FIIs Foreign Exchange Reserve, nexus in India

Dr. Rekha Mehta

Associate Professor,
Department of Economics,
Jai Narain Vyas University, Jodhpur

Akansha Jain

Research Scholar,
Department of Economics,
Jai Narain Vyas University, Jodhpur

Abstract

The foreign institutional investment had a very significant impact on the domestic stock market and real economy since their arrival in India in 1993. FII investment in India is responsible factor in determining foreign exchange reserve in India. Fluctuation in FOREX, actually disturb the economic stability through this paper we study the impact of FII on Foreign exchange reserve and examine the causal relationship between these two factor. For this purpose Granger Causality test is used with unit root test. Along with these test, statistical tool are also used.

Keywords:

Foreign Institutional Investments (FII), foreign exchange reserves, FIIs Equity, Granger causality test, RBI

Introduction

Maintenance of Economic growth of the nation is always a challenge for economic planner in India. The rupee slumped to a record low in late August sparking India's biggest market turmoil since a balance of payments crisis in 1991. To remove this crises and to achieve faster economic growth, India has opened its gate for foreign investor since Economic reform of India 1991, which was witnessed a remarkable growth due to liberalisation of external capital flows especially in the form of foreign institutional investment (FII), equity investment. This has led to surge of capital inflow and strengthened Balance of Payment position.

The foreign institutional investment had a very significant impact on the domestic stock market and real economy since their arrival in India in 1993.FII means an entity established or incorporated outside India which proposes to make investment in India. They are registered as FIIs in accordance with section 2(f) of the SEBI (FII) regulations 1995.

FII have emerged as an important player in Indian Equity market in the recent past. FII and returns in equities in Indian stock market had shown a drastic change in foreign exchange reserves of India. The surge in foreign funds flowing into in equities coupled with record NRI funds and dollar purchases by the Reserve Bank of India(RBI) has boosted the foreign exchange reserves to over $300-billionmark at the end of March, which is the highest since December 2011. The latest

RBI figures for the week to March 28 show that foreign reserves jumped by $5.038 billion to $303.673 billion, the second highest in the 2013- 14 fiscal. The robust flow of dollars into the country has strengthened the rupee, which breached the 60- mark for the first time in eight months. RBI had been widely expected to build up its reserves after the country was one of the emerging countries worst hit during intense global market volatility last year because of its record high current account deficit.

RBI had to sell dollars to defend the rupee sending reserves to a more than three- year low in September 2013. Strong interest from FIIs in equity market also led to the addition of FOREX reserves. Towards the year- end, FIIs interest increased leading equity markets to lifetime highs. During the April- March period, FIIs have pumped a net amount of Rs 79,709 crore into the equity market. This was the fifth consecutive fiscal year of inflow by overseas investors after they pulled out a net amount of Rs 47,706 crore from the share market in 2008- 09. The rise in reserves of $ 24 billion on a year-on-year basis is the highest since 2009. In 2009 RBI had added almost $29 billion to its reserves. Foreign exchange reserves are now very close to the all-time high level which was seen in the week ending September 2, 2011 at $320.79 billion. However, despite reaching an all-time high in 2011, the year had ended at foreign exchange reserves worth $ 296.69 billion in end 2011. In 2014 it was the first time when RBI's foreign exchange reserves had ended above the $300 billion mark. "If government bond limit is opened up, then FII flows will continue to come," said Jayesh Mehta.

FIIs generally invest in two ways

Equity Investment

100% investment could be in equity related instruments or up to 30% could be invested in debt instruments i.e.70 (Equity Instruments):30 (Debt Instruments).

100% DEBT

100% investment has to be made in debt securities only.

Foreign institutional investors (FIIs) bought shares Rs 4,157 crore (US$ 675.27 million) and sold equities worth Rs 3,148 crore (US$ 511.70 million) within the first three days of January, 2014, according to data from Securities and Exchange Board of India. FII equity investment in India is major topic of discussion because it affects India's FOREX reserve which takes into account the volatile composition of balance of payment and endeavours to reflect the "liquidity risks". Thus it can be said that FII equities and foreign exchange reserves of India has a cause and effect relationship. This relationship leads an increase in the rate of economic growth during the period of 2008 to 2014 but during this period FII equities outflow was also observed

which had affected FOREX Reserve of India , this outflow was the cause of global financial crises.

Review of Literature

There are tremendous studies that have been conducted so far in the field whether the FII investment behaviour is reflected in the stock market and or on Foreign Exchange Reserve, at various intervals of time. Many studies have done across the world mainly related to effect of FII volatility across various economy as well as Indian economy and the contagion effects of a financial crisis with granger causality test in which work done by -

Rajput and Thaker state that no long run positive correlation exists between exchange rate and Stock Index in Indian context except for year 2002 and 2005. **Badhani, (2005)**, examines the long term and short-term relationship among stock prices, Dollar Rupee exchange rate and net FIIs investment in India using monthly data from April1993 to March 2004. Study finds long term relationship between FIIs investment flow and stock prices and between FIIs investment flow and exchange rate. However no long-term relationship was found between exchange rate and stock prices. Study also shows that exchange rate long term granger causes FIIs investments flow and vice versa. It suggests that FIIs use positive feedback trading in respect to exchange rate. BI-directional long term causal it was found between FIIs investment flow and stock prices **Takeshi (2008)** reports unidirectional Causality from stock returns to FII flows irrelevant of the sample period in India where as the reverse causality works only post 2003. The structural break of 2003 as suggested by him and some other researchers was introduced in the current model and hence analyzed.**Karimullah (2009)** examined the impact of FIIs equity investment behaviour in the Indian stock market and found bi-directional causality between FII and stock return. **Garg and Bodla (2009)** concluded that the rate of FII flows into the country is governed by the performance of the domestic stock market and the foreign investors' expectations about this performance. **Kumar Sundaram(2009)** in his paper, "Investigating causal relationship between stock return with respect to exchange rate and FII: evidence from India" examine the causal relationship between FOREX rate and FIIs in India. More recent work includes that of**Anshuman, Chakrabarti and Kumar (2010)** who bring high frequency data and the powerful tools of market microstructure analysis to address these questions. They find that the aggregate trading of FIIs dampens the volatility of the Indian stock market. Furthermore, positive shocks in trading volume have greater impacts than negative shocks, while trading between FIIs and domestic investors increase volatility. **IMF (2010)** includes an event study of the impact of capital control introductions on 37 "liquidity receiving" countries. The data

is quarterly, and covers 2003:Q1 to 2009:Q2.**Bose and Dipankar** in their study attempted to estimate the quantitative impact of certain regulatory policy decision related to FII investment in India using the technique of intervention analysis of time series econometrics. **Dr. M. Venkata Subba Reddy, Mahammed Saleem(2013) ,**in their research paper examine the impact of FII's on Indian Stock Markets. The important result of their study is that foreign investment is determined by stock market return. But foreign investment is not a major factor for the stock market boom in India the FII are increasingly dominant in the stock market. The fear of sudden outflow of foreign capital may be a trigger a third stock market scam as most regulatory changes are being made only as a follow up of an adverse event.

Objective of the Study

An attempt has been made-

1. To understand the different instrument of FIIs Equities in India

2. To analysis the trend of Foreign Institutional Investments (FIIs) in equities (gross sale and purchase)

3. To examine the causal relationship between FII equities and FOREX reserves in India

Data Collection and Research Methodology

To achieve the objective of the study, the secondary data will be collected from www.bseindia.com, www.sebi.gov.in, www.rbi.org.in, www.arthapedia.in, www.ozforex.com, for a period ranging from 2008 to 2014. Besides the websites mentioned above various publications of SEBI, BSE, RBI & Economic Political weekly, etc. will be used. The Data will be classified & tabulated using Ms- Excel. Diagrams are used as statistical tool for data analysis and the relation will be determined by using Granger Causality test taking monthly data from 2008 April to 2014 March.

FIIs Investment in Equities and its Instruments

FIIs are required in the nation because FIIs contribute to the foreign exchange inflow as the funds from multilateral finance institutional and here FDIs are insufficient. FIIs are helpful as it cuts the capital cost and cheaper the global credit, increases domestic saving and price in the Indian market. Investment made by FII in equities has improved the structure of capital market and financial sector. Total investment by FII in equities since January 2014 has risen to about Rs 28,979 crore ($ 4.78 billion). FII uses following routes to invest in equities-

Securities in the primary and secondary market including shares which are unlisted, listed or to be listed on a recognised stock exchange in India.

Units of schemes floated by the Unit Trust of India and other domestic mutual funds, whether listed or not.

Warrants

Following are the Entities through which FII can invest in equities in India

Entities who propose to invest their proprietary funds or on behalf of "broad based" funds (fund having more than twenty investors with no single investor holding more than 10 per cent of the shares or units of the fund) or of foreign corporate and individuals.

Following are the foreign entities / funds for FII:

1. Pension Funds

2. Mutual Funds

3. Investment Trusts

4. Banks

5. Insurance Companies / Reinsurance Company

6. Foreign Central Banks

7. Foreign Governmental Agencies

8. Sovereign Wealth Funds

9. International/ Multilateral organization/ agency

10. University Funds (Serving public interests)

11. Endowments (Serving public interests)

12. Foundations (Serving public interests)

13. Charitable Trusts / Charitable Societies (Serving public interests)

Further, following entities proposing to invest on behalf of broad based funds, are

1. Asset Management Companies

2. Investment Manager/Advisor

3. Institutional Portfolio Managers

4. Trustee of a Trust

5. Bank

Some of the above mentioned types are described below:

Pension funds: It manages pension and health benefits for employees, retirees, and their families. FII activity in India gathered momentum mainly after the entry of CalPERS (California Public Employees' Retirement System), a large US-based pension fund in 2004.

Mutual funds: In this type of fund , pools money from many investors are collected and invests it in stocks, bonds, short-term money market instruments, or other such securities.

Investment trust: These trusts are closed-end funds and are constituted as public limited companies.

Investment banks: These are financial institution which raises capital, trades in securities and manages corporate mergers and acquisitions. They earn profit from companies and governments through purchasing and selling securities in capital markets (both equity, debt)

Hedge funds: Every hedge fund has its own investment policy which is the type of investments and the methods of investment it undertakes. Many hedge funds investments in India were facilitated by global investors borrowing at near zero interest rates in Japan and investing the proceeds in High interest markets like India.

University Fund: It consists of the University's endowed trust funds or other funds of a permanent or long-term nature and external funds.

Endowment fund: It is a transfer of money or property donated to an institution, usually with the stipulation that it be invested, and the principal remain intact in perpetuity or for a defined time period.

Insurance Funds: These funds includes all types of life assurance and insurers pension plans, both single premium and regular premium policies by foreigner in investment.

Charitable Trusts or Charitable Societies: Charitable trusts (unlike private or non-charitable trust) can have perpetual existence and are not subject to laws against perpetuity. They are wholly or partially exempt from almost all taxes.

FIIs equity investments are limited by SEBI/RBI in following way-

- FIIs on its own behalf, s not invest in equity more than 10% of total issued capital of an Indian economy

- Investment on behalf of each sub account shall not exceed 10% of total issued capital.

- For the sub- account registered under foreign companies /individual category, the investment limit is fixed at 5% of total issued capital.

- These limits are within overall limit of 24%/49%/74% or the sectoral caps, as applicable and prescribed by government of India/ Reserve Bank of India.

- Must adhere to disclosure/ compliance requirement in the SEBI (substantial acquisition of share and takeovers,SAST) regulations and the SEBI (insider trading).

FIIs Equity Investment Pattern in India

India's capital account has been liberalized over the year to attract long-term, non- debt creating capital inflows. For this purpose, FIIs were allowed In India to invest in equity since1992. The investment pattern of FIIs equity in India has been changed over a period of time. As FIIs invested around Rs 79,709 crore (US$ 13.23 billion) in the country's equity market in 2014, according to data released by the Securities and Exchange Board of India (SEBI).FIIs invest in equity is done through the sale and purchase. Their sales and purchase have fluctuated drastically during 2001 to 2014. It can be observed with the help of following table.

TABLE -1

EQUITIES IN DIFFERENT FII YEARS			
EQUITY IN RS. CRORE			
FISCAL YEAR	Gross Purchase	Gross Sales	Net Purchase/Sales
2001-02	45,780.90	37,487.90	8,273.88
2002-03	43,708.91	41,174.64	2,533.95
2003-04	1,34,172.60	90,689.10	42,644.80
2004-05	1,95,141.10	1,55,795.10	39,336.00
2005-06	3,39,747.10	2,91,677.20	48,087.90
2006-07	4,61,487.97	4,39,969.04	21,518.93
2007-08	9,05,428.10	8,53,832.80	51,595.30
2008-09	5,55,674.30	6,02,375.00	–46,700.70
2009-10	7,04,074.80	5,92,632.00	1,17,648.10
2010-11	7,71,755.10	6,61,225.40	1,10,529.70
2011-12	6,47,812.00	6,01,318.90	46,493.10
2012-13	7,01,749.20	5,63,163.10	1,38,586.10
2013-14	7,73,511.40	6,91,782.50	81,728.90

Source: SEBI

Table 1 given above presenting the gross sales and purchase of FII in financial year from 2001 to 2014 especially in equities. From 2001 to 2006 FIIs gross purchase had increased from 45,780.90 to 4,61,487.97 Rs crore in Equities but their purchase had increased to 5 lakh approx in 2007-08 but after this period there it was observed that FIIs gross purchase had decreased and come to 5,55,674.30 Rs crore ,at the same period FIIs gross sales also decreased from8,53,832.80 Rs crore to 6,02,375.00 Rs crore in 2008-09 due to which net investment in equities become negative or we can say that FIIs withdrew their shares from Indian stock market ,that outflow of FIIs from India was the adverse effect of global financial crises ,but it can be observed that

after this period in 2009 -10 FIIs gross purchase had increased but their sales is continued to declined. But it had improved the total purchase while sales in equities had declined .From 2009 equity investment performance had improved as net inflow in equity increased to1,17,648.10 Rs crore from -46,700.70 Rs crore. After this period fluctuation can be observed in FIIs gross sales and purchase which was directly affecting the investment pattern of FIIs is equities .**Chart** 1 also depicts the same fluctuation in FIIs gross sales / purchase and net investment in Equities during 2001 to 2014 which affected Indian capital market adversely as well as positively.

Chart 1 : FII Equity investment in India
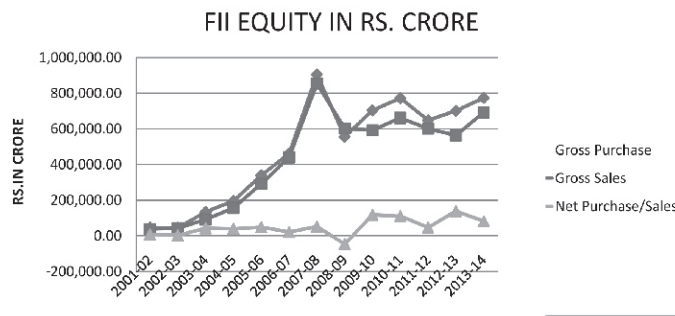
Source: SEBI

Econometrics Analyses

Regression of X variable on Y variable in case of non-stationary series creates problem. To solve such a Problem an alternative test of stationary that has recently become popular known as the :

Unit Root Test

A unit root test is a feature of processes that involve through time that can cause problems in statistical inference involving time series models. A linear stochastic process has a unit root if 1 is a root of the process's characteristic equation. Such a process is non stationary. If the other roots of the characteristic equation lie inside the unit circle- that is, have a modulus less than one then the first difference of the process will be stationary. It use the following model

$$Yt = Yt\text{-}1 + ut \qquad ....(1)$$

Where ut is the stochastic error term that follows the classical assumption, namely , it has zero mean Constant variance $\delta 2$, and is non auto correlated. Such error is known

as white noise error term .now if the coefficient of Yt-1 is in fact equal to 1 , we face unit root problem which can e solved by running regression as

$$Yt = pYt\text{-}1 + ut \qquad ....(2)$$

Find that p= 1 , means stochastic variable has unit root in time series thus unit root in time series is known as **random**

walk. Random walk is as example of non-stationary time series. Thus non stationary time series is often expressed as

$$?Yt\text{-}1 = (p\text{-}1)Yt\text{-}1 ....(3)$$

$$?Y_t = \delta Yt\text{-}1 + u_t$$

$$= \beta_1 + \delta Yt\text{-}1 + u_t$$

$$= \beta_1 + \beta_2 t + \delta Yt\text{-}1 + u_t \qquad \text{where } \delta = (p\text{-}1)$$

Thus it is formed null hypothesis which is $\delta= 0$. Under the null hypothesis that p=1 the computed t statistic's critical value have been tabulated by Dickey and Fuller test. If null hypothesis that p=1 is rejected (time series is stationary) , t (student) test is used . In simplest, we estimate a regression like (equ 2) , divide the estimated p coefficient by its standard error to compute the Dickey Fuller statistic thus with the table null hypothesis will be rejected. And series become stationary after first differencing then the series is to be integrated of order 1(equ 3)

Granger Causality Test

The granger causality test is a statistical hypothesis test for determining whether one time series is useful in forecasting another. ordinarily , regressions reflect "mere" correlation but granger causality in economics could reflected by measuring the ability of predicting the future values of a time series using past values of another time series . that the Granger test finds only "predictive causality"

A time series X is said to granger cause Y if it can be shown, usually through a series of t-test and F-test 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. Thus here X variables are EQUITIES and Y variables are FOREX reserves.

Causality Test Equation for FII (Equity) and Forex:

$$FII = \alpha_0 + \alpha_1 FII_{t-1} + ... \alpha_L FII_{t-L} + \beta_1 Forex_{t-1} + ... \beta_L Forex_{t-L} + et ...... (1)$$

$$Forex = \alpha_0 + \alpha_1 Forex_{t-1} + ... \alpha_L Forex_{t-L} + \beta_1 FII_{t-1} + ... \beta_L FII_{t-L} + et..... (2)$$

L in the above equations indicates lag length of the variable. Null Hypothesis Ho: $_1 = _2 = ... = _L = 0$; and Alternate Hypothesis $H_A: P_1 _L$ o. In equation 1 null hypothesis is forex does not granger cause FII and in equation 2 is FII does not granger causes forex. Rejection and acceptations of null hypothesis is based on F statistic value if, the F - statistic obtained are less than the critical F value. In such case the alternate hypothesis is rejected meaning that one variable does not granger causes another variable and its vice versa.

Empirical Result of the Study

Table 2: Unit root test of stationary (null hypothesis is : series is non-stationary)

Series Stationary at level

Variable	ADF Statistic(Intercept)	Pp
Forex	-1.614892 3.5267* 2.9035** 2.5889***	.1112
FIIequity	-3.485783 3.5267* 2.9035** 2. 5889***	.0009

*critical value at 1%level of significance

** critical value at 5%level of significance

*** critical value at 10%level of significance

From the table given above it can be observed that the result of unit root test applied in forex series in level are tested and found that ADF test statistic is lesser negative than the 1% ,5%,10% level of significance, it means null hypothesis can be accepted. But on the other hand FII equity is stationary because it is equal and more than all level of significance.

But when forex is tested with 1 difference, series become stationary because its ADF test statistic becomes -7.902346 which is more than the critical value of all levels of significance. It means now null hypothesis can be rejected in both the variables that there is no unit root.

Result of Granger Causality Test

Null hypothesis : FIIs equity does not granger cause forex(Independent)

Forex does not granger cause FIIs equity (Independent)

Equation	Lags	FII equity- forex	forex -FII equity	results
Eq 1	2	0.0624	1.1673	Independent
Eq 2	3	0.13331	1.76508	Independent
Eq 3	4	0.66588	1.24396	Independent

F statistic estimated in all three equations are lesser than the critical value at 5% and 1% level of significance which are 3.25 and 5.21 , 2.88 and 4.42 , 2.67 and 3.97 in eq 1, eq 2 and eq 3 respectively. Because of this estimation null hypothesis cannot be rejected means null hypothesis accepted in all three cases explaining that FII equity does not granger cause forex as well as Forex does not granger cause FII equity. Thus here we cannot reject null hypothesis in favour of alternative hypothesis. Hence it can be concluded with the above estimation that neither increase in foreign exchange reserve influence FII investment pattern in Equity nor increasing activities of FIIs in equity affecting foreign exchange reserve in India .But if we increase the lags in test, there may be a possibility of granger causality in both the variables.

Conclusion

On the basis of above research, it can be said that investment made by FIIs in equity has significant impact on Indian stock market as well as on economy. FII investment mode in Indian stock market has increased even after global financial crises (2008-09). Before this period, FII's gross sale and purchase was at high rate but to the crises their sale and purchase in equity have affected, which was responsible for huge outflow of equity share of FIIs and net investment became negative as **-46,700.70 Rs crore.** But after 2008-09 FIIs in equities was increased as well as their investment instrument in India was also increased because of which India becomes more stable and faster growing economy in the world.

Through this paper it can also be understood that FIIs invest in two ways in the nation which are broad base fund and foreign funds. And their % share in equities which are limited by SEBI. Here in this paper, various instruments of FIIs in Equities were also discussed through which we have understood the various type of funds used by FIIs to invest. Beside all we have also examined causal relationship between FII equity and FOREX reserve, for that Augmented Dickey Fuller unit root test was used and result was found that FII series were stationary at level while FOREX series were stationary at 1 difference. Thus null hypothesis was rejected but null hypothesis was not rejected in granger causality test as for the period April 2008 to March 2014 Forex does not granger cause FII (equity) . Hence it can be concluded that foreign exchange reserve in India is increasing but less affected by FIIs investment in equities.

Thus it can be said that foreign institutional investment in India is increasing as India has become suitable destination for foreigners to invest as they were not affected by global crises during 2008-09 and continued inflow of FII was observed after this period which was helpful for India to recover its status from recession during business cycle and in future this channel can raise Indian stock market and more and more Foreign reserve in the nation. Strong interest from FIIs in equity market may also lead to the addition of forex reserves.

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