India's Outward Foreign Direct Investment: Closed Doors to Open Souk

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Abstract: *Spectacular liberalisation of trade and investment policies opened the floodgate of capital flows in and out of India from the mid 1990s. This colossal capital flows facilitated the rapid economic growth and raised the country's profile as one of the super powers in the region. The recent surge of outward foreign direct investment (OFDI) from India has a significant balance of payments as well as enormous socio economic effect in securing the country's position as a new economic power in the global context. Since the study on the OFDI is sparse, this paper attempts to contribute to the literature by examining the major determinants of OFDI from India using the cointegration and Vector Error Correction Model over 1970 and 2009.*

The results of our study indicate that the dramatic financial and trade liberalisation has instigated the gigantic outflow of investment and acquisition by India's firms. Furthermore, the domestic economic environment including the growing human capital stocks, increasing international competitiveness, large influx of inflow of foreign capital and increased domestic savings are positively and significantly influencing India's huge outward capital flows in recent decade. However, improvement in domestic technological capabilities, rising standard of living and increased interest rates are deterrents to the OFDI of the country in the long run. Granger causality test also indicates that while all the above mentioned independent variables are Granger causing OFDI, nevertheless, outward FDI does not Granger cause any of the factors determining the OFDI from India.

JEL code: F21, F23, C32, C51

Keywords: Inward FDI, Outward FDI, Economic Growth, India, Cointegration, VECM, Endogeniety test, Granger Causality Test.

Introduction

India's outward foreign direct investment (OFDI) is one of the key outcomes of globalisation and has been contributing significantly to the economic growth and development in recent years. Although the vast flow of OFDI from developing countries at an international level is relatively a new phenomenon, a few large Indian conglomerates, namely the Tata and the Birla, have been investing in overseas countries from the early 1960s. However, the full scale emergence of OFDI from India was limited until the mid 1990s as India followed a more restrictive foreign trade and investment policy regime since the independence in 1947. Nevertheless, OFDIs from India gained momentum after the gradual liberalisation of trade and investment regime from the early 1990s. The last decade has experienced a marked increase in OFDI, mergers and acquisitions in terms of both quality and magnitude. India became the 7th largest OFDI investors among emerging Asian nations and 21st globally in 2008. OFDI from India increased to over $79 billion in 2010 from a mere $0.2 billion in 1990. The growth of OFDI is spectacular (more than 2000 times, as per UNCTAD OFDI data) over the last decade and ranked third after United Arab Emirates and Egypt during 2000 and 2008 (Pattanaik and Bhargavi, 2011). Total number of OFDI firms increased to 2104 between 2000 and 2007 from 1257 between 1990 and 1999. Also the percentage share of India's OFDI increased to 64% in the developed countries compared to 36% in the developing countries in between 2000 and 2007 (Hong, 2011). In 2010, India's top OFDI was dispatched to Mauritius, followed by Singapore and the majority of these OFDI are by the services sector. OFDI from India, thus, contributes to the economic development and growth through accessing the larger global market for production, knowledge, advanced technologies and vital resources.

Total global OFDI increased from US$348 million in 1970s to $350 billion in 2008 (UNCTAD, 2009). Developing countries are accounted for 13% of the stock of global OFDI and owning 24% of the parent companies of worldwide 18, 521 multinational companies (MNC) in 2006 (Tolentino, 2008). East and South East Asia historically maintained its solid contribution as the originators of OFDI and accounted for 76% of all stock of OFDI of the developing countries in 2006. Among these East and South East Asian developing countries, Hong Kong, Taiwan, Singapore and Korea have secured their positions in the top 100 MNCs from the mid 2000s. India's share of OFDI was negligible in the earlier years; however, it increased dramatically in terms of its absolute size over the last decade. The share of India's OFDI also increased from 0.2 to 5.7% over the last two decades among the developing countries. India's outward investments are extended over diverse range of sectors, including information communication technology (ICT), pharmaceuticals, food and beverages, automobiles, oil, steel and energy and various other services. India's conglomerates have also been involved in significant acquisitions and mergers in the overseas countries in the recent years. Cross broader acquisition by India's firms accounts for $1.5 billion on average between 2005 and 2007. OFDI accounts for 3.5% of gross fixed capita formation of India compares to 6.4% of developing countries and 16.2% of the global ratio (Athreye and Kapur, 2009).

Another interesting aspect of India's OFDI indicates that the share of OFDI is rising in developed countries compared to developing countries. The destination of 86.1% of India's OFDI was to the developing countries until up to 1990, however, it fell quite rapidly to 46.2 per cent in between 2002-2006. In contrast, the share of OFDI to developed nation has increased steadily from 35% on average in between 1990-1995 to about 54% in 2002-2006 (Athukorala, 2009). This phenomenal rise of OFDI can be explained by both internal and

external factors (Pradhan, 2005). Increased international competitiveness gained by improved technological and human skills has been also cited as one of the key influential factors for rapid internationalisation of Indian MNCs (Nayyar, 2008; Chittor and Ray, 2007).

Although the majority of the existing literature on the topic analyse the firm specific aspects of OFDI in terms of product line, foreign market share and strategic exposition, however, the issue has not been adequately explained from the domestic macroeconomic perspectives. Trade liberalisation has brought opportunities to India's MNCs to raise profits and generates spill over effect to the home country while combining ownership advantages of the firms with the international markets, knowledge, technology and resources. This, in turn, increases the efficiency and international competitiveness by reducing the gap between information and knowledge of how to do things (Caves, 1974). Therefore, the objective of this study is to analyse the effect of liberalisation as well as the macroeconomic factors that are conducive for OFDI from India over the recent decades using time series data over 1970 and 2009.

The remaining of the paper is organised as follows: Section II presents the literature review; Section III illustrates the trend in trade liberalisation and OFDI over the past two decades; Section IV discusses the methodology and the data employed to study the long-run effect of liberalisation and other macroeconomic factors on the OFDI. Section V presents the result of the empirical study and Section VI draws the conclusion and policy recommendations.

II Literature Review

Literature on foreign investment is continuously searching for the influential factors explaining the flow of FDI and a number of economic theories have explained the

motivations for FDI. Domestic market imperfections were considered to be a key factors leading to FDI (Kindleberger, 1969; Aliber, 1970; Cave, 1971). However, a firm operating in a foreign countries must possess some firm specific advantages, such as lower cost of production, product differentiation, strong net-work supports, technological and human skill advantages to overcome the 'foreignness' and efficiently compete with firms in the foreign countries. Several empirical studies (Root and Ahmad, 1979; Lim, 1983; Lee, 1986; Wheeler and Mody, 1992; Dunning and Narula, 1996; UNCTAD, 2006) have depicted significant attention on the factors determining the inflow of FDI. Although the majority of existing literature is centred on the growth effect of inflow of FDI, however, the recent growth of global OFDI elevates the interest among the academics, observers as well as the policy makers identifying the important micro and macroeconomic supply side factors leading to OFDIs, especially, from the developing countries.

The key seminal factors of OFDI in the literature has been categorised as firm, industry and country specific (Navaretti and Venables, 2006). The discussion on outward flow of investment begins with the pioneering works by Well (1977), Diaz-Alejandro (1977), Lall (1983), mainly focusing on the domestic firm specific advantages of the MNCs leading to OFDI from the developing countries. The product life cycle model of Vernon (1966) also sheds lights on the South-South investment climates.

The environment of OFDI in 1990s shows a dramatic change – moving OFDI gradually from manufacturing to services sector (UNCTAD, 1998). The intangible assets possess by the local firms of developing countries provide technological advantages over the MNCs of developed

countries as they can take advantage of their cheaper indigenous technology with the minor changes and local adaptation.

Dunning (1981, 1986) suggests that the flow of OFDI is determined by the relative stages of development of a country. According to his thesis there are five different stages of economic development of a country in terms of FDI. It begins as a net recipient of FDI in the initial stage; it becomes significant contributor of outward investment at its mature stages measured by the per capita national product (GNP). Following investment development path (IDP) approach, developing countries start investing in the neighbouring countries and gradually move towards establishing its market share in a wider global market by possessing specific technological and managerial skills over the local firms (Dunning, 1993; Narula1995). Wells (1993) identifies geo-political factors for possible comparative advantages of OFDI by South to South, especially if the host country is at or below the stages of economic development that the investing country. Ferrantino (1992) suggests the high transition cost in the developed countries is one of the major driving forces for South-south investment.

The earlier OFDI by few conglomerates were characterised by simple and cheap technology with narrow product differentiation and labour intensive productions (Lall, 1980, 1982, 1983; Pradhan, 2004). However, the spread of internationalisation of Indian MNCs have been deeply seeded in the first era of import substitution as the large Indian firms like Tata, Birla acquired the technological and entrepreneurial capabilities (Athukorala, 2009) until the early 1990s. India's OFDIs in the 1990s can be explained by Dunning's (1981, 1986, 1993) IDP theory; suggesting ownership advantages, locational advantages and internationalisation as the three major leading factors for OFDI.

However, after the trade and investment liberalisation in the 2000s, India's MNCs embarked on newer perspective towards investment strategies. It is interesting to note that although India's OFDI in its initial stages before 1990 was mainly in other developing countries, but its investment in neighbouring South Asian countries were limited and fell rapidly by the mid 2000s with faster investment destinations in the developed economics. India's share of OFDI to developed countries increased rapidly. In terms of new OFDI projects and creating job vacancies, India ranked 7th in UK and 13th in France (UNCTAD, 2004).

The explanations of OFDI by emphasising on distance factor which may produce cost effectiveness or other firm specific factors seem dated as the recent literature of India's OFDI indicates that the MNCs are investing in overseas market even without the firm specific advantages. It is found that the majority of the firms involved in some kind of OFDI, have the ownership less than 5 years. By investing in technologically advanced developed countries, these new firms attempt to acquire strategic, managerial and technological resources (Wong and Tang, 2007)

The second wave of OFDI from the emerging developing countries may not be necessarily explained by possession of technological or other advantages (Bartlett and Ghosal, 2007) but by the current environment of globalisation (Dunning 2005). Economic integration and regional economic blocks like European Union (EU) and North American Free Trade Agreement (NAFTA) provided the opportunities to the OFDI from developing countries due to their larger size and higher income in the host countries (UNCTAD, 2006). India has taken the opportunity to invest in these developed economic block not only to expand its

global market share and augmenting its assets, but to acquire technology, knowledge, brand names and net-working supports.

An UNCTAD study (2004) suggests that the ownership advantages of established Indian MNCs (Tata, Ranboxy, Inforsy's) including financial capabilities, growing international competitiveness and technological and human skills in the field of ICT are the major driving forces for OFDI by India. For an example, Tata acquired Daewoo of Republic of Korea in 2003, Corus Steel and Jaguar and Land Rover of UK in 2007; Ranbaxy acquired Terapia SA of Romania in 2006; Infosys Technologies Ltd. Acquired Expert Information Services Ltd of Australia in 2003. These high profile acquisitions by Indian firms were motivated by strategic consideration to move up the value chain by acquiring brand names, business network and advanced technologies from the developed countries to exploit its potential to have economic of scale, higher returns and growth.

Pradhan (2005) also explained age, firm size, intensity of R&D, appropriate export orientation and skill build up are the major factors for successful OFDI in the manufacturing sector by India. Nayyar (2008) arrives at the conclusion that the determining factors for India's OFDI vary widely across the firms and industries. Greater access to financial markets, trade openness, capacity building and improved international competitiveness are the major determinants of successful internationalisation of India's MNCs. Elango and Pattnaik (2007) points out to the strategic decisions by India's MNCs to participate in OFDI, who lack ownership specific advantages and opt for capacity building by drawing on international network and overall experience. However, Nayyar (2008) suggests a complex set of factors contributing to OFDI for mergers and acquisitions by MNCs from India. More

liberalised external sector and greater access to the financial markets from the mid 1990s combined with enhanced technological capabilities provided comparative advantage to Indian MNCs and supported this massive quantum of OFDI from India in the recent years.

Although 1990s and 2000s are marked by surge of OFDI flow from the developing nations, nonetheless, in-depth analytical discussion of the home country specific determinants of OFDI by India is sparse apart from a few case studies (Tolentino, 2008; Seshadri and Tripathy, 2006; Bowonder and Mastakar, 2005). Since the firm specific characteristics are mostly attributable to the economic and development factors of the source country of OFDI, this study attempts to investigate whether the reforms in trade and investment regime and macroeconomic factors are responsible for explaining the OFDI from India.

III Policy Reforms and the Growth of OFDI from India

The outflow of FDI from India can be distinguished into three phases in terms of its size, ownership and trade regime changes. During the first phase of internationalisation, Indian MNCs were keen to expand in overseas market under very restrictive trade regime of industrial licensing, reservation policies for publicly owned small enterprises, Monopolies and Restrictive Trade Practices Act and Foreign Exchange Regulation Act. Over this period government of India undertook the policy of self reliance by extensive supply side investment in skill and capacity building, technology, communication and transportation system (Pradhan, 2005). In an attempt to secure the natural resources in the earlier stages, and then strategically driven to access the intangible assets, namely, technology, human and managerial expertise, marketing network and establishing brand names, India directed its

OFDI mainly to the resource rich, knowledge based economies like, Federation of Russia, US, UK, Australia, Indonesia, Malaysia, Singapore, Sudan, Mauritius, East and Central Asian countries.

Insert Figure 1

Between 1960 and 1990, India's OFDI was driven by a few large firms in manufacturing sector to the countries with lower stages of development than India. The first foreign direct investment was a textile mill in Addis Ababa, Ethiopia in 1959 followed by an engineering firm in Kenya in 1960 by Birla Group of Companies (Athukorala, 2009). In 1961, Tata Group launched a wholly owned subsidiary, Tata International AG at Zug, Switzerland. The next overseas project in 1962 was a sewing machine assembly plant in Ratmalana, Sri Lanka owned by Sriram Group of India. Stagnant domestic market and stringent government controls were the major reasons for Indian large firms tend to expand their production outside the country. However, by the end of 1970s, the total OFDI was modest and accounted for only $119 million, of which around 90% went to developing countries (Pattanaik and Bhargavi, 2011). Majority of these OFDI activities involving low to medium technology mostly in the area of food processing, textile and yarn, wood and paper, fertilizers, pesticides, leather, exploration of oil, minerals and precious stones, iron and steel. Tourism, hotel and financial services were the main services OFDIs during this phase. Total number of OFDI projects increased from 140 in 1983 to 229 in 1990 with total approved equity value around $220 millions in 1990/91 (Athukorala, 2009).

Insert Figure 2 and Figure 3

The second phase of internationalisation starting from 1991 experienced a cautious but significant liberalisation of its external trade and investment policies. OFDIs in the early 1990s were primarily motivated by the resource seeking behaviour, where exporting is more costly. OFDI were also used as a tool for technology searching (Love, 2003). India's OFDIs in this phase was characterised by a rise in investment by services sector in the areas of drugs and pharmaceuticals, information technology, software designing, broadcasting and publishing and automobile. Most of these investment were undertaken by the knowledge based firms, investing significantly on research and development, namely by Ranbaxy and Dr Reddy. India moved its locations of investment from Asian countries to developed countries of Europe and North America in the era of liberalisation. At this stage, India's internationalisation was motivated by accessing the intangible assets such as high technology, human/managerial skills and net work building to improve its international competitiveness. The stock of OFDI increased on average $720 million between 1991 and 2000 from an average stock of $95 million in the previous decade (Pradhan, 2005).

Insert Table 4

Policy reforms throughout 1990s, including reduction in import tariffs, abolishing quantitative restrictions on imports, dismantling the industrial licensing, privatisation and full convertibility of currency on balance of payments, deregulation and reforms of exchange rate policy have been undertaken by the government of India to integrate with the global world. Government of India introduced the automatic route for foreign investment up to $2 million during the 1990s, which gradually increased to $50 million in 2000 and then to $100 million under the Foreign Exchange Management Act. These policy reforms provided opportunities

and encouraged the private firms to participate in foreign direct investment. Under new industrial policy the total approved OFDI project increased to 2562, which was 11 times more than the figure between 1975 and 1990 (Pradhan, 2005) and was accounted for $1.7 billion. According to Kumar (2007), Indian firms were able to quickly grasp, modified and internalised the foreign technology and managerial skills which assisted them to invest and compete in the foreign countries.

Insert Figure 4

The third phase starting from the early 2000s was motivated by strategic concern to established India's MNCs in the global market with their technical and allocative competitiveness and brand name recognition assisted by low cost skilled labour (Pattanaik and Bhargavi, 2011). India's OFDIs diversified their investments in pharmaceuticals, automotive, telecommunication and IT and ITC related services sector. Interestingly, majority of these OFDIs were in the form of acquisitions rather wholly owned Greenfield investment and 80% of them were directed to developed economies (Athukorala, 2009). These acquisitions were not only motivated by the establishing themselves prominently in the global market but also to gaining access to the intangible assets and operational synergies (Pradhan, 2005). Between 2005 and 2008, the total value of acquisitions was $22 billion which was 80% of all OFDIs from India (Athukorala, 2009). Drastic financial and investment liberalisation provided opportunities to the MNCs to raise funds from the domestic sources of abundant capital and invest in foreign countries. From 2004, firms were allowed to invest 100% of its net worth, which increased to 400% by 2008 and facilitated the massive OFDIs including the giant acquisitions by Indian firms in the developed countries.

Four largest acquisitions in terms their value between 2007 and 2009, were the Corus Steel, UK acquired by the Tata Steel, India in 2007 with $12,100 million; Novelise, US acquired by Aditya Birla, India in the same year with $6000 million. In 2008, Tata Motors of India acquired Jaguar and Land Rover of UK with $2500 million and MTN of South Africa was acquired by Bharti Airtel of India in 2009.

From the above discussion, it is apparent that the motivation, emergence and movements of OFDI of India is closely related to the liberalisation of external trade, capital and investment regime at the different stages of economic development of the country. Therefore, in the next section, we attempt to analyse the effect of economic policy reforms and liberalisation of external sectors and the domestic macroeconomic settings on the OFDIs from India empirically.

IV Empirical Model Specification and Data

In an attempt to identify the possible macroeconomic factors determining the OFDI from India, we specify the model as follows:

$$OFDI_t = \alpha + \beta_1 LIBER_t + \beta_2 X_t + \varepsilon_t \qquad (1)$$

where, t is the time period between 1970 to 2009, LIBER is the key explanatory variable referring to the trade and financial liberalisation. From an inward looking import substitution policies to a more liberalised trade regime has played a crucial role in

determining the OFDI and acts as the focal engine of growth of the economy. The vector of control variables, X_t, is containing the other possible drivers of OFDIs from India and ε_t is the error term.

The key explanatory variable, LIBER, is measured as the ratio of trade in goods and services, net capital flows plus the official development assistance and aid to real GDP of India. Increase in this ratio indicates more open external sector. We attempt to investigate whether liberalisation is assisting India's internationalisation during the era of globalisation and securing its place as one of the rising economic powers in the Asia Pacific region as well as in the global stage. A positive relationship between trade and financial liberalisation and flow of capital is documented in the existing literature (Edwards, 1990; Kravis and Lipsey, 1982; Pantelidis and Kyrkilis, 2005). Liberalised trade and investment regime facilitates the higher volume of trade in goods and services and financial liberalisation promotes OFDI assisted by ownership factors as well as by domestic macroeconomic factors.

The vector of control variables, X_t, consists of GDP per capita (YPC), income per employed person (YPCE), inflow of FDI (IFDI), real interest rate (RI), international competitiveness (RER), GDP growth (Growth) and gross domestic savings (GDS).

The per capita GDP (YPC) is used as a proxy for the quality of legal and institutional development and may have an ambiguous long run effect on the outward flow of capital. A positive relationship between GDP per capita and outward flow of capital is expected by IDP framework postulated by Dunning (1981). However, increased domestic income, improved

institutional setups and standard of living may increase the returns to capital and encourage investment domestically (Tolentino, 2008).

Human capital stock, measured as the GDP per person (YPCE) and reflecting the productivity of labour, is a positive determining factor of OFDI (Tolentino, 2008) as it is expected that the greater the productivity of the employees of a MNC, the better it would be suited for internationalisation of its production. Several studies (Lall, 1980; Clegg, 1987; Pugel, 1981) indicated a significant positive relationship between increased human skills and competency and foreign capital investment.

Domestic market condition measured by the inflow of capital (IFDI) is another important determining factor for OFDI (Masron and Shahbudin, 2010, Daniels et al, 2007). Increased FDI intensifies the competition among the local and foreign companies in the domestic market and drives out the less competitive local firms. However, increased competition increases cost price efficiency of the local established firms and encourage them to expand their production in foreign countries. Less competitive firms may also opt for new production location in foreign countries by product differentiation and/or indigenous technological advantage. Thus a positive long run relationship between inflow of FDI and OFDI can be expected (Apergis, 2008).

Interest rate of the domestic country can be an influential factor for OFDI flow. As the cost of investment increases in home country, more and more firms will tend to locate their production in foreign countries with lower inter rate, especially in the more developed countries, where interest rates are lower, in general. On the other hand, increased domestic

real interest rate increases the capital inflow and reduces the credit constraints. Thus, *a priori* sign between interest rate and OFDI is also ambiguous and may have either positive or negative relationship in the long run. Firms will tend to invest in foreign countries when interest rate rises and lowers profits. However, OFDI will be encouraged if an increase in interest rate increases inflow of capital and the availability of credit reduces the opportunity cost of capital.

Another important determinant of OFDI is the international competitiveness of the home country and is conventionally measured by the real exchange rate (RER) of the country. RER[1] also reflects the cost price relationship of a country compared to its foreign counterparts in the international trade and investment. The common practice is to construct a real exchange index where the trade-weighted nominal exchange rate (e_{TW}) is deflated by the ratio of foreign price (P_f) to the domestic price (P_d) (Chowdhury 2004). In this study, nominal effective exchange rate is defined as the cost of one trade-weighted average of India's major trading partners' currencies in terms of Indian currencies. Increase in this ratio is real depreciation and gain in international competitiveness and a fall in the ratio reflects the real appreciation and loss of competitiveness. Increased competitiveness encourages the export producing firms to expand their operation in the foreign countries and increases the foreign investment and acquisitions. Thus, a positive relationship is expected between RER and OFDI.

[1] RER = $e_{TW}(P_f/P_d)$, where e_{TW} is the trade-weighted nominal effective exchange rate, P_f is foreign price and P_d is used for the domestic price of nontradables.

Technological capabilities (GROWTH) is measured as the growth rate of real GDP and expected to be a positive determinant of OFDI. Since the decision by MNCs to invest outside its home country some extent depends on the technological capabilities as it provides the ownership competitive advantage to the investing firm. Thus, the relationship between technological advancement and OFDI is expected to be positive. However, the technological advancement and GDP growth can also be conducive for local investment instead of investing abroad and reduce the flow of OFDI. Domestic saving can be identified as one of the essential determinants of OFDI. High level of domestic savings by a developing country equipped with advanced technological knowledge would tend to invest in foreign operations.

The annual data for 1970 to 2009 is used for this study are obtained from the various World Bank data sources, including World Development Indicators, International Financial Statistics (from IMF), UNCTAD Data, Reserve Bank of India (various issues), which have been transformed and used to construct annual data series by the author. All data series are expressed in natural logarithm. Institutional development variable, YPC is the natural logarithm real per capita GDP of India measured in US dollar.

IV Methodology: Cointegration and Vector Error Correction Model

In this study we employ the Cointegration and Vector Error Correction model to examine whether the liberalisation in trade, finance and investment regime (LIBER) has any positive effect on the outflow of capital (OFDI). As mentioned in the earlier section, other control variables included in the model are GDP per capita (YPC), stock of human capital (YPCE), interest rate (RI), domestic market condition (IFDI), international competitiveness (RER), technological advancement (GROWTH) and gross domestic savings (GDS),

Johansen Juselius (JJ) (1990) Vector Error Correction Model (VECM) has been adopted for the empirical analysis of the study due to its stronger ability to incorporate the potential long run dynamic relation and better forecasting power. Regression analysis produces efficient estimates if the variables are stationary i.e., I(0). If the explanatory variables are consistently and significantly reflected by the dependent variable OFDI in the long run, then these variables are cointegrated[2]. If the variables are not cointegrated in the long run, then we may conclude that OFDI of India is independent of trade and investment liberalisation and other control variables.

As a prerequisite of the cointegration analysis we begin with the unit root test for all the variables under study using Augmented Dickey Fuller (ADF), Dickey Fuller GLS (GLS AD) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) tests[3]. We found[4] that all variables used in this study with constant and constant and trend are non-stationary in level, i.e., they are not I(0), however, all time series are integrated in order one, I(1), or stationary in their first differences.

Following the stationarity test, the presence and number of cointegrating vectors among te nonstationary series are examined by JJ Likelihood Ratio (LR) statistics of Maximum Eigen Value and Trace test procedure, which suggest the existence of long run relationship between the dependent variables OFDI and LIBER and other independent variables. Different versions of the OFDI model can be represented by the following equation:

[2] If the null hypothesis of nonstationary residuals is rejected, the long run equation is considered to be conintegrated.

[3] For KPSS test, if the null hypothesis of stationary residuals is accepted, the long run equation is considered to be cointegrated.

[4] Unit root test results are not reported here to conserve the space; however, they may be obtained from the author upon request.

$$OFDI_t = \lambda_0 + \beta_1 LIBER_t + \beta_2 YPC_t + \beta_3 YPCE_t + \beta_4 IFDI_t + \beta_5 IR_t + \beta_6 RER_t + \beta_7 TECH_t + \beta_8 GDS_t + e_t \quad \text{--- --- (2)}$$

where, the variable definitions are as before.

V Econometric Results

Table 1 presents the long run elasticities relating to the key explanatory variables and their t-ratios along with JJ Cointegration test. It appears from the JJ test that we reject the null hypothesis of no cointegrating vector based on the sufficiently large values of the test statistics**.** The test results indicate the presence of at least one cointegrating vector for all equations at 1 per cent significance level based on maximum likelihood ratio test and trace test. In all the cases, the Eigen-value statistics drop sharply for last alternative hypotheses. Thus, we can conclude that our model is a fair representation for most of the cases.

Since, the variables are cointegrated in the long run; there exists an error correction mechanism which brings together the long run relationship with its short run dynamic adjustments.

Table 1 here.

The value of OFDI is normalized to one and thus the signs of the coefficient should be reversed. In all equations, trade and investment liberalization is positively and significantly

influencing the OFDI from India as expected by the analytical model. Our results are consistent with the notable studies in the literature (Kumar, 2007; Kyrkilis and Pantelidis, 2003; Pradhan, 2004; Edwards, 1990; Maniam, 1998; Wheeler and Mody, 1992; Kueh *et. al.,* 2009; Masron and Shahbudin, 2010). Ghosh (2007) with a panel data study with 43 emerging countries found a two way complementary relationship between trade liberalization and FDI intensity. Both Kumar (2007) and Pradhan (2004) found that the trade and financial liberalization of India from the early 1990s has a profound significant positive effect on the outflow of FDI from India. Our result affirms this relationship and suggests a one percentage point increase in liberalization (LIBER) increases OFDI by 3.69 (equation 2.1), 3.11 (equation 2.2) and 1.47 (equation 2.3) percentage point in the long run. The result suggests that trade and financial liberalization is a significant positive contributor in determining the OFDI from India.

The other coefficients of the explanatory variables are also indicating the expected signs in most of the equations. It is found that the GDP per capita is negatively and significantly impacting on the OFDI from India. When the income of a country increases over time, the country is expected to have better institutional set ups which, in turn, facilitates the domestic business environment and firms would be encourage to invest locally instead of searching for newer location for the expansion of their production. This result is consistent with the previous finding by Williams (2009) that an increase in the per capita income reduces the OFDI from India. A one percentage point increase in YPC is lowering the OFDI by 14.82 (equation 2.1) and 16.46 (equation 2.2) percentage point in the long run.

Productivity and human capital stocks measured by GDP per employed person (YPCE) is positively and significantly affecting the OFDI from the country. A one percentage point increase YPCE increases the OFDI by 8.85 (equation 2.1) and 10.57 (equation 2.2) percentage point in the long run. This outcome is consistent with the theoretical model and indicating that more skilled and productive workers can facilitate the decision to expand the production in overseas market and internationalise the products of a MNC. Several empirical studies (Pradhan, 2004; Pugel, 1981; Lall, 1980) also suggested human capital stocks as a vital determining factor of OFDI.

Inflow of FDI is found to be another positive determining factor for Indian MNC to invest in foreign countries. This result is consistent with the theoretical framework and supported by other empirical studies (Masron and Shahbudin, 2010; Carr et al., 2001). Our results show a one percentage point increase in inflow of FDI (IFDI) increases OFDI by 1.26 (equation 2.1) and 1.41 (equation 2.2) percentage point in the long run.

In regards to interest rate, our result indicates that both Lrate and IR are having negative effect on the OFDI from India although the coefficient of Lrate is not significant at 5 % confidence level. However, a one percentage point increase real interest rate (RI) is significantly reducing OFDI by 2.02 percentage points (equation 2.3). This result is consistent with the previous results in the literature (Lall, 1980; Lall, 1980; Pruge, 1987; Grubaugh, 1987). Clegg (1987) also found that real interest is negatively related to Japanese FDI.

Our result also indicates that increased international competitiveness is one of the key determining factors for OFDI from India. Higher international competitiveness measured as RER depreciation is significantly increasing the OFDI by 5.57 percentage points in equation 2.3. This result is highly significant at 1% confidence level and theoretically consistent and supported by several empirical studies (Maniam and Chatterjee, 1998; Kyrkilis and Pantelidis, 2003; Kueh et al, 2009; Goh and Wong, 2011).

Technological progress measured by real GDP growth is significant reducing the OFDI from India as indicated by one percentage point increase in GROWTH is lowering OFDI by 3.9 percentage points. Clegg (1987) and Pearce (1989) also found the similar result for OFDI from UK. Finally, the real gross domestic savings is a positive determining factor of OFDI from India in the long run. A one percentage point increase in GDS rises OFDI by about 9 percentage point in equation 2.3. Our result is highly significant and consistent with the analytical framework of the model of OFDI and supported by Masron and Shahbudin (2010) indicating that the excess saving is a basic necessity for expanding operations in foreign countries.

Table 2 here.

Our VECM results are satisfactory and indicate that all equations perform well by all diagnostic tests. The adjusted $\overline{R}^2$ are fairly high with high F-statistics suggesting the models have good fit. The lagged error correction terms for all equations are statistically significant at 1 per cent level and having the expected negative sign indicating that there is a

cointegrating relationship between the dependent and independent variables. The large value of the coefficient in all three suggests that in the absence of other intervention, actual dependent variable of OFDI converges fast to its long run equilibrium. In the short run, some of the explanatory variables are insignificant or showing an opposite sign to long run relationship due to adjustment process in their first lag. However, trade liberalisation, increased stock of human capital/productivity, IFDI and GDS indicate positive and significant effect on OFDI, whereas increase in GDP per capita and growth show negative effect on OFDI in the short run too.

In the above model we implicitly assume that the trade liberalization is exogenously determined. However, it is reasonable to think that external sector liberalization can be influenced by prospects of FDI inflow and outflow of a country. Therefore, it can be argued that while the liberalised trade and investment regime potentially encourages and elevates the OFDI, potential opportunities for OFDI may also dictate policy makers to relax the restrictions on trade, investment and finance for the growth of the country.

Table 3 here.

We used the Granger Causality test to investigate the possible endogeniety relationship between trade liberalization and OFDI. The test results are reported in Table 3. Granger causality test demonstrates that the trade and financial liberalisation Granger causes OFDI out of India at 1 per cent confidence level while taking both 2 and 4 lag. However, it is found that OFDI does not Granger cause the liberalisation of the external sector of India. Thus, our

results indicate that there is no complementarily between financial and trade liberalisation and OFDI as liberalisation Granger cause OFDI but OFDI does not Granger cause liberalisation, which is a contrast result from Martens (2008).

VI Conclusion and Policy Recommendation

India has been experiencing an ever increasing outflow of foreign direct investment and acquisitions in the recent years mainly due to reforms and liberalisation of trade, capital and investment regime. Since these favourable macroeconomic environment is conducive to gain ownership advantages by the MNC in expanding its global operation, government of India requires to support the momentum of the internationalisation of its MNCs and implementing policies to redirect the economic benefit to the national economy to raise output, employment and standard of living of the country.

It is evidenced from our study that India's cautious but blatant departure from closed door trade and investment policies over the last two decades facilitated the internationalisation of its proprietorship in the world market. Our results indicate that trade and investment liberalisation is one of the key determining factors for the colossal outflow of foreign direct investment from India. Other positive influencing factors for OFDIs are found to be increased productivity and human skill development of India's workers, international competitiveness, real domestic interest rate, inflow of FDIs and huge increase in gross domestic savings. Another important observation is suggested form this study is that the improvement in domestic standard of living and institutional supports in the form of increased per capita GDP, and technological advancement represented by economic growth seem to reduce the outflow of foreign direct investment in our study.

Although the growth implication of OFDI much clearer than the development implication, however, transfer of knowledge and technology and other managerial skill diffusion from foreign investment and acquisitions may be beneficial for the production of output, employment and overall development for the country. These issues should call forward for more open policy stances which may also facilitate the further reforms towards encouraging the domestic investments.

Outflow of FDI can play a key role in economic development of the country as well as establishing India as one of the major economic powers in the midst of globalisation. OFDI is not only enhancing the internationalisation of India's MNCs, but by adopting the advanced technologies and harnessing the network supports, India has improved the international competitiveness and expanding the global market share of its exports (Government of India, 2009). OFDI has also given the opportunities to a large number of new and small firms to avoid the domestic competitive pressure from the foreign established MNCs and expand their operation abroad. They tend to gain efficiency and competitiveness over the years operating in foreign countries using special indigenous technological advantage and lower cost production. Thus policy reforms to encourage both public and private sector to participate in OFDIs for further economic development and growth is essential.

Table 1: Johansen's Cointegration Tests

Variales: *OFDI, LIBER, YPC,YPCE and IFDI* 1970 to 2009							
	Hypothesis	Alternative	Eigen-value	λ-Trace	P-values**	λ-max	P-values**
VAR(1)	r = 0	r =1	0.64	76.61*	0.01	39.84*	0.00
	r $\leq$ 1	r =2	0.40	36.77	0.35	19.79	0.36
LR estimates	***OFDI = 3.69 LIBER – 14.82 YPC + 8.85 YPCE + 1.26 IFDI --- --- --- (2.1)*** *(3.52) (-2.36) (2.11) (4.20)*						
Variales: *OFDI, LIBER, YPC,YPCE, IFDI and LRATE* 1970 to 2009							
	Hypothesis	Alternative	Eigen-value	λ-Trace	P-values**	λ-max	P-values**
VAR(2)	r = 0	r =1	0.67	102.79 *	0.01	42.26*	0.02
	r $\leq$ 1	r =2	0.43	60.52	0.21	21.99	0.60
LR estimates	***OFDI = 3.11 LIBER – 16.46 YPC + 10.57 YPCE + 1.41 IFDI- 1.34 LRATE --- (2.2)*** *(2.59) (-2.40) (2.09) (4.86) (1.89)*						
Variales: : *OFDI, LIBER, RER, RI, GROWTH, and GDS* 1970 to 2009							
	Hypothesis	Alternative	Eigen-value	λ-Trace	P-values**	λ- max	P-values**
VAR(1)	r = 0	r =1	0.84	134.00 *	0.00	66.42*	0.00
	r $\leq$ 1	r =2	0.53	67.57	0.07	27.55	0.23
LR estimates	***OFDI = 1.46 LIBER + 7.58 RER – 2.02 RI – 3.90 GROWTH + 8.89 GDS --- (2.3)*** *(2.40) (6.31) (-2.02) (-5.75) (3.10)*						

Notes:

i) *demotes rejection of the hypothesis at the 0.05 level

ii) **Mackinnon-Haug-Michelis (1999) p values are used

iii) Figures in parenthesis represent the t-statistics.

Table 2: Error Correction Model for OFDI From India 1970 - 2009

Variables	Equation 3.1 ΔOFDI	Equation 3.2 ΔOFDI	Equation 3.3 ΔOFDI
ECM_{t-1}	-0.67*** (-5.74)	-0.82*** (-5.82)	-0.35*** (-4.49)
$\Delta Liber_{t-1}$	2.79* (1.65)	0.12** (1.95)	8.42*** (3.21)
ΔYPC_{t-1}	-7.58** (-2.23)	-7.21** (-2.35)	4.64 (0.13)
$\Delta YPCE_{t-1}$	12.57** (1.92)	22.50* (1.77)	21.72* (1.69)
$\Delta IFDI_{t-1}$	---	1.06*** (3.08)	---
ΔIR_{t-1}	---	---	-0.03 (-0.06)
ΔRER_{t-1}	---	--	0.29** (1.90)
$\Delta GROWTH_{t-1}$	-5.13*** (-4.03)	-5.16*** (-4.11)	---
ΔGDS_{t-1}	---	--	18.06*** (4.01)
Constant	2.41 (4.50)	2.50 (4.53)	2.77 (2.65)
Adj. R^2	0.50	0.49	0.42
F-stat	5.81^{***}	4.11^{**}	5.40^{**}
Akaike AIC	2.18	2.11	2.36
Schwarz SC	2.70	2.26	3.06
Log Likelihood	-28.45	-28.20	-27.71

Notes: i) *, ** and *** indicate significant at 10%, 5% and 1% levels respectively

ii) Figures in parenthesis represent the t-statistics.

Table 3: Granger Causality Relations between OFDI and Liberalisation

India (Bi-directional*)

Time Frame *1970 - 2009*	F-Values (lag 2)	P-Values (lag 2)	F-Values (lag 4)	P-Values (lag 4)
LIBER⇒OFDI	5.95 (yes) ***	0.00 (yes) **	4.28 (yes) ***	0.00 (yes) **
OFDI ⇒LIBER	1.08(no)	0.34 (no)	0.96(no)	0.44 (no)

i) *, ** and *** indicate significant at 10%, 5% and 1% levels respectively

ii) Figures in parenthesis represent the t-statistics.

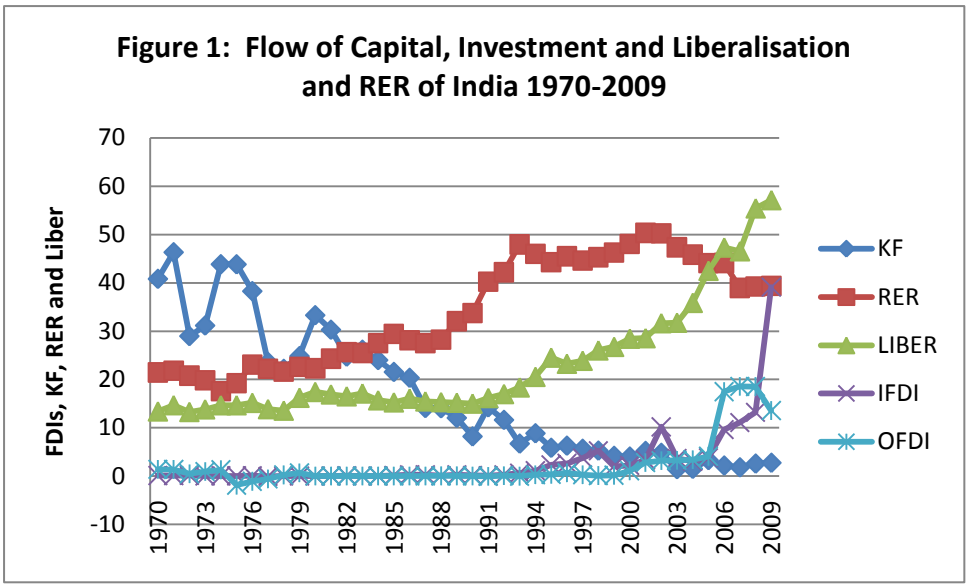
iii) ⇒ Indicates the direction of causality. Causal relationship is stated inside the bracket.

Table 4: Sectoral Distribution of India's OFDI

(Selected Years, % of total outflow)

Sectors	1999/ 2000	2000/ 2001	2001/ 2002	2002/ 2003	2004/ 2005	2005/ 2006	2006/ 2007	2007/ 2008	2008/ 2009	2009/ 2010	Average 1999 to 2008	Cumulative 2005/2006 to 2009/2010
Manufacturing	31.2	26.8	73.1	71.9	72.3	59.9	24.9	43.7	47	42	42.7	41
Financial Services	0.2	1.2	1.6	0.1	0.3	5.9	0.2	0.2	1	0.7	0.7	0.9
Non-Financial Services	65.1	63.4	18.7	19.1	19.5	24.8	54.7	12.1	6	10.5	30.3	19
Trading	3.3	6.5	4.6	4.8	2.5	4.7	8.3	3.2	9	5.6	5.1	33
Other	0.1	2.1	2	4.2	5.4	4.7	12	40.7	37	41.3	21.3	6
Total	100	100	100	100	100	100	100	100	100	100	100	100

Source: Nazareth and Raghavendran, 2010, Annex Table 4a.



Source: Time series are constructed by the author from various data sources.

Figure 2: Outward FDI Stock - India and Other BRICS Economies 1990 - 2009 (Selected Years)

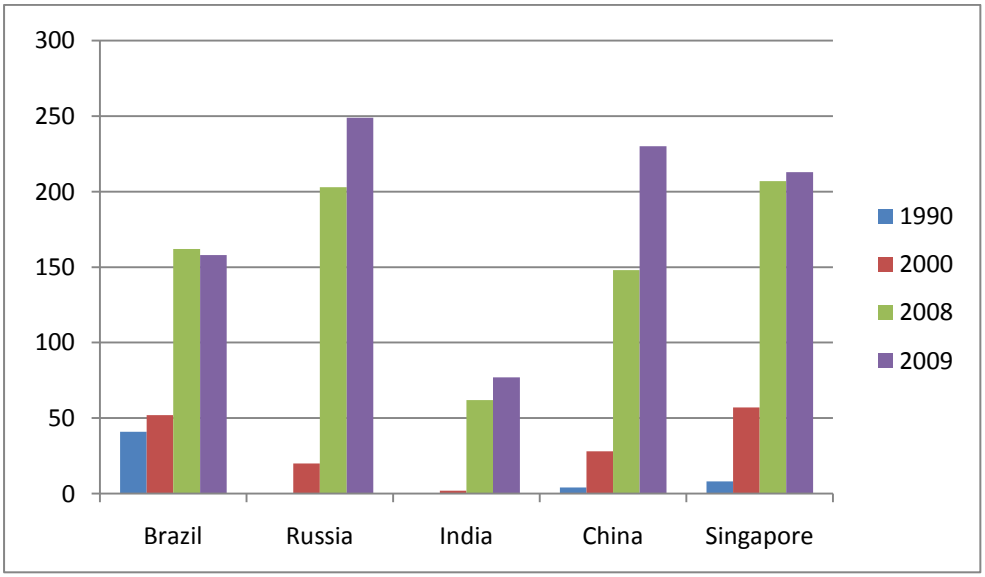


Figure 3: Destination of India's OFDI 2002-2009 (% Share)

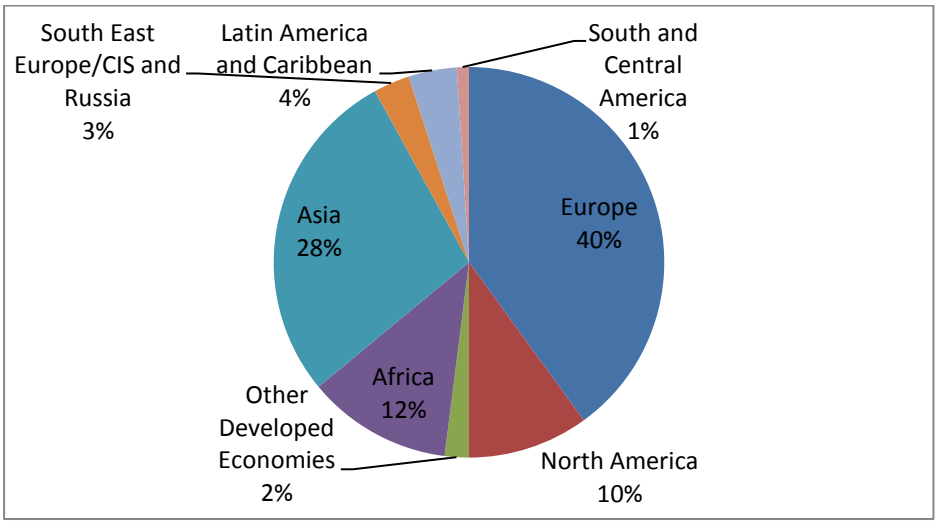
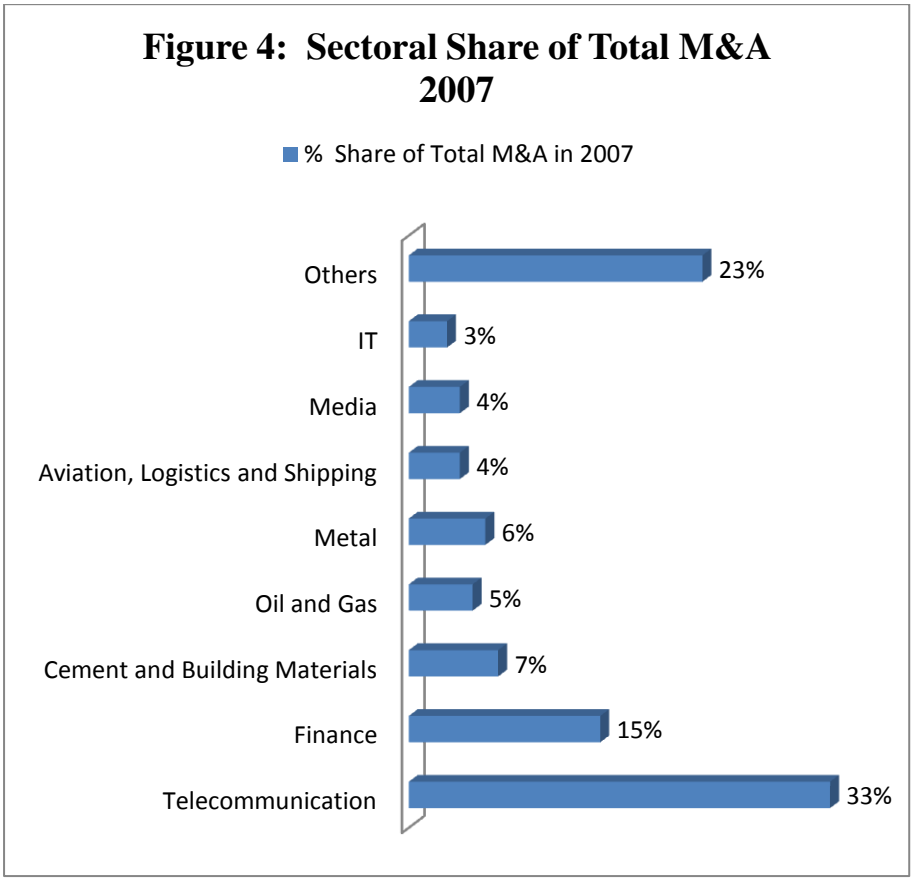


Figure 4: Sectoral Share of Total M&A 2007



Source: All figures are constructed from UNCTAD, World Investment Report Database, Downloaded on 12th July, 2011.

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