

TOM JACOB “IMPACT OF FOREIGN INVESTMENT FLOWS ON INDIAN ECONOMY IN THE POST LIBERALISATION ERA.” THESIS. RESEARCH DEPARTMENT OF COMMERCE ST THOMAS’ COLLEGE (AUTONOMOUS), UNIVERSITY OF CALICUT, 2019.

# Chapter 4

## Determinants of Foreign Investment in India

In the previous chapter it has been seen that a huge amount of foreign investment has been flowing to India. This unprecedented foreign investment in the last few decades is usually associated with and explained in terms of economic liberalization of India since 1990s. But this requires further scrutiny. Hence this chapter tries to find out the reasons for the massive foreign investment flows to India.

It is not correct to explain the determinants of foreign investment in India simply with the help of one or two factors or attributes. Of course liberalization and its allies might have played significant roles in attracting foreign investment in India. But had liberalization is the only factor, all the countries which are ready to liberalize their economies must have received positive responses from foreign investors. Hence it is clear that behind liberalization and the consequent inflow of foreign investments there are some intertwined factors which are the actual determinants of foreign investment. The ultimate determinant of foreign investment, like the case of almost all other types of investments, is also the return which the investment brings in the short or long run. But there are some other specific factors which push as well as pull foreign capital to the other countries. That is why the flow of foreign capital is not uniform in all countries. While the domestic conditions of the certain countries - lack of opportunities, unfavorable climate for investment, low return, low interest

rate, political instability etc. push their capital to go out of the country, the encouraging situations of the host countries like political stability, fundamental strength of the economy, receptive policies of the government including liberalization and above all the possibility of high return pull the foreign capital to certain countries. But since some of these factors are qualitative in nature and hence non measurable they cannot be studied scientifically as determinants of foreign investment. However, they directly and indirectly create and influence certain quantitative and measurable factors especially the macroeconomic factors like inflation, exchange rate, growth rate, trade openness, balance of payments etc. which have the potential to influence the foreign investment. Therefore their potential to attract foreign investment into India and their short term and long term equilibrium relationship with foreign investment in India are analysed.

## 4.1 Factors Affecting Foreign Investment

As already seen scholars are not unanimous about the relative role of the factors which determine the foreign investment flows. However there is some consensus among them about the following factors which have the potential to attract foreign investment to a country.

### 1. Inflation

Rate of inflation which is measured by the Wholesale Price Index (WPI), is a crucial factor influencing the inflow of foreign investment. Low inflation or price stability is one of the main indicator of a stable macroeconomic situation of a country. Akinboade et al. (2006)<sup>152</sup> state that low inflation is assumed to be a sign of internal economic stability in the host nation. A high rate of inflation signifies economic instability associated with inappropriate government policies, especially the monetary fiscal policy mix. Khan and Mitra (2014)<sup>153</sup> argue that high rate

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<sup>152</sup>Akinboade, O.A., Siebrits, F.K., and Roussot, E.N. (2006). Foreign Direct Investment in South Africa, in Ajayi (ed.) Foreign Direct Investment in SubSaharan Africa - Origin, Targets, Impact and Potential. *Nairobi: African Economic Research Consortium*, 177-208.

<sup>153</sup>Khan, G.S., and Mitra, P. (2014). A Causal Linkage between FDI Inflows with Select Macroeconomic Variables in India - An Econometric Analysis. *IOSR Journal of Economics and Finance*, 5(5), 2321-5933.

of inflation distort the economic activities, contributing to lesser inflow of capital. It affects profitability as higher costs lead to lower earnings. Hence low inflation rate is desirable to attract foreign capital (Aijaz et, al 2014)<sup>154</sup>.

Chingarande and Karambakuwa (2011)<sup>155</sup> hold the same view. According to them a stable economy attracts more FDI. Thus a low inflationary environment is desired in countries that promote FDI as a source of capital flow. But negative or high inflation rates i.e., above single digit will discourage investors due to lower rate of return in profits and hence the government should control and regulate inflation rate around levels that stimulate investment. Because high level of price in the country results in rising cost of production, increase in input price: like wages, cost of raw material, land price and cost of capital leads to a high price of the product which in turn will adversely affect the domestic as well as international demand of the product. All these factors ultimately lead to the reduction in business profits and in turn discourages foreign investment in the countries having a high inflation rate. However a certain level of inflation, normally a single digit, is desirable to stimulate investment in an economy. Kaur and Dhillon (2010)<sup>156</sup> explored the determinants of foreign institutional investment in India. The study revealed that inflation in US has a positive influence whereas inflation in India has a negative influence on FII flows into India.

## 2. Exchange Rate

Exchange Rate (Nominal Effective Exchange Rate - NEER), the relative strength of the domestic currency in relation to the foreign currency, is closely related to foreign investment. According to Banga (2003)<sup>157</sup> volatility of exchange rate adversely affects foreign direct investment. High volatility of exchange rate indicates uncertainty regarding the fu-

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<sup>154</sup>Aijaz, H., Siddiqui, A., and Aumeboonsuke, V. (2014). Role of Interest Rate in Attracting the FDI: Study on Asean 5 Economy. *International Journal of Technical Research*, 2(3), 59-70.

<sup>155</sup>Chingarande, A., Karambakuwa, T. (2011). The Impact of Interest Rates on Foreign Direct Investment: A Case Study of the Zimbabwean Economy, *International Journal of Management Sciences and Business Research*, 1(5), 2226-2236.

<sup>156</sup>Kaur, M., and Dhillon, S. (2010). Determinants of Foreign Institutional Investors Investment in India, *Eurasian Journal of Business and Economics*, 3(6), 57-70.

<sup>157</sup>Banga, R. (2003). *Impact of Government Policies and Investment Agreements on FDI Inflows*, Working Paper, No.116, Indian Council for Research on International Economic Relations, New Delhi.

ture economic and business activities of the host country. If the exchange rate of a country is highly volatile, foreign investors will be discouraged to invest in that country. Appreciation of the domestic currency will attract foreign investment especially FDI in different ways. If the FDI's objective is to serve the host country's market, the appreciation of the host country's currency attracts the FDI inflows due to higher purchasing power of the domestic consumers. On the other hand, if the FDI's objective is export, appreciation of the host country's currency reduces the FDI inflows through lower competitiveness.

However, these effects and relationship between the exchange rate and FDI are still uncertain. Ellahi (2011)<sup>158</sup> analysed the impact of exchange rate volatility on foreign direct investment on the Pakistan economy and showed that exchange rate volatility had negative effect on FDI and it had shown negative relation or effect in the long run. But Dhakal et.al. (2010)<sup>159</sup> investigated the effect of exchange rate volatility on FDI of some East Asian countries. They identified that exchange rate volatility positively affected the flow of FDI. In other words the study revealed that exchange rate volatility has a favourable effect on foreign direct investment.

In the case of foreign investment especially foreign investment in the capital market exchange rate also has a great impact. The exchange rate affects the effective or expected rate of return on investments. The exchange rate plays an important role in decision making process of an FII investment. As depreciation of the domestic currency results in losses when an FII investment is converted back into the foreign currency while an appreciation of the domestic currency would result in higher returns for the foreign investments. Srinivasan and Kalaivani (2010)<sup>160</sup> explained that exchange rate volatility has significant negative impact on FII inflows both in the short-run and in the long-run, implying that depreciation of

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<sup>158</sup>Ellahi, N.(2011). Exchange Rate Volatility and Foreign Direct Investment (FDI) Behavior in Pakistan: A Time Series Analysis with Auto Regressive Distributed Lag (ARDL) Application. *African Journal of Business Management*, 5(29), 11656-11661.

<sup>159</sup>Dhakal, D., Nag, R., Pradhan, G., and Upadhyaya, K. P. (2010). Exchange Rate Volatility and Foreign Direct Investment: Evidence from East Asian countries. *The International Business and Economics Research Journal*, 9(7), 121-128.

<sup>160</sup>Srinivasan, P., and Kalaivani, M. (2010). Foreign Institutional Investment and Stock Market Returns in India: Before and During Global Financial Crisis. *The IUP Journal of Behavioural Finance*, 7(1-2), 59-75.

currency adversely affects the FII flows into India.

### 3. Economic Growth

Economic growth, usually measured through the Index of Industrial Production (IIP) has two way relationship with foreign investment. According to Maheswari (2015)<sup>161</sup> the strength of the prospect and trend of industrial production in the post reform years initiate the inflow of foreign investment in the economy. Himachalpathy and Kavya (2012)<sup>162</sup> argued that IIP is an important macroeconomic factor for determining the flow of foreign direct investment. Another study by Reenu (2015)<sup>163</sup> using annual data from 1991 to 2010 and by employing Ordinary Least Square Regression Analysis identified market size, trade openness, infrastructure, interest rate and inflation as the major determinants of FDI inflows. The impact of IIP growth in India can contribute positively and statistically significant to FDI flows. A high level of IIP growth is a strong indication of market opportunities. Therefore, IIP growth rate is a good indicator of growing market potential as well as economic prosperity of a country. Higher economic growth implies higher contribution and vibrant economic activities in the global market, higher consumption, greater market size and spending. Therefore, investors are expecting more revenue from their business in India. This positive relationship between growth of IIP and FDI inflows is consistent with the opinion expressed by Billington (1999)<sup>164</sup>, Hara and Razafimahefa (2005)<sup>165</sup>, Janicki and Wunnava (2004)<sup>166</sup>, Ali and Guo (2005)<sup>167</sup> and Singhania and Gupta (2011)<sup>168</sup>.

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<sup>161</sup>Maheswari J. (2015). Macroeconomic Determinants of Foreign Direct Investment in India. *International Journal of Economic and Business Review*, 3(2), 59-65.

<sup>162</sup>Himachalpathy, R., and Kavya, V.(2012). A Study on the Determinants of Foreign Direct Investment Inflows into India. *Journal of Development Studies*, 19(2), 207-212.

<sup>163</sup>Reenu, S. (2015). Trends and Determinants of Foreign Direct Investment in India: A Study of the Post-Liberalization Period. *South Asian Journal of Management*, 22(3), 96-98.

<sup>164</sup>Billington, N. (1999). The Location of Foreign Direct Investment: An Empirical Analysis. *Applied Economics*, 31(1), 65-76.

<sup>165</sup>Hara, M., and Razafimahefa, F.I. (2005). The Determinants of Foreign Direct Investment into Japan. *Kobe University Economic Review*, 51, 21-34.

<sup>166</sup>Janicki, H., and Wunnava, P. (2004). Determinants of Foreign Direct Investment: Empirical Evidence From EU Accession Candidates. *Applied Economics*, 36(5), 505-509.

<sup>167</sup>Ali, S., and Guo, W. (2005). Determinants of FDI in China. *Journal of Global Business and Technology*, 1(2), 21-33.

<sup>168</sup>Singhania, M., and Gupta, A. (2011). Determinants of Foreign Direct Investment in India. *Journal of International Trade Law and Policy*, 10(1), 64-82.

Since FIIs are motivated by the growth of the companies/sectors in which they have invested, IIP as a factor determining FII flows into India is justified. On the other hand, foreign investment especially foreign portfolio investment also affects the industrial growth rate in India by facilitating the origin of new industries and development of the existing ones ensuring capital for them.

#### 4. Trade Openness

The host countries' policies and philosophy towards trade is also an important determinant of foreign investment. Trade Openness (TO), which is the ratio of (imports and exports) to GDP, is one of the pull factors that influence FDI flows to host countries. The openness to trade enhances the attraction of foreign investors to invest in the country. If foreign firms operating in a host country are free to sell their goods and services to other countries it will broaden their market. It will be an added attraction for them to invest in the host countries. Besides, the more the membership of bilateral agreements or regional FTAs that a country is engaged in, the wider the access of other countries to the traded goods and services. It is believed that a country with a greater degree of trade openness, which is more directed towards the external market, would also be more open to foreign capital.

Onyeiwu and Shrestha (2004)<sup>169</sup> found that one of the critical factor that was instrumental in attracting FDI inflows into Africa is the degree of openness of the economy. Mina (2007)<sup>170</sup> also opined the impact of trade openness on FDI was found to be both positive and significant in GCC countries. A Co-integration and Error Correction Modelling (ECM) using monthly time series data by (Zhang and Felmingham 2001)<sup>171</sup> found out that trade openness positively influenced FDI in Central China during the period 1986 to 1999.

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<sup>169</sup>Onyeiwu, S., and Shrestha, H. (2004). Determinants of Foreign Direct Investment in Africa. *Journal of Developing Societies*, 20(1-2), 89-106.

<sup>170</sup>Mina, W. (2007). The Location Determinants of FDI in the GCC countries. *Journal of Multinational Financial Management*, 17(4), 336-348.

<sup>171</sup>Zhang, Q., and Felmingham, B. (2001). The Relationship Between Inward Direct Foreign Investment and China's Provincial Export Trade. *China Economic Review*, 12(1), 82-99.

## 5. Market Return

In the case of foreign investment in the capital market, the Market Return (Stock Market Return - MR) is the main determining factor. The basic rationale for the international capital flows is the rate of return which is higher in a foreign market compared to the domestic market. Capital flows across the geographical boundaries of the countries is mainly to enhance the productivity and efficiency of capital at the global level. Hence the rate of return should certainly explain the choice of a particular stock for investment by the FIIs (Babu and Prabheesh 2008)<sup>172</sup>.

These macroeconomic variables and their role in attracting foreign investment in India is analysed using Auto Regressive Distributed Lag (ARDL) Model. In order to ascertain how far these macroeconomic factors determined foreign investment (FDI and FPI) in India, and their short term and long term equilibrium relationship with foreign investment, factors like inflation, exchange rate, trade openness, economic growth and domestic stock market return are hypothesized as determinants. Besides these financial crisis of 2007-08 is also selected as a Dummy Variable (DV). To find out the role of these factors as determinants the two channels of foreign investment in India i.e., FDI and FPI are analyzed separately.

## 4.2 Determinants of Foreign Direct Investment (FDI) in India

The relationship between foreign direct investment and the macroeconomic variables in India is analyzed with the help of ARDL Test. The expected relationship between foreign direct investment and other macroeconomic variables in India is projected in Table 4.1.

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<sup>172</sup>Babu, S., and Prabheesh, K.P. (2008). Causal Relationship between FIIs and Stock Returns in India. *International Journal of Trade and Global Market*, 1(3), 259-265.



**Table 4.1:** Expected Relationship between Macroeconomic Variables and FDI in India

Variables	Description	Expected Relationship
NEER	Exchange Rate	Positively or Negatively related
WPI	Wholesale Price Index	Negatively or Positively related
IIP	Index of Industrial Production	Positively related
TO	Trade Openness	Positively related

### 4.2.1 Empirical Model

The model of determinants of FDI inflows into India is formulated with five independent variables viz Economic Growth (IIP), Inflation (WPI), Exchange Rate (NEER), Trade Openness (TO) and Financial Crisis of 2007-08 is used as a Dummy Variable (DV). The period before the crisis has been coded as 1 and the period after the crisis has been coded as 0. Considering these indicators as pull factors a linear equation model is developed in the following way:

$$FDI = f(NEER, WPI, IIP, TO, DV, \epsilon)$$

#### Econometric Model

$$FDI = \alpha + \beta_1 NEER + \beta_2 WPI + \beta_3 IIP + \beta_4 TO + \beta_5 DV + \epsilon \quad (4.1)$$

### 4.2.2 Empirical Results

Following are the empirical findings of the Descriptive Statistics, Stationary Test and ARDL Bound Test conducted to find out the determinants of FDI in India.

Table 4.2 depicts the descriptive properties of selected variables over the period 1995 to 2018. This analysis shows the average values of the variables (Mean), Median, Maximum and Minimum Values, Measures of spread of variables (Standard Deviation), Kurtosis, Skewness and for measuring or checking the Normality of data. Jarque-bera Statistic is used to check the normality of residuals. As per the test a data is considered to be normal if the probability

**Table 4.2:** Descriptive Statistics: Determinants of FDI in India

Variables	Mean	Median	Maximum	Minimum	Std. Devi	Skewness	Kurtosis	J B Coefficient	P - Value
FDI	1370	661	6177	58	1449	1.22	3.77	72.35	0.001
NEER	47.68	45.8	68.24	31.3	8.85	0.73	2.97	23.47	0.001
WPI	111.6	105.7	185.9	62.44	39.7	0.39	1.75	23.77	0.001
IIP	120.15	114.3	198.7	53.63	45.19	0.09	1.43	27.19	0.001
TO	212.43	198.06	431.86	83.79	109.07	0.355	1.668	24.97	0.001

Source: Compiled by the Researcher

value is more than 0.05. In this study since the probability value is less than 0.05 the variables are found not normal.

A Unit Root Test, i.e., the Augmented Dickey Fuller (ADF) Test has been applied to check the stationarity of selected macroeconomic variables and foreign direct investment in India.

**Table 4.3:** Augmented Dickey-Fuller Unit Root Test for Determinants of FDI in India

Variables	Level						I Difference						Result
	Intercept		Intercept & Trend		None		Intercept		Intercept & Trend		None		
	t- stat	p-value	t- stat	p-value	t- stat	p-value	t- stat	p-value	t- stat	p-value	t- stat	p-value	
FDI	-3.71945	0.0043	-6.88519	0.001	-1.886	0.0566	-13.31	0.000	-13.28	0.000	-13.32	0.000	I(0)
NEER	-0.70076	0.8434	-1.68994	0.7532	1.81	0.983	-12.0877	0.001	-12.0675	0.001	-11.85	0.001	I(1)
WPI	0.580273	0.989	-1.96399	-1.96399	4.38	1	-9.44694	0.001	-9.49743	0.001	-8.02	0.001	I(1)
IIP	-0.40066	0.9057	-1.71344	0.7427	2.228	0.994	-3.95486	0.001	-3.94554	0.001	-2.83	0.001	I(1)
TO	-1.13	0.70	-2.98	0.13	0.29	0.77	-18.89	0.001	-18.85	0.001	-18.87	0.001	I(1)

Source: Compiled by the Researcher

It is evident from the Table 4.3 that the order of integration of all the variables used in the subject field is either nil or one i.e., I(0) or I(1). As can be seen from the same Table, Economic Growth (IIP), Inflation (WPI), Exchange Rate (NEER) and Trade Openness (TO) are integrated of order one, I(1) and FDI is integrated of order I(0). Since there is a mixture of order of integration ARDL approach for co-Integration is used.

### 4.3 ARDL Model

The Auto Regressive Distributed Lag (ARDL) Model is applied to examine the co-integration or relationship between FDI and macroeconomic variables

in India and to estimate simultaneously the short-run dynamics and long-run coefficients of the determinants of FDI.

**Table 4.4:** ARDL Model for FDI and its Determinants in India

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
FDI(-1)	0.252752	0.061677	4.098008	0.0001
FDI(-2)	0.202498	0.062881	3.220315	0.0014
NEER	19.77314	11.67924	1.693015	0.0917
WPI	18.50044	9.024865	2.049941	0.0414
IIP	10.63178	4.743283	2.24144	0.0259
TO	0.023514	3.090589	0.007608	0.9939
TO(-1)	4.921512	3.881227	1.26803	0.206
TO(-2)	-7.703344	3.109982	-2.476974	0.0139
DV	126.509	249.6979	0.506648	0.6128
C	-4088.961	1841.472	-2.220485	0.0273
<b>R-squared</b>	0.688859	<b>Mean dependent var</b>		1379.429
<b>Adjusted R-squared</b>	0.677702	<b>S.D. dependent var</b>		1450.789
<b>S.E. of regression</b>	823.6311	<b>Akaike info criterion</b>		16.30288
<b>Sum squared resid</b>	1.70E+008	<b>Schwarz criterion</b>		16.43946
<b>Log likelihood</b>	-2117.526	<b>Hannan-Quinn criter.</b>		16.35778
<b>F-statistic</b>	61.74534	<b>Durbin-Watson stat</b>		1.985614
<b>Prob(F-statistic)</b>	0.001			

Source: Compiled by the Researcher

Accordingly a linear equation model is developed in the following way:

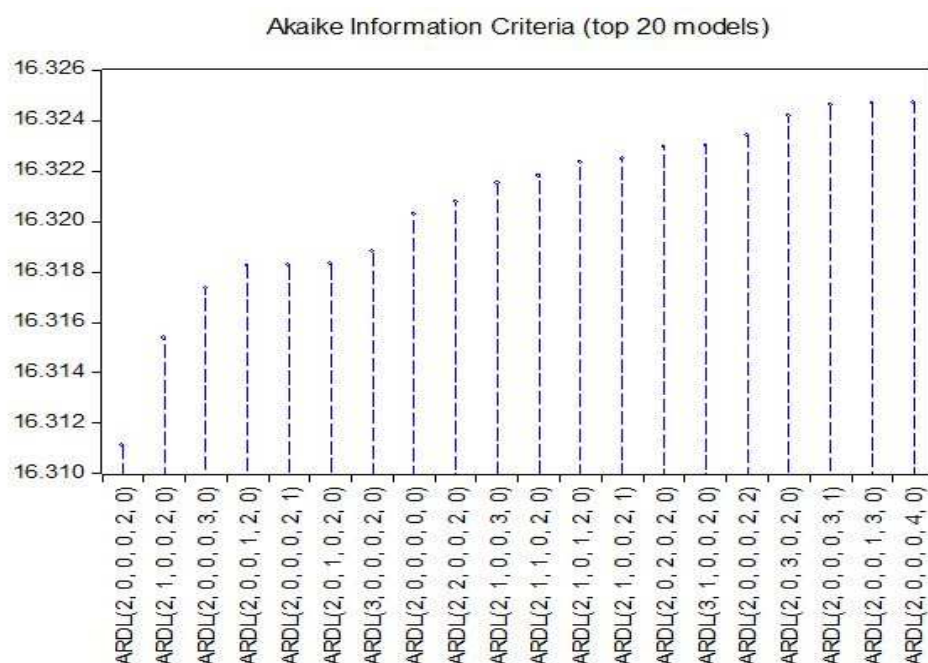
$$\begin{aligned}
 FDI = \alpha + \beta_1 FDI_{t-1} + \beta_2 FDI_{t-2} + \beta_3 NEER + \beta_4 WPI + \\
 \beta_5 IIP + \beta_6 TO + \beta_7 TO_{t-1} + \beta_8 TO_{t-2} + \beta_9 DV + \epsilon
 \end{aligned}
 \tag{4.2}$$

Where  $t - 1$  is variables' lagged value by one period,  $t - 2$  is variables' lagged value by two period and  $\epsilon$  is an error term. The lag length is determined automatically by Akaike Information Criterion (AIC).

### 4.3.1 Optimum Lag Length Criteria

Akaike Information Criterion (AIC) is used to determine the optimum lag length of the model that is to know how many lags are used for this model. According to this test the lower the AIC value, the better the model. Hence as

seen in Figure 4.1, the 20 best models are the models with lowest AIC values. The lowest AIC value shows that the optimum lag length is ARDL (2, 0, 0, 0, 2, 0). It means that the dependent variable got lag value 2 and the independent variables got lag values as 0 and 2. With AIC value of 16.311, optimum lag length is 2 lag for FDI, 2 lag for trade openness and lag value 0 for exchange rate, index of industrial production and dummy variable.



**Figure 4.1:** Akaike Information Criterion for Determinants of FDI

**Table 4.5:** Breusch-Godfrey Serial Correlation LM Test for FDI and its Determinants in India

<b>F-statistic</b>	0.205285	<b>Prob. F(2,249)</b>	0.8146
<b>Obs* R-squared</b>	0.429648	<b>Prob. Chi-Square(2)</b>	0.8067

Source: Compiled by the Researcher

Breusch-Godfrey (1978)<sup>173</sup> LM Test is used for testing or checking the serial correlation and its results are given in Table 4.5. The result shows that P value is greater than 0.05, which indicates that there is no auto correlation and hence no problem of Serial Correlation. RESET Test i.e., Regression Specification

<sup>173</sup>Godfrey, L.G. (1978). Testing Against General Autoregressive and Moving Average Error Models when the Regressors Include Lagged Dependent Variables. *Econometrica*, 46(2), 1293-1301.

**Table 4.6:** Ramsey RESET Test for FDI and its Determinants in India

	Value	df	Probability
<b>t-statistic</b>	0.948908	250	0.3436
<b>F-statistic</b>	0.900427	(1, 250)	0.3436
<b>F-test summary:</b>			
	Sum of Sq.	df	Mean Squares
<b>Test SSR</b>	611066.6	1	611066.6
<b>Restricted SSR</b>	1.70E+08	251	678371.6
<b>Unrestricted SSR</b>	1.70E+08	250	678640.8

Source: Compiled by the Researcher

Error Test (Ramsey, 1969)<sup>174</sup> is used for model specification. The result as seen in Table 4.6 indicates that the estimated probability value as 0.34 which is greater than 0.05. This suggests that the model is well specified and without significant omitted variables.

### 4.3.2 ARDL Bound Test Approach for Co-integration

ARDL Bound Test Approach, developed by Pesaran et al. (2001)<sup>175</sup> is used to investigate the long-run relationship or co-integration among variables in this model. The null hypothesis of the test is that there is no long run relationship between FDI flows and macroeconomic variables in India.

The result of this test is described in Table 4.7. It shows that the computed F-statistic value is 10.13 which is more than the upper bound critical value of 3.79 at 5 percent significant level. It indicates a long-run relationship between variables of this model indicating rejection of the null hypothesis. Therefore it can be concluded that there is a long run relationship or co-integration between macroeconomic variables and FDI in India.

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<sup>174</sup>Ramsey, J. B. (1969). Tests for Specification Errors in Classical Linear Least Squares Regression Analysis. *Journal of the Royal Statistical Society, Series B*, 31(2), 350-371.

<sup>175</sup>Pesaran, M.H., Shin, Y., and Smith, R.J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics*, 16(2), 289-326.

**Table 4.7:** ARDL Bound Test for Normalizing FDI and its Determinants

Test Statistic	Value	k		
F-statistic	10.13540	5		
<b>Critical Value Bounds:</b>				
Significance	I(0) Bound	I(1) Bound		
10%	2.26	3.35		
5%	2.62	3.79		
2.50%	2.96	4.18		
1%	3.41	4.68		
Null Hypothesis: No long-run relationships exist				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI(-1))	-0.205348	0.062221	-3.300325	0.0011
D(TO)	-0.140407	3.114818	-0.045077	0.9641
D(TO(-1))	7.523521	3.10281	2.424744	0.016
C	-4548.676	1870.31	-2.432044	0.0157
NEER(-1)	22.55304	11.77178	1.915857	0.0565
WPI(-1)	20.76514	9.149789	2.269466	0.0241
IIP(-1)	10.42744	4.845113	2.152155	0.0323
TO(-1)	-2.868727	1.652786	-1.735692	0.0838
DV(-1)	90.12353	244.2502	0.36898	0.7125
FDI(-1)	-0.546881	0.071405	-7.658858	0.001
<b>R-squared</b>	0.378554	<b>Mean dependent var</b>		7.687443
<b>Adjusted R-squared</b>	0.356271	<b>S.D. dependent var</b>		1026.591
<b>S.E. of regression</b>	823.6618	<b>Akaike info criterion</b>		16.30296
<b>Sum squared resid</b>	1.70E+008	<b>Schwarz criterion</b>		16.43953
<b>Log likelihood</b>	-2117.536	<b>Hannan-Quinn criter.</b>		16.35786
<b>F-statistic</b>	16.98851	<b>Durbin-Watson stat</b>		1.993064
<b>Prob(F-statistic)</b>	0.001			
<b>Dependant Variable: D(FDI)</b>				

Source: Compiled by the Researcher

### 4.3.3 Long Run Coefficients - ARDL Approach

The Table 4.8 estimates the result of coefficient of long run relationship between macroeconomic variables and FDI in India by applying ARDL Methodology. The result shows that the contribution of Economic Growth (IIP) is statistically significant to FDI flows and thus it contributes positively to the FDI flows.

The result also reveals that Inflation (WPI) has positive and statistically

**Table 4.8:** Estimated Co-integrating Form and Long-run Coefficients Using ARDL Model for FDI and its Determinants

Cointegrating Form				
Variables	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI(-1))	-0.202498	0.062881	-3.220315	0.0014
D(NEER)	19.773136	11.679241	1.693015	0.0917
D(WPI)	18.500441	9.024865	2.049941	0.0414
D(IIP)	10.631784	4.743283	2.24144	0.0259
D(TO)	0.023514	3.090589	0.007608	0.9939
D(TO(-1))	7.703344	3.109982	2.476974	0.0139
D(DV)	126.508961	249.69791	0.506648	0.6128
CointEq(-1)	-0.54475	0.072248	-7.540039	0.001***
<b>Cointeq = FDI - (36.2976*NEER + 33.9613*WPI + 19.5168 *IIP - 5.0635*TO + 232.2329*DV - 7506.1177 )</b>				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
NEER	36.297601	21.074756	1.722326	0.0862*
WPI	33.961311	16.129773	2.105505	0.0362**
IIP	19.516796	8.689612	2.245992	0.0256**
TO	-5.063451	2.977765	-1.70042	0.0903*
DV	232.232851	450.786753	0.515172	0.6069
C	-7506.117684	3296.561452	-2.276954	0.0236

\* Significant at 10%    \*\*Significant at 5%    \*\*\*Significant at 1%

significant relationship on the flow of FDI in India implying only wide fluctuations in inflation rate alone will prevent the flow of foreign capital to India. This finding agrees with the argument that a certain level of inflation, particularly a single digit is desirable to stimulate foreign investments in an economy (Anitha 2012)<sup>176</sup>.

This test also reveals the positive and significant impact of exchange rate on FDI flows in India justifying foreign investors' concern of exchange rate stability as it affects the value of their investment as well as the remittance of its profits. The positive relationship between real inward FDI and exchange rate in Nigeria and some East Asian Countries have already been revealed in Osinubi

<sup>176</sup>Anitha, R. (2012). Foreign Direct Investment and Economic Growth in India. *IRJC International Journal of Marketing, Financial Services & Management Research*, 1(8), 108-124.

and Amaghionyeodiwe (2009)<sup>177</sup> and Dhakal et al. (2010)<sup>178</sup> respectively.

But as per the test trade openness has a significant negative influence on the flow of FDI in India during the entire period mainly because of the dominance of import over export. This finding agrees with the finding of Koojaroenprasit (2013)<sup>179</sup> about the negative relationship between trade openness and FDI flows in India. Similarly it is also found that Financial Crisis (selected only as a dummy variable to demarcate pre and post financial crisis period) showed no significant impact on FDI flows in India.

#### 4.3.4 Short Run Coefficient and Error Correction Term

As per the Error Correction Model (ECM) which provides a framework for establishing links between the short-run and long-run approaches to econometric modelling, it is found that all variables except financial crisis are statistically significant in influencing the FDI inflow in India. The coefficient of the Error Correction Term (ECT) is highly significant with expected sign, which confirms the result of Bound Test for Co-Integration. It is the speed of adjustment towards equilibrium. The equilibrium correlation coefficient is estimated -0.54 and is highly significant at one percent.

If the Error Correction Term is negative in sign and significant, it is possible to say that there is a long run causality running from macroeconomic variables to FDI in India. In other words nearly 54 percent of any disequilibrium between these variables is found corrected within one period (one month). The system is getting adjusted towards long run equilibrium at the speed of 54 percent.

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<sup>177</sup>Osinubi, T.S., and Amaghionyeodiwe, L.A. (2009). Foreign Direct Investment and Exchange Rate Volatility in Nigeria. *International Journal of Applied Econometrics and Quantitative Studies*, 9(2), 83-116.

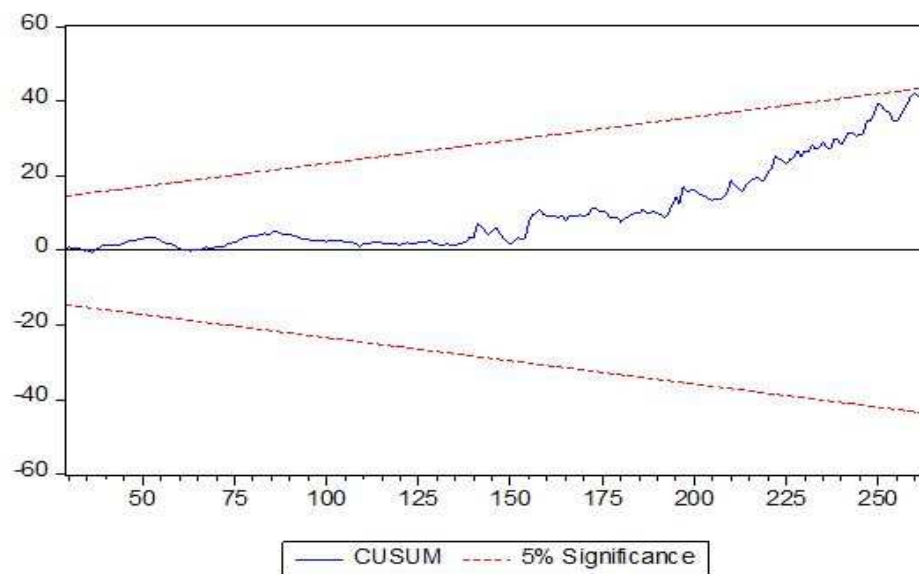
<sup>178</sup>Dhakal, D., Nag, R., Pradhan, G., and Upadhyaya, K.P. (2010). Exchange Rate Volatility and Foreign Direct Investment: Evidence from East Asian Countries. *International Business & Economics Research Journal (IBER)*, 9(7), 121-128.

<sup>179</sup>Koojaroenprasit, S. (2013). Determinants of Foreign Direct Investment in India. *Australian Journal of Business and Management Research*, 3(08), 20-30.



### 4.3.5 Diagnostic Test or Stability Test

The CUSUM Test (Brown, Durbin, and Evans, 1975)<sup>180</sup> used for testing the stability of the parameters on the basis of the cumulative sum of the recursive residuals, is used to examine whether the coefficient of regression are changing systematically or not. If the blue line lies between or within red lines, the null hypothesis is accepted i.e., parameters are stable. Accordingly as Figure 4.2 shows the image of the model is stable.



**Figure 4.2:** Cumulative Sum of Recursive Residuals of FDI and its Determinants

In short as per the test result Inflation (WPI), Exchange Rate (NEER) volatility and Economic Growth (IIP) have significant positive influence on the flow of FDI in India whereas Trade Openness (TO) has significant negative impact on it.

<sup>180</sup>Brown, R., Durbin, J., and Evans, J. (1975). Techniques for Testing the Constancy of Regression Relationships over Time. *Journal of the Royal Statistical Society, Series B (Methodological)*, 37, 149-192.

## 4.4 Determinants of Foreign Portfolio Investment (FPI) in India

The same test is repeated to find out the determinants of foreign portfolio investment flows in India also. Accordingly the relationship between the macroeconomic variables and FPI in India is projected as seen in Table 4.9.

**Table 4.9:** Expected Relationship between Macroeconomic Variables and FPI in India

Variables	Description	Expected Relationship
NEER	Exchange Rate	Positively or Negatively related
WPI	Wholesale Price Index	Positively or Negatively related
IIP	Index of Industrial Production	Positively related
MR	Market Return	Positively related

### 4.4.1 Empirical Model

The model of determinants of FPI inflows into India is formulated with five independent variables i.e., Economic Growth (IIP), Inflation (WPI), Exchange Rate (NEER), Domestic Stock Market Return (MR) and Financial Crisis of 2007-2008 is selected as Dummy Variable (DV). The period before the crisis has been coded as 1 and the period after the crisis has been coded as 0. Assuming these macroeconomic variables as the pull factors of net FPI inflows in the country the following linear equation model is developed:

$$FPI = f(\text{NEER}, \text{WPI}, \text{IIP}, \text{MR}, \text{DV}, \epsilon)$$

#### Econometric Model

$$FPI = \alpha + \beta_1 \text{NEER} + \beta_2 \text{WPI} + \beta_3 \text{IIP} + \beta_4 \text{MR} + \beta_5 \text{DV} + \epsilon \quad (4.3)$$

## 4.4.2 Empirical Results

Following are the empirical findings of the Descriptive Statistics, Stationary Test and ARDL Bound Test conducted to find out the determinants of FPI in India.

**Table 4.10:** Descriptive Statistics: Determinants of FPI in India

Variables	Mean	Median	Maximum	Minimum	Std. Devi	Skewness	Kurtosis	J B Coefficient	P - Value
FPI	846.53	271	28704	-19811	3242	1.67	29.42	7772	0.001
MR	0.99	158	12.59	-24.34	6.09	-0.2	4.28	19.84	0.001
NEER	47.68	45.8	68.24	31.3	8.85	0.73	2.97	23.47	0.001
WPI	111.6	105.7	185.9	62.44	39.7	0.39	1.75	23.77	0.001
IIP	120.15	114.3	198.7	53.63	45.19	0.09	1.43	27.19	0.001

*Source: Compiled by the Researcher*

Descriptive properties of the variables selected for the test over the period 1995 to 2018 are presented in Table 4.10. Average values of the variables (Mean), Median, Maximum and Minimum Values, Measures of spread of variables or Standard Deviation, Kurtosis and Skewness are calculated for measuring the Descriptive Statistics of the Data. The result of Jarque-bera Statistic, shows that the data series are not normal.

**Table 4.11:** Augmented Dickey-Fuller Unit Root Test for Determinants of FPI in India

Variables	Level						I Difference						Result Stationarity
	Intercept		Intercept & Trend		None		Intercept		Intercept & Trend		None		
	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	
FPI	-7.17183	0.001	-7.38465	0.001	-6.4523	0.001	-12.0738	0.001	-12.0526	0.001	-12.098	0.001	I(0)
EX	-0.70076	0.8434	-1.68994	0.7532	1.81	0.983	-12.0877	0.001	-12.0675	0.001	-11.85	0.001	I(1)
WPI	0.580273	0.989	-1.96399	-1.96399	4.38	1	-9.44694	0.001	-9.49743	0.001	-8.02	0.001	I(1)
MR	-12.8223	0.001	-12.8011	0.001	-12.5666	0.001	-12.3497	0.001	-12.324	0.001	-12.3742	0.001	I(0)
IIP	-0.40066	0.9057	-1.71344	0.7427	2.228	0.994	-3.95486	0.002	-3.94554	0.0117	-2.83	0.004	I(1)

*Source: Compiled by the Researcher*

The results of Augmented Dickey Fuller Unit Root Test for selected determinants of FPI investment are presented in Table 4.11. It is clear that none of the variables have integrated order value higher than or equal to I(2). Foreign Portfolio Investment (FPI) and Stock Market Return(MR) are integrated of order I(0) and these are stationary at level. Inflation (WPI), Exchange Rate (NEER) and Economic Growth (IIP) are integrated of order I(1) i.e., non-stationary

at levels but stationary at first difference. Thus, all the series considered for estimating the model, are found not integrated of the same order. Since as per Engle and Granger (1987)<sup>181</sup> method for determining long-run and short-run impact fails to find out the determinants of FPI, the series considered for the study are not integrated of the same order. Therefore ARDL model is selected.

## 4.5 ARDL Model

As per the Auto Regressive Distributed Lag (ARDL) Model, is applied to examine the short run and long run coefficients of the model simultaneously, where the dependent variable as lagged values and independent variables as current and lagged values they are accounted in the model as additional regressors as shown in Table 4.12.

**Table 4.12:** ARDL Model for FPI and its Determinants in India

Variables	Coefficient	Std. Error	t-Statistic	Prob.*
FPI(-1)	-0.03453	0.057095	-0.604778	0.5459
FPI(-2)	-0.077625	0.058817	-1.319762	0.1881
FPI(-3)	0.204333	0.058594	3.487292	0.0006
NEER	338.8555	114.4891	2.959718	0.0034
NEER(-1)	-293.3226	112.6637	-2.603523	0.0098
WPI	-0.518854	27.72912	-0.018712	0.9851
IIP	27.51807	16.23843	1.694627	0.0914
MR	154.3801	31.60917	4.884029	0.001
DV	-4874.434	3064.609	-1.590557	0.113
DV(-1)	4923.367	3043.625	1.617599	0.107
C	-6971.616	5918.526	-1.177931	0.2399
<b>R-squared</b>	0.229198	<b>Mean dependent var</b>	853.6648	
<b>Adjusted R-squared</b>	0.198242	<b>S.D. dependent var</b>	3260.558	
<b>S.E. of regression</b>	2919.535	<b>Akaike info criterion</b>	18.83762	
<b>Sum squared resid</b>	2.12E+09	<b>Schwarz criterion</b>	18.98827	
<b>Log likelihood</b>	-2437.891	<b>Hannan-Quinn criter.</b>	18.89818	
<b>F-statistic</b>	7.404004	<b>Durbin-Watson stat</b>	2.027282	
<b>Prob(F-statistic)</b>	0.001			

Source: Compiled by the Researcher

<sup>181</sup>Engle, R.F., and Granger, C.W.J (1987). Co-integration and Error Correction: Representation, Estimation and Testing. *Econometrica*, 55, 251-276.

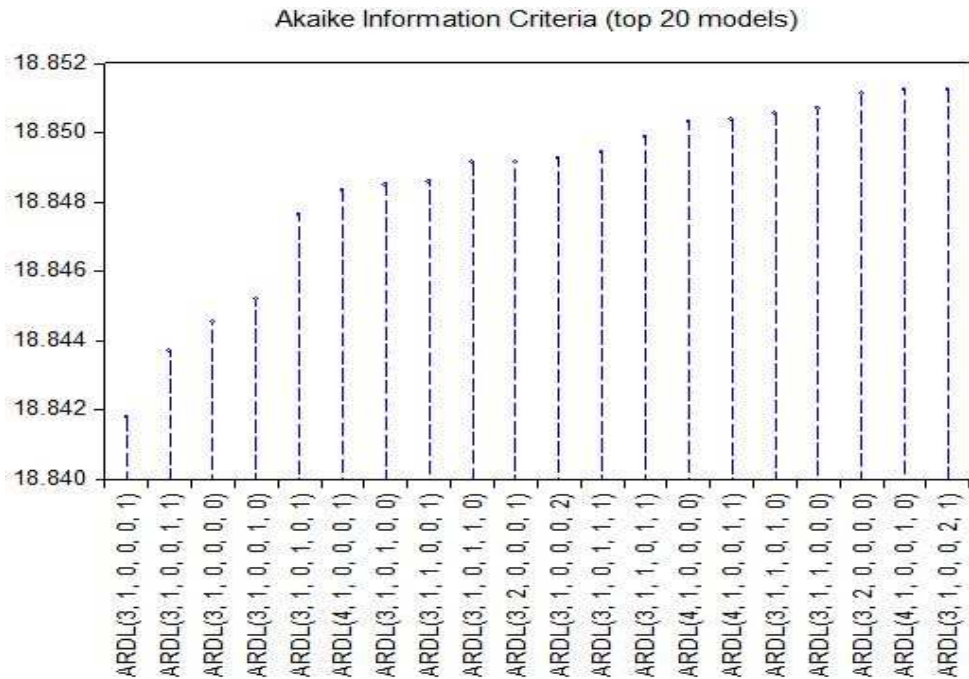
According a linear equation model is developed in the following way:

$$\begin{aligned}
 FPI = & \alpha + \beta_1 FPI_{t-1} + \beta_2 FPI_{t-2} + \beta_3 FPI_{t-3} + \beta_4 NEER + \beta_5 NEER_{t-1} \\
 & + \beta_6 WPI + \beta_7 IIP + \beta_8 MR + \beta_9 DV + \beta_{10} DV_{t-1} + \epsilon
 \end{aligned}
 \tag{4.4}$$

Where  $t-1$  is variables' lagged value by one period,  $t-2$  is variables' lagged value by two periods,  $t-3$  is variables' lagged value by three periods and  $\epsilon$  is an error term. The lag length is determined automatically by Akaike Information Criterion (AIC).

### 4.5.1 Optimum Lag Length Criteria

Optimum Lag Length Criteria is used to determine the optimum lag length of the model. The Figure 4.3 depicts 20 best models with lowest AIC values.



**Figure 4.3:** Akaike Information Criterion for Determinants of FPI

Among them the better model is selected on the basis of AIC Criterion Selection. The model with the lower AIC score indicates a better model. The lowest AIC value shows that the optimum lag length is ARDL (3, 1, 0, 0, 0, 1).

**Table 4.13:** Breusch-Godfrey Serial Correlation LM Test for FPI and its Determinants in India

<b>F-statistic</b>	0.228859	<b>Prob. F(2,247)</b>	0.7956
<b>Obs*R-squared</b>	0.480917	<b>Prob. Chi-Square(2)</b>	0.7863

*Source: Compiled by the Researcher*

The Breusch-Godfrey (BG) LM Test is used for testing Serial Correlation and its result is given in Table 4.13. Since F-statistic P value is greater than 0.05, it indicates that there is no autocorrelation problem i.e., no problem of Serial Correlation.

**Table 4.14:** Ramsey RESET Test for FPI and its Determinants in India

	<b>Value</b>	<b>df</b>	<b>Probability</b>
<b>t-statistic</b>	0.601117	248	0.5483
<b>F-statistic</b>	0.361342	(1, 248)	0.5483
<b>F-test summary:</b>			
	<b>Sum of Sq.</b>	<b>df</b>	<b>Mean Squares</b>
<b>Test SSR</b>	3087886.	1	3087886.
<b>Restricted SSR</b>	2.12E+09	249	8523682.
<b>Unrestricted SSR</b>	2.12E+09	248	8545601.

*Source: Compiled by the Researcher*

It can be seen from Table 4.14 that the estimated probability value is 0.5483 which is greater than 0.05. This suggests that the model is well specified and without significant omitted variables.

## 4.5.2 ARDL Bound Test Approach for Co-integration

The ARDL bound test approach is used to investigate the long-run relationship or co-integration of Foreign Portfolio Investment (FPI) and its macroeconomic determinants in India. The result of the Bound Test are described in Table 4.15. The computed F-statistic value is 11.87 which is more than the upper bound critical value of 3.79 at 5 percent significant level. It indicates a long term relationship between variables of this model. That is there exist a long-run co-integration or relationship among foreign portfolio investment inflows into India and its determinants consisting of Economic Growth (IIP), Inflation (WPI)

and Exchange Rate (NEER), Domestic Stock Market Return (MR) and the Financial Crisis of 2007-2008, the Dummy Variable. Therefore it is concluded that there is a long run relationship or co-integration between FPI and its determinants in India.

**Table 4.15:** ARDL Bound Test for Normalizing FPI and its Determinants

Test Statistic	Value		k	
F-statistic	11.87596		5	
<b>Critical Value Bounds:</b>				
Significance	I(0) Bound		I(1) Bound	
10%	2.26		3.35	
5%	2.62		3.79	
2.50%	2.96		4.18	
1%	3.41		4.68	
Null Hypothesis: No long-run relationships exist				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FPI(-1))	-0.133045	0.086536	-1.537451	0.1255
D(FPI(-2))	-0.219436	0.06084	-3.606751	0.0004
D(NEER)	495.9291	114.8309	4.318778	0.001
D(DV)	-4080.38	3273.706	-1.24641	0.2138
C	-6003.212	6210.441	-0.966632	0.3347
NEER(-1)	39.6701	40.32413	0.983781	0.3262
WPI(-1)	9.930253	29.38846	0.337896	0.7357
IIP(-1)	14.97749	17.47191	0.857233	0.3921
MR(-1)	70.31051	33.48421	2.099811	0.0368
DV(-1)	115.9095	892.0452	0.129937	0.8967
FPI(-1)	-0.925765	0.111843	-8.27735	0.001
<b>R-squared</b>	0.568987	<b>Mean dependent var</b>		8.559423
<b>Adjusted R-squared</b>	0.551677	<b>S.D. dependent var</b>		4546.003
<b>S.E. of regression</b>	3043.862	<b>Akaike info criterion</b>		18.92103
<b>Sum squared resid</b>	2.31E+09	<b>Schwarz criterion</b>		19.07167
<b>Log likelihood</b>	-2448.734	<b>Hannan-Quinn criter.</b>		18.98159
<b>F-statistic</b>	32.8709	<b>Durbin-Watson stat</b>		1.983075
<b>Prob(F-statistic)</b>	0.001			
<b>Dependant Variable: D(FPI)</b>				

Source: Compiled by the Researcher

**Table 4.16:** Estimated Co-integrating Form and Long-run Coefficients Using ARDL Approach for FPI and its Determinants

<b>Cointegrating Form</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
D(FPI(-1))	-0.126708	0.083999	-1.50844	0.1327
D(FPI(-2))	-0.204333	0.058594	-3.487292	0.0006
D(NEER)	338.855526	114.489139	2.959718	0.0034
D(WPI)	-0.518854	27.72912	-0.018712	0.9851
D(IIP)	27.518072	16.238428	1.694627	0.0914
D(MR)	154.380093	31.60917	4.884029	0.001
D(DV)	-4874.434415	3064.608575	-1.590557	0.113
CointEq(-1)	-0.907822	0.104413	-8.694559	0.001***
<b>Cointeq = FPI - (50.1563*NEER -0.5715*WPI + 30.3122 *IIP + 170.0555*MR + 53.9011*DV -7679.4970 )</b>				
<b>Long Run Coefficients</b>				
<b>Variable</b>	<b>Coefficient</b>	<b>Std. Error</b>	<b>t-Statistic</b>	<b>Prob.</b>
NEER	50.156272	41.293172	1.214638	0.2257
WPI	-0.571537	30.552889	-0.018706	0.9851
IIP	30.312191	17.602931	1.721997	0.0863*
MR	170.055474	39.241669	4.333543	0.001***
DV	53.901074	936.818902	0.057536	0.9542
C	-7679.496979	6359.005336	-1.207657	0.2283

\* Significant at 10%      \*\*\*Significant at 1%

### 4.5.3 Long Run Coefficients - ARDL Approach

Finally the ARDL Test is conducted to find out major determinants of foreign portfolio investment flows in India and its results are illustrated in Table 4.16. It can be seen that two explanatory variables, the Domestic Stock Market Return (MR) and Index of Industrial Production (IIP) have positive and statistically significant role in determining FPI in India. This result agrees with the earlier findings of Parsuna (2000)<sup>182</sup>, Kumar (2001)<sup>183</sup> and Chakrabarti (2001)<sup>184</sup>.

<sup>182</sup>Prasuna, C.A. (2000). Determinants of Foreign Institutional Investment in India. *Finance India*, 4(2), 411-422.

<sup>183</sup>Kumar, S. (2001). Does the Indian Stock Market Play to the Tune of FII Investments? An Empirical Investigation. *ICFAI Journal of Applied Finance*, 17, 441-449.

<sup>184</sup>Chakrabarti, R. (2001). FII Flows to India: Nature and Causes. *Money and Finance ICRA Bulletin*, 2(7), 61-81.



However, the role of the remaining variables are found statistically insignificant i.e., Foreign portfolio investment flows to India is not affected by other macroeconomic variables such as the Inflation (WPI), Exchange Rate (NEER) and Financial Crisis, the Dummy Variable (DV).

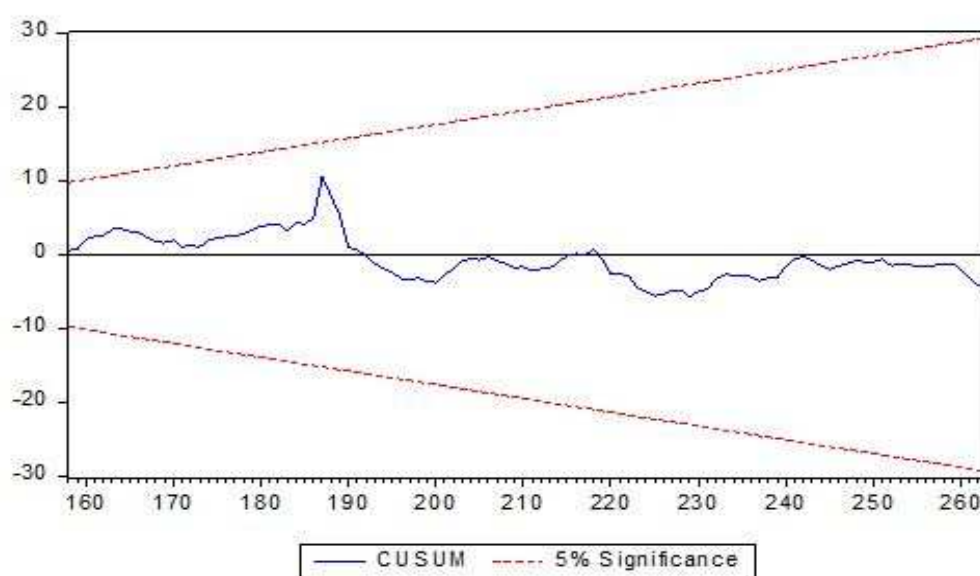
#### **4.5.4 Short Run Coefficient and Error Correction Term**

The Table 4.16 interprets the short-run coefficient and Error Correction Term (ECT) of the macroeconomic variables or determinants on foreign portfolio investment. It is found that the short run coefficient of three macroeconomic variables i.e., Domestic Stock Market Return (MR), Index of Industrial Production (IIP) and Exchange Rate (NEER) are statistically significant while other two variables i.e., Inflation (WPI) and Financial Crisis selected as Dummy Variable (DV) are found statistically insignificant in the short run.

The coefficient of Error Correction Term (ECT) is negative (-0.90) and it is highly significant at 1 percent level (Prob. 0.001) indicates speed of adjustment of any disequilibrium towards long run equilibrium state. In other words the Error Correction Term guides the variables of the model to regenerate back to equilibrium from a previous period's disequilibrium. Thus, there is a long run causality running from macroeconomic variables to foreign portfolio investment in India. The coefficient of the Error Correction Term (ECT) is highly significant with expected sign, which confirms the result of Bound Test for Co-Integration. The bigger the Error Correction Coefficient the faster will be the return to balance. The equilibrium correlation coefficient is estimated -0.90 and is highly significant at one percent. It too indicates the speed of adjustment towards long run equilibrium. In other words nearly 90 percent of any disequilibrium between these variables is corrected within one period (one month). The system is getting adjusted towards long run equilibrium at the speed of 90 percent.

### 4.5.5 Diagnostic Test or Stability Test

The CUSUM test is also conducted to find out whether the coefficient of regression is changing systematically or not on the basis of the null hypothesis that parameters are stable or desirable. As in the case of the test conducted previously in connection with the determinants of FDI, if the blue line lies between or within red lines, the null hypothesis is accepted and it indicates that the parameters are stable. The Figure 4.4 indicates that the model used in



**Figure 4.4:** Cumulative Sum of Recursive Residuals of FPI and its Determinants

this study is stable i.e., parameters are desirable. It also shows the long run stability of the model. Therefore it is concluded that CUSUM statistic lies between the critical bounds at the 5% level of significance confirming the long run relationship among variables and stability of the coefficient.

The analysis made in this chapter to find out the determining factors of foreign investment in India (FDI and FPI) and the results of the various empirical analysis conducted for the purpose are summarized in Table 4.17 and Table 4.18.

It is seen that Exchange Rate (NEER), Inflation (WPI), and Economic Growth (IIP) are positively related to FDI in India. It shows that they served as the determining factors of FDI in India. However, the generally believed factor

**Table 4.17:** Determinants of FDI in India

Dependent Variable	Independent Variables	Relation
FDI	NEER	Positive
	WPI	Positive
	IIP	Positive
	TO	Negative
	DV	Insignificant

Trade Openness (TO) shows negative relation with FDI. Similarly the financial crisis presented as a dummy variable in the model shows only insignificant relation with FDI.

**Table 4.18:** Determinants of FPI in India

Dependent Variable	Independent Variables	Relation
FPI	NEER	Insignificant
	WPI	Insignificant
	IIP	Positive
	MR	Positive
	DV	Insignificant

In the case of FPI also almost similar trend is seen. Since Economic Growth (IIP) and Market Return (MR) show positive relation with FPI in India it is possible to conclude that they are the main determining factors of FPI in India. But Exchange Rate (NEER) and Inflation (WPI) have only insignificant relation with FPI implying that they have only insignificant role in attracting FPI in India. As in the case of FDI financial crisis, the dummy variable, shows only insignificant relation with FPI.

If these finding are applied to foreign investment in India as a whole it can be seen that Economic Growth (IIP) of the Indian economy is the only factor - the common factor - which attracted both FDI and FPI. Similarly the financial crisis play only insignificant impact on foreign investment in India.

The preliminary analyses made so far reveal that foreign investment has

become a significant reality in the Indian soil. The next chapter examines how this foreign investment impacts the macroeconomic variables of Indian economy.