

Macroeconomic Dynamics of Foreign Institutional Investment: An Indian Perspective

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Abstract

Foreign Institutional Investment (FII) has emerged as an engine of economic growth of developing economies in general and Indian economy in particular as it has the potential to meet the much needed capital requirement. Though FII has flown largely to Indian market, it is not consistent and stable. FII appears to be sensitive to several global and domestic macroeconomic factors. The present study has the objective to investigate the factors contributing to the fluctuations in the FIIs. The study is based on secondary data which are collected on monthly basis from April, 2005 to December, 2016. A linear multiple regression model has been estimated with BSE Sensex, exchange rate, wholesale price index, Index of Industrial Production and 90- days treasury bill yield rate as explanatory variables and the net inflow of FII as dependent variable. The results show that exchange rate, inflation and treasury bill interest rate have significant impact on FII in India. It has been found that exchange rate has inverse relationship with the FII. This leads to the inference that appreciation of the domestic currency may discourage FII in Indian capital market. Surprisingly, inflation seems to have positive impact on FII and interest rate on treasury bill appears to be inversely related to FII. Based on the outcome of the study, it has been suggested to pursue appropriate monetary and fiscal policy measures to stabilise interest rate, inflation and exchange rate as to ensure stable FII inflow to Indian capital market which would energise and sustain Indian economy.

Keywords: FII, investment, stock market, exchange rate, IIP, inflation, treasury bill

1. Introduction

India, being one of the leading developing countries in the world, is recording a rapid economic growth since the inception of series of economic reforms in 1991. Economists cite several factors contributing to the acceleration of economic growth of India upon embarking the strategy of liberalisation, globalisation and privatisation. One of the major contributing factors of speedy growth of India is attributed to increased inflow of foreign capital. In the contemporary globalised world economies are largely inter-dependent. Since the endowment of the resources differ country to country, practically, no country in the world would be self-dependent by producing all varieties of goods and services domestically. India is not an exception to such a scenario. However, to reduce the degree of dependence on the other countries especially on essential and strategic goods and services, every country wishes to produce them domestically by raising the required capital through Foreign Institutional Investment (FII) route. Government of India has implemented several measures since 1991 to attract foreign capital in huge volume to cater the development of core sectors.

Prior to 1990s, the rate of flow foreign capital into the country was meagre. But following to various liberalisation FII process and regulations by the Government of India since late 1990s started providing dividend in higher FII inflows to various sectors. Consequently, India has become an attractive spot for investment and recognised as one of the top destinations for investment in the world.

Unlike FDI, FII is an investment by a foreign individual or corporate in the domestic security segment. The investment can be either in equity or in debt segment. In the previous financial year, India has bagged \$7.46 billion through foreign institutional investment route. Since April 2000, India has received a cumulative FII of \$183.69 billion. The rising FIIs have become one of the key drivers of economic growth of India.

At this juncture, a question arises as to the driving forces that influence the overseas investors to invest in India. There can be many factors which are economic as well as non-economic in nature influencing FII inflow either directly or indirectly. Non-economic factors may be strong political will, strong leadership with determined focus, political stability, peace etc. The economic factors would be inflation, stock market performance, GDP, balance of payments position of the country, interest rates prevailing in the market, exchange rates, etc.

As regards to the factors determining the FII inflow, the theoretical propositions and empirical findings differ drastically among themselves. This creates scope for the present study which has the objective of identifying the macroeconomic factors for which FII inflow is sensitive in India.

2. Review of Literature

In the recent past, several economists and policy analysts have made intensive research to demystify the governing factors in the sensitivity of FII in India. This section of the paper reviews some of the prominent research works and their findings.

Chakrabarathi (2001) analysed the relationship of FII flows with other economic variables. The author tried to

analyse the nature and sources of portfolio flows in India and then examined the possible determinants of FII. Correlation and Linear regression analysis technique were applied to find the relationship between BSE Sensex and FII Flows. Using the secondary data from 1993 to 1999, the paper explored the existence of a high degree of correlation between FII and BSE Sensex. It was also noted that equity returns was a major determinant of FII in India.

Rai and Bhanumurthy (2004) tried to determine the role played by stock returns, inflation and risk on the FII in India. The study used Dicky- Fuller test to determine the role of these variables on FII. The monthly data collected from various secondary sources from 1994 to 2002 were being used in the study for statistical analysis. The study concluded that inflation and stock returns are the major determinants of FII in India. The results corroborate the outcome of Chakrabarthy (2001) to some degree.

Saragogi (2008) attempted to identify some vital determinants of FII in India. The study has developed a linear model with FII as the dependent variable and Wholesale price index, S&P 500 index, BSE Sensex, Standard deviation for Sensex, standard deviation for S&P 500, Nominal exchange rate, and interest rate differential as independent variables. The study has considered US as a proxy and compared the indicators such as stock returns, Interest rates, etc. with that of US. The study finds that FII was directly related to Sensex and negatively related to S&P 500 returns. Similarly, the risk in equity market in the country was found affecting negatively on FII.

Himachalpathy and Kavya (2010) focused on demystifying the impact of selected macro-economic factors on FII in India. The study considered variables like IIP, exchange rate, Inflation, foreign exchange reserve and Sensex return. The study has made use of secondary data collected for 15 years ranging from 2000 to 2015. The paper draws up the inference that IIP, exchange rate and Forex reserve were the key factors affecting FII inflow. This study much against to the theoretical expectations did not consider Sensex return as the key influencing factor in FII in India. This way, it contradicts with result generated by Saragogi (2008).

Kaur and Dhillon (2010) attempted to understand the relationship between foreign institutional investment and financial and macroeconomic variables such as Sensex, money supply, wholesale price index, index of industrial production and exchange rate. The study aimed at investigating whether causality between Foreign Institutional Investment (FII) and other macro-economic variables existed. The study was carried out for Indian context using the requisite data for the years from 1993 to 2013 on monthly basis. Applying Toda and Yamamoto long-run causality test, the study concluded that a bi directional causality existed between FII and Sensex, FII and IIP, Money supply and FII, while no causality was detected between FII and exchange rate.

Rajkumar and Gupta (2010) tried to examine the determinants of FIIs in India. The study segregates the factors determining FII into domestic and foreign. The focus was on the impact of return and risk at S&P 500 index of USA on the FII to India. The impact of domestic factors such as return and risk at Nifty, inflation, interest and exchange rate on FII was also investigated. This study was conducted for the data from 1996 to 2006. The statistical methods like mean, standard deviation, correlation and regression analysis was applied to facilitate the empirical analysis. The study concluded that Nifty returns, Risk at S&P 500 and interest rates are highly correlated to FII. Further, it is found that the impact of Nifty Returns and S&P 500 risk was significant. Though interest rate had a high correlation, it was statistically not significant. Contrary to the theoretical prediction, inflation rate had a positive relationship with FII.

Agarwal (2013) investigated the strength of correlation of FII with BSE Sensex and mutual fund investments. The study is based on the data collected for the sample period between 2000 and 2013 and Karl Pearson's coefficient of correlation method was approached. The study concluded that FII had positive correlation with both Sensex and mutual fund investments. But the strength of correlation is higher in the case of Sensex than mutual fund investment.

Mourya (2015) had tried to explore the relationship between exchange rate and FII. The study had considered the daily data of these two variables for a period of five years ranging from 2009 to 2014. Employing AD-Unit root test and Granger Causality test to analyse the data, the study arrives at the conclusion that a bidirectional relationship exist between exchange rate and Foreign Institutional Investment in India. In a similar study, Kaur and Dhillon (2010) did not find the presence causal relationship between FII and exchange rate.

Mohanasundaram et al. (2015) examined the determinants of FII in India. In their study the authors used monthly data from 2001 to 2014. Correlation and Autoregressive Distributed Lag method was applied in the study. The study ascertained the impact of the various variables, which are domestic and international in nature, on FII. The variables include Wholesale Price Index, Exchange Rate, Return on Nifty, Index of Industrial Production, Return on S&P 500, Market capitalisation, Producer Price Index and US Treasury Bill Rate. The study concluded that FIIs had positive relationship with Exchange Rate, Nifty Return, Return on S&P 500, Producer Price Index and NSE Market Capitalisation. Further, a significantly negative impact on FII in India was explored from wholesale price index and US Treasury Bill rates.

Amitha (2016) studied to identify the role of various macro-economic factors on FII in India. The study examined the possible impact of variables including BSE return, NSE return, S&P return, BSE risk, NSE risk, S&P risk, exchange rate, inflation, IIP and treasury bill yield. The study period ranges between 2002 and 2015.

The study concluded that these variables in aggregation cause only 15 percent variation in FII. Nifty return, S&P return, Nifty risk and S&P risk have major and positive impact on FII. Surprisingly, the study shows that Sensex return was not a major factor influencing FII. The result if supplements the inference of Himachalpathy and Kavaya (2010) and contradicts with Saragogi (2008).

3. Research Gap and Scope of the Study

From the review of literature, it appears that results are highly fragmented. They lack unanimity. Different studies have identified different variables as governing factors of FII. Further, the nature of relationship of such variables associated with FII also found to be vary. Hence this generates the question – what are the factors for which FII in India sensitive? Though plenty of studies were conducted on the underlying subject in the past, still the issue is unresolved and the existing literature do not provide satisfactory answer to the question. This necessitates a fresh study. The present study makes an attempt empirically to fill the void. The scope of the study is extended to track down the factors influencing the decisions of foreign institutional investors towards investing in Indian capital market.

4. Research Methodology

4.1. Study Variables

Theoretically, several factors which are quantitative and qualitative in nature affect FII inflow in India, as it happens elsewhere in the world. Intensive review of literature and theoretical predictions facilitated in selecting the macroeconomic factors likely to affect FII. Effectively, in the current study the impact of BSE Sensex Return, Index of Industrial Production (IIP), Wholesale Price Index (WPI) as a measure of inflation, Exchange Rate (ER) of INR against USD and 91 days Treasury Bill (T-Bill) Yield on Foreign Institutional Investment (FII) in Indian context has been investigated.

BSE Sensex is normally expected to have a positive and significant relationship with FII. With the increase in Sensex returns, the domestic stock market becomes more attractive to the foreign investors. So, theoretically BSE Sensex will have a positive relationship with FII. Index of Industrial Production (IIP) shows the growth in various manufacturing verticals of the economy in terms of production. The increased industrial production leads to more profitability and leads to wealth creation. This will attract the foreign investors to invest in the stocks of such sectors. Hence, theory predicts and establishes a positive relationship between IIP and FII.

Wholesale Price Index is considered as a measure of inflation in the country. Generally, a country with significantly higher inflation is deemed to failed in framing a suitable economic and monetary policy. Poor policy handling and rising prices are expected to drive FII away from the country. Under normal circumstances, a low level of inflation is desired by the foreign investors. This analogy builds up a negative relationship between FII and Wholesale Price Index.

Exchange rate is assumed to be a very critical factor in making or braking the foreign institutional investment. A depreciation in the domestic currency against the foreign currency, makes the domestic currency much cheaper to the foreign investors and this may induce large inflow of foreign capital and vice versa. This theoretical presumption frames a negative relationship between FII and exchange rate. Treasury bills are the short term debt obligation of the Central Government. The Government raises additional funds to invest in various developmental programs by issuing treasury bills with different maturity periods. It is widely expected that as the yield in T-bills increases they become more attractive to the foreigners to invest in debt securities in the country. This predicts a positive relationship between FII and T-bill.

4.2. Data Collection and Study Period

The required data of the study are primarily drawn from secondary sources. The major source of secondary data collection in the study is the Handbook of Statistics on Indian Economy, published by the Reserve Bank of India (RBI).

The present study envelopes the period from April 2005 to December 2016. Monthly average data of the selected variables are procured for the duration. This amounts to 141 observations for each variable. The selection of the study duration was based on the data availability.

4.3. Statistical tools for Analysis

The emphasis of the study is on understanding the trend of FII inflow and demystifying the key factors in the sensitivity of FII. To analyse the trends in FII, simple statistical tools like percentage, graphical presentation etc. are employed. While to trace out the factors influencing the FII, linear multiple regression is applied. The regression model has been estimated using SPSS.

The following regression model is approached in the present study.

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

Where,

Y = Net FII inflow
 a = Intercept of Y which is constant
 $\beta_1, \beta_2, \beta_3, \beta_4$ and β_5 =Beta coefficients of independent variables viz. X_1, X_2, X_3, X_4 and X_5 respectively
 X_1 = BSE Sensex
 X_2 =Exchange Rate (ER)
 X_3 = Index of Industrial Production (IIP)
 X_4 = Wholesale Price Index (WPI)
 X_5 = Treasury Bill Yield (T-bill)
 e = error term

4.4. Hypotheses

Testing of the following hypotheses is expected to provide insights to the factors affecting FII.

- H₁: BSE Sensex has no significant impact on FII
- H₂: ER has no significant impact on FII
- H₃: IIP has no significant impact on FII
- H₄: WPI has no significant impact on FII
- H₅: T- bill Yield has no significant impact on FII

5. Analysis and Interpretation

5.1. Trend and Pattern of FII Inflow into India

The foreign investment in India began with the policy of economic reforms in 1991. The idea was to provide impetus to much needed capital to several sectors ailing with scarcity of funds. During twenty-five years of reforms from 1991 to 2016, India attracted a cumulative net foreign institutional investments of Rs. 902,384 crore. However, in the initial phase (1992 to 2002) of the economic reforms, the inflow of foreign capital to Indian capital market was considerably low. During this period the net FII inflow was merely Rs. 59,902 crore.

Table-1. Net Inflow of FII to India between 1992 and 2002

Year	FII	% Change
1992-93	4	NA
1993-94	5445	136025.00
1994-95	4775	-12.30
1995-96	6721	40.75
1996-97	7387	9.91
1997-98	5910	-19.99
1998-99	-729	-112.34
1999-00	9765	-1439.51
2000-01	9682	-0.85
2001-02	8273	-14.55
2002-03	2669	-67.74

Source: Handbook of Statistics on Indian Economy, RBI

Table-1 shows the pattern of Inflow of FII into the country during the initial phase of economic reforms. FII inflow increased suddenly from Rs.4 crore in 1992 to Rs. 5445 crore in 1993. This could be owing to the initial desperate efforts of the then Government to attract more foreign capital inflow and raise the near empty foreign exchange reserves. However, since 1993 there was no considerable and satisfactory progress in FII inflow until 1999-2000. Though FII increased drastically in 1999-2000, it could sustain the same in the following years. The pattern of FII inflow was largely inconsistent during the first phase causing turbulence in Indian stock market.

Table-2. Net Inflow of FII to India between 2003 and 2016

Year	FII	% Change
2003-04	44001	1548.59
2004-05	41418	-5.87
2005-06	48650	17.46
2006-07	23755	-51.17
2007-08	62583	163.45
2008-09	-43336	-169.25
2009-10	114902	-365.14
2010-11	110759	-3.61
2011-12	49916	-54.93
2012-13	140625	181.72
2013-14	85522	-39.18
2014-15	110243	28.91
2015-16	-4882	-104.43
2016-17	58326	-1294.72

Source: Handbook of Statistics on Indian Economy, RBI

During 2003 – 2016, as shown in Table-2, net inflow of FII to India was very aggressive. It increased from Rs.2669 crore in 2002 to Rs.44001 crore in 2003. The upward trend in FII inflow continued until the global economic crisis emerged in 2008. Owing to the economic meltdown the global investors withdrew their investment from Indian capital market. Indian capital market took much lesser time to recover and since 2009 the inward flow of foreign capital to Indian stock market continued till 2014-15. Though in the second phase of Indian economic reform period since 2003 foreign institutional investment saw phenomenal rise in Indian capital market, the FII inflow was not sustainable. The major challenge is to bring stability to FII inflow. Figure-1 shows the pattern and trend of FII inflow to India since economic reforms.

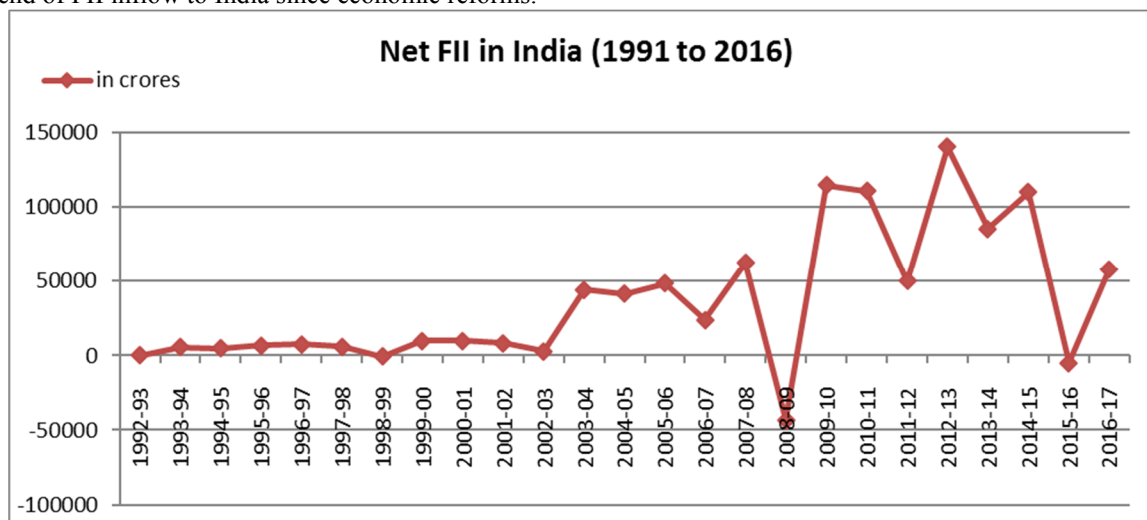


Figure-1. Trends in Foreign Institutional Investment Inflows to India

Source: Author’s work based on the raw data.

5.2. Factors Governing FII in India

Foreign Institutional Investment (FII) in India, as depicted in the trend analysis, is highly volatile. The volatility in the inflow of foreign institutional investment has intensified since 2005-06. The present study made an attempt to investigate the reasons responsible for such fluctuations in the FII inflow to the Indian market. Linear multiple regression model as given below has been estimated for the purpose.

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + e$$

Where, Y is net FII inflow, a is the intercept of Y which is constant, β_1 , β_2 , β_3 , β_4 and β_5 are beta coefficients of independent variables viz. X_1 , X_2 , X_3 , X_4 and X_5 respectively, X_1 is BSE Sensex, X_2 is Exchange Rate (ER), X_3 is Index of Industrial Production (IIP), X_4 is Wholesale Price Index (WPI), X_5 is Treasury Bill Yield (T-bill) and e is error term.

The results are presented in Table-3, 4 & 5. The regression model summary presented in the Table-3 shows the goodness of fit of the model as the Durbin-Watson statistic value is at the acceptable limit. Anova results and significant F value point at the reliability of the results.

Table-3. Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.287 ^a	.082	.048	9074.79659	1.387

a. Predictors: (Constant), Tbill, ER, IIP, Sensex, WPI
 b. Dependent Variable: FII

Table-4. ANOVA Results

Model	Sum of Squares	df	Mean Square	F	Sig.
1					
Regression	996498762.214	5	199299752.443	2.420	.039 ^b
Residual	11117510964.864	135	82351933.073		
Total	12114009727.078	140			

a. Dependent Variable: FII
 b. Predictors: (Constant), Tbill, ER, IIP, Sensex, WPI

Table-5. Factors Governing FII in India.

Model	Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
1						
(Constant)	33054.883	52474.547	.630	.530		
Sensex	-.021	.276	-.074	.941	.222	4.498
ER	-607.143	223.760	-2.713	.008	.151	6.642
IIP	-12764.036	26727.129	-.478	.634	.157	6.368
WPI	272.883	116.677	2.339	.021	.055	18.327
T-bill	-1212.985	590.983	-2.052	.042	.606	1.650

a. Dependent Variable: FII

The regression results presented in Table-5 reflect that exchange rate, inflation and interest rate have significant impact on the inflow of foreign institutional investment in India. As per the theoretical predictions exchange rate and FII are negatively related and from the results it appears that in India, in line with theoretical predictions, strong exchange rate discourages FII and weak domestic currency motivates foreign institutional investors to buy more in Indian market. Inflation and short run interest rates also appear to have significant impact on foreign institutional investment in India but surprisingly they do not have expected signs of relationship. Inflation seems to influence FII positively. This may be attributed to the fact that along with inflation, economic growth in GDP also grows steadily reflecting optimism for future market. Positive impact of inflation on FII in India was earlier explored by Rajkumar and Gupta (2010), off course for different time period. The current study also infers that ninety days Treasury bill rate has negative impact on FII. It was also found that BSE Sensex and growth of industrial sector (IIP) do not have significant impact on FII. This shows that the attitude of the foreign investors are not altered by the frequent fluctuations in the stock market. Investors who look for medium term and long term investment over trading seem to be not sensitive to BSE Sensex. The result disagrees with Rai and Bhanumurthy (2004) who empirically arrived at the conclusion that stock returns is the major significant factors governing the FII. Similar to the present study, Himachalpathy and Kavaya (2010) and Amitha (2016) could not find Sensex as significant determinant of FII.

5.3. Testing of Hypotheses

The t-values and their significance level (Table.5) for various variables under the study are considered in testing the hypotheses of the study. The results of the hypotheses testing is presented and interpreted in Table-6.

Table-6. Summary of Results of Hypotheses Testing.

Hypotheses	Decision	Inference
H ₁ : BSE Sensex has no significant impact on FII	Accept	Stock returns do not have significant impact on FII
H ₂ : ER has no significant impact on FII	Reject	Exchange rate has significant impact on FII
H ₃ : IIP has no significant impact on FII	Accept	Industrial growth has no significant impact on FII.
H ₄ : WPI has no significant impact on FII	Reject	FII is significantly influenced by the changes in inflation.
H ₅ : T- Bill Yield has no significant impact on FII	Reject	T-bill interest has significant impact on FII

6. Conclusion, Policy Implications and Direction for Future Study

India though grows at the phenomenal rate over the last two decades, the country still needs to focus on capital accumulation as many of the growth projects were either not initiated or put on halt due to capital inadequacy.

There are limitations to the domestic economy to raise sufficient funds internally to cater such capital requirements. Hence, attracting foreign investment becomes crucial. Many domestic companies are raising capital in the stock market and the share of FII is increasing, but ever fluctuating and uncertain. What is undeniable is that FII is the engine of growth of several sectors of India as well as the GDP.

Considering the micro and macro impact FII has on Indian economy, policy makers need to draw up necessary policies. Fundamentals would be identifying the factors which govern the FII. As observed from the results, Treasury bill interest rate, inflation and exchange rate are the prominent economic factors affecting FII significantly. Hence the policy focus must flow towards those directions. Stabilising the short run interest rate would build up the confidence among the foreign institutional investors on Indian capital market. More importantly, steps should be taken to stabilise the exchange rate. This not only would attract more foreign investment but also avoids hasty liquidation in anticipation of loss due to currency depreciation. Necessary monetary and fiscal policies may make Indian capital market the most sort after among the overseas investors. This, eventually contributes the growth of Indian economy.

To facilitate effective policy framework, future empirical studies may focus on two major perspectives. Firstly, a sector wise FII analysis for capturing the real factors determining the FII inflows to the various sectors would assist in targeting the right policies to attract FIIs for different sectors. Secondly, a source wise FII analysis would be a significant contribution. As FII flows in from different countries, again in different ratio, a study may bring out the factors leading to differential FIIs from different countries.

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