**	.663**	.668**	.607**	1	
R e a l t y	.827**	.713**	.786**	.763**	.802**	.608**	.602**	.740**	.711**	.594**	.717**	1

** Correlation is significant at the 0.01 level (2-tailed).

Source: Compiled and calculated from National Stock Exchange

The Table 4 shows Correlation analysis between CNX NIFTY and the Sectoral Indices of National Stock Exchange, taking CNX NIFTY and the Sectoral Indices individually at 1% level of significance. It is also conferred that there is high positive correlation individually among all the sectoral indices of National Stock Exchange and on analysis, it is result that CNX NIFTY, has very high degree of positive correlation with all the sectoral indices individually. Thus, the null hypothesis (H₀) that there is no significant relationship between CNX NIFTY and the Sectoral Indices of National Stock Exchange is rejected.

Table 5 - Results of Correlation Analysis from 1.4.2014 to 31.3.2015

	Nifty	Auto	Bank	Energy	Finance	F m c g	I t	Media	Metal	Pharma	Psubank	Realty
N i f t y	1											
A u t o	.815**	1										
B a n k	.891**	.982**	1									
E n e r g y	.914**	.993**	.997**	1								
F i n a n c e	.918**	1.000**	.981**	.992**	1							
F m c g	.651**	.997**	.993**	.999**	.997**	1						
I t	.729**	.712**	.833**	.791**	.710**	.761**	1					
M e d i a	.700**	.932**	.984**	.969**	.931**	.956**	.918**	1				
M e t a l	.862**	.681**	.808**	.764**	.678**	.732**	.999**	.900**	1			
Pharma	.660**	.743**	.857**	.818**	.740**	.789**	.999**	.935**	.996**	1		
P s u B a n k	.830**	.997**	.993**	.999**	.997**	1.000**	.764**	.957**	.735**	.792**	1	
R e a l t y	.807**	.983**	1.000**	.998**	.982**	.994**	.829**	.983**	.804**	.853**	.994**	1

** Correlation is significant at the 0.01 level (2-tailed).

Source: Compiled and calculated from National Stock Exchange

The Table 5 shows Correlation analysis between CNX NIFTY and the Sectoral Indices of National Stock Exchange, taking CNX NIFTY and the Sectoral Indices individually at 1% level of

significance. It is also conferred that there is high positive correlation individually among all the sectoral indices of National Stock Exchange and on analysis, it is result that CNX NIFTY, has very high degree of positive correlation with all the sectoral indices individually. Thus, the null hypothesis (H_0) that there is no significant relationship between CNX NIFTY and the Sectoral Indices of National Stock Exchange is rejected.

Table – 6: Results of Correlation Analysis from 1.4.2015 to 31.3.2016

	Nifty	Auto	Bank	Energy	Finance	Fmcg	I t	Media	Metal	Pharma	Psubank	Realty
N i f t y	1											
A u t o	.815**	1										
B a n k	.888**	.996**	1									
E n e r g y	.798**	1.000**	.996**	1								
F i n a n c e	.909**	1.000**	.996**	1.000**	1							
F m c g	.693**	1.000**	.996**	1.000**	1.000**	1						
I t	.722**	.998**	1.000**	.998**	.998**	.998**	1					
M e d i a	.667**	1.000**	.997**	1.000**	1.000**	1.000**	.999**	1				
M e t a l	.852**	1.000**	.997**	1.000**	1.000**	1.000**	.999**	1.000**	1			
Pharma	.662**	1.000**	.997**	1.000**	1.000**	1.000**	.998**	1.000**	1.000**	1		
Psu Bank	.757**	.999**	.999**	.999**	.998**	.998**	1.000**	.999**	.999**	.999**	1	
R e a l t y	.778**	1.000**	.996**	1.000**	1.000**	1.000**	.998**	1.000**	1.000**	1.000**	.999**	1

** Correlation is significant at the 0.01 level (2-tailed).

Source: Compiled and calculated from National Stock Exchange

The Table 6 shows Correlation analysis between CNX NIFTY and the Sectoral Indices of National Stock Exchange, taking CNX NIFTY and the Sectoral Indices individually at 1% level of significance. It is also conferred that there is high positive correlation individually among all the sectoral indices of National Stock Exchange and on analysis, it is result that CNX NIFTY, has very high degree of positive correlation with all the sectoral indices individually. Thus, the null hypothesis (H_0) that there is no significant relationship between CNX NIFTY and the Sectoral Indices of National Stock Exchange is rejected.

Table 7- Results of Correlation Analysis from 1.4.2016 to 31.3.201

** Correlation is significant at the 0.01 level (2-tailed).

	Nifty	Auto	Bank	Energy	Finance	Fmcg	I t	Media	Metal	Pharma	Psubank	Realty
N i f t y	1											
A u t o	.815**	1										
B a n k	.888**	.996**	1									
E n e r g y	.798**	1.000**	.996**	1								
F i n a n c e	.909**	1.000**	.996**	1.000**	1							
F m c g	.693**	1.000**	.996**	1.000**	1.000**	1						
I t	.722**	.998**	1.000**	.998**	.998**	.998**	1					
M e d i a	.667**	1.000**	.997**	1.000**	1.000**	1.000**	.999**	1				
M e t a l	.852**	1.000**	.997**	1.000**	1.000**	1.000**	.999**	1.000**	1			
Pharma	.662**	1.000**	.997**	1.000**	1.000**	1.000**	.998**	1.000**	1.000**	1		
Psu Bank	.757**	.999**	.999**	.999**	.998**	.998**	1.000**	.999**	.999**	.999**	1	
R e a l t y	.778**	1.000**	.996**	1.000**	1.000**	1.000**	.998**	1.000**	1.000**	1.000**	.999**	1

Source: Compiled and calculated from National Stock Exchange

The Table 7 shows Correlation analysis between CNX NIFTY and the Sectoral Indices of National Stock Exchange, taking CNX NIFTY and the Sectoral Indices individually at 1% level of significance. It is also conferred that there is high positive correlation individually among all the sectoral indices of National Stock Exchange and on analysis, it is result that CNX NIFTY, has very high degree of positive correlation with all the sectoral indices individually. Thus, the null hypothesis (H_0) that there is no significant relationship between CNX NIFTY and the Sectoral Indices of National Stock Exchange is rejected.

GRANGER CAUSALITY TEST

Table- 8 Results of Granger Causality Test

N u l l H y p o t h e s i s	O b s	F Statistics	P r o b	L a g s	Accepted/Rejected
Auto does not Granger Cause Nifty	1740	0.40402	0.5251	1	Rejected
Bank does not Granger Cause Nifty	1738	1.96441	0.0779	3	Rejected
Energy does not Granger Cause Nifty	1740	0.48683	0.4854	1	Rejected
Finance does not Granger Cause Nifty	1734	1.92524	0.0620	7	Rejected
FMCG does not Granger Cause Nifty	1740	7.75321	0.0054	1	Accepted
IT does not Granger Cause Nifty	1740	0.02437	0.8760	1	Rejected
Media does not Granger Cause Nifty	1736	1.97948	0.0788	5	Rejected
Metal does not Granger Cause Nifty	1740	0.08287	0.7735	1	Rejected
Pharma does not Granger Cause Nifty	1739	18.0549	0.0000	1	Accepted
PSU Bank does not Granger Cause Nifty	1740	0.48144	0.4879	1	Rejected
Realty does not Granger Cause Nifty	1740	3.23755	0.0721	1	Rejected

Source: Compiled and calculated from National Stock Exchange

Granger Causality Test as shown in Table 8 indicates that the directional bilateral relationship among the studied variables. The table shows that the P Values > 0.05 in case Auto, Bank, Energy, Finance, IT, Media, Metal, PSU Bank and Realty Sectoral Indices. This proves that the null hypothesis is rejected. This result proves that Nifty and Sectoral Indices of National Stock Exchange have a Granger Cause each other. On the other hand the P Values < 0.05 in case of FMCG and Pharma Sectoral indices. This proves that in the null hypothesis is accepted. This result proves that Nifty and Sectoral Indices of National stock Exchange do not Granger Cause each other. Hence, most of the Sectoral indices of National Stock Exchange have Granger Cause with Nifty.

FINDINGS OF THE STUDY

DESCRIPTIVE STATISTICS

- The mean value of return for the study period on sectors stood high in CNX FMCG index and low return in CNX Realty index. The returns of CNX Realty index cannot be predicted as it gets highly deviated whereas the returns of CNX Pharma index is less deviated.
- The mean value of return for the period from 1.4.2012 to 31.3.2013 on sectors stood high in CNX Metal index and low return in CNX IT index. The returns of CNX Realty index cannot be predicted as it gets highly deviated whereas the returns of CNX Pharma index is less deviated
- The mean value of return for the period from 1.4.2013 to 31.3.2014 on sectors stood high in CNX FMCG index and low return in CNX Bank index. The returns of CNX Realty index

cannot be predicted as it gets highly deviated whereas the returns of CNX Pharma index is less deviated.

- The mean value of return for the period from 1.4.2015 to 31.3.2016 on sectors stood high in CNX Metal index and low return in CNX FMCG index. The returns of CNX Realty index cannot be predicted as it gets highly deviated whereas the returns of CNX FMCG index is less deviated.
- The mean value of return for the period from 1.4.2016 to 31.3.2017 on sectors stood high in CNX PSU Bank index and low return in CNX Realty index. The returns of CNX Realty index cannot be predicted as it gets highly deviated whereas the returns of CNX Pharma index is less deviated.

CORRELATION

- There is a significant relationship between CNX NIFTY and Sectoral Indices of National Stock Exchange during the study period from 1.4.2012 to 31.3.2017.
- There is a significant relationship between CNX NIFTY and the Sectoral Indices of National Stock Exchange during the study period from 1.4.2012 to 31.3.2013.
- There is a significant relationship between CNX NIFTY and the Sectoral Indices of National Stock Exchange during the study period from 1.4.2013 to 31.3.2014.
- There is a significant relationship between CNX NIFTY and the Sectoral Indices of National Stock Exchange during the study period from 1.4.2014 to 31.3.2015.
- There is a significant relationship between CNX NIFTY and the Sectoral Indices of National Stock Exchange during the study period from 1.4.2015 to 31.3.2016.
- There is a significant relationship between CNX NIFTY and the Sectoral Indices of National Stock Exchange during the study period from 1.4.2016 to 31.3.2017.

GRANGER CAUSALITY TEST

The result proves that Nifty and Sectoral Indices of National stock Exchange have Granger Cause with each other. Hence, most of the Sectoral indices of National Stock Exchange have Granger Cause with Nifty.

SUGGESTIONS

The suggestions based on findings are

- The inferences from this study are useful in accessing the possibility of gaining advantage in portfolio construction and diversification from the Sectoral Indices. But the possibility of attaining advantage from sectoral diversification is limited in Indian context, as most of the Sectoral Indices in India possess either a long term or short term relationship with each other. So, accordingly portfolio decisions may be undertaken.
- It is advisable to the financial analyst and investors that in all the Sectoral Indices are not Weak Form Efficient, so their values can be manipulated. There exists more chance for the speculative activities in the markets as it is possible to forecast the future price based on past data.
- Modern financial applications such as Index Funds, Index Futures, and Index Options play an important role in financial investments and risk management. The implication of rejection of weak form efficiency for investors is that they can better predict the stock price movements.

- On the basis of significant Correlation, existence of Co-integration and existence of Granger Causation put a support in favour of a shift to dynamic business environment where one can manage risks can earn even above normal profits at least at present time.

CONCLUSION

The Indian stock market is considered to be one of the earliest in Asia, which is in operation since 1875. However, it remained largely outside the global integration process until 1991. A number of developing countries in association with the International Finance Corporation and the World Bank took steps to establish and revitalize their stock markets as an effective way of mobilizing and allocation of funds. In line with the global trend, reform of the Indian stock market also started with the establishment of Securities and Exchange Board of India (SEBI), although it became more effective after the stock market scam in 1991.

With the establishment of SEBI and technological advancement Indian stock market has now reached the global standard. The major indicators of stock market development show that significant development has taken in the Indian stock market during the post-reform period. The results of Correlation, Co-integration and Granger Causality Test are in the same line of direction. On the stationarity data, significant correlation among different Sectoral Indices were found; Johansen Co-integration Test confirmed long term relationship in most of the Sectoral Indices, thus, established co-integration; and Granger Causality Test revealed diverse causality.

REFERENCE:

1. **Prof.Dr.S.Rajamohan and M.Muthukamu (2014)**, "Bank Nifty index and other sectoral indices of NSE- A comparative study" *Indian Journal of Research* Volume:3 Issue:4 April 2014. <http://theglobaljournals.com/paripex/file.php>, Vol April 2014, .01068.
2. **Dr.C.Nateson (et al.) (2013)**, "Spillover Effect of Volatility in BSE Sensex on BSE Sectoral indices" *International Journal of Management & Business Studies* Volume: 3 Issue: 1 Jan-March 2013.
3. **Guglielmo Maria Caporale and Nicola Spagnolo (2011)**, "Stock Market Integration between Three CEECs, Russia and the UK" *Review of International Economics* Volume: 19, Issue: 1 Pages 1–206.

BOOKS

1. **C.R.Kothari(2006)**, "Research Methodology Methods & Techniques" New age International publishers, pages – 398.
2. **DamodarN.Gujarati**, "Basic Econometrics" Mcgraw-hill international editions pages-824.
3. **Gourishankar S.Hiremath (2013)**, "Indian Stock Market: An Empirical Analysis of Informational Efficiency" (Springer Briefs in Economics) pages – 140.
4. **Mohamed El HediAroui, FredjJawadi and Duckhuong Nguyen (2010)**, "The Dynamics of Emerging Stock Markets: Empirical Assessments and implications (Contributions to Management Science) A Springer Company pages – 203.

WEBSITES

1. www.bse.com
2. www.nse.india.com
3. www.moneycontrol.com
4. www.indianresearchjournals.com