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Foreign Direct Investment and Financial Development in India

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Abstract: *The literature on international financial economics on the basis of the endogenous growth theory, suggests the influence of the financial sector development on the foreign direct investment inflows in developing countries. Thus, this paper hypothesizes that the development of the financial system of the recipient country, India, is an important precondition for foreign direct investment. In this connection, this paper examined the dynamics of the relationship between foreign direct investment and financial development in India over the sample period from 1980 to 2017 using the Toda-Yamamoto non-causality approach. The results indicate the importance of the financial sector development, particularly the development of banking as well as capital markets, in attracting foreign direct investment inflows in the country. This finding suggests that continued financial sector reforms in the light of the implementation of the international best practices in India would provide an even better economic milieu for foreign direct investment and hence, for domestic capital.*

Keywords: *Foreign Direct Investment, Financial Development, India, Causality Test*

1. INTRODUCTION

In an emerging market economy like India, the scarcity of ample investment resources obstructs the activities that contribute to sustainable growth and development of the country. Since the last few decades, it has been the consensus in the development literature that foreign capital plays an important role in providing the required investment resources in developing economies. The time for confronting with international capital flows has been expired and most discussions are mainly focused on the fact that which type of investment is useful for the economy and how we best can attract foreign capital. And, it has also been observed that a growing number of developing countries have been succeeded in attracting sizeable amounts of foreign capital. Although international capital flows from industrialized countries to the developing world have increased dramatically since the 1980s, these have particularly become prominent after the advent of globalization that has led to widespread implementation of liberalization programme and financial reforms in various countries across the globe in 1990s.

India overtime realizing such importance of foreign capital, has relaxed its controls over the international capital flows especially since the early

1990s. Until reforms began in the late 1980s, the international capital flows were restricted by administrative controls. But after the balance of payments difficulties in 1991, India began a gradual removal of restrictions on inward capital flows and permitted currency convertibility for current account transactions. In subsequent phases the restrictions on foreign direct investment, portfolio borrowings, and foreign equity ownership have been relaxed. Restrictions on the share of foreign enterprise for most sectors have been removed, and the upper bounds for automatic approval of direct and portfolio investments have been progressively raised. As a consequence, the 1990s saw a radical transformation in the nature of capital flows into India. From a mere absence of any private capital inflows till 1992, today such inflows represent a dominant proportion of total inflows. The official capital inflows known as external assistance comprising grants and loans from bilateral and multilateral sources represented 75-80 per cent of total inflows till 1991. By 1994, this has come down to about 20 per cent and has further fallen to below 5 per cent by late 1990s (Chakrabarti, 2001). This made India one of the fastest growing large emerging market economies in the world.

According to the World Bank, FDI refers to the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise, operating in an economy other than that of the investor and can be further developed as the sum of equity capital, reinvestment of earnings, other long term capital, and short-term capital as shown in the balance of payments in that economy. It is generally seen as a composite bundle of capital stock and technology, and can augment the existing stock of knowledge in the host, economy through labour training, skill acquisition and diffusion, and the introduction of new managerial practices and organizational arrangements (De Mello, 1999).

For developing countries like India, foreign direct investment is beneficial in many ways. The most important benefit is that FDI could create more employment. In addition, technology transfer is another benefit for host countries. Furthermore, foreign direct investment supplements domestic investible resources in a developing economy like India, enabling a higher rate of growth. As a source of foreign exchange, it settles down the potential balance of payments constraints on growth. Profit remittances on account of foreign equity are related to the performance of investment projects, unlike the inflexible repayment obligations of foreign debt: this risk-sharing feature makes foreign equity preferable to foreign debt. By and large, there is a direct relationship between inward foreign direct investments in relation to their size and economic development of a country (Srinivasn *et al*. 2010). Besides the significance of foreign direct investment

in the economic growth of a developing country, it is equally vital for the financial development of the nation (Desbordes & Wei, 2014).

It is with this backdrop, this paper is an attempt to investigate the dynamics of the relationship between foreign direct investment and financial development in the context of an emerging market economy like India. The rest of the paper is organised as follows: Section 2 reviews the extant literature and established the research problem; Section 3 describes the data and methodology used in the study; Section 4 makes the analysis and discusses the results; and Section 5 concludes.

2. LITERATURE REVIEW

Although the scholarly literature on FDI-growth nexus is fairly well established, the literature focusing specifically on the relationship between financial development and foreign direct investment is less robust. FDI has a direct impact on economic growth through capital accumulation, and the incorporation of new inputs and foreign technologies in the production function of the host country (Almfraji & Almsafir, 2014). It also has positive effects on economic growth through its interaction with human capital (Borensztein *et al*. 1998; Bengoa & Sanchez-Robles, 2003; Li & Liu, 2005; Vu *et al*. 2008; Solomon, 2011). Another factor through which FDI has positive effects on the economic growth of a country is the financial market development (Bengoa & Sanchez-Robles, 2003; Alfaro *et al*. 2004; Durham, 2004).

La Porta *et al*. (2000) and Glaeser *et al*. (2004) argued that the development of financial markets needs some outside stimulus from judiciary authorities, government agencies, or from other market participants. Rajan & Zingales (2003) also emphasized that the only force that can ultimately make the financial elites adopt more market-friendly policies is the inflow of foreign goods and capital. Morck *et al*. (2005) indicated that foreign direct investment is correlated with financial development, social and political modernization, and reduce barriers in the entry of new domestic entrepreneurs. Jalayi (2010) pointed out that the development of financial markets gives rise to enhancement and stability of FDI's effect on economic growth. Hermes & Lensink (2003) argued that the development of the financial system of the recipient country is an important precondition for FDI to have a positive impact on economic growth because a more developed financial system positively contributes to the process of technological diffusion associated with FDI. Sghaier & Abida (2013) also provides evidence that the development of the domestic financial system is an important prerequisite for FDI to have a positive effect on economic growth. Chee & Nair (2010) provided empirical evidence

that financial sector development enhances the contribution of FDI on economic growth in Asian and Oceania countries. The results of Desbordes & Wei (2014) indicate that a sophisticated and well-functioning financial system in source and destination countries greatly facilitates the international expansion of firms through foreign FDI, especially in financially vulnerable sectors. The findings of Nor *et al*. (2015) indicate that a higher financial development reflected by higher level of financial freedom is more able to benefit from the growth effects of FDI. Dutta & Roy (2011) argued that financial development is a determinant of the extent of foreign direct investment inflow into an economy depending on the political situation of the recipient nation.

Korgaonkar (2012) suggests that FDI is not directed into countries that are financially weak, and is dependent on both the stock market variables and the banking sector variables. Al Nasser & Gomez (2009) found evidence in favour of the significant positive correlation between FDI and the development of the stock market and banking system. However, the findings of Zakaria (2007) provide no support for the hypothesis that the inflows of FDI can contribute to the development of the domestic banking sector in developing countries, but provide the strong support for the hypothesis that FDI can affect the development of the domestic stock markets in the developing countries. Fatemi (2009) concluded that one of the ways for developing the capital market is to use the ability of foreign investment in the portfolio.

Regarding the long-run equilibrium relationship (cointegration) between financial development and foreign direct investment, the empirical findings are mixed. Hanif & Shariff (2014) found the long-run equilibrium relationship between FDI and financial development for ASEAN-5 countries. But Bayar (2016), Nasir *et al.* (2017) and Bayar & Gavriletea (2018) found no cointegrating relationship between foreign capital inflows and financial sector development.

Regarding the direction of the causality between financial development and foreign direct investment, the empirical findings are also mixed. Bayar & Gavriletea (2018) found unidirectional causality from the development of financial sectors to FDI inflows in Central and eastern European Union countries. Fauzel (2016) found a bi-directional causal relationship between FDI and financial development for small island economies. Gebrehiwot *et al*. (2016) found the bidirectional causality between different indicators representing financial development and FDI inflows for eight sub-Saharan African countries. The results of Sahin & Ege (2015) revealed that the unidirectional causality running from FDI inflows to financial development in Bulgaria and Greece, and bidirectional causality in Turkey. Bayar &

Ozturk (2016) found unidirectional causality running from financial development to foreign direct investment inflows for Turkey. Abzari *et al*. (2011) investigated the link between foreign direct investment and financial development for D-8 group countries and found that financial development causes an inflow of foreign direct investment in few countries, but not the other way around. Kaur *et al.* (2013) found a positive effect of the size of banking sector and stock market capitalization on the FDI inflows. Shah (2016) found financial development of MENA countries as the robust predictor of FDI inflows. However, Carkovic & Levine (2005) and Nasir *et al.* (2017) found that financial sector development is not important in influencing FDI to contribute to economic growth.

In summary, the studies reviewed have insofar been inconclusive on whether the complementary effect of FDI and financial sector development is important in facilitating economic growth. This motivated us to take up the issue further. Second, we found no such studies conducted specifically for the emerging market economy like India. Therefore, this paper attempts to examine the relationship between foreign direct investment and financial development for India.

3. DATA AND METHODOLOGY

This paper investigates the dynamics of the relationship between foreign direct investment and financial development in the context of India's developing economy over the period 1980 to 2017. This period is significant from the point of view of the implementation of liberalization policies in India since the 1980s and increasing emphasis on foreign capital flows since that time. The study measures the financial development in terms of Liquidity Liability (LL), Bank Credit (BC) and Stock Market Index (SMI). Liquidity Liability is the ratio of M_2 as a percentage of GDP. M_2 is the broad money which is the sum of currency outside banks, demand deposits other than those of the central government, the time, savings, and foreign currency deposits of resident sectors other than the central government, bank and traveller's checks, and other securities such as certificates of deposit and commercial paper. Second, Bank Credit is the ratio of domestic credit to the private sector by banks as a percentage of GDP. Domestic credit to the private sector by banks refers to financial resources provided to the private sector by other depository corporations (deposit-taking corporations except for central banks), such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises. Third, the Share Price Index is the barometer of the development of the capital market of a country. It is the annual

average of general share price index calculated by assuming 2010 as the base year. On the other hand, we have taken net inflows of Foreign Direct Investment (FDI) as a percentage of GDP. Foreign direct investment is the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors, and is divided by GDP. The time series data on M_2, Bank Credit and FDI are collected from the World Development Indicator database of World Bank. And, the annual share price index series is collected from the OECD database on Monetary and Financial Statistics.

As an essential step in the time series analysis, we first examined the stationary properties of each time series under consideration by applying the Augmented Dickey-Fuller (ADF) Unit Roots test. It would be clarified that FDI is I(0), LL and SPI are I(1), and BC is I(2). Therefore, the multivariate causality analysis has been examined employing the Granger causality test procedure as proposed by Toda & Yamamoto (1995). This method is relatively more efficient in small sample data sizes and is particularly appropriate for time series for which the order of integration is not known, or may not be necessarily the same, or the order of integration is more than two. Another advantage of this procedure is that it does not require the pre-testing of the time series for cointegration properties so long as the order of integration of the process does not exceed the true lag length of the model. Toda & Yamamoto (1995) methodology of Granger causality test by directly performing the test on the coefficients of the levels VAR, minimises the risk associated with possibly wrongly identifying the orders of integration of the series and the presence of cointegration relationship (Galies, 1997; Mavrotas & Kelly, 2001).

The basic idea in the Toda & Yamamoto (1995) procedure is artificially augmenting the correct VAR order, k with d extra lags, where is the maximum likely order of integration of the time series in the empirical system. Thus, at the outset, it is required to determine the maximum order of integration of time series, say, $d_{\max}$. Then the optimal lag length of the VAR model is determined using Akaike Information Criteria (AIC), say, k. In the third step, the $(p = k + d_{\max})^{\text{th}}$ order of VAR is estimated with Seemingly Unrelated Regression (SUR). At last, the null hypothesis of no-causality is tested using a standard Wald statistic, say, W. The implementation of the Toda & Yamamoto (1995) non-causality approach necessitates linking the four variables of the study in a multivariate system which can be stated as:

$$Y_t = A_0 + A_1 Y_{t-1} + ... + A_k Y_{t-k} + \varepsilon_t \quad (1)$$

where $Y_t = \begin{bmatrix} Y_{1t} \\ Y_{2t} \\ Y_{3t} \\ Y_{4t} \end{bmatrix} = \begin{bmatrix} LL_t \\ BC_t \\ SPI_t \\ FDI_t \end{bmatrix}$ and $\varepsilon_t \sim i.i.d\ N(0, \mu)$; and A's are 3x3 matrices of coefficients. The augmented level *VAR* ($p = k + d$) is estimated to test the null hypothesis of no-causality and this VAR is specified as:

$$Y_t = \alpha + A_1 Y_{t-1} + ... + A_k Y_{t-k} + A_{k+1} Y_{t-k-1} + ... + A_p Y_{t-p} + \varepsilon_t \quad (2)$$

This augmented VAR system is estimated using SUR technique of regression. And, the null hypotheses are, say, H_{01} and H_{02} and these are tested by Wald test. Its process is elaborated below.

H_{01}: does not cause, i.e., $a_{13}^1 = a_{13}^2 = ... = a_{13}^p = 0$

H_{02}: does not cause, i.e., $a_{31}^1 = a_{31}^2 = ... = a_{31}^p = 0$

Let $e_1 = \begin{bmatrix} 1 \\ 0 \\ 0 \\ 0 \end{bmatrix}$, $e_3 = \begin{bmatrix} 0 \\ 0 \\ 1 \\ 0 \end{bmatrix}$ and $D = I_k \otimes e_3$ with being the $k \times k$ identity matrix. Let $vec(A)$ be the column vector obtained by stacking the rows of the matrix A. Then the Wald Test statistic is given by:

$$W = T\left((e_1' \otimes D')vec(\hat{A})\right)\left((e_1' \otimes D')\hat{\Sigma}(e_1' \otimes D')'\right)^{-1}(e_1' \otimes D')vec(\hat{A}) \quad (3)$$

where $\hat{\sum}$ is a consistent estimator of the asymptotic variance matrix of $\sqrt{T}vec(\hat{A} - A)$. The Wald test statistic (W) has an asymptotic χ^2 distribution with k degrees of freedom. The reason for ignoring the remaining $d_{\max}$ autoregressive parameters in testing for Granger causality is that it helps overcoming the problem of non-standard asymptotic properties associated with standard Wald test for integrated variables. It is established in the empirical literature that the Wald test experiences efficiency improvement when SUR model is used in the estimation (Rambaldi & Doran, 1996).

4. RESULTS AND DISCUSSION

In the first step of the causality analysis, the order of integration for each of the four variables used in the analysis has been determined. The Augmented Dickey-Fuller unit root test has been employed for this purpose. The results of ADF unit root test are reported in Table 1.

Table 1
Results of ADF Unit Root Test (with Trend & Intercept)

Variables	*ADF Stat. at level*	*p-value*	*ADF Stat. at 1st Diff.*	*p-value*	*ADF Stat. at 2nd Diff.*	*p-value*	*Decision*
LL	1.916	0.624	-3.641**	0.041	NA	NA	I(1)
BC	-3.069	0.133	-2.675	0.253	-6.464*	0.000	I(2)
SPI	2.079	1.000	-5.056*	0.0014	NA	NA	I(1)
FDI	-3.531	0.053**	NA	NA	NA	NA	I(0)

Source: Authors' Own Estimation; *, **Significant at 1% and 5% levels

It is evident that the null hypothesis of no unit roots for LL and SPI are rejected at their first differences since the ADF test statistic values are less than the critical values at 5 percent and 1 percent levels of significance respectively. Thus, these two variables are stationary and integrated of order one each, i.e., I(1). But the variable FDI is integrated of order zero, i.e., I(0) as the ADF test statistic at the level form is less than the critical value at 5 percent level of significance. Furthermore, the variable BC is integrated of order two, i.e., I(2) as the ADF test statistic at the second difference form is less than the critical value at 1 percent level of significance. Thus, the results obtained from the ADF test suggest that the maximum order of integration of the series in this study is two, i.e., $d_{max} = 2$. Therefore, the Toda-Yamamoto test involves the addition of two extra lags of each of the variables to control for potential cointegration. Then it is required to select the appropriate lag length for the VAR in order to perform causality test. In this study, the Akaike Information Criterion (AIC) and Final Prediction Error (FPE) techniques have been used to determine the optimal lag length. In small sample study (n<60), AIC and FPE are superior to other information criteria (Lutkepohl, 1991; Liew, 2004). The results of such test are presented in Table 2. The optimal lag length, thus, selected is $k = 1$.

Table 2
Selection of Lag Length

Lag	*FPE*	*AIC*
0	100410.30	22.868
1	49.664*	16.137*

Source: Authors' Own Estimation *indicates lag order selected by the criterion at 5% level

In the next step, the augmented VAR of order 3 ($p = k + d_{max}$) is estimated by SUR and the Wald test is carried out using standard chi-square distribution. And, the results of this Toda & Yamamoto Ganger non-causality test are reported in Table 3. The results show that the null hypotheses that '*FDI does not Granger Cause LL*' and '*LL does not Granger Cause FDI*' could not be rejected at 5 percent level of significance. This means liquidity liability and net inflows of FDI in India do not contain any power to predict each other. Second, the null hypothesis that '*FDI does not Granger Cause BC*' could not be rejected at 5 percent level of significance. This means FDI has no power to predict the changes in bank credit in India. But the null hypothesis that '*BC does not Granger Cause FDI*' is rejected at 1 percent level of significance. It means that the bank credit contains ability to predict the FDI in India. Third, the null hypotheses that '*FDI does not Granger Cause SPI*' and '*SPI does not Granger Cause FDI*' are rejected at 1 percent level of significance. Thus, feedback relationship exists between the stock market development and net inflows of foreign direct investment. Fourth, the null hypothesis that '*BC & SPI do not Granger Cause FDI*' is rejected at 1 percent level of significance. This means that the banking sector expansion and stock market development together can influence the changes in net inflows of foreign direct investment in the country. Fifth, the null hypothesis that '*LL & SPI do not Granger Cause FDI*' is rejected at 1 percent level of significance. This means that the money market and stock market development together can influence the changes in net inflows of foreign direct investment. Sixth, the null hypothesis that '*LL & BC do not Granger Cause FDI*' is rejected at 1 percent level of significance. This means that the money market development and banking sector expansion together can influence the changes in net inflows of foreign direct investment. Finally,

Table 3
Results of Toda & Yamamoto Granger Non-Causality Test

Null Hypotheses of No Granger Causality	*Chi-Square Statistic (d.f)*	*p-value*	*Decision*
FDI does not Granger Cause LL	1.836 (3)	0.607	Failed to Reject
LL does not Granger Cause FDI	2.251 (3)	0.522	Failed to Reject
FDI does not Granger Cause BC	4.908 (3)	0.178	Failed to Reject
BC does not Granger Cause FDI	16.128 (3)*	0.001	Reject
FDI does not Granger Cause SPI	15.235 (3)*	0.002	Reject
SPI does not Granger Cause FDI	54.930 (3)*	0.000	Reject
BC & SPI do not Granger Cause FDI	74.556 (6)*	0.000	Reject
LL & SPI do not Granger Cause FDI	62.308 (6)*	0.000	Reject
LL & BC do not Granger Cause FDI	24.351 (6)*	0.000	Reject
LL, BC & SPI do not Granger Cause FDI	92.855 (8)*	0.000	Reject

Source: Authors' Own Estimation *indicates lag order selected by the criterion at 1% level

the null hypothesis that '*LL, BC* & *SPI do not Granger Cause FDI*' is rejected at 1 percent level of significance. This means that the financial development in the country can influence the changes in net inflows of foreign direct investment.

Overall we may say that the development of the financial sector in India would go a long way in significantly and positively determining the volume of FDI inflows in the country to produce positive growth ripples for sustainable development.

5. CONCLUSION

In the event of the substantial increase in inward foreign direct investments in India the prospects for a positive impact of such investment inflows on the economic growth of the country cannot be ignored. However, whether financial sector development of India is a precondition for higher FDI inflows is an important issue not specifically addressed in the literature. Thus, this paper investigated the dynamics of the relationship between financial sector development and economic growth using the Toda-Yamamoto non-causality approach. The results indicate the importance of the financial sector development, particularly the development of banking as well as capital markets, in attracting inward FDI flows in the country. This finding corroborates to the findings of Bailliu (2000), Hermes & Lensink (2003), Alfaro *et al*. (2004), Durham (2004), Abzari *et al*. (2011), Bayar & Ozturk (2016) and Bayar & Gavriletea (2018) that the development of financial sector can contribute to larger FDI inflows. The results suggest that continued financial sector reforms in the light of the implementation of the international best practices in India would provide an even better economic milieu for foreign direct investment and hence, for domestic capital.

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