INVESTIGATION OF CASUAL RELATIONSHIP BETWEEN FIIS' INVESTMENT AND ECONOMIC GROWTH: EVIDENCE FROM INDIA

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Abstract
The current study makes an attempt to study casual relationship between FIIs' inflows and economic growth in India. The study covers the period from 1996 to 2009. The present study is based on quarterly data of Net FII inflows and GDP of India. The empirical relationship between FII inflows and economic growth has been examined using Engle-Granger Cointegration test, Granger Causality test and VAR modal. The results of the study have provided no support for the hypothesis that FII inflows have the potential of influencing the process of economic growth in India. Further, the results of the study have also revealed that economic growth is not a significant determinant of FII inflows in India. Hence, it makes clear that FII inflows in India are not attracted by macro economy development in India Thus, it can be concluded from the study that wealth created in Indian stock market with the help of FII inflows not increases real wealth of the country

Keywords: FIIs', Unit root test, Cointegration Test, Granger Causality, Economic Growth.

I. Introduction:

Foreign Investment are those investments which are made by residents of a country in financial assets and production process of another country. After the opening up of the borders for capital movement these investments have grown significantly. But it had varied effects across the countries. It can affect the factor productivity and affect the balance of payments of the recipient country. In developing countries there was a great need of foreign capital. India, being a capital scarce country, has taken lot of measures to attract foreign investment since the beginning of reforms in 1991. As India is in the process of liberalizing the capital account, it may have significant impact on the foreign investments and particularly on the FII, as this would affect short- term stability in the financial markets. In the recent years, several studies have explored issues related to FPI, both from the financial and international economics perspectives. Further, several researchers have tried to explore the possible determinants of FII inflows in India.

The international capital flow such as direct and portfolio flows may have huge contribution to influence the economic growth of the countries positively. The, countries with developed financial markets can gain significantly from these international capital flows. As the size these capital flows is huge, it becomes important to understand the behaviour and influence these inflows on the domestic financial markets and economy, especially at time liberalizing the capital account. The present study makes an attempt to examine the cause effect relationship between FII investment patterns and the economic growth during the period 1996 to 2009. Section 2 we would briefly discuss the existing studies. In section 3, discusses the objectives and scope of study. Database and methodology adopted in this study are discussed in Section 4. In section 5, we discuss the estimated results and conclusions are drawn accordingly in the last section.

2. Review of Literature:

Many studies have been carried out to relating to FIIs inflows and some of studies are reviewed and given as belowMerton (1987) revealed that the expected return in the market with unrestricted investor base is more than restricted investor base. Entry of foreign investors in the stock market broadens the investor base, which further, increased diversification and risk sharing and lowered the risk premium for country specific volatility. Ma and Kao (1990) found that the currency appreciation affect the domestic stock market negatively. International capital flows is now perceived as a major source for increasing the industrial development of developing economies. Further, it brings a bundle of benefits such as capita technology, skill and sometimes as the market access (Chitre, 1996).

Agarwal (1997) using pooled data from five countries from 1986 to 1993 and for India using monthly data from Jan. 1993 to Dec. 1994, revealed that inflation rate of the domestic country adversely affects the FPI. Prasuna (1999) examined the determinants of FII investments in India using from January 1993 to March 1998. It was revealed from the study that lagged FII investment, percentage change in BSE Sensex and BSE Natex turn out to be significant determinants of FII investments, where as, exchange rate, interest and foreign exchange reserve had been found to be insignificant. Lensik et, al., (1999) examined the impact of uncertain capital flows on the growth of sixty developing countries during the 1990's. They distinguished between total capital flows, official capital flows and private capital flows. They finally concluded that that uncertain capital flows have a negative effect on financial market and growth in developing countries.

Kumar (2001) investigated the effects of FII inflows on the Indian stock market represented by the Senex using monthly data from January 1993 to December 1997. It was also inferred from the study that the FII invested did not respond to short term changes or technical position of the market and they were more driven by Fundamentals. Furthermore, it has been shown that some times-capital flows may actually crowd out or substitute domestic investments from the product of financial market with market power. Therefore, it becomes important to examine the impact of capital flows on domestic investment so that the impact of capital flows on economic growth can be evaluted (Misra, et, al. 2001)

Chakrabarti (2001) used monthly data to examine the nature and cause of FIIs net inflow to the Indian equity market during the 1993-99 periods. He found that FIIs net inflow is correlated with the returns on the equity market and that FIIs inflows are more likely to be the effect than the cause on the returns. Capital flows may contribute to economic growth rate of the host economy by augmenting the capital. Further, the high growth rates as also lead to a better investment climate by enhancing more capital flows in the country. Therefore, the capital - growth relationship is a subject of causality with a possibility of two-way relationship (Duttaray and Mukhopadhya, 2003). Gordon & Gupta (2003) found causation running from FII inflows to return in BSE. They observed that given the huge volume of investments, foreign investors could play a role of market makers and book their profits, i.e., they could buy financial assets when the prices are declining thereby jacking- up the asset prices and sell when the asset prices were increasing. Puspa Trivedi and Abhilash Nair (2006) in their paper attempted to investigate the determinants of FIIs inflows to India. The results of the study revealed that returns and volatility in the Indian stock markets emerge as the principal determinants of FIIs investment inflows. N. P. Tripathy (2007) attempted to examine the dynamic relationship between stock market, market capitalization and net FII investment in India during the period from June 2002 to June 2005 by using Granger Causality Test and Vector Auto Regression Model. The results of the study concluded that stock return and market capitalization had an impact on net FII investment in the expected direction over a short horizon. V. Gangadhar and G. Naresh Reddy (2008) aimed at examining the investment trends and patterns of FIIs and their impact on stock market liquidity and volatility. The study concluded that FIIs have emerged as the market movers in India.

Mishra et al.,(2010) had made an attempt in their paper to test the causality between foreign institutional investments and the real economic growth in India over a period 1993:Q1 to 2009:Q2. The findings of the study revealed that bi-directional causality running between these two variables. They further suggested that by the formulation of proper policy concerning cross-border investments, the planners and policy makers in India can help the country moving in a high growth trajectory.

It has been observed from the review of literature that there is few work is done to analyze the casual relationship between FII net inflows and economic growth. Further, as a result of liberalization process many changes have taken place in the Indian Stock Market. Hence, it is felt that there is a need to investigate whether FIIs are the cause or effect of economic growth in India.

3. Research Methodology:

3.1Database:

The objective of the present study is analysis the casual relationship between net FII in flows and economic growth in India. The present study is based on quarterly data of Net FII inflows and GDP of India. The study covers the period from January 1996 to December 2009. Economic growth in India is measured in terms of log difference of GDP and data of Gross Domestic Product have been at factor cost and constant prices. Data has been obtained from collected from the RBI database on Indian economy and SEBI bulletin.

Economic growth = LogGDPt - LogGDPt-1

3.2 Methodology:

Following methods are used to test the relationship between return, return volatility and volume in Indian stock market.

Unit Root Tests:

If yt is a random walk, then Δyt must be stationary. A data series must be stationary if its mean and variance are constant (non-changing) over time and the value of covariance between two time periods depends only on the distance or lag between the two time periods and not on the actual time at which the covariance is computed. The correlation between a series and its lagged values are assumed to depend only on the length of the lagand not when the series started. A series observing these properties is called a stationary time series. It is zero or as 1 (0). The unit root test checks whether a series is stationary or not. Stationary condition has been tested using Augmented dickey-Fuller (ADF) The ADF approach controls for higher-order correlation by adding lagged difference terms of the dependent variable to the right-hand side of the regression. To perform the ADF test the following regression is estimated.

$$? y_1 = \alpha_0 + \beta_0 t + \lambda y_{t-1} + \sum_{i=1}^{p} y_i \, ? y_{t-i} + \mu_1$$

To test for stationary, the null hypothesis is: H0: ? =0
And alternative hypothesis is: H1: ? < 0

Engle-Granger Cointegration test:

Let Yt and Xt be two time series whose co-movement is to be tested. First of all, both of these time series should be non-stationary. Secondly, they should be integrated of the same order. To carry out this test, we proceed as follow:

Regress Yt on Xt as: Yt = ? + ? Xt + µt

The estimated residuals should be tested for stationary using Augmented Dickey Fuller test. However, while performing the test, the trend component should not be included. Further, we should regress Xt on Yt and obtain the residuals as discussed above and test for its stationary using ADF test. If the residuals of regression of Yt on Xt and Xt on Yt are both stationary, the two time series in question are cointegrated.

The Granger test :

The dynamic linkage is examined using the concept of granger causality test. The intuition behind the granger causality test is quite straightforward. Suppose X variable causes Y but Y does not granger cause X, then past values of X should be able to predict future values of Y, but past values of Y should not be helpful in the forecast of X. The econometric procedure to evaluate if these two conditions hold consists of two steps. First, we test the null hypothesis that X does not cause Y by running the follow regressions.

Restricted regression:

$$Y = \sum_{i=1}^{m} \alpha_i Y_{t-i} + e_t \qquad (1)$$

And the unrestricted regression:

$$Y = \sum_{i=1}^{m} \alpha_i Y_{t-i} + \sum_{i=1}^{m} \beta_i X_{t-i} + e_t \qquad (2)$$

An F test using the sum of squared residuals from each regression in order to test is the group of coefficients B is significantly different from zero at some significance level is as follows.

$$F = (N-k)\frac{(ESS_r - ESS_{ur})}{q(ESS_{ur})}$$

ESSr and ESSur are the sums of squared residuals in the restricted and unrestricted regressions; N is the number of observations; k is the number of estimated parameters in the unrestricted regression and q is the number of parameter restrictions. The statistic follows a F(q, N-k) distribution. We can reject the null hypothesis that "X does not cause Y"($\beta_1, \beta_2, \ldots \beta_m = 0$) if the group of coefficients added to the restricted regression is significantly different from zero. The next step is to test the null hypothesis " Y does not cause X". We should run the same regressions as above, but now switching X and Y. If we can not reject the null hypothesis that " Y does not cause X" then we can conclude that X Granger causes Y.

Vector Autoregressive Analysis:

Granger causality results have been verified through VAR results, because if one variable cause other variable, significant lead-lag relationship must exist between the two. For this purpose we use a bi-variate VAR model of order p. VAR model as the name suggests models the vectors of variables as autoregressive processes where each variables of linearly depends upon its lagged values and lagged value of other variables in the vector which implies that future values of the process are a weighted sum of past and present value plus some noise and possible exogenous variables.: Two decades ago, Sims (1980) provided a new macro econometric, a simple and simple and parsimonious framework: Vector Autoregressions (VARs). A univariate autoregression is a single equation; single variable linear model in which the current value of a variable is explained by its own lagged values. A VAR is a n-equation-variable linear model in which each variable is in turn explained by its own lagged values, plus current and past values of remaining n-1 variables. This simple framework provides a systematic way to capture dynamics in multiple time series. The VAR is commonly used for forecasting systems of interrelated time series and for analyzing the dynamic impact of random disturbances on the system of interrelated time series and for analyzing the dynamic impact of random disturbances on the system of variables.

IV. Results and Analysis:

To understand the basic characteristics of the variables used in the paper necessary sample descriptive statistics are calculated and the same are given in Table 1. Significant Jarque-Bera (JB) statistics clearly reject the null hypothesis that variables understudy follow normal distribution.

Unit Root Test Results:

The unit root test checks whether a series is stationary or not. Stationary condition has been tested using Augmented dickey-Fuller (ADF). In order to verify the robustness of relationship between economic growth and FII investments and to study the direction of information flow between these two, Granger causality and VAR methodologies have been applied, which require stationary of the variables in the system. Since non-stationary variables does not return to their long-term average value following a disturbance, it is important to convert such variables into a stationary process before including them into the VAR system in order to avoid spurious regression. On the basis of ADF, unit root test results, Table 2 shows that FII and economic growth are stationary at levels.

Cointegration Results:

The results of cointegratin test in order to ascertain probable existence of co-movement between these variables are presented in Tables3.

Engle-Granger Cointegration Test:

Table 3, which presents the ADF stationary test of the residuals in the Engle Granger framework, suggests that the residuals generated from all the pairwise cointegration analysis are found to be non-stationary both at 1 per cent and 5 per cent level. This infers that the variables that we have considered in the study do not exhibit any co-movement between themselves. Thus, it is clear from study that FII inflows are not significantly associated with the economic growth.

Granger Causality Results

Apart form the cointegration exercise to ascertain any possible existence of co-movement between the variables; we also undertook the pairwise Granger causality test between FII inflows and economic growth, the results of which have been presented in Table 4. It is evident from the results that the null hypothesis of 'no Granger causality' has been accepted. It makes clear that FII inflows is not significantly related with economic growth in India. Further, it has also been revealed from the table that the hypothesis that economic does not cause FII inflows in India is also accepted.

VAR Model

Granger causality results have been verified through VAR results. VAR results in Table 5 indicate that economic growth does not affect FII inflows significantly. Further, it has also been clear from the table that FII inflows are not an important determinant of economic growth in India. Thus, results of the granger causality test are supported by the VAR model.

V. Conclusion:

The current study makes an attempt to study casual relationship between FIIs' inflows and economic growth in India. The study covers the period from 1996 to 2009. The present study is based on quarterly data of Net FII inflows and GDP of India. The empirical relationship between FII inflows and economic growth has been examined using Engle-Granger Cointegration test, Granger Causality test and VAR modal. The results of the study have provided no support for the hypothesis that FII inflows have the potential of influencing the process of economic growth in India. Further, the results of the study have also revealed that economic growth is not a significant determinant of FII inflows in India. Hence, it makes clear that FII inflows in India are not attracted by macro economy development in India Thus, it can be concluded from the study that wealth created in Indian stock market with the help of FII inflows not increases real wealth of the country

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Tables

Table 1: Descriptive Statistics

	FII	EG
Mean	4231.174	0.018239
Median	1922.990	-0.003648
Maximum	32862.37	0.219057
Minimum	-13860.96	-0.118111
Std. Dev.	8441.263	0.096976
Skewness	0.705189	0.647850
Kurtosis	4.555646	2.148099
Jarque-Bera	**9.553267***	**5.109714****
Probability	0.008424	0.047703

* Significant at 1 percent level of significance

** Significant at 5 percent level of significance

Note: FII: Foreign Institutional Investments

EG: Economic Growth

Table 2: Unit Root Test Results

Variables	Augmented Dicky Fuller Test	
	With Constant	With Constant and Trend
EG	-3.2062**	-3.1828**
FII	-17.9658*	-17.9666*

* Significant at 1 percent level of significance
** Significant at 5 percent level of significance

Table 3: Engle-Granger Cointegration Test Result:

Name of the Country	Computed ADF Test Statistics	p-value
EG on FII	-2.8169	0.1604
FII on EG	-3.0411	0.1008

Note: The critical values of ADF tests are -3.511 and -2.897 at 1 percent and 5 percent level of significance respectively.

Table 4: Granger Causality Results

Null Hypothesis	F-Statistic	Probability	Accept/ Reject
EG does not Granger Cause FII	1.07001	0.38477	Accept
FII does not Granger Cause EG	1.55269	0.20674	Accept

* Significant at 1 percent level of significance
** Significant at 5 percent level of significance

Table 5: Lead-Lag Relationship between Economic Growth and FII

Panel A: Impact of EG on FII

	Coefficient	Std. Error	t-ratio	p-value	Sig.
const	-1418.71	3947.13	-0.3594	0.72126	
FII 1	0.633616	0.162903	3.8895	0.00039	*
FII _2	-0.0794288	0.198765	-0.3996	0.69168	
FII _3	-0.11159	0.198297	-0.5627	0.57692	
FII _4	-0.00874576	0.178573	-0.0490	0.96119	
EG_1	69560.9	69399.3	1.0023	0.32253	
EG 2	36858	68013.1	0.5419	0.59103	
EG _3	77551.3	68742.2	1.1281	0.26633	
EG 5	49747.2	65931.5	0.7545	0.45518	

* Significant at 1 percent level of significance
** Significant at 5 percent level of significance

Panel B: Impact of FII on EG

	Coefficient	Std. Error	t-ratio	p-value	Sig.
const	0.0211817	0.0070706	2.9957	0.00480	*
FII1	5.47102e-07	2.91812e-07	1.8748	0.08852	
FII 2	1.12889e-07	3.56054e-07	0.3171	0.75294	
FII 3	-2.78303e-07	3.55215e-07	-0.7835	0.43820	
FII 4	4.30078e-07	3.19882e-07	1.3445	0.18676	
EG 1	-0.357734	0.124317	-2.8776	0.00654	*
EG2	-0.373464	0.121834	-3.0654	0.00399	*
EG 3	-0.332956	0.12314	-2.7039	0.01019	**
EG4	0.580922	0.118105	4.9187	0.00002	*

* Significant at 1 percent level of significance
** Significant at 5 percent level of significance