

Outward FDI from India: An Examination into the Role of Host Country Factors

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Abstract: Overseas investment from developing Asian countries has gathered considerable attention in recent times. This paper examines the role of host country factors in attracting outward Foreign Direct Investment (OFDI) from India using panel data for fifteen host countries over the period 2000-09. Using a Least Squares Dummy Variable model, the results show that that pull factors like technology, bilateral investment treaties and FDI openness of the host countries are significant determinants of OFDI from India. We also find that Indian OFDI has remained resilient during the economic recession of 2007.

Keywords: India, outward FDI, developing countries, pull factors

1. Introduction

Outward foreign direct investment (OFDI) from developing economies is a new phenomenon that has marked the beginning of the 21st century. A number of developing and emerging economies who have conventionally been the major recipients of FDI flows have now become important sources of FDI flows and Multinational Corporations (MNEs) from these countries are giving fierce competition to those from developed countries. The preference of FDI over other forms of external finance is well established; FDI flows are non-debt creating, less volatile and facilitate transfer of knowledge, skills and technology (Bhasin, 2012). In view of the ever increasing role of FDI, MNEs from countries like India, China, South Korea, and Thailand, also called as *dragon multinationals* (Mathews, 2002) are registering phenomenal growth in international investments. FDI outflows from developing countries have reached a record high. Transnational corporations (TNCs) from developing economies are increasingly acquiring foreign affiliates from developed countries located in their regions. Developing and transition economies together invested \$553 billion, or 39 per cent of global FDI outflows, compared with only 12 per cent at the beginning of the 2000s (*World Investment Report, 2014*).

The increasing economic prowess of developing economies from Asia, South- East Asia can be seen from Table 1, which demonstrates the increasing outward FDI stock of ten select Asian economies at 1990, 2000 and 2013. The TNCs have made a transition from being mere recipients of FDI flows to emerge as significant sources of outward investments. This paper focuses on OFDI from India which has emerged as a significant player in FDI movements amongst the developing economies. Indian companies like Tata Steel, Mahindra and Mahindra, Bharti Airtel and AV Birla Group have marked their presence in the global market and have become important competitors to developed country MNEs. Table 2 shows the growing outward

FDI from India during the period 2000-01 to 2011-12. The decade of 2000 has seen Indian MNCs ushering the international arena in a shorter span of time, giving strong competition to the world incumbents firms. Over the years, Indian OFDI has evolved not only in terms of volume but also direction with respect to host countries as well as the sectoral composition (Jain, 2014). The paper not only acknowledges this arrival of Indian MNCs internationally but also examines the drivers pulling Indian investments overseas.

Table 1. Outward FDI stock of select economies, 1990, 2000, 2013 (Amt. in million US \$)

Country	1990	2000	2013
China	4455	27768	613585
Hong Kong, China	11920	435791	1352353
Taiwan	30356	66655	245882
Indonesia	86	6940	16070
Malaysia	753	15878	133996
Singapore	7808	56755	497880
Thailand	418	3406	58610
India	124	1733	119838
Philippines	405	1032	13191

Source: www.unctad.org

Table 2. India's year-wise position of actual FDI outflows (Amt. in million US \$)

Period	Equity	Loan	Guarantee invoked	Total
2000-01	602.12	70.58	4.97	677.67
2001-02	878.83	120.82	0.42	1000.07
2002-03	1746.28	102.1	0	1848.38
2003-04	1250.01	316.57	0	1566.58
2004-05	1481.97	513.19	0	1995.16
2005-06	6657.82	1195.33	3.34	7856.49
2006-07	12062.92	1246.98	0	13309.9
2007-08	15431.51	3074.97	0	18506.48
2008-09	12477.14	6101.56	0	18578.7
2009-10	9392.98	4296.91	24.18	13714.07
2010-11	9234.58	7556.3	52.49	16843.37
2011-12	4031.45	4830.01	0	8861.46
Total				104758.3

Source: www.rbi.org.in

It may be noted here that OFDI from an economy is driven by both ‘pull’ and ‘push’ factors. The factors situated at the host country are also known as ‘pull’ factors, as they attract investments in domestic territory from overseas markets. These host country factors generally include variables like market variables, natural resources and comparative advantages. The factors originating in the home country that drive investment away from the home country to other host countries are known as ‘push’ factors. The main stream perspective on OFDI was developed by Dunning (1979) outlining, the three important variables namely Ownership, Location and Internalization (OLI) which enable a firm to go for overseas investments. OLI advantages motivate a firm to undergo additional risks and costs as it can be offset by higher returns associated with shifting production facilities abroad. However, the eclectic paradigm originally developed by Dunning primarily describes MNCs from developed countries relocating production operations to a developing or another developed country. However, this phenomenon has been reversed during the last three decades, where MNCs from emerging economies, also known as ‘Late comer’ firms have written their success stories with skyrocketed pace (Narula and Dunning, 2000). MNCs from developing countries riding high on their swift adaptation to new technology, processes and ability to work in political unstable environment have carved out leading positions for themselves in international market. The present paper would examine this surge of overseas investments from a developing nation like India during the post liberalisation period especially after 2000. The Indian firms have invested overseas in developed as well as developing economies primarily driven by strategic assets seeking, resource seeking and market seeking objectives.

The rationale of the study emerges out of the relatively sparse and fragmented literature on the phenomenon of OFDI from India. We attempt to identify the drivers of Indian OFDI from the perspective of host countries over the period 2000 to 2009. Thus, we are able to incorporate the effect of Global Economic Recession (2008) by including a dummy variable for the same. We also enrich the analysis by including explanatory variables that have not been used conventionally such as bilateral investment treaties and regional trade agreements between India and the other host countries.

This paper is divided into five sections. The first section has already laid out the introduction and rationale of the study. The second section comprises the literature review. The third section explains the research methodology employed for the empirical examination of the host country ‘pull’ factors causing OFDI from India. The fourth section presents the results and analysis of empirical testing and conclusions.

2. Review of literature

There is considerable literature focusing on drivers of OFDI or the motives of internationalization of MNEs from developed countries and developing countries (Bhasin et al., forthcoming; Azmeh and Nazvi, 2014; Buckley et al., 2007; Morck et al. 2008; Rasiah et al. 2010; Singal and Jain 2012; Wei, 2010). We first review the existing literature and then bring out the research gap that motivated us to conduct this study.

The earlier literature on OFDI focuses on the developed countries as sources of OFDI. For instance, Coeurdacier et al. (2009) study the determinants of cross-border mergers and acquisitions over the period 1985-2004 in ten manufacturing and ten service sectors among the major economies of the world. Using the gravity modeling approach, the authors study the role of the EU single market, expected profitability, institutions, corporate taxation, product market regulations, financial depth and physical and cultural

proximity. The empirical results suggest that European integration and the improvement of the institutional setting in the target country have positively influenced the world developments of cross-border M&As of the manufacturing sector. The authors assert that institutional changes acted as trigger factors of capital reallocation of manufacturing across the globe. The result explains why cross-border M&As come in waves and implies that they ought to enhance economic efficiency in the home and target country, unless they are driven by an equity bubble, managerial motives or strategic policy considerations which however do not boost profits.

Kyrkilis and Pantelidis (2003) study the outward FDI position of countries by treating it as a function of home country specific characteristics such as income, exchange rate, technology, human capital and openness of the economy. The study identifies the main determinants of outward FDI using time series data for five European Union (EU) member countries and four non EU member countries. The study indicates that real gross national product is the most important determinant of OFDI. Developed countries specialize in human capital intensive FDI, while non EU countries in technology intensive one.

The literature on developing economies includes a number of studies on Asia, with a greater focus on China. Buckley et al. (2007) investigate the determinants of Chinese OFDI and the extent to which three special explanations (capital market imperfections, special ownership advantages and institutional factors) need to be nested within the general theory of the multinational firm. The authors employ dependent variables like market size, exchange rate, exports and imports, openness to FDI, geographic distance, and political and cultural factors. Using random effects (RE) generalized least squares method for Chinese OFDI over the period 1984-2001, they find that Chinese OFDI was associated with high levels of political risk, host market size, geographic proximity and host natural resources endowments. They found strong support for the argument that existing MNC framework needs to be modified to include aspects of the special theory to explain the behavior of MNCs from emerging economies like China.

Duanmu and Guney (2009) study the upsurge of Chinese and Indian OFDI w.r.t locational determinants of direct investment from the two countries. Using an unbalanced bilateral FDI database, they find that Chinese and Indian FDI are attracted to countries with large market size, low GDP growth, and high volumes of imports from China or India, and low corporate tax rates. They also find important differences between China and India. While Chinese FDI is drawn to countries with open economic regimes, depreciated host currencies, better institutional environments, and English speaking status, none of these factors are important for Indian FDI. Chinese FDI is also deterred by geographic distance and OECD membership. However, neither of these has any impact on Indian FDI.

Amighini et al. (2011) empirically analyze host country determinants of Chinese OFDI for the period 2003 to 2008, using data disaggregated by country and industry. The authors assess the relevance of market-seeking, resource-seeking and strategic asset seeking motivations suggested by the theory on FDI determinants. A number of host country variables like Gross Domestic Product (GDP), corruption, distance between the home and host country, natural resources availability, technology, political stability, inflation and volumes of exports and imports etc. have been taken as proxy for economic and political factors. Using random effects probit model on an unbalanced panel dataset, they find that FDI in manufacturing is attracted by market seeking motivations while resource seeking is an important motivation for Chinese FDI in resource related sectors.

Gao (2005) did a study of host country determinants of OFDI from South, East and South East Asian developing countries, to assess whether they are influenced by similar determinant as the ones depicted by OECD Countries. Independent variables like host country GDP, distance between the source and the home country, three year average rate of GDP growth and dummy variables like common language, colonial ties, common border and Chinese Network are considered. The paper also employs Gravity model, Ordinary Least square (OLS) and Tobit methods. The study concludes that the larger share of OFDI from Asian developing countries goes to the low income countries and to the other countries in the same region on account of being vertical FDI. It also finds that rise of new industrialized economies, is a blessing for the economies in the same region as in case of China nearly 70% of its FDI inflows are from the same region.

Bhasin et al. (forthcoming) examine the push factors or home country determinants of outward FDI in ten select economies of South-East Asia and South Asia region. The authors investigate whether, apart from conventional factors, environment sustainability is an important 'push' factor driving outward FDI from these economies. Using panel data for the period 1991-2010, a fixed effect Least Squares Dummy Variables model is employed that captures market conditions, policy variables, economic variables, production factors and environment factors. By employing Principal Component Analysis, the authors find that economic environment, production conditions and environmental degradation are important 'push' factors affecting outward FDI from these economies.

Pradhan (2007) examines the changing nature and growth of Indian multinationals with a view to assess their likely impacts on the development of both host countries and home country. The author by studying the sectoral, geographical and ownership patterns with respect to outward FDI from India from late 1970s to 2006, attempts to identify the evolving trends in Indian companies' overseas operations. He finds that the home country seems to benefit from increasing exports from OFDI with positive impact on home country employment. OFDI activities are also leading to increased stock of Indian firms' technological assets and skills. These anticipated benefits from Indian OFDI may not be visible in the short - run and are likely to be substantial in the long run with positive impact on India's global competitiveness.

Verma and Bernnan (2011) undertakes at the country-specific level, India's recent OFDI surge, and test the investment development path (IDP) hypothesis for India. The duo employs a combination of descriptive and empirical analysis to ascertain the relevance of the IDP theory for India. The hypothesis is tested with a time series data set from 1991 to 2006. The study finds that India is a net receiver of FDI. However both inward and outward FDI is growing at nearly similar rates indicating that India is in third stage of economic development. India is likely to stay in this stage and move to the next only when outward FDI surpass the Inward FDI. Further, the paper highlights that while India's sharp rise in investments since 1991 has followed the GDP driven development, its outward investments fails to exactly match the stylized IDP model.

From the literature review, we observed that most studies of OFDI from India focus on evolving dimensions of OFDI, strategic issues involved and implications for development (Jain, 2014; Singal and Jain, 2012, Pradhan, 2007). This then warrants a need for a study that conducts an empirical investigation into the determinants of OFDI from India while examining the role of variables which are emerging as important in contemporary global business environment. Some of these variables are bilateral investment treaties, regional trade agreements and economic recession. The present study attempts to fill this gap in literature by including these variables in our analysis.

3. Data and methodology

3.1. Sample design and data sources

We have employed Least Square Dummy Variable Model for fifteen host countries for a period of ten years (2000-2009). The countries are Singapore, Netherlands, Australia, USA, UK, UAE, Italy, Switzerland, Russia, Hong Kong, China, Cyprus, Canada, Brazil and France. These countries together account for nearly 90% of the total OFDI from India during 2000-2009. The period of study starts from the year 2000 as significant FDI outflows from India emerged only from 2000 onwards. The volume and pattern of OFDI before this year is erratic and the figures of OFDI are very miniscule before that. The data on the dependent variable i.e. outward FDI flows has been compiled from RBI (SIA Newsletters, Annual Issue 2005 and July 2008) and inputs from Department of Industrial Policy and Promotion (DIPP). For the dependent variables like GDP, GDP per capita, Population and Infrastructure, data has been collected from World Development Indicators. A detailed description of the variables along with data sources is given in Appendix Table A.

3.2. Research methodology

Based on extensive literature review and emerging trends, the functional form of our model is given as follows: $OFDI = f(\text{Market Index, Trade openness, FDI openness, Exchange rate, Technology, Infrastructure Index, Trade agreements, Bilateral investment treaties})$.

We employ a Least Squares Dummy Variable (LSDV) model on the panel data mentioned above. We used the fixed effects specification; the models which capture the individual effects are called fixed effects models. One kind of the fixed effects panel model would have constant slopes of the independent variables but intercepts would differ according to the cross-sectional (group) unit which, in our case, is the country. In such cases although there are no significant temporal effects, there are significant differences among countries in this type of model, which is what we would normally expect if we were to analyze FDI flows in general. The LSDV model allows us to account for heterogeneity among the cross-section units by allowing each unit to have its own intercept value.

To allow for the (fixed effect) intercept to vary among countries, we use the *differential intercept dummy technique*. As we have fifteen countries in our panel data, we introduce fourteen (n-1) dummies. The unit for which no dummy variable is assigned is known as the base or benchmark. For our paper, we have taken Netherlands as the base country and all comparisons are made in relation to the benchmark category. (Netherlands is the second largest recipient of Outward FDI from India.)

The general form of the fixed effects model is:

$$Y_{it} = \alpha_1 + \alpha_2 D_2 + \alpha_3 D_3 + \dots + \alpha_i D_i + \beta_1 X_{1it} + \beta_2 X_{2it} + u_{it}$$

where

'i' = is the number of cross-section units

α_1 = intercept of the base country

D_i = difference dummy with respect to α_1

β_i = coefficient values of the respective explanatory variable

Further, we have employed a double log model for our estimating equation.

Composite Index: The large number of explanatory variables in our model, can possibly lead to multicollinearity; hence we create composite indices for variables capturing similar phenomenon. (A Composite index primarily integrates and summarizes the information of variables included in it.) In this study, we form two composite indices; one for market variable and second for infrastructure variable. The market index is formed by using GDP, GDP per capita and population; the infrastructure index is formed by using variables of electricity production, air transportation, telephone lines and energy production. The weights for the composite indices are drawn from the rotated component matrix.

The algebraic form of the composite index is given below:

$$\text{Composite index} = \sum W_i X_i,$$

where W_i , respective weights of the variables included in the index

X_i , will be the corresponding value of the variable.

Thus our final estimating equation becomes as follows:

$$\begin{aligned} \text{LOFDI}_{it} = & \alpha_0 + \beta_1 D_2 + \beta_2 D_3 + \beta_3 D_4 + \beta_4 D_5 + \beta_5 D_6 + \beta_6 D_7 + \beta_7 D_8 + \beta_8 D_9 + \beta_9 D_{10} + \beta_{10} D_{11} + \beta_{11} \\ & D_{12} + \beta_{12} D_{13} + \beta_{13} D_{14} + \beta_{14} D_{15} + \beta_{15} (\text{LTOPN}) + \beta_{16} (\text{LNEX}) + \beta_{17} (\text{LFDIOPN}) + \beta_{18} (\text{LINFRA}) + \beta_{19} \\ & (\text{TRADEAG}) + \beta_{20} (\text{LHTECH}) + \beta_{21} (\text{LMKT}) + \beta_{22} \text{BTD}_2 + \beta_{23} \text{BTD}_3 + \beta_{24} \text{BTD}_4 + \beta_{25} \text{BTD}_5 + \beta_{26} \\ & \text{BTD}_6 + \beta_{27} \text{BTD}_7 + \beta_{28} \text{BTD}_8 + \beta_{29} \text{BTD}_9 + \beta_{30} \text{BTD}_{10} + \beta_{31} \text{BTD}_{11} + \beta_{32} \text{BTD}_{12} + \beta_{33} \text{BTD}_{13} + \beta_{34} \\ & \text{BTD}_{14} + \beta_{35} \text{BTD}_{15} + \beta_{36} \text{DGR} + u_{it} \end{aligned}$$

where

LOFDI_{it} = log of FDI outflows

LMKT = log of market index of the host country (composed of GDP, GDP per capita and Population)

LFDIOPN = log of FDI openness of the host country

LTOPN = log of trade openness of host country

LNEX = log of nominal exchange rate of the host country

LHTECH = log of High technological exports made by the host country

LINFRA = log of infrastructure index of the host country

BTD = time interactive dummies where a BIT exist between India and host country

TRADEAG = whether India and Host country are members of any RTA

DGR = dummy for global recession

3.3. Variables

We now explain the variables included in our analysis and their expected relationship with our dependent variable: outward FDI flows.

Market index

The market index is a composite index that incorporates the effects of three variables, namely, GDP, GDP per capita and population. Amongst the various motives of FDI, market seeking motive remains one of the most reoccurring objective for investing firms. As the domestic market may be saturated after a point of time either due to increasing number of suppliers or due to stagnant demand, thereby necessitating an urge for the domestic firms to look for an alternative market to fully utilize their resources. Host country feature such as market size (generally proxied by GDP) are generally considered to be influential determinant of FDI outflows. The larger the market size, larger will be the demand and bigger would be the sale of the product. A number of studies have found out the positive relationship between the market size and the FDI outflows (Chakrabarti, 2001; Buckley et al., 2006; Deng, 2004; Taylor, 2002; Zhang, 2003). A bigger market not only offers substantial sale of the product and/or services but also the efficient utilization of the resources due to economies of scale.

Another indicator for capturing the host country market is population. The larger the host country's population, the more the opportunities for MNEs to serve for augmented consumer base. The Composite index constructed using the component scores for all the three variables are called the market index. So, we hypothesize a positive relationship between the market index and the Outward FDI from the home country to the host country.

H_{1a}: Indian OFDI is associated positively with host country market index.

Exchange rate

If the relative exchange rate of the host country appreciates then the acquisitions of foreign assets becomes more expensive for the home country firms. On the other hand, the depreciation in the host country exchange rate would make the foreign assets cheaper in terms of home country currency. Empirically, most of the studies have shown that the relationship between exchange rate and FDI inflows to be negatively correlated (Chakrabarti, 2001; Swenson, 1994; Cassou, 1997; Froot and Stein, 1991; Barrell and Pain, 1998) i.e. when the exchange rate of the host country is high; it makes the foreign capital relatively more expensive resulting low FDI inflow into the host country. Only a few studies (Scaperlanda, 1974; Aqeel and Nishat, 2005) have shown that depreciation in the currency of host country discourages FDI inflows. To proxy for exchange rate, the real effective exchange rate has been extensively used in various studies. But due to non-availability of data on real effective exchange rate for some of the host countries under consideration, data has been collected for nominal exchange rate from International Financial Statistics. Further uncovered interest parity equation asserts that it is the difference in the interest rate between the home and the host countries, which influences the choice for going abroad or being at home only. But this interest all alone may not represent a complete picture unless it is being multiplied by the exchange rate of a country to account for appreciation in the exchange rate and for this purpose the nominal exchange rate is being considered rather than the real exchange rate. Based on the above discussion, we propose the following hypotheses:

H_{1b}: Indian OFDI is negatively related to the exchange rate of the host country.

Trade openness

It has been proven in various studies that there is a positive synergy between exports and FDI to a country by firms from home country. As Johanson and Vahlne (1977) have demonstrated in their internationalization

model that firms move sequentially from exports to relocating operations abroad, while pursuing the internationalization strategies. MNEs from emerging markets have not only invested overseas to boost their home country's exports but also established subsidiaries and joint ventures abroad to secure their exports and protect their markets (Kumar, 1982; Svetlicic, 2004). Korean MNEs have invested abroad in order to support their local exports (machinery and raw material) such as in Philippines and Singapore (Han and Brewer, 1987). During 1980s-1990s, Chinese MNEs have invested overseas to support the exports of the local firms (Wu and Sia, 2002; Buckley et al., 2007). More liberalized foreign policy strengthens the confidence of overseas investor and bestows a sense of certainty and ease of doing the business. Hence, trade openness of host country bolsters OFDI from the home country. For the empirical purpose, we construct a variable called, Trade openness, which is calculated as ratio of sum of exports and imports of the host country to GDP of the host country. We expect a positive relationship between OFDI and Trade openness. So we can hypothesize the following:

H_{1c}: OFDI from India is positively associated with the Trade Openness of the host country.

FDI openness

Openness to FDI by the home as well as the host country is found to be an influential determinant for OFDI in the existing literature. When India embraced liberalization and globalization regime, it relaxed number of fiscal and financial restrictions to create investment friendly atmosphere at home (Diana and Adil, 2004). If the host country has a conducive environment for investment and offers liberal capital norms, it is likely to attract larger foreign investments from other countries. There exists a positive relationship between market openness and FDI (Chakrabarti, 2001; Gastanaga et al., 1998; Lall, 1996).

However, a number of studies have explained that tariff or non-tariff barriers discourage trade but encourage MNEs to invest abroad (e.g. Caves, 1996; Barber, 1955; Vernon, 1960; Moran, 1998; Wallis, 1968; Schmitz, 1970), as MNEs are left with no other option to cover a market. As a result, we expect a positive effect of host country FDI openness on inward FDI, i.e. greater FDI openness would attract larger OFDI from the home country firms. To measure the FDI openness of the host country, the ratio of inward FDI stock to GDP of the host country is taken. So it can be hypothesized as:

H_{1d}: Indian OFDI is positively associated with host country's FDI openness.

Infrastructure

The robust infrastructure of the host country is always a crucial determinant while choosing location for Outward FDI. Indian economy has witnessed a tremendous turn around in its infrastructural facilities especially after 1991 liberalization regime. Infrastructure base also remains as one of the criterion to measure the economic development of a country. Hence, the infrastructure facilities like, air transport, telephone lines, electricity production and energy production at the host country are crucial. As a result we expect a positive relationship between the infrastructure base of the host country and OFDI from the home country. To take effect of the above said four variables as a proxy for infrastructure, we create a new variable called Infrastructure Index which is a composite index. It is being derived from rotated component matrix. We would like to examine whether there exists a positive relationship between OFDI from India and infrastructure index of the host country.

H_{1c}: Indian OFDI is positively related to the host country Infrastructure Index.

Technology

There exists a vast literature showing the linkages between technology and OFDI (Cantwell, 1981; Grubaugh, 1987; Pearce, 1989; Dunning, 1993). Traditionally MNCs from developed countries have milked their state of the art technology at the host country which were either developed or developing country. Advanced technology enables a firm to efficiently combine various productive resources and produce goods economically. Firms from developing countries like India generally may not possess the state of the art technology as enjoyed by their counterparts in developed countries and therefore strategic asset seeking can be a significant objective for Indian firms. Hence, we can expect Indian firms to enter industrialized countries especially those one with significant levels of human and technological capital, with the aim to strengthen their competitiveness abroad (Dunning, 1988; Dunning, 2006). Hence, we expect a positive relationship between the technological capability of host country and Outward FDI from India. To measure the variable technology, we consider the number of high technology exports made by a country in a year. Based on the above discussion, we make the following hypotheses:

H_{1f}: Indian OFDI is positively associated with the technological capabilities of the host country.

Bilateral investment treaty

A bilateral investment treaty (BIT) is an agreement establishing the terms and conditions for private investment by nationals and companies of one nation in another nation. A number of guarantees, offered by host country may include factors like fair and equitable treatment, protection from expropriation, free transfer of means and full protection and security of property and people. BITs were initially signed exclusively between developed and developing countries, mainly because developed countries were the major source of investments. However, the decade of the 1990s witnessed an increasing number of BITs among developing countries themselves. By facilitating the operations of foreign firms in the host countries, BITs may favorably impact outward FDI from developing economies (Banga, 2007). India has increasingly entered in to large number of BITs after 1991 liberalization period. To specifically measure the impact of BIT in our model, we have considered BIT as a binary variable that takes value of one from the year a BIT has been signed and for all the previous years, value of zero. As a treaty gets older, its economic impact may be more pronounced. Hence, to consider the time effect of BIT, the binary variable is being multiplied by time. So we hypothesize as follow:

H_{1g}: BITs signed between India and the host country would positively affect outward FDI from India.

Regional trade agreements

Regional Trade Agreements (RTAs) facilitate conducive investment environment to the trading partners. As firms may initially undertake exports to the member countries and later on, after becoming familiar with local consumers tastes and preferences, may choose to relocate production to these countries. This in turn would result in free flow of trade as well as FDI to this region by firms from domestic territory (UNCTAD, 2005a). India has entered number of RTAs with the developed as well as developing countries over years. These include RTAs like Association of Southeast Asian Nations (ASEAN), ASEAN Free Trade Agreement

(AFTA) and the related ASEAN Investment Area (AIA) in 1999. All the member countries of these agreements are required to open up their industries for foreign investors and treat them at par with domestic firms. To capture the trade agreements, instead of a dummy variable, we have taken specific RTAs between India and the host country. If with a same host country, India has entered RTA as well as a standalone trade agreement, then we have considered both, by including the signing of new RTA or stand-alone agreement from the year it has been entered into. For the years before signing any of the above said agreement, we have taken the value as zero, and from the year of entry of force of agreement onwards we have taken value as one. This variable is not in the form of dummy, as we have added the signing of new agreement to the tally of the existing agreement.

H_{1h}: RTAs between India and the host country will enhance outward FDI from India.

Global recession

As most of the economies of the world have suffered economic recession during 2007-09, we would like to assess whether Outward FDI from India to other host countries was also affected on account of global melt down. For this purpose, we would assign value of one for the years 2007 onwards and for the remaining years, i.e. from 2000-2006, value of zero would be assigned. Accordingly, we can make the following hypotheses:

H_{1i}: Global financial crisis has adversely affected FDI outflows from India.

4. Results and analysis

We have estimated two specifications of our model: The first one includes all our explanatory variables but does not include time interactive dummies and the second one includes time interactive dummies while dropping variables which are correlated with one of the explanatory variables. The results of estimated model I and II employing the fixed effects (LSDV) model are given in Table 3 and 4 respectively. This exercise was run in the statistical package E-views 6.0. As we have used the fixed effects model, we have not included 'distance' variable as it is time invariant. The first model excludes the time interactive bilateral investment dummy variables. When we incorporate this variable in to the second iteration and also do away with exchange rate and trade agreements, we observe that the explanatory power of the model is improved. We find that the adjusted R square is reasonable at 55.63% in the first model which increases to 58.30% in the second model.

Table 3. LSDV estimation of the first specification of the model

Dependent variable: LOFDIIN				
Variable	Coefficient	Std. error	t-statistic	Prob.
C	-87.4415	13.77613	-6.34732	0.000
LHTECH	1.01997	0.27597	3.695943	0.0003*
LTOPN	-0.01002	0.017381	-0.57633	0.5654
LFDIOPN	0.647689	0.423371	1.529836	0.1285
LINFRA	0.327628	0.397885	0.823424	0.4118
TRADEAG	0.685509	0.703464	0.974476	0.3316
LNEX	1.58058	0.368624	4.287778	0.00*

Variable	Coefficient	Std. error	t-statistic	Prob.
LMKT	1.621754	0.536	3.025658	0.003*
D2	7.183974	1.227932	5.850464	0.000*
D3	3.492155	1.225461	2.849666	0.0051*
D4	2.245485	0.862709	2.60283	0.0103*
D6	18.31225	2.887012	6.342977	0.000*
D8	8.514042	1.705454	4.992244	0.000*
D9	1.842592	0.969951	1.899674	0.0597**
D10	5.900834	0.99428	5.934781	0.000*
D12	5.825255	2.175969	2.677085	0.0084*
D13	17.56377	3.610267	4.86495	0.000*
D14	4.71702	2.338546	2.017074	0.0457*
DGR	1.301955	0.410102	3.17471	0.0019*
R-squared	0.612408	Mean dependent var		3.59267
Adjusted R-squared	0.559151	S.D. dependent var		2.615927
S.E. of regression	1.736884	Akaike info criterion		4.059957
Sum squared resid	395.1962	Schwarz criterion		4.441305
Log likelihood	-285.497	Hannan-Quinn criter.		4.214887
F-statistic	11.49911	Durbin-Watson stat		1.774488
Prob(F-statistic)	0.000			

*Significant at 5%; **significant at 10%.

Table 4. LSDV estimation of the second specification of the model

Dependent variable: LOFDIIN

Variable	Coefficient	Std. error	t-statistic	Prob.
C	-22.5407	5.089927	-4.42848	0.000
LHTECH	0.37428	0.126049	2.96933	0.0035*
LFDIOPN	0.754828	0.331281	2.27851	0.0243*
LMKT	1.450551	0.542146	2.675573	0.0084*
LINFRA	-0.99416	0.512331	-1.94046	0.0545*
DGR	1.435268	0.371299	3.865528	0.0002*
D3	-1.14925	0.612604	-1.87601	0.0629**
D4	-1.96602	0.638409	-3.07957	0.0025*
D8	-1.41019	0.801402	-1.75965	0.0808**
D12	-864.037	385.778	-2.23972	0.0268*
D13	4.992042	1.039582	4.801971	0.000*
BTD6	0.001823	0.000457	3.985719	0.0001*
BTD7	-0.00183	0.000303	-6.05336	0.000*

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Variable	Coefficient	Std. error	t-statistic	Prob.
BTD12	0.430034	0.192455	2.234461	0.0271*
BTD10	0.000575	0.000559	1.028487	0.3056
BTD9	0.180094	0.191766	0.939131	0.3494
D9	-364.188	384.4457	-0.94731	0.3452
LTOPN	-0.00392	0.005332	-0.73526	0.4635
R-squared	0.630641	Mean dependent var		3.59267
Adjusted R-squared	0.583072	S.D. dependent var		2.615927
S.E. of regression	1.689104	Akaike info criterion		3.99844
Sum squared resid	376.6054	Schwarz criterion		4.359716
Log likelihood	-281.883	Hannan-Quinn criter		4.145215
F-statistic	13.25739	Durbin-Watson stat		1.852259
Prob(F-statistic)	0.000			

* Significant at 5%; ** significant at 10%

The variable market index (Lmkt) is significant at 5% in both the models. In the first model, the value of the coefficient is 1.62 (p value of 0.003) which decreases to 1.454 when we introduce the time dummies for bilateral investment treaties in the second model. As discussed earlier, the variable market index is a composite index, constructed of three variables namely GDP of the host country, GDP per capita of the host country and population of the host country. Market index coefficient is positive and statistically significant, there by implying that market conditions in these host countries have an important role in attracting OFDI from India.

Technology is also found to be statistically significant in the first model, the coefficient of this variable is 1.01997, implying that 1% increase in technological capabilities of the host countries, would lead to approx. 1.1% increase in OFDI from India. While in the second model, we observe that the value of the coefficient is reduced from 1.01997 to 0.3748 (at p value of 0.0035). The results support the strategic assets seeking motive of OFDI pursued by Indian firms. The technological capabilities situated at the host country can possibly augment the learning skills of Indian firms to successfully execute overseas venture. As a result we reject our null hypotheses and accept the alternate hypotheses that Indian Outward FDI is positively associated with the technological capabilities of the host country.

FDI openness (LFDIOPN) is found to be positive and significant. The host country liberal policies towards inward FDI were postulated to favorably affect the outbound investments from India. The results indicate that LFDIOPN variable in the basic model is significant at the p value of 0.1285, bearing the coefficient at 0.647689. In the second model, we observe that the value of the coefficient is slightly improved from 0.647689 to 0.7548 at the p value of 0.0243. This improvement in the coefficient value as well as in the significance level can be most likely attributed to bilateral investment agreements entered between the host country and India. These agreements can facilitate better and conducive environment for investment at the host as well as at home country to organize overseas production. Consequently, we find support for the alternate hypotheses (H_{1h}), that Indian Outward FDI is positively associated with host country's FDI

openness. Trade openness is found to be insignificant in both the models. This indicates that the trade openness though found to be influential in literature (Johanson and Vahlne, 1977; Buckley et al., 2007) does not exert much influence on OFDI from India.

The infrastructure (LINFRA) facilities at the host country are expected to boost the OFDI from the home country. However, in the first model, this variable is found to be insignificant at the p value of 0.4118, having a coefficient of 0.3276. While in the second model, it becomes significant at the p value of 0.0545, bearing a negative coefficient value of -0.99415. This variable is in the form of a composite index formed of namely four variables which is log of electricity production, log of energy production, log of number of telephone lines and log of air transportation. The sign of the coefficient of infrastructure index is actually determined by rate of the growth of dependent as well as independent variables. Of the two, the stronger variable is likely to dominate the sign part of the coefficient. Lending a closer look at LOFDI as well as at LINFRA, we find that none of the two variables register a definite trend marked by a steady fall or rise. (As far as LOFDI for most of the countries under the study is concerned, the stock levels undergo both increase and decrease.

On the other hand, the four constituents of the infrastructure index also demonstrate an erratic behavior with surge and downfall. Downfall found mainly towards the last few years, probably on account of global economic recession. The semi log equations of the four constituents of infrastructure index show that none of them is growing even at the rate of 1% annually. Further, the coefficient for log of Outward FDI is also growing at the rate of 0.457206303. These kinds of growth rate when coupled together can't result in positive coefficient for LINFRA.) One further possible reason for such a miniscule rise in the four variables of LINFRA can be attributed to increasing awareness for environmental concerns across nations. Thus, in general, we conclude that there is no relationship between infrastructure facilities of the host country and Indian OFDI.

Though we postulated a negative relationship between exchange rate of the host country and Outward FDI from India, but we observe in the first model that this variable is significant and has a positive coefficient of 1.58058. Owing to the high correlation of exchange rate with some of our explanatory variables, we dropped this variable in the second specification. Trade agreements are found to be positive but insignificant in the first model. Thus, though trade agreements with the host countries positively affect Outward FDI from India, they are not a significant factor in promoting outward FDI from India. Hence, we reject our alternate hypotheses and accept the null hypotheses that the trade agreements with a host country do not influence Outward FDI from India.

Bilateral investments treaty has been constructed as time interactive dummy variable and is also found to be statistically significant at 5% level for only three countries namely Cyprus, France and Switzerland (BTD6, BTD7, BTD12) out of the sample of fifteen countries. Unlike other host countries which have experienced erratic OFDI flows from India, these countries have witnessed consistent increase in OFDI from India. Hence, we believe that the Bilateral Trade Agreement made with these nations has a positive effect on outward FDI from India.

We constructed Dummy for global recession to assess the impact of global recession on OFDI from India. This variable is found out to be significant in both the models having coefficient of 1.301955 and 1.39488

respectively. It is only a time intercept dummy around those years where global recession hit various economies across the world. These results indicate that OFDI from India has increased during those three years of recession (2007-09). During this period Indian companies who were competing with the developed countries took the opportunity to acquire those foreign companies which were earlier out of their reach. It is a discreet jump in the level of OFDI across all the developed host countries which were adversely affected by the global meltdown. It shows that India could take advantage of the vacuum created by the decline of interest in developed countries as they were more severely hit by recession. Therefore we accept the null hypotheses that Global recession did not impact OFDI from India.

Netherland has been taken as the base country for dummy variables. In the first model, the p value of dummy variable for most of the countries is statistically significant except for China, France and Singapore. If we analyze the semi log equation for these three countries we find that for OFDI from India is growing at the annual rate of 0.233% for China, 0.28% for France and 0.703% for Singapore. The growth rate for these countries has been really slow as well as erratic especially for France. Further the rest of the countries i.e. namely Australia, Brazil, Canada, Cyprus, Hong Kong Italy Russia, Switzerland, UAE, USA and UK, depict statistically significant p values (at 5%). If we look more closely at the results, we assess that amongst fifteen countries, nine countries are developed and six are developing ones. In turn this means that both, the market seeking objective as well as the strategic asset seeking objective as a motive for outward FDI are being pursued by India. While in the second model, we find only the dummy variable for Brazil, Canada, Hong Kong, Switzerland and UAE are found to be significant. Therefore we acknowledge that there exist individual country differences while receiving OFDI from India.

5. Conclusion

The paper was carried out with the objective of studying the pull factors, i.e. the macro-economic factors situated at the host country that attracts OFDI from India. A number of economic variables like exchange rate, market index, infrastructure index and policy variables like FDI openness, trade openness and bilateral investment treaties along with dummy variable for global recession, were considered for the empirical examination. By using LSDV model for panel data composed of fifteen host countries over a period of ten years, i.e. from 2000-09, the empirical tests were conducted in the statistical package, E-view 6.0. Two regression models were run to capture the effects of independent variables on outward FDI from India. The first model was iterated without including the BTDS. In the second model, we dropped the insignificant variables like exchange rate and trade agreement and included the BTDS. This improved the explanatory power of the second model. The empirical examination shows that variables like market index, FDI openness, technology and Bilateral Investment Treaties are found to be significant determinants attracting OFDI from India. Further, we find that host countries like Australia, Brazil, Canada, Cyprus, Hong Kong, Italy, Russia, Switzerland, UAE, USA and UK are the preferred locations for overseas investment by Indian MNCs. While some of these countries offer large markets, the others provide sources of seeking strategic assets. Hence, we can conclude that at the macro level, host country policy framework and its economic well-being are important factors stimulating OFDI from India.

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Appendix table A

S. No.	Name of the variable	Abbreviation	Definition	Expected sign	Source of data
1	Log of Outward FDI	LOFDI	Log of outward FDI outflows from India	-----	www.rbi.org
2	Bilateral Investment Treaty	BITS	Time interactive dummy variable calculated by multiplying BIT dummy variable for the respective years for each country	(+)	www.unctad.org
3	Log of Market Index	LMKT	Log of sum of Real Gross Domestic Product, Real GDP per capita and population. All the three constituents being multiplied by respective weights obtained through PCA.	(+)	World development indicators
5	Log of Exchange Rate	LNEX	Log of nominal exchange rate of the host country	(-)	World development indicators
6	Log of Distance	LDIST	Log of distance in miles between New Delhi and capital of the respective host country	(+)/(-)	www.geocities.com
7	Trade	TRADEAG	Cumulative number of trade agreements entered by respective	(+)	www.unctad.org

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S. No.	Name of the variable	Abbreviation	Definition	Expected sign	Source of data
8.	Agreements Log of Trade Openness	LTOPN	country Log of trade openness of the host country calculated as ratio of sum of exports and imports of the host country to GDP of the host country	(+) /(-)	World development indicators
9	Log of FDI Openness	LFDIOPN	Log of FDI Openness of the Host country calculated as ratio of inward FDI of the host country to GDP of the Host country	(+)	World development indicators
10	Log of Technology	LHTECH	Log of number of high technology products exported by a host country in a year	(+)	World development indicators
11	Log of Infrastructure Index	LINFRA	Log of sum of energy production, electricity production, number of telephone lines and air transport (million ton-km), again being calculated after multiplying the four variables with respective weights obtained through PCA	(+)/(-)	World development indicators

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