KERALA ECONOMY
2025, VOL. 6, NO.3. pp 73-89

ISSN : 2583-4436

GULATI INSTITUTE OF FINANCE AND TAXATION

The Impact of Foreign Institutional Investment and Exchange Rate on the Index of Industrial Production in India: The ARDL Bounds Testing Approach

Roy Scaria[1] & Anjana C M[2]

[1] Professor, T.M Jacob Memorial Govt. College Manimalakunnu, Koothattukulam, Kerala

[2] Postgraduate student, MA Econometrics Programme, 2023-25 batch, T.M Jacob Memorial Govt. College Manimalakunnu, Koothattukulam, Kerala

Abstract

Since opening capital market in 1992, Foreign Institutional Investment in India increased tremendously along with achieving good overall economic growth rate. Many a times, the FII investment was highly volatile hitting the stability of the financial sector and the industrial development. This paper intends analysing the short run and long run impact of the FII investment on the level of industrial production in the country. The ARDL bounds testing approach shows that significant short run as well as long run dynamics exists among the variables under study. The pairwise Granger causality test confirmed the unidirectional causality from FII investment to industrial production, instead of bidirectional causality. The FII investment in India, a nominal variable affects the industrial production in the country, a real variable and contributes to economic growth.

Keywords: *FII investment, Index of Industrial Production, ARDL Bounds Testing, Exchange Rate*

JEL Classification Codes: *C10, C12, C13, E22*

1. Introduction

September 14, 1992 was a landmark in the economic history of India. She opened up her earlier restricted and closed capital market for Foreign Institutional Investors (FIIs) in continuation of the globalisation policy initiated in the early years of 1990s to encourage the inflow of foreign investment which was hoped to supplement and stimulate scarce domestic investment. For the last two and a half decades, Foreign Institutional Investment reached soaring heights, many times in a volatile manner and at the same time she achieved fairly good growth rates nearing double digits. The foreign investment in the country is expected to boost the industrial production and thereby contributing to the overall growth trajectory of the nation. This study examines the statistical relationship`p between foreign institutional investment in the presence of varying exchange rates. The question whether FII investment cause the level of industrial production in India in the long run remains unanswered till today.

The term FIIs is commonly used to refer the companies that are established or incorporated outside India and are investing in the financial markets of India by registering themselves with the Securities & Exchange Board of India (SEBI). They include a wide variety of cross boarder portfolio investment institutions such as overseas pension funds, mutual funds, investment trusts, asset management companies, nominee companies, banks, institutional portfolio managers, university funds, endowments, foundations, charitable trusts, charitable societies, a trustee or power of attorney holder incorporated or established outside India proposing to make proprietary investments on behalf of a broad-based fund. Foreign Institutional Investors (FIIs) are allowed to invest in the primary and secondary capital markets in India through the Portfolio Investment Scheme (PIS) administered by the Reserve Bank of India (RBI). Under this scheme, FIIs can acquire shares/debentures of Indian companies through the stock exchanges in India subject to a ceiling of 24 per cent of the paid-up capital of the Indian company (20 per cent for public sector banks, including the State Bank of India). The RBI carefully monitors the ceilings on FII investments in Indian companies on a daily basis and publishes a list of companies allowed to attract FII investments with their respective ceilings. Now over 1450 FIIs have been registered in Indian stock exchanges.

Foreign Institutional Investors (FIIs), a lesser-known group, have played an important role in India's economic narrative during the last two and a half decades. FIIs investment affects the growth of the economy indirectly by improving equity market performance of the host country and also tells upon their corporate governance issues. After 1992, the FII investment flow dramatically increased in India; the SENSEX reached a high of 21,206.77 points in January 2008 as a culmination after a bull rally and thereafter its lifetime high as 85978.25 in September 2024. However, FIIs capital flows are often viewed as double edged sword. On one hand, in emerging economies that undergo liberalization in the initial phase, FIIs investment improves market efficiency and leads to reduction in the cost of capital. On the other hand, FII's trade exacerbate volatility in the stock markets of the host country. In India although, the FII investment was as high as US $17 billion in a single year, 2007, the global financial crisis pulled out a record $13 billion in 2008, the largest outflow since the inception of the Bank's scheme. Since FIIs investment can be withdrawn any time, it is called 'hot money'. The Indian capital market lost the status as a "safe heaven" for foreign portfolios investors as they seem destined for a withdrawal of nearly 2,000 million dollars of the so-called 'hot money' in 2016.

The period from 2008 to 2013 has been very critical for the world economy and for the Indian economy. In 2008, the world faced the Global Financial Crisis, and in 2011, it confronted the Eurozone crisis. The Global Financial Crisis led to a global economic recession, as the USA, being a major economic powerhouse, experienced a slowdown. FIIs contribute to almost 13% of the entire market capitalization at National Stock Exchange in India. Talking about FIIs investment, this has been continuously grown over years except 1998-99 and 2008-09 when FIIs sold more than they purchased in Indian stock market India witnessed a highest inflow of FII.

There are many root causes which have a long run dimension that propel the rising FII investment in India. The foremost reason is the increased recognition that Indian economy has a long-term growth potential. India offers favourable demographics and has quickly established its competitive advantage in many spheres including software. A second reason is her ability to produce goods and services at a remarkably low cost with competitive labour. However, the short-term expectations that give rise to oscillations which are described as 'market sentiment', more importantly in the downward direction and its cyclic recovery to the boom, are usual. These expectations end up in an element of speculation and high mobility in FII's capital flows and eventually bring forth high level of volatility in stock market of host country. Speculation once started, happens to be cumulative causing the price or return indices deviate from fundamental values accordingly with subsequent reversals in response to FII investment flows. The small investors are likely to fell in serious concern of whether prices accurately reflect their expectations about the present value of future cash flows. Thus, the FII capital flows spurt by market sentiments adversely affects investment decisions of small investors. Prolonged instability has an adverse impact on the investors' decisions pertaining to the effective allocation of resources especially on investment in stock markets. Investors are hesitant to hold various stocks due to uncertainty and may demand high return to cover up high risk, eventually leads to increased cost of capital and reduced physical investment. The usual behaviour in a stock market is to buy financial assets when the prices are declining and sell when prices are increasing (Gordon and Gupta, 2003). Dornbusch and Park (1995) explained the same situation as 'positive feedback trading' strategies that make stock price overreact to changes in fundamentals and such trading strategies may cause bubbles and crashes in local markets. Positive feedback trading is meant the practice of buying shares as prices move up and selling them as prices come down.

Many of the current research is found to be centred on the dynamics of FII investment flows and stock market returns as well as stock market performance or instability. Some researchers argued that the investment by FIIs gave rise to volatility in the stock market (Karmakar, 2006; Upadhyay, 2006; Singh, 2004; Biswas, 2005; Bhattachrya and Mukherjee, 2005; Pal, 2005; Batra, 2003; Porwal and Gupta, 2006; Kim and Singal, 1993; Radelet and Sachs, 1998; Banerjee and Sarkar, 2006; and Mohan,2006). The cumulative nature of instability pushes the stock prices away from fundamentals (Bohn and Tesar, 1996; Berko and Clark, 1997). Liquidity as well as volatility was highly influenced by the FIIs investment which, in turn depends on stock market returns, rate of inflation and ex- ante risk (Krishna, 2009 and Kulwantraj, 2004). Behera (2010) found that FIIs investment have a positive impact on both liquidity and returns and his GARCH estimates suggest FIIs investments increase volatility in Indian stock market. Many researchers noticed strong positive correlation between FIIs inflow and index of stock markets (Mamta et.al 2012; Anubha, 2013). Many other investigators noticed that FIIs investment and equity returns have strong significant positive correlation (Agarwal, 1997; Chakrabarti, 2001; Nair and Trivedi, 2003). Patel (2013) found bidirectional causality between FII investment and stock market return. However, Gupta (2011) found that FIIs investment flows are unpredictable and its movement depends on market sentiment and hence lead to increased volatility reflected in severe price fluctuations in Indian stock market. In a recent study about mutual interaction among manufacturing stock prices, Consumer Price Index (CPI), call money rates, and exchange rate of rupee in India, Scaria (2024) found that manufacturing stock prices could not be traced with respect to any of these variables other than the previous values of the manufacturing stock prices.

However, a very few studies examined the relationship between FII investment and Index of Industrial Production (IIP) (Srikanth & kishore 2012; Himachalapathy, 2012 and Sharma & Mehta, 2012). These studies found that a better position of the latter hails more of the foreign investment. The Index of Industrial Production (IIP) is a significant indicator that monitors an economy's performance and development across multiple sectors, including manufacturing, mining, and power. It is a reflection of a country's industrial activity.

The foregoing review shows that the FII investment is a nominal variable affecting mostly the financial sector, its instability and the nominal return on capital investment. It is also pertinent that a good production environment reflected in IIP is essential for attracting significant inflow of FII investment.

Here, a crucial question arises that whether a sizable net inflow of FII investment in India affects the industrial production in the country or whether the relationship is bidirectional. Do there exist any long run relationship between the industrial production and FII investment and if it does so, what is the rate at which the error is corrected in the short period. Therefore, this paper examines the cointegrating relationship, if any, between the IIF investment, a nominal variable and the industrial production represented by Index of Industrial Production (IIP), a real variable. FIIs may have a substantial influence on a country's economic health and industrialization. Positive FII flows can raise capital availability, reduce borrowing costs, and boost industrial activity, all of which can have an impact on the IIP. Volatile or negative FII flows, on the other hand, can cause economic instability, reducing industrial production and overall economic growth.

The proposed analysis is complete with by adding the exchange rate also in the picture. The exchange rate of Indian rupee in terms of US dollar, which is regarded as the universal currency, is the value of one unit of the US dollar, expressed in terms Indian rupee. The Reserve Bank of India (RBI), is the primary authority for regulating and monitoring foreign exchange in the country. The RBI publishes daily reference exchange rates, which are widely used by businesses, financial institutions, and researchers. The exchange rate is a critical economic indicator as it directly impacts a country's international trade, investment flows, and overall economic stability. It influences the cost of imports and exports, affecting the trade balance and competitiveness of domestic industries in the global market. For businesses, it determines the profitability of cross-border transactions, while for investors, it affects the returns on foreign investments.

2. Research Methods

2.1. Estimation

We use time series estimation techniques and related tests which include Augmented Dickey Fuller tests for stationarity, ARDL Bounds test, and Granger causality test. After a detailed examination of the data set, the most suitable model for studying the impact of macroeconomic dynamics among Index of Industrial production, FIIs investment and exchange rate, is found to be an ARDL model with suitable leg lengths and bounds test representation. The validity of the model is confirmed by the error diagnostic test such as Breush Godfrey Serial Correlation LM test and coefficient stability tests such as cumulative sum of recursive residuals (CUSUM) and cumulative sum of squares of recursive residuals (CUSUM squares).

2.2 ARDL Bounds test for cointegration

The ARDL cointegration technique is useful to empirically analyse the long-run relationships and short run dynamic interactions among the variables especially when the sample size is small and finite, and variables are integrated of different order, say one, zero or fractionally integrated (Pesaran and Shin, 1999 and Pesaran et al., 2001). The long run estimates obtained by applying the model are unbiased (Harris and Sollis, 2003).

As a first step, we estimate the ad hoc basic equation

$$IIP_t = \alpha_1 + \beta_1 FII_t + \beta_2 ER_t + e_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \text{(1)}$$

Where, Index of Industrial Production, Foreign Institutional Investment, Exchange Rate and the error term. Then we estimate the ARDL model to capture the effects of Foreign

Institutional Investment and Exchange Rate on the Index of Industrial Production based on equation (1).

$$IIP_t = \alpha_1 + \sum_{i=1}^{p} \delta_i IIP_{t-i} + \sum_{j=0}^{q_1} \gamma_j FII_{t-j} + \sum_{j=0}^{q_2} \beta_j ER_{t-j} \quad \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where are optimum lag lengths for the Index of Industrial Production, Foreign Institutional Investment and Exchange Rate respectively. Equation (2) gives instantaneous impact of the regressors on . To detect the presence of long run equilibrium and possible error correction, we specify the reparametrized model as given in equation (3) which enables short run and long run analysis.

$$\Delta IIP_t = \alpha_1 + \sum_{i=1}^{p-1} \delta_i \Delta IIP_{t-i} + \sum_{j=1}^{q_1-1} \gamma_j \Delta FII_{t-j} + \sum_{j=1}^{q_2-1} \beta_j \Delta ER_{t-j} + \lambda_1 IIP_{t-1} + \lambda_2 FII_{t-1} + \lambda_3 ER_{t-1} + \varepsilon_t$$

$$\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

The bounds test procedure is based on the F-statistic for cointegration analysis. Considering equation (3), we test the null hypothesis $H_0 : \lambda_1 = \lambda_2 = \lambda_3 = 0$ or of no cointegration, against the alternative hypothesis $H_1 : \lambda_1 \neq \lambda_2 \neq \lambda_3 \neq 0$. The test provides two sets of critical values the lower and upper bounds that cover all possible classifications of the regressors into purely I (0), purely I (1) or mutually cointegrated variables. If the computed F-statistic is lower than the lower bound, the null hypothesis cannot be rejected. There is no cointegration. If the F statistic is greater than the upper bound, the null hypothesis is rejected. If the F-statistic lies in the interval, the test is said to be inconclusive. The rejection of the null hypothesis of no cointegration confirms the existence of a long-term relationship in the model. In this case, equation (3) can be rewritten to derive the lagged error correction term ($ECTt-1$) in the equation (4).

$$\Delta IIP_t = \alpha_1 + \sum_{i=1}^{p-1} \delta_i \Delta IIP_{t-i} + \sum_{j=1}^{q_1-1} \gamma_j \Delta FII_{t-j} + \sum_{j=1}^{q_2-1} \beta_j \Delta ER_{t-j} + \psi ECT_{t-1} + \varepsilon_t \ldots\ldots. (4)$$

Where $ECTt$-1 represents the deviation of ΔIIP_t from its long-run equilibrium. ψ represents the adjustment or error correction parameter that brings back equilibrium following a disturbance in the long-run. For ΔIIP_t error-correct, ψ should be negative and statistically significant ε_t is assumed to be a serially uncorrelated error term.

2.3. Data for measurement of variables

The data set used for this study is collected from secondary sources such as the Data Base on Indian Economy (DBIE) of Reserve Bank of India (RBI) and the official website for Central Depository Services Limited (CDSL) and Federal Reserve Bank of St. Louis for the period from April 2016 to March 2024 covering 96 observations. The monthly estimates for the variables listed below have been collected.

a) The monthly Index for Industrial Production (IIP) with 2011-12=100 from RBI's DBIE.

b) The monthly FFI/FPI net investment data collected from CDSL is taken as a measure of Net Foreign Institutional Investors' Investment in India.

c) The monthly spot Exchange Rate of Indian Rupee against US dollar (country-wise) collected from the website of Federal Reserve Bank of St. Louis.

3. Results and Analysis

The first and foremost procedure in time series analysis is to determine the order of integration which makes the data sets stationary. Table 1 presents ADF stationarity test result of the variables under study which shows that the data series become stationary with different order of integration; Index of Industrial Production and Foreign Institutional Investment in levels, I (0) and the Exchange Rate in first differences, I (1). The ADF test statistic of stationary variables will be less than their corresponding critical values, in this case, at five per cent level. The unit root tests is also essential to ensure that none of the variables is I(2), as including I(2) variables in the model leads to spurious regression. In the presence of variables integrated of order two, the values of F statistics provided by Pesaran et al. (2001) cannot be interpreted.

Table 1 ADF unit root test result

Sl. No	Variable	Variables in levels I (0)		variables in first differences I (1)	
		ADF Value	**Prob.**	**ADF Value**	**Prob.**
1	Index of Industrial Production	-4.059066	0.0018	-	-
		-2.892200*	0.05	-	-
2	Foreign Institutional Investment	-6.231801	0.0000	-	-
		-2.892200*	0.05	-	-
3	Exchange Rate of Ruppy	-0.148674	0.9634	-8.622936	0.0000
		-2.892200*	0.05	-2.892536*	0.05

**, Critical ADF values at 5 per cent level of significance*
Source: Author's calculations

Since the variables are stationary with different order of integration, the appropriate method to check the existence of cointegrating or dynamically stable long run relationship and analyse the characteristics of that relationship is the ARDL bounds test approach. The optimum lag length is automatically determined based on Akaia Information Criteria (AIC). If cointegration is detected, this method is useful to analyse the short run error correction coefficients as well as the coefficients for long-run relationships.

Table 2 ARDL Bound Test

ARDL Bounds Test Sample: 2016M06 2024M03 Included observations: 94 Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	k
F-statistic	6.941185	2
Critical Value Bounds		
Significance	I (0) Bound	I (1) Bound
5%	3.79	4.85

Source: Author's calculations

The ARDL bounds test is based on F statistic, the estimated value of which in the present study, 6.94 exceeds the five per cent critical value for I (1) bound, 4.85. Therefore, the null hypothesis of no long run relationship or no cointegration can be rejected. Cointegrated relationship exists in the ARDL model with Index of Industrial Production as the dependent and Foreign Institutional Investment and Exchange Rate as the explanatory variables. The cointegrating and long run equations are estimated and the regression output is shown in Table.3.

Table 3 The cointegration with long run relationship

ARDL Cointegrating And Long Run Form Dependent Variable: IIP Selected Model: ARDL (1, 2, 0) Sample: 2016M04 2024M03 Included observations: 94				
Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FII)	0.000017	0.000035	0.491499	0.6243
D(FII(-1))	0.000084	0.000038	2.233526	0.0280
D(ER)	0.389068	0.176778	2.200888	0.0304
CointEq(-1)	-0.377301	0.086185	-4.377782	0.0000
Cointeq = (ECTt-1) = IIP - (0.0002*FII + 1.0312*ER + 54.0148)				
Long run coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
FII	0.000243	0.000118	2.053610	0.0430
ER	1.031188	0.408902	2.521848	0.0135
C	54.014836	29.991475	1.801006	0.0751

Source: Author's calculations

In the cointegrating relationship the current change in Foreign Institutional Investment does not significantly affect Index of Industrial Production. The coefficient is relatively very small and its standard error is relatively very high leading a very small t value. Although the coefficient for one period lagged change in the Foreign Institutional Investment is small, its standard error is very small and hence with a high t value leading to the rejection of the null hypothesis that the coefficient is not significant. The impact parameter is significant at five per cent level. A one unit, that is Rs. one crore, change in the Foreign Institutional Investment leads to 84 by 10000s per cent change in the Index in the same direction.

The current change in the exchange rate has a significant impact on the Index of Industrial Production too. The coefficient value. 0.3891 indicates that when Indian rupee depreciates one rupee against Dollar, the change in her Index of Industrial Production in the current period increases by 38.91 per cent.

The error correction coefficient has the expected negative sign and its value -0.377301 is highly significant with a very low p value. It means that a deviation from the long run equilibrium will be corrected about 37. 37 per cent in the current period and this this will repeat period by period.

The long run coefficient for Foreign Institutional Investment and Exchange Rate are significant at five per cent level. Although significant, the coefficient for Foreign Institutional Investment is very small as 0.000243. However, the result has economic value that a variable considered nominal affects a real variable.

The ARDL bounds testing approach is based on the assumption that the model errors are not serially correlated. Therefore, Breusch-Godfrey serial correlation LM test is conducted and its result states that the errors are not serially correlated (Table 4). The probabilities for F statistic and chai square statistic do not give sufficient evidence for rejecting the null hypothesis that there is no serial correlation.

Table 4 Breusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.049058	Prob. F (2,86)	0.3547
Obs*R-squared	2.238673	Prob. Chi-Square (2)	0.3265

Source: Author's calculations

The ARDL bounds testing approach model estimated in Table 3 need not give information about the causality or direction of change. The term causality implies, the cause-and-effect relationship among variables established based on the premise that 'future cannot affect the past'. Always the cause variable changes first and thereafter the effect variable. The pair wise Granger causality test is run based on this principle and the result obtained in the current study is presented in Table 5.

Table 5

Pairwise Granger Causality Tests Sample: 2016M04 2024M03 Lags: 4			
Null Hypothesis:	Obs	F-Statistic	Prob.
Between FII and IIP			
FII does not Granger Cause IIP	92	5.85279	0.0003
IIP does not Granger Cause FII		0.13009	0.9710
Between ER and IIP			
ER does not Granger Cause IIP	92	4.21044	0.0037
IIP does not Granger Cause ER		1.58789	0.1852
Between ER and FII			
ER does not Granger Cause FII	92	0.76364	0.5519
FII does not Granger Cause ER		1.48135	0.2153

Source: Author's calculations

The pair wise Granger causality test offers an F statistic, the significance of which at the five per cent level indicates whether causality is running from a variable to another variable. If the F statistic is significant based on probability, causality is running from the independent variable to the dependent variable. Otherwise, we are forced to accept the null hypothesis that there is no causality. Table 5 has three parts; each of them provides the result of causality for a pair of variables in the model we analysed. In each case, the null hypothesis is that the explanatory variable does not cause the dependent variable. By checking the probability value of F statistic and since the p value of the test statistic is less than 0.05, it can be stated that;

1. FII Granger cause IIP

2. ER Granger cause IIP

In all other pairs, the null hypothesis of no causality cannot be rejected with available evidence. Therefore, change in the Foreign Institutional Investment and Exchange Rate cause the change in industrial production index, but the opposite is not confirmed.

Conclusion

The present study attempts to draw information about the functional relationship between industrial production level as represented by Index of Industrial Production and its regressors, Foreign Institutional Investment and Exchange Rate. The analysis is carried out with the ARDL bounds testing approach over the period 04, 2016 to 03,2024, during which a stable cointegrating relationship was detected among these variables.

In the short run, although the current period change in the Foreign Institutional Investment does not affect the change in the indicator of industrial production, a one period lagged change in the Foreign Institutional Investment significantly affects it. Also, the current period change in the exchange rate is found to positively affecting the Index of Industrial Production too. The negative error correction coefficient implies that the extent of disequilibrium is corrected about 37 per cent each period over time. In the case of long run too, the regressors have significant coefficient that reflect their positive impact on the explained variable, the Index of Industrial Production.

The Granger causality test, however, did not find that causality is running from industrial production to Foreign Institutional Investment that a better or high position of the former is a precondition for the positive net inflow of the latter. The causality test suggests that causality is running from Foreign Institutional Investment and Exchange Rate to the Index of Industrial Production. An important highlight of confirming that causality is running from FII to IIP. Foreign Institutional Investment has significant impact on the industrial production level, which is a major component of the annual Gross Value Added (GVA) in a country.

References

Agarwal, R. N. (1997). Foreign Portfolio Investment in Some Developing Countries: A Case Study of Determinants and Macro Economic Impact. Indian Economic Review, XXXII (2), 217-229.

Akinlo, A. (2004). Foreign Direct Investment and Growth in Nigeria: An Empirical Investigation. Journal of Policy Modeling, 26, 627-639.

Anubha, S. (2013). A Study of Influence of FII Flows on Indian Stock Market. Journal of Management, 5(1).

Banerjee, A., & Sarkar, S. (2006). Modelling Daily Volatility of the Indian Stock Market Using Intra-day Data. IIM Calcutta, WPS No. 588/March.

Batra, A. (2003). The Dynamic of Foreign Portfolio Inflows and Equity Returns in India. Working Paper, ICRIER, New Delhi.

Battacharya, B., & Mukherjee, J. (2005). An Analysis of Stock Market Efficiency in the Light of Capital Inflows and Exchange Rate Movements: The Indian Context. Retrieved on December 11, 2013,

Behera, H. K. (2010). An Assessment of Foreign Investment in Indian Capital Market. Retrieved from http://ssrn.com/abstract=2258352.

Berko, E., & Clark, J. (1997). Foreign Investment Fluctuations and Emerging Market Stock Returns: The Case of Mexico. Federal Reserve Bank of New York, Staff Reports, 24.

Bhanumurthy KV. & Singh AK. (2013) Do Foreign Institutional Investors Really Drive the Indian Stock Market? Asia-Pacific Journal of Management Research Innovations, 9(1):45–53.

Bhon, H., & Tesar, L. (1996). U.S. Equity Investment in Foreign Markets: Portfolio Rebalancing or Return Chasing. American Economic Review, 86(2), 77-81.

Biswas, J. (2005). Foreign Portfolios Investment and Stock Market Behavior in a Liberalized Economy: An Indian Experience. Asian Economic Review., 47(2), 221-232.

Borensztein, J., De Gregorio, J., & Lee, J. (1998). How Does Foreign Direct Investment Affect Economic Growth? Journal of International Economics, 35, 115-135.

Buckley, P., Clegg, J., Wang, C., & Cross, A. (2002). FDI, Regional Differences and Economic Growth: Penal Data Evidence from China. Transnational Corporation, 11, 1-23.

Chakrabarti, R. (2001). FII Flow to India: Nature and Causes. Money and Finance, 2(7).

Cointegration Analysis. in S. Strom, (ed) Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch centennial Symposium, Cambridge University Press, Cambridge.

De Mello, L. (1997). Foreign Direct Investment in Developing Countries and Growth: A Selective Survey. The Journal of Development Studies, 34(1), 1-34.

Dornbusch, R., & Park, Y.C. (1995). Financial Integration in a Second-best World: Are We Still Sure about Our Classical Prejudices. In R. Dornbusch & Y.C. Park (Eds), Financial opening: Policy lessons for Korea (pp. 216–228). Korea: Institute of Finance.

Evidence from Indian Capital Market. IIMS Journal of Management Science, 4(2):143–151.

Gordon, J., & Gupta, P. (2003). Portfolio Flows into India: Do Domestic Fundamentals Matter? IMF Working Paper Number Wp/03/02.

Gupta, A. (2011). Does The Stock Market Rise or Fall Due to FIIs In India. Journal of Arts, Science & Commerce.

Harris, R. and Sollis, R. (2003). Applied Time Series Modelling and Forecasting. Wiley, West Sussex.

Himachalapathy R, V. K. (2012). A study of the determinants of FII flows in India. Iranian Journal of Management Studies, 25 (3), 98-116. http://www.igidr.ac.in/money/An%20Analysis%20of%20Sock%20Market%20Efficiency... Bas.

Karmakar, M. (2006). Stock Market Volatility in the Long Run 1965-2005. Economic and Political Weekly, 1796-1802.

Kim, E. H., & Singal, V. (1993). Opening up of Stock Markets by Emerging Economies: Effects on Portfolio Flows and Volatility of Stock Prices in Portfolio Investment in Developing Countries. World Bank Discussion Paper No.228 Ed. By Stijn Claessens and Sudarshan Gooptu (Washington: World Bank, 1993), 383-403.

Kishore, S. M. (2012). Net FII Flows into India: A Cause and Effect Study. ASCI Journal of Management, 42 (2), 107-120.

Krishna, R. C. (2009). Volatility of Indian Stock Market and FIIs. European Business Review, 15, 22-34.

Kulwantraj, N. B. (2004). The Determinants of Foreign Institutional Investments in India and the Role of Risk, Inflation and Return. Indian Economic Review, 32(2), 217-229.

Loomba J. (2012). Do FIIs Impact Volatility of Indian Stock Market? International Journal International Journal of Marketing Financial Services Management Research, 1(7): 80–93.

Mamta, J., Priyanka, M. L., & Mathur, T. N. (2012). Impact of Foreign Institutional Investment on Stock Market with Special Reference to BSE A Study of Last One Decade. Asian Journal of Research in Banking and Finance, 2(4).

Mehla. S. & Goyal S.K. (2013). Impact of Foreign Institutional Investment on Indian Stock Market: A Cause and Effect Relationship. Asia-Pacific Journal of Management Research Innovations, 9(3):329–335.

Mohan, T. (2006). Neither Dread nor Encourage Them. Economic and Political Weekly, 95-98.

Nair, A., & Trivedi, P. (2003). Determinants of FII Investment Inflow to India. 5th Annual Conference on Money and Finance in the Indian Economy. Indira Gandhi Institute of Development Research.

Narayan, S. (2007). Globalization, Capital Flows and Growth in India. Journal of ICFAI, 25.

Patel S.A. (2013). Foreign Institutional Investment and Stock Market Returns:

Pesaran, M. and Shin, Y. (1999). An Autoregressive Distributed Lag Modelling Approach to

Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. Journal of Applied Econometrics, 16(3), 289-326.

Porwal, A. K., & Gupta, R. (2005). The Stock Market Volatility. The Journal Accounting and Finance, 20(1), 31-44.

Radelet, S., & Sachs, J. (1998). The East Asian Financial Crisis: Diagnosis, Remedies, Prospects. The Brookings Paper on Economics Activity, 1, 1-90.

Scaria, R. (2024). Prediction of Manufacturing Stock Prices in India: Empirical Analysis based on Vector Auto-Regressive Model. Arthika Charche: FPI Journal of Economics and Governance 9(2): 91-102.

Sharma Renuka, M. K. (2012). Foreign Institutional Investor and Indian Stock Market. Gian jyoti e-journal, 2 (3), 75-98.

Siddiqui A. A. & Azad N.A. (2012). Foreign Institutional Investment Flows and Indian Financial Market: Relationship and Way Forward. Vision 16(3):175–185.

Singh, S. K. (2004). The Indian Journal of Commerce. Foreign Portfolio Investment, 57(4), 120-137.

Upadhyay, S. (2006). Portfolio Organizer. FIIs in the Stock Market and the Question of Volatility, 22-30. West Sussex.