CAUSAL LINKAGE BETWEEN FOREIGN INSTITUTIONAL INVESTMENT AND INDIAN STOCK MARKET

Dr. M Dhanabhakyam
Assistant Professor (Senior Scale), School of Commerce, Bharathiar University, Coimbatore.
Swapna Kurian
Ph.D. Research Scholar, (ICSSR Doctoral Fellowship), School of Commerce, Bharathiar University, Coimbatore.

Abstract
After liberalization of Indian Economy, there has been impetus growth in the stock market performance. Availability of foreign capital depends on many factors and economic development of a country. The Foreign Institutional Investors have gained a significant place in Indian capital market. In the particular context, this paper has examined the causal linkage between Foreign Institutional Investment and Indian Stock Market particularly BSE Sensitivity Index. The causal linkage is measured through Johansen Cointegration, Vector AutoReregession, Impulse Response Function, Variance Decomposition and Granger Causality. Here the researcher uses data of time series econometric model for the 2005-2006 to 2013-2014. An empirical result says that the BSE Sensex and FII has long run relation in Johansen-Cointegration Test and the Granger Causality doesn't show the granger cause at second lag.

Introduction

As the part of transnational capitalism, sufficient amount of capital are following from developed world to emerging economics. The developing nations were depends the developed nations for foreign capital due to the pressure of inflation condition of that specific country. F IIs were allowed to invest in the Indian Capital Market securities from September 1992; however investment by them were first made in January 1993. The investment from foreigners in the form of Foreign Institutional Investment in equities and it's are the main form of investments. The government will give the sanction to the foreign investors to make their investment on equity to till 2008. After the government will extend the investments in Indian guilts securities and debt securities in 2008 and 2009 respectively. The Foreign Institutional Investment journey has successfully going to continue for the amount of 51649 in Crores.

Review of Literature

The section is related to researcher has collect review from the Indian and foreign authors for the current studies. This review is related to the Indian Stock Market Return and foreign institutional investment.

Kumar S S S (2002) he checked the role of foreign institutional investors in Indian stock market and the stock market movement also. He found that the FII movement is directed by the mutual fund because of the large size of fund handled by the Asset management companies. The regression result shows that the institutional activities has an influence on the stock market and make significant influence on the market direction.

M. Suresh Babu (2008) he analyses dynamic interaction between the FII flows and stock market return in Indian Stock Market. The researcher has used the daily data of FII flows and stock market return from January 2003 to February 2007 with Vector Auto Regressive, Impulse Response Function and Granger Causality econometric tools. The test result shows that the FII Flows and stock market return has bidirectional relationship.

M. Suresh Babu and K P Prakesh (2008) they interpret the relationship between the FII inflows and stock market return. The granger causality and Vector Auto Regressive analysis result says that, bidirectional relation exist between stock markets return and FII inflows. The found that FII inflows control the market return and market sentiment.

Brian Boyer and Lu Zheng (2009), the authors evaluated the relationship between aggregate stock market returns and equity cash flows from seven investor's group investment using Vector Auotregressive and Impulse

Response Function econometric tools. The research got strong evidence for the relationship between aggregate stock market return and cash flow in each group.

K S Sujit and B Rajesh Kumar (2011) this articles check the relationship between gold price, stock return, exchange rate and oil price. The researcher has used daily data from January 1998 to June 2011, which consists of 3485 observation with the help of VAR and cointergration econometric tools. They found that the variable has weak long run relationship among variables. The exchange rate has determined the relationship between the gold prices, stock return and oil price.

Objective
1. To analyse the impact of Foreign Institutional Investment on BSE Sensex Return on Indian stock market.

Hypothesis
1. There is no impact of Foreign Institutional Investment on BSE Sensex Return on Indian stock market.

Research Methodology
The researcher was collected the daily closing value of daily BSE Sensex and Foreign Institutional Investment from 2005-2006 to 2013-2014 for the calculation of return impact. In order to know the return of BSE Sensex and BSE Sector-Wise is the ratio of current year by previous value in log values. The FII value is converts into Log value for the calculation purpose.

$$R_t = \log (CY / PY)$$

Where R_t is the return in the period t, CY means Current Year, PY means Previous Year. Then, the researcher has checked the stationarity of return and FII. The researcher found that the FII and return has stationary at level. The stationarity is pre-request test before examine the time series data. The ADF stationarity test has used for checking stationarity. The data follow stationarity means p=0 and found that the data is stationarity at 1(0) level. Further, the researcher has checked the long run relationship between the variables through Johansen-Cointegration tests. The Johansen Trace Test and Johansen Maximum Eigen Value Test are use to check the cointegration of variables. The rule of trace statistic is at most r Cointegration relations and the alternative hypothesis is that, there is M Cointegration relations. The Maximum Eigen Vale Statistic Test null hypothesis is there is an at most r, co integrating relation and the alternative hypothesis is there are r+1 co integrating relations. The BSE Sensex return, BSE sector wise return and FII has co-integration between each other for a long time. Where, the Cointegration Order r=0, 1,2,3,4 and m is the total of co integrating relations that may exist in the test. The Cointegration values are calculated at first difference. The researcher was used to forecasting system of interrelated time series and to analysis the dynamic impact on random disturbances on the system. All the variables were treats as an endogenously and it is explained through by its own lagged values. Here the researcher aims to show systematic the dynamic relationship among BSE Sensex return with FII by using VAR. The VAR Model coefficient is very difficult to explains with the help of Impulse Response Function and Variance Decomposition. The Variance Decomposition and Impulse Response Function are used to trace out the dynamic interaction among variables. The IRF shows the dynamic response of all the variables in the system to a shock or innovation in each variable. It focuses more on the increase or decrease in trend rather than the actual value of the variable. The Variance Decomposition is used to detect the causal relationship among the variables and it is extent to which the variables are explained by the shocks in all the variables in the system. The causal relationship between the returns and FII was checked with Granger Causality at two lag.

Analysis and Interpretation
The researcher has use the BSE Sensex and FII daily time series data for the analysis. The time series data are using for the period of 2005-2006 to 2013-2014 with the help of Stationarity, Johansen Cointegration Test, Vector Auto regression, Impulse Response Function, Variance Decomposition and Granger Causality Econometric Tools.

Table 4.1, Unit Root Test of FII and BSE SENSEX Return

Variables	Adf test statistic	1 % test critical values	p-value	Lag Length	Status
FII	-15.25	-3.43	0.0000	5	Accepted
Return	-56.89	-3.43	0.0001	0	Accepted

It reveals that the ADF test unit root test of return and FII and found that the time series data are stationarity at level with the lag length five and zero respectively.

Table 4.2,Johansen Cointegration Test OF FII And BSE Return

Series: BSE_RETURN LOG_FII				
Lags interval (in first differences): 1 to 4				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.353944	1761.257	15.49471	0.0000
At most 1 *	0.074727	265.8540	3.841466	0.0000
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.353944	1495.403	14.26460	0.0000
At most 1 *	0.074727	265.8540	3.841466	0.0000
Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Table- 4.2 exhibits that the Cointegration test of BSE Sensex and FII. The trace test and Max-eigenvalue shows four Cointegration equations according to the trace value and 0.05 critical value and Max-eigen statistic and 0.05 critical values at first difference respectively

Table 4.3, Vector Autoregressive Model

Vector Autoregression Estimates		
Standard errors in ( ) & t-statistics in [ ]		
	BSE_RETURN	LOG_FII
BSE_RETURN(-1)	0.084181	-0.164231
	(0.01707)	(0.38022)
	[4.93042]	[-0.43194]
BSE_RETURN(-2)	-0.047643	0.744888
	(0.01620)	(0.36073)
	[-2.94119]	[2.06493]
LOG_FII(-1)	-0.000123	0.355322
	(0.00076)	(0.01683)
	[-0.16248]	[21.1092]
LOG_FII(-2)	-0.000149	0.174028
	(0.00076)	(0.01683)
	[-0.19752]	[10.3393]
C	0.965199	0.163349
	(0.02275)	(0.50658)
	[42.4305]	[0.32246]

As per the VAR model of FII and BSE Sensex Return shows that the return has affects its own past values, FII second lag value and constant. The FII has affects its own two lag values only.

Figure 4.1mpulse Response Function of FII and BSE Sensex Return
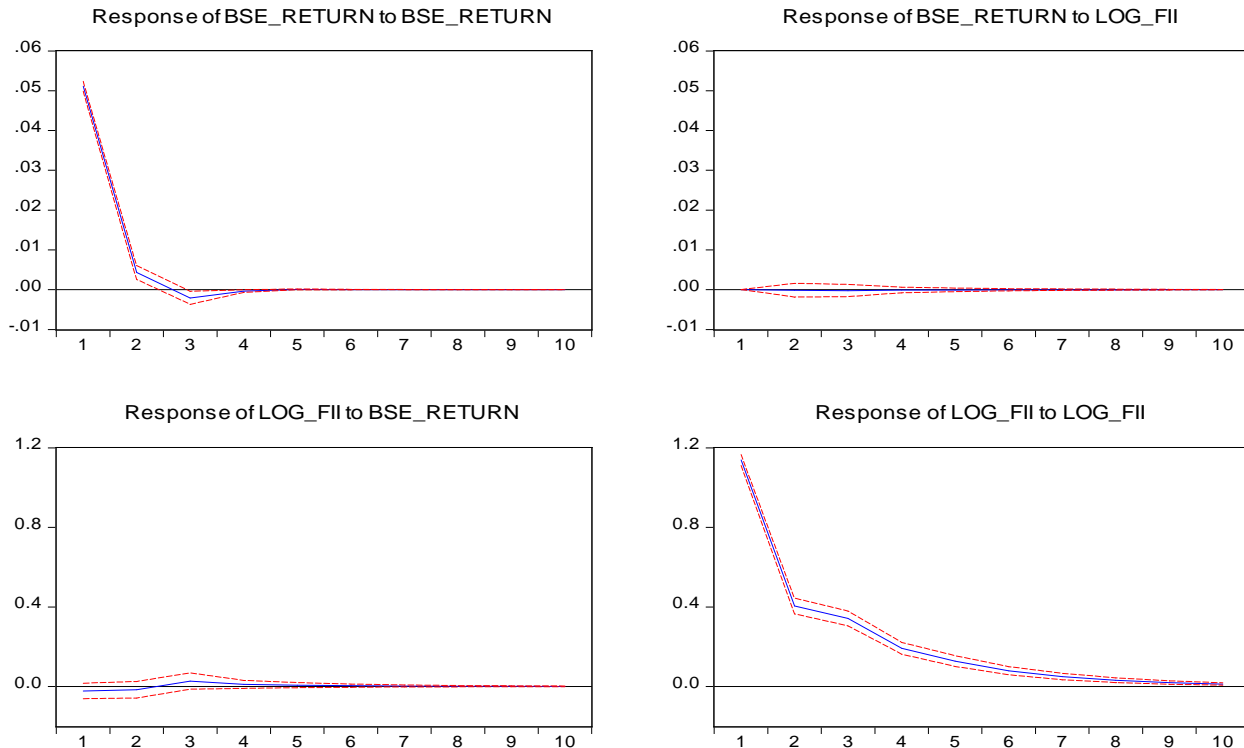Response to Cholesky One S.D. Innovations ± 2 S.E.

Figure 4.1 depicts that the positive shock is given from return to return and it play a slanting down to negative values in second lag and increase it positive value in third lag and further it does not have any changes to till lag length. The positive shock is given from the return to FII has negative changes up to three lags and the fourth lag has positive effects and further it does not have any changes till tenth lags. The positive innovation is given from the FII to return shows negative movement in first lag and go to positive movement up to six lag and further it does not have any change. The positive shock is given from FII to FII shows that the FII has slanting down from 1.2 to 0.4 at two lags, the values is decreasing and decay at tenth lag

Table 4.4, Variance Decomposition of FII and BSE Sensex Return

Variance Decomposition of BSE_RETURN:			
Period	S.E.	BSE_RETURN	LOG_FII
1	0.051139	100.0000	0.000000
2	0.051320	99.99926	0.000742
3	0.051362	99.99723	0.002772
4	0.051364	99.99673	0.003275
5	0.051364	99.99652	0.003478
6	0.051364	99.99645	0.003555
7	0.051364	99.99641	0.003587
8	0.051364	99.99640	0.003599
9	0.051364	99.99640	0.003604
10	0.051364	99.99639	0.003606
Variance Decomposition of LOG_FII:			

Period	S.E.	BSE_RETURN	LOG_FII
1	1.138821	0.039675	99.96032
2	1.208660	0.053766	99.94623
3	1.256396	0.097979	99.90202
4	1.271000	0.102548	99.89745
5	1.277400	0.104569	99.89543
6	1.279823	0.105168	99.89483
7	1.280806	0.105452	99.89455
8	1.281193	0.105560	99.89444
9	1.281347	0.105604	99.89440
10	1.281408	0.105621	99.89438
Cholesky Ordering: BSE_RETURN LOG_FII			

Table 4.4 shows that the variance decomposition of FII and return. The return has affects its own value in all lags. The FII has affects its own lag value in all lag.

Table 4.5,Granger Causality Test of FII and BSE Sensex

Pairwise Granger Causality Tests			
Lags: 5			
Null Hypothesis:		F-Statistic	Prob.
LOG_FII does not Granger Cause BSE_RETURN		0.39828	0.8503
BSE_RETURN does not Granger Cause LOG_FII		2.36482	0.0375

Table 4.5 exhibits that the pairwise granger causality test results shows that the unidirectional relationship between the return and FII. The BSE Sensex Return does have granger cause FII at five lag.

Suggestions
The market sentiment affects the Indian Stock Market. So the government should take the necessary steps to control the market fluctuation in Indian Stock Market. They should liberal their registration procedure to the foreign investors and make more attractive policy framework to foreign investors who are interested in India Market. The concerned authority should make the attractive incentives to the foreign investor and maintain a register to know about the foreign investors.

Conclusion
The stock market has high performance after the liberalization and to earn more foreign capital through the FII. The FII is one of the investment channels in India Market. The Indian Stock Market has high sentiment markets due to the market sentiment. The sensitivity is also affects the stock market condition. The stock market return and FII has long term relationship between each other in Johansen Cointegration test and granger causality test shows the relationship between each other at fifth lag values. The concerned authority should take care of foreign investor's interest and framed the suitable policies for the attraction of foreign investments.

Abbreviation
FII-Foreign Institutional Investment
VAR-Vector Auto Regression
IRF –Impulse Response Function

Reference
1. Prasanna, P. K. (2008). Foreign Institutional Investors: Investment Preferences in India, JOAAG, Vol. 3. No. 2.
2. S.S.S, Kumar, (2002)," Role of Institutional Investors in Indian Stock Market", Indian Journal of Economics, July-December, PP: 76-80.

3. Morgan, Stanley, (2002), "FII's Influence on Stock Market", Journal of Impact of Institutional Investors on Indian Stock Market, Publisher: Emerald Group Publishing Limited, Vol.17.
4. Suresh, Babu, M., (2008), "Causal Relationship Between Fiis And Stock Market Returns In India", International Journal Of Trade And Global Market, Vol.1, No.3, Pp.259-265.
5. Boyer, Brian., and Zheng, Lu., (2009), Investors Flows and Stock Market Returns", Journal Of Empirical Finance, Issue.16,pp.87-100.
6. S, Sujit, K., and Rajesh, Kumar , B ., (2011), A Study on Dynamic Relationship among Gold Price, Oil Price, Exchange Rate And Stock Market Return ,International Journal Of Applied Business And Economic Research, Vol.9, No.2, PP. 145-165.
7. Gupta, Sivakiran., And Rao. Prabhakar (2014), "An Empirical Analysis Of Stock Market And Economic Growth After Liberalization, Finance India, Vol. XXVII, No.2, PP: 499-506.
8. Chalapati, Rao., Ranganathan K., And Murthy. M. (1999), Foreign Institutional Investment And Indian Stock Market, Journal Of Indian School Of Political Science , Vol. II , No. 4.
9. Agarwal, Tanu.,(2013),FII: A Study Of Co-Relationship With Mutual Funds Investment And Sensex, Research World-Journal Of Arts, Science And Commerce, Vol. IV, Issue.3, Pp. 663-69.