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What motivates Indian firms to invest abroad?

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Abstract

Purpose – The purpose of this paper is to examine the motivations behind Indian firms' outward investment, i.e. whether these firms are investing abroad in search of market, resource, technology, strategic-assets, efficiency, etc. Outward FDI by Indian firms has increased considerably in recent years. Such investments have gone to more than hundred host countries and into various sectors. The higher volume of outward FDI following policy reforms requires examination of factors that have motivated Indian firms to invest in different host countries.

Design/methodology/approach – The empirical analysis is done for the period from 2008-2009 to 2011-2012 using firm-destination panel data with appropriate adjustment for clustering.

Findings – The analysis provides evidence of the existence of multiple motives behind such investments. Indian firms are found to have invested abroad in search of resource, technology (strategic-assets) and efficiency, whereas the evidence on market-seeking motive is found to be at best weak in the empirical analysis. The results are robust to the use of alternative sample of outward investing firms.

Practical implications – This analysis of firm-level motivation of outward FDI by Indian multinationals has pertinent policy implications as well. The presence of multiple motives implies that Indian firms could bring multiple benefits to the Indian economy through outward FDI.

Originality/value – The link between outward FDI and host country factors is examined at the firm level as against at the aggregative level using a comprehensive and unique official database on actual outward FDI made by Indian firms, originating from both manufacturing and non-manufacturing sectors, in the form of equity and loan.

Keywords Technology, India, Panel data, Emerging multinationals, Internationalization, Outward FDI, Bilateral investment treaty, Equity and loan, Offshore financial centers

Paper type Research paper

1. Introduction

The phenomenon of outward Foreign Direct Investment (FDI) from developing countries, especially China and India, has attracted global attention in press, academia and policy circles. This is due to China being the largest outward investor amongst the developing countries in recent times (Figure 1), whereas India, although behind Russia

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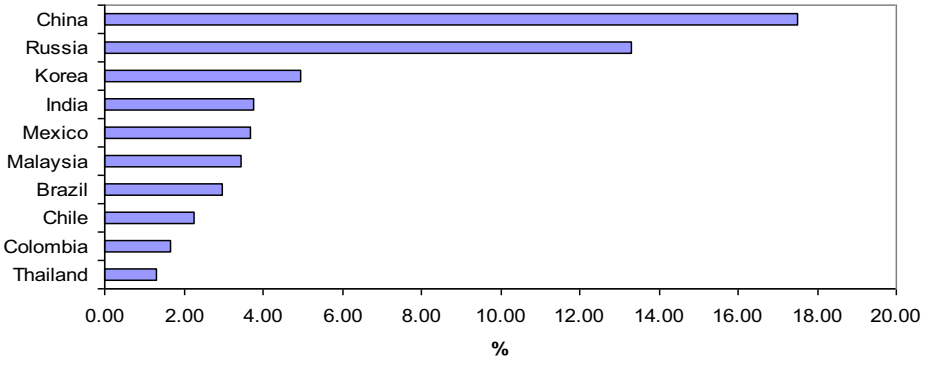

Note: Developing country (including South-East Europe and CIS, excluding offshore financial centers)
Source: Authors' compilation from World Investment Report, 2011, UNCTAD

Figure 1.
Share in developing country FDI outflows (in 2010)

and Korea, has got the attention of global economic community as a result of significant growth in the volume of outward FDI since the gradual liberalization of capital account restrictions starting form the introduction of Foreign Exchange Management Act in the year 2000. The growing economic significance and changes in the trajectory of economic growth of the country have also "attracted attention of international community". These countries being latecomer, in terms of investing abroad, continues to impress the world community with multi-billion-dollar investments, either greenfield or merger and acquisition[1].

Although Indian firms have been investing abroad for decades, there has been a major jump after 2004 (Figure 2), the year in which further relaxation of capital account took place. This time around Reserve Bank of India (RBI) allowed firms to invest up to 100 per cent of their net worth (under automatic route) in overseas joint venture/wholly owned subsidiary, replacing the earlier system that provided for automatic approval of outward FDI proposals only up to a certain limit. The limit has gradually been raised up to 400 per cent of net worth (RBI, 2010; Khan, 2012 for India's outward FDI policy reform). The volume of outward FDI peaked in 2007, followed by a mild decline during the global financial crisis. However, outward FDI did not decline as much as inward FDI that experienced a sharp decline following global financial crisis. The trend has reversed in the recent year, as many Indian firms turned aggressive in terms of overseas investment. Thus, the higher volume of outward FDI following the policy reform requires examination of factors that have motivated Indian firms to invest in different host countries.

Against this backdrop, this paper examines Indian firms' motivation of outward investment, that is, the locational determinants of outward FDI. Although there exist a few specific studies on host country determinants of India's outward FDI, they have examined aggregate FDI outflows either for the economy as a whole (Hattari and Rajan, 2010; Pradhan, 2011; Nunnenkamp *et al.*, 2012; Buckley *et al.*, 2012) or for a specific sector (Pradhan, 2010 for pharmaceutical sector)[2]. The link between host country factors and FDI outflows of Indian firms across different sectors has not been studied

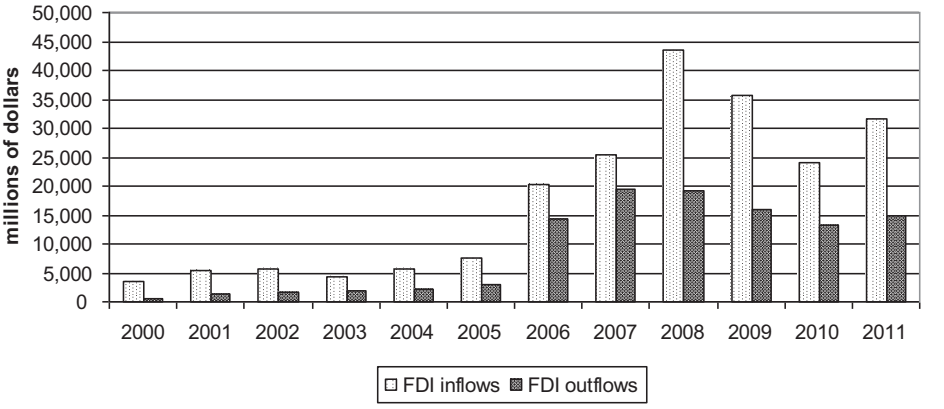

Figure 2.
India's FDI, outward and inward (2000-2011)

Source: Authors' compilation from World Investment Report, 2012, UNCTAD

previously, which needs an examination[3]. The relationship at the firm level could provide deeper insights as compared to aggregate FDI. This is because different firms may invest in the same host country with different motives. Similarly, firms from same sector could invest in different host country for different reasons. Therefore, the issue has been approached at the firm level, as it allows accounting for sectoral difference, which is not possible in aggregate outward FDI studies. The paper also makes use of an unique and comprehensive official dataset released by RBI on actual outward FDI made by Indian firms in the form of equity and loan, which has not been used to the best of knowledge in previous studies on India's outward FDI[4]. The study covers the recent years from 2008-2009 to 2011-2012, which is mostly outside the period covered in the previous studies. The examination motivation behind firm-level outward FDI is expected to provide important insights as far as the shift in Indian firms' investment abroad is concerned.

The paper contributes to the empirical literature on outward FDI from developing country by examining firm level motivation of outward FDI by Indian firms. This is done by examining the link between firm-level outward FDI (using newly released dataset on firm-level actual FDI outflows in the form of equity and loan) and host country factors using firm-destination panel data analysis with appropriate adjustment for clustering. Previous empirical studies on outward FDI from India examine the relationship at the aggregate level, and do not investigate the relationship at the firm level or for that matter account for sectoral differences. These studies find mostly the market-seeking motive to be common explanation (Hattari and Rajan, 2010; Pradhan, 2011; Nunnenkamp *et al.*, 2012; Buckley *et al.*, 2012). The paper finds the presence of multiple motives, which is contrary to some of the earlier studies that emphasized on the market-seeking motive. In particular, Indian firms' outward FDI is characterized by resource-seeking, technology-seeking (strategic asset-seeking) and efficiency-seeking motive, whereas the evidence on market-seeking motive is at best weak in the empirical analysis. The presence of multiple motives implies that Indian firms, or the economy, can benefit from outward FDI in multiple ways.

The rest of the paper is organized as follows. The next section presents a brief discussion on the theoretical motivations of firm's internationalization and develops a few testable hypotheses relating to Indian firms outward investment. The sample selection and the methodology adopted for empirical analysis have been discussed in the third section. Empirical results are presented in section four. Summary of findings, conclusions and implications for policy are given in section five.

2. Theoretical considerations and hypotheses

There are alternative theoretical frameworks that can be used to analyse locational determinants of outward FDI. These include but not limited to the eclectic theory, the theory of industrial location, gravity model, proximity-concentration trade-off, linkage-leverage-learning framework, etc[5]. Nevertheless, the eclectic theory has been increasingly popular, which can be used in flexible ways. Another advantage is that it can be applied at either the micro or macro levels (Gastanaga *et al.*, 1998). The eclectic theory, also known as O-L-I paradigm, consists of three pillars namely ownership-advantages, location-advantages and internalization-advantages (Dunning, 1980, 2000). Ownership advantages refer to the extent a firm possesses (or can acquire) assets which are not possessed by other firms. Locational advantages are host country specific advantages which are limited in the home country. The locational advantages can be exploited by multinational firms in conjunction with their ownership advantages by investing in countries possessing such advantages. The internalization advantages refer to the process by which firms can make maximum use of ownership advantages in their possession through investment abroad.

One of the crucial elements for explaining firms' outward FDI is to consider the locational advantages as suggested by the eclectic paradigm (Dunning, 1980, 1981a, 1981b, 1988; UNCTAD, 1998). This framework has been used in previous research to examine the locational determinants of FDI; for instance, Buckley *et al.* (2012) to study FDI outflows from developing country.

As the developing countries are becoming increasingly active in terms of cross border investments, the locational determinants of their outward FDI warrant considerable attention. In the light of the eclectic paradigm a number of host country factors can be identified that might explain developing country firms' outward FDI in different host countries. These factors include (but not limited to) natural resources, low labour and input costs, large markets, intangible assets such as endowment of technology and strategic-assets, legal and commercial environment. Each of these locational factors can be linked to a particular motive of outward investment by the firm. The locational advantages could differ significantly in different host countries. In addition, firms could have single or multiple motives for investing in different host countries, i.e. firms may integrate different possible motives while deciding to invest in different host countries. For analytical convenience, it is possible to classify the locational factors under different headings, based on taxonomy developed by UNCTAD (1998, p. 91), Dunning (2006, p. 206). Accordingly, a few important motives have been classified as under.

2.1 Market-seeking

Firms tend to invest in countries that have larger market size due to higher expected demand for its products. The market-seeking FDI can also materialize when the firms

try to increase their global footprint by entering new market, to explore business opportunities abroad, to expand brand in the global market and to diversifying across different overseas markets. Market-seeking FDI, which is horizontal in nature, will grow in importance in the context of higher growth potentials for the firm in the foreign market *vis-à-vis* in the domestic market. Several studies have found evidence of market-seeking FDI (Chakrabarti, 2001 for cross-section of countries; Cheung and Qian, 2009 for China; Mottaleb and Kalirajan, 2010 in developing countries; Goh and Wong, 2011 for Malaysia; Kolstad and Wiig, 2012 for China; Ramasamy *et al.*, 2012 for Chinese private firms; Nunnenkamp *et al.*, 2012 for India). There are also several recent examples of market-seeking outward FDI by emerging multinationals from India. Bharti Airtel Ltd. acquired Zain Africa BV in 2010 to enter into the African market, i.e. through the acquisition route. Similar recent instances of market-seeking outward FDI by Indian firms include the following investments by (in joint venture/wholly owned subsidiary) Wipro Ltd. (EN Think Inc, USA; Wipro Chengdu Ltd., China), Infosys BPO Ltd. (Mccmish Systems LLC, USA), HCL Technologies Ltd. (HCL Technologies (Shanghai) Ltd.), Mahindra & Mahindra Financial Services Ltd. (Mahindra Finance USA LLC), Kerala Ayurveda Ltd. (Ayurvedic Academy Inc., USA), Gitanjali Gems Ltd. (Gitanjali USA Inc.) etc:

H1. Indian Firms' outward FDI is motivated by market size of the host country.

2.2 Resource-seeking

Some of the firms could invest abroad to secure stable supply of energy and natural resources. This is also referred to resource-seeking motive of outward FDI. Such investments could also be driven by national priorities besides usual economic considerations. Empirical evidence of resource-seeking outward FDI, especially in the context of China, can be found in the studies by Buckley *et al.* (2007), Cheung and Qian (2009), Ramasamy *et al.* (2012), Kolstad and Wiig (2012). According to Pradhan (2011), the effect of natural resource endowments is not visible in the aggregate outward FDI from emerging Indian multinationals. Nevertheless, resource-seeking outward FDI can not be ruled out given that firms originating from diverse sectors have invested in several different host countries[6]. The acquisition of Pioneer Natural Resource Co. in the USA by Reliance Industries Ltd. in 2010 is an example of resource-seeking FDI. Many such investments have been undertaken in developing countries; for instance, investments by (in) Indian Oil Corp. Ltd. (Suntera Nigeria 205 Ltd., Nigeria; Lanka IOC Pvt. Ltd., Sri Lanka; Block K, Timor Leste), Oil India Ltd. (National Oil Company, Libya), ONGC Videsh Ltd. (Sakhlin Oil Field Project in Russia; oil exploration project in Sudan, Syria, Vietnam, Iran, Libya, Cuba, Qatar, Latin America etc.), Jindal Petroleum Ltd (Jindal Petroleum (Mauritius) Ltd.), Confidence Petroleum India Ltd. (Surya GIO Gas Indonesia), Shivvani Oil and Gas Exploration (Shiv-Vani Rowell Oil & Gas Co. LLC, Oman), Indian Oil Corporation (Suntera Nigeria 205 Ltd.), Reliance Industries Ltd. (Reliance Oil & Gas Mauritius Ltd.), among others, can be classified as resource-seeking outward FDI:

H2. Indian firms have invested abroad in search of natural resources.

2.3 Technology-seeking

Internationalization helps not only access new markets but also state-of-the-art technologies. Technology-seeking firms tend to invest in countries with greater technological infrastructure and capability. Countries having higher innovation activities due to their focus on research and development are favourite destinations for such investments (Co and List, 2004). In most cases, the developed countries have been the forerunner in production of technology. There is also consensus that developed countries are centre of attraction for developing country firms from the point of view of acquiring technology (strategic-assets). The strategic asset-seeking motive has become even more important in recent years, as some of the assets in developed countries have become cheaper in the aftermath of the global financial crisis. In the empirical front, the intensity of patenting (availability of technological assets) has been found to be one of the key determinants of geographical distributions of overseas acquisition by Indian pharmaceutical firms (Pradhan, 2010)[7]. Nevertheless, empirical evidence on technology-seeking motive of Indian firms across different sectors is quite limited. As the pharmaceutical industry illustrates, technology-seeking outward FDI can be useful strategy to secure firm-specific advantages and to build lasting competitive advantage (Athreye and Godley, 2009)[8]. Some of the recent investments by (in) Alkem Laboratories Ltd. (S&B Pharma Inc., USA), Aurobindo Pharma Ltd. (Aurobindo Pharma USA Inc. NJ), Reliance Polyolefins Ltd. (MPM Bioventures IV, USA), Godrej Industries Ltd. (Medquist Holdings Inc., USA), Ashok Leyland Ltd. (ADES Holdings Inc., USA; Albonair GMBH, Germany), Larsen & Toubro Infotech Ltd. (GDA Tech Inc., USA) seem to have the flavour of technology-seeking FDI:

H3. Indian firms are motivated to invest abroad in search of technological assets.

2.4 Efficiency-seeking

One of the motives behind outward FDI is the firms' quest for lower input and production costs (UNCTAD, 1998; Braconier *et al.*, 2005; Bellak *et al.*, 2008). Usually, the flow of capital from high-wage industrialized countries to low-wage developing countries falls under the efficiency-seeking FDI. In the context of developing countries, like India, this might not always be the case. Nevertheless, investment in relatively less developed countries could be efficiency-seeking. Similarly, a part of the investment could be made in relatively low cost countries, thereby seeking efficiency. Recent investments by (in) Tata Motors Ltd. (Tata Motors (Thailand) Ltd.), Bajaj Auto Ltd. (PT Bajaj Auto Indonesia), TVS Motor Company Ltd. (PT. TVS Motor Company Indonesia), Elgi Equipments Ltd. (PT Elgi Equipments Indonesia), etc. can be counted as efficiency-seeking FDI. Similarly, IT firms such as Tata Consultancy Services (TCS) has invested across different countries of Asia, Africa and Latin America to serve different markets more efficiently:

H4. Indian firms look for efficiency while investing abroad.

The empirical specification, which will be discussed in the next section, will include explanatory variables for testing the above discussed hypotheses. Besides, the specification will also incorporate other control variables that could have an impact on outward FDI in different host countries.

3. Methodology and data sources

The empirical model, consistent with theory and hypotheses, is specified below:

$$OFDI_{ijt} = f(Market_{jt}, Resource_{jt}, Technology_{jt}, Efficiency_{jt}, Controls_{jt}) \quad (1)$$

In the above equation (1), subscript i represents firm, j stands for host country and t denotes time period from 2008-2009 to 2011-2012; OFDI is the Outward FDI (in millions of USD). The motivation related variables, e.g. market, resource, technology, efficiency, are included in the empirical model.

Gross domestic product (GDP) is chosen as a measure of size of a country's market even though there could be some limitations in a multi-country world. Previous studies have represented size of host country market by GDP (UNCTAD, 1998; Chakrabarti, 2001; Buckley *et al.*, 2007; Bellak *et al.*, 2008; Cheung and Qian, 2009; Pradhan, 2010; Nunnenkamp *et al.*, 2012; Ramasamy *et al.*, 2012). However, the effects of host country markets could vary over time, especially in the case of FDI from non-traditional source countries (Nunnenkamp *et al.*, 2012) and the results could be sensitive to small alterations in the conditioning information set, sample selection, model choice, etc. (Chakrabarti, 2001; Nunnenkamp *et al.*, 2012). Supported by existing literature, GDP (USD millions) in the host country has been used as a proxy for market-seeking FDI. The size (and growth) of host-country market is also widely used indicator of horizontal FDI.

Some of the firms from emerging countries, through internationalization, appear to seek natural resources. Hattari and Rajan (2010) in their analysis of aggregate FDI outflows from a sample of countries (including India) have used energy production in the host country as proxy for resource-seeking FDI. Instead of energy production, fuel exports of the host country (per cent of merchandise exports) have been used, which is in line with the literature (Cheung and Qian, 2009; Kolstad and Wiig, 2012). Further, resource-seeking firms are likely to invest in countries with surplus energy resources that are meant for exports. However, Cheung and Qian (2009), Kolstad and Wiig (2012), in their studies on China, have considered a broader proxy. The broader measure includes fuel, ores and metals exports of the host country as per cent of merchandise exports or GDP (host country's exports of ores and minerals in another study on China by Ramasamy *et al.*, 2012). As an alternative measure, the broader proxy has also been considered in the analysis (further details in the next section).

Emerging economy firms use internationalization as a springboard to acquire strategic assets from diverse markets to overcome their many disadvantages and become more competitive during periods of institutional transitions (Luo and Tung, 2007; Gubbi *et al.*, 2010). Against this background, a specific measure has been used to capture technology-seeking (or strategic-asset) FDI. In the literature, two types of measures have been found to capture this motive of emerging multinationals. First, an input-based measure captured by ratio of research and development expenditure to GDP in the host country (Hattari and Rajan, 2010). Second is an output-based measure, i.e. patent application in the host country. In this paper, the second approach has been followed and used resident patent application in the host country. This approach has been followed in several studies (Pradhan, 2010, 2011; Buckley *et al.*, 2012; Ramasamy *et al.*, 2012).

The GDP per capita is used as a proxy for wage costs, as both these measures tend to move in the same direction[9]. This is more frequently available than average wages,

especially in developing countries and makes it possible to include, in the empirical analysis, all the destination countries receiving Indian firms' investment. The proxy is valid under the assumption that increase in productivity translates to higher wages. Further, GDP per capita in the host country has been used as a proxy for vertical FDI (Nunnenkamp *et al.*, 2012), which is an efficiency-seeking FDI. Significantly negative coefficient of income per-capita in host country would indicate efficiency-seeking outward FDI (see Appendix for details of variable description and data sources).

The control variables include secondary school enrolment ratio of the host country, trade with India as percentage of host country's GDP, bilateral exchange rate, inward FDI stock in the host country as percentage of GDP, dummy for double taxation treaty (DTT), dummy for bilateral investment treaty (BIT), dummy for offshore financial centers (OFC) and sector dummies (see Appendix for details). Secondary school enrolment ratio captures availability of skilled labour, which has been considered as an important FDI determinant (Noorbakhsh *et al.*, 2001; Hattari and Rajan, 2010). Trade with India as percentage of GDP captures India's trade linkage with the host country. In general, trade openness can have an effect on FDI (Asiedu, 2002; Buckley *et al.*, 2012). A larger existing stock of inward FDI can be taken as evidence that a country has a good regime for foreign investors (Zhou and Lall, 2005). This is also a proxy for partial capital account openness. Similarly, linkage variables between home and host countries such as the exchange rate can have an effect on FDI (Udomkerdmongkol *et al.*, 2009; Goh and Wong, 2011; Buckley *et al.*, 2012; Takagi and Shi, 2012). The exchange rate between India and host country has been used to verify if it has any effect on outward FDI by Indian firms. A strong home currency (i.e. Indian Rupee) may encourage FDI outflows, as it can buy more assets in the host country. Indian currency would be stronger (weaker) when each Rupee can be exchanged for more (less) units of host country's currency. DTT and BIT are dummy variables for having double taxation (avoidance) treaty and bilateral investment treaty in force between India and host country, respectively, which also captures linkage between India and host country. Provisions such as avoidance of double taxation on income and capital, and equal treatment and protection of investments are likely to promote Indian firms' investment in host countries that have brought into force DTT and BIT with India[10]. OFC is a dummy variable for host countries that are classified as offshore financial centers, which have financial activity disproportional to its population. Sector dummies are included to control for sector of origin of the Indian firm.

An official data set has been used, recently released by RBI, on actual outward FDI by Indian firms in overseas joint venture/wholly owned subsidiary[11]. The dataset contains outward FDI made by firms in the form of equity, loan and guarantee (in USA dollars) during each calendar month, as reported by authorized (foreign exchange) dealers[12]. Availability of breakdown by component of outward FDI in the form of equity and loan is another unique feature of this database[13]. To analyse destination-wise FDI outflows at the firm level with an annual frequency, monthly figures have been aggregated and arrived at annual outward FDI by each firm disaggregated by destination country for each financial year (April-March). Sample period of analysis is for four years, i.e. 2008-2009 to 2011-2012[14]. The RBI dataset is rich in coverage. The number of host countries receiving investments from Indian firms is 102 in 2008-2009, 99 in 2009-2010, 105 in 2010-2011 and 109 in 2011-2012 (Table I)[15].

In the empirical estimation there may be an issue of reverse causality if outward FDI by Indian firms exert an impact on the host country variables. Therefore, lag of the explanatory variables has been used. The host country explanatory variables are lagged by one-quarter to account for the reverse causality concern and, at the same time, minimize the loss of observations. Therefore, the dependent variable on firm level outward FDI is for financial years 2008-2009 to 2011-2012, whereas the independent variables are for the calendar year years 2008-2011. The host country explanatory variables are collected from a number of sources. Variable description with expected sign and data sources are given in the Appendix.

An unbalanced panel of outward investing firms has been constructed for econometric analysis. Note that the panel unit is specified at the firm-destination level (for example, if firms X, Y and Z have invested in country A, there will be firm-destination panel unit for XA, YA and ZA). The panel is constructed for firms that are matched in the Prowess database (see Table I for the percentage of matched firms)[16]. The matching has been done for a reason, i.e. it is possible to account for sectoral differences only if the major activity of the outward investing firm can be identified. It is possible to locate the major activity (as per national industrial classification, NIC) by matching the outward investing firms in Prowess database maintained by Centre for Monitoring Indian Economy (CMIE)[17]. Later on, as a robustness check, the analysis is extended to all firms that have invested abroad but without accounting for sectoral difference.

What is unique about firm-destination panel? First, it will capture firms' differential attraction to invest in different host countries. Second, it is necessary to construct the panel in this way for examining firm level motivations. Note that this approach differs from the usual way of constructing panel at the bilateral level with aggregate FDI outflows[18]. Moreover, the host country observations get repeated, therefore cluster robust standard error has been used in the estimation (adjusted for clustering at the host country level). It is necessary to use firm-destination panel to test whether firm-level outward FDI is affected by host country variables. This way the number of observations can also be maximized for econometric analysis (as there are missing observations for some of the variables depending on the destination country) besides checking consistency of the findings with previous studies that have used panel analysis with aggregate FDI outflows[19]. The regression is run for components of outward investment, i.e. investment in the form of equity and sum of equity and loans.

Before moving on to the econometric results, a broad overview of outward FDI by Indian firms has been provided during the sample period. The direction and distribution of outward FDI made by Indian firms have been presented in Tables II and III,

Financial year	No. of destination countries	No. of firms investing abroad	Firms matched in prowess database	Match (%)
2008-2009	102	1,336	569	42.59
2009-2010	99	1,175	492	41.87
2010-2011	105	1,624	635	39.10
2011-2012	109	1,725	637	36.93

Table I.
Sample of firms

Source: Authors' compilation from RBI and CMIE-prowess database

Country	2008-2009		2009-2010		2010-2011		2011-2012	
	USD million	% of total	USD million	% of total	USD million	% of total	USD million	% of total
Mauritius	2,651.20	15.46	2,351.82	13.07	13,106.86	29.84	7,421.07	24.05
Singapore	4,137.20	24.13	6,787.42	37.73	11,856.27	26.99	5,945.78	19.27
Australia	147.22	0.86	36.76	0.20	234.25	0.53	2,415.29	7.83
The Netherlands	676.97	3.95	2,099.04	11.67	8,260.97	18.81	2,258.08	7.32
Panama	29.45	0.17	41.90	0.23	220.56	0.50	1,889.89	6.12
UK	793.46	4.63	407.24	2.26	705.05	1.60	1,832.54	5.94
USA	1,432.90	8.36	1,375.04	7.64	2,168.55	4.94	1,644.21	5.33
British Virgin Islands	512.67	2.99	502.50	2.79	855.84	1.95	1,582.73	5.13
UAE	908.90	5.30	1,366.43	7.60	1,922.91	4.38	1,134.92	3.68
Switzerland	410.84	2.40	170.02	0.94	400.27	0.91	969.08	3.14
Cyprus	2,278.21	13.29	589.60	3.27	513.37	1.17	638.63	2.07
Others	3,168.42	18.48	2,259.48	12.56	3,684.28	8.39	3,130.68	10.14
Total	17,147.42	100	17,987.25	100	43,929.18	100	30,862.91	100

Notes: Amount includes equity, loan and guarantees; the total amount of outward FDI in the above table is higher than the ones in Figure 2, although during different reference period; this is because these figures include guarantees and these are gross outward FDI, not the net
Source: Authors' compilation from RBI

Table II.
Direction of India's outward FDI in 2008-2009 to 2011-2012

Sector (of the destination country)	2008-2009	2009-2010	2010-2011	2011-2012
Primary	3.45	4.83	5.90	8.97
Manufacturing	52.77	40.31	33.54	31.50
Financial, insurance, real estate and business services	22.79	16.09	16.09	19.71
Other non financial services	15.81	28.37	40.47	27.38
Construction	2.39	5.27	1.93	10.89
Electricity, gas and water	0.73	4.53	0.39	1.03
Miscellaneous	2.06	0.62	1.67	0.52

Table III.
Distribution of India's outward FDI in 2008-2009 to 2011-2012, (figures in %)

Notes: Figures are including equity, loan and guarantees; other non financial services include: community, social and personal services; transport, storage and communication services; and wholesale, retail trade, restaurants and hotels
Source: Authors' compilation from RBI

respectively. However, as explained previously, the baseline econometric analysis has been done for the matched sample (see Table I). Nevertheless, the broad sample of outward investing firms is used for robustness check.

The direction of outward FDI by Indian firms is given in Table II. Mauritius and Singapore occupy the top position when it comes to outward FDI by Indian firms. The importance of OFCs as a destination of Indian firms' outward FDI is to be noted. Nevertheless, Indian firms have also invested significantly in developed countries including in Australia, The Netherlands, the UK, the USA, etc. Indian firms have invested in many developing countries though in small amounts *vis-à-vis* in the developed country and OFCs.

Sectoral breakdown of Indian firms' outward FDI reveals that the manufacturing and services have received fairly balanced amount, although the share of manufacturing has fallen during the study period and concomitantly an increase in the share of services. The share of primary and construction in total outward FDI has increased over the sample period. Nevertheless, manufacturing and services have received 79-91 per cent of total outward FDI made by Indian firms during the sample period.

The following section presents a discussion of findings of the empirical analysis on the locational determinants of outward FDI by Indian firms [equation (1)].

4. Results and discussion

Descriptive statistics and correlation matrix of the variables are presented in Appendix. The baseline regression results of equation (1), pertaining to locational determinants of outward FDI of matched firms, are presented in Table IV. The dependent variable takes two forms, namely, equity and equity plus loan. The results for both are presented. Additional control variables are also introduced in the subsequent columns of the same table.

The empirical results suggest that market size of the host country did not have statistically significant impact on Indian firms' outward FDI. This finding is contrary to previous studies that uses aggregate (bilateral) FDI flows (Hattari and Rajan, 2010; Nunnenkamp *et al.*, 2012). Overall evidence on market-seeking motive is at best weak as the coefficient estimate of GDP is not significant, although the sign is positive. In Nunnenkamp *et al.* (2012), the impact of GDP weakened over time (in the later years of

Table IV. Results of the matched sample (random effects model)

Variables	Equity	Equity + loan	Equity	Equity + loan	Equity	Equity + loan
GDP	3.11e-07 (6.45e-07)	2.03e-07 (6.61e-07)	3.23e-07 (6.30e-07)	2.12e-07 (6.47e-07)	4.24e-07 (6.82e-07)	3.14e-07 (6.95e-07)
GDPPC	−0.001*** (0.0002)	−0.001*** (0.0002)	−0.001*** (0.0002)	−0.001*** (0.0002)	−0.001*** (0.0002)	−0.001*** (0.0002)
FUELEXP	1.131** (0.455)	1.139** (0.443)	1.161** (0.475)	1.162** (0.460)	1.070** (0.470)	1.081** (0.457)
RPATENT	0.00013** (0.00005)	0.00014*** (0.00005)	0.0001** (0.00005)	0.0001** (0.000055)	0.0001** (0.00005)	0.00013** (0.00005)
SCHOOL	0.562 (0.399)	0.670 (0.459)	0.524 (0.393)	0.639 (0.460)	0.571 (0.420)	0.675 (0.481)
TRADEGDP	−11.256 (9.269)	−14.141 (9.699)	−9.269 (9.531)	−12.157 (9.789)	−10.786 (9.527)	−13.621 (9.930)
XCHANGE	−3.535 (2.903)	−4.701 (2.902)	−2.199 (3.441)	−3.567 (3.356)	−2.551 (3.046)	−3.787 (3.038)
FDISTGDP	0.220 (0.150)	0.250 (0.157)	0.151 (0.170)	0.190 (0.173)	0.202 (0.151)	0.232 (0.159)
DTT dummy	8.678 (33.829)	−4.137 (38.911)	1.289 (25.553)	−9.162 (30.987)	7.829 (36.778)	−4.805 (41.606)
BIT dummy	21.932*** (6.840)	23.456*** (7.369)	20.745*** (7.725)	22.486*** (8.105)	20.630*** (7.051)	22.249*** (7.425)
OFC dummy	33.451*** (11.732)	33.986*** (12.870)	36.571*** (13.407)	36.821** (14.337)	31.944*** (11.698)	32.541** (12.688)
Dummy manufacturing					−15.323 (15.799)	−14.686 (17.126)
Dummy service					−13.514 (14.518)	−13.495 (15.800)
Year dummy	Yes	Yes	No	No	Yes	Yes
Constant	−59.905 (53.704)	−55.257 (59.144)	−55.355 (46.602)	−52.825 (53.045)	−46.158 (57.648)	−41.848 (63.071)
Number of observations	882	882	882	882	882	882
Number of firm-destinations	569	569	569	569	569	569
R^2 overall	0.03	0.03	0.03	0.03	0.03	0.04
Wald Chi2	453.86***	317.38***	247.24***	149.59***	2,961.98***	3,147.91***
Hausman test (chi2)	5.26	4.89	5.47	5.18	5.31	4.93
Hausman test (p-value)	0.5107	0.5577	0.3612	0.3938	0.7235	0.7648

Notes: Figures in the parenthesis are robust standard error (adjusted for clustering); *** significant at 1%, ** significant at 5% and * significant at 10%. Time dummies are not significant

their sample compared to the earlier period). Against this backdrop, the insignificance of GDP of host country in the analysis is not surprising. However, the importance of market-seeking FDI could change over time.

Nevertheless, strong evidence of resource-seeking, technology-seeking, efficiency seeking outward FDI has been observed. The coefficient of FUELEXP is positive and significant suggesting that Indian firms have invested in countries having energy resources[20]. However, the coefficient is not statistically significant with the use of broader proxy, i.e. fuel, ores and metals exports of the host country as per cent of merchandise exports. Therefore, the results with the narrow definition have been presented. This result is in line with Hattari and Rajan (2010), however, contrary to Pradhan (2011), Buckley *et al.* (2012). It is to be noted that Buckley *et al.* (2012) used ratio of ore and metal exports to merchandise exports of host country, whereas Pradhan (2011) used both fuel exports, and ore and steel exports in log form. The insignificant impact of host countries' natural resource endowment captured thus in Buckley *et al.* (2012), Pradhan (2011) on FDI outflows from India could be attributed to the use of proxy and functional form. Similarly, the technology-seeking motive is supported by positive and significant coefficient estimate of RPATENT. The finding, which is in line with Pradhan (2010), Buckley *et al.* (2012), implies that Indian firms go for outward FDI to enhance their dynamic capabilities to compete in the global and local markets[21]. There is also evidence of efficiency-seeking outward FDI as the coefficient of GDPPC is negative and significant. This finding is similar to Nunnenkamp *et al.* (2012), with a different estimation methodology, although they found weaker evidence in this front. It may be noted that developed countries have occupied the top positions in terms of destination of investment by Indian firms (Table II), which is due to higher value of investments in capital and technology-intensive sectors, among others. Nevertheless, the negative sign of GDPPC in the econometric analysis is not contradictory, as the variable is not represented by host country's GDPPC relative to that of India (similarly defined in Nunnenkamp *et al.*, 2012). It essentially gives the effect relative to the average GDPPC of the sample, which is as high as USD 42,136.97 (Appendix). The result is also supported by small but negative correlation coefficient (−0.06) between GDPPC and the dependent variable (Appendix). However, if instead the ratio of host GDPPC to home GDPPC is used in the right hand side (Cheung and Qian, 2009), the resultant coefficient is not statistically significant in most cases without qualitatively changing the results. It is also to be noted that Indian firms have invested in many developing countries across Asia, Africa and Latin America, e.g. Bangladesh (textile, food processing), Indonesia (automobile), Ethiopia (chemicals), Brazil (pharmaceutical) and the like (in manufacturing and also in some of the services).

The results are uniform and statistically significant for both the specifications of the dependent variable. However, the control variables such as school enrolment, trade-GDP ratio, exchange rate, FDI stock, DTT dummy are not significant at conventional levels.

Statistically significant control variables include BIT and OFC dummies, a finding similar to Pradhan (2011). BITs have expected positive impact on outward FDI signifying that BITs can facilitate India's outward FDI. As expected, the OFC dummy is significant in all the models. This is in line with observed direction of India's outward FDI (Table II). The importance of OFC is also highlighted by India Brand Equity Foundation (IBEF). IBEF (2013) observes that special purpose vehicles set-up in OFCs

have been majorly used as channels to mobilize funds and invest in third countries, keeping in view the business and legal consideration, taxation advantages and easier access to financial resources in those countries, e.g. Mauritius, which is home to host of Indian firms and a vast Indian-origin population, positions itself as a "tax-free gateway to Africa". The OFCs as destination of Indian outward FDI are likely to cast doubt on the true motivation of outward FDI of some of the India firms. Nevertheless, the ultimate motive of investments made through OFCs may not be very different from the ones found in this analysis, except that the firms are routing these investments through OFCs to avail taxation and legal advantages[22]. Yet, unearthing the ultimate destination of investment made through OFCs could be attempted in future studies.

To account for sectoral differences, sector dummies have been included based on NIC (see Appendix for details). The results, both without and with the sector dummies, have been presented in Table IV. However, differential effects across sectors could not be observed in terms of the level dummy. This implies that outward FDI has been undertaken by the matched firms from all sectors (at the firm-destination level)[23].

4.1 Robustness check

As a robustness check, the broad sample has been used, i.e. the universe of firms that have made outward FDI (without controlling for sector dummy). The results are reported in Table V. The results are quite similar to those found in the case of matched sample presented in Table IV.

The results hold when OFCs such as Mauritius, Singapore and Cayman Island are excluded from the analysis. FUELEXP and RPATENT remain significant at 5 per cent, whereas GDPPC and BIT remain significant at 1 per cent (the results are not reported for brevity).

5. Summary and conclusion

The paper examines the motivation behind Indian firms' outward FDI over the period from 2008-2009 to 2011-2012. In doing so, the host country factors affecting outward FDI of Indian firms have been examined.

The analysis finds the presence of multiple motives of outward FDI by Indian firms. This is not surprising given the greater involvement of private sector firms. There is strong evidence of resource-seeking, technology-seeing and efficiency-seeking outward FDI. However, the market-seeking motive for internationalization has not been supported in the analysis, which is contrary to some of the previous studies based on aggregate FDI outflows at bilateral level. The results are robust to use of alternative sample of outward investing firms. The results also suggest that the BITs could play a role in facilitating outward FDI. In addition, OFCs emerge as a significant destination of outward FDI by Indian firms.

Firms originating from various sectors have invested abroad during the period considered. As such, any differential effect across sectors has not been observed in terms of level of outward FDI by (the matched) firms belonging to different sectors (at the firm-destination level).

Finally, it may be emphasized that no single motive can entirely explain the phenomenon of outward FDI by a large number of Indian firms in as many different overseas locations. It is the presence of multiple motives leading to outward FDI by Indian firms in different host countries. This could also be due to investment in

Table V.
Results of the broad sample (random effects model)

Variables	Equity	Equity + loan	Equity	Equity + loan
GDP	3.39e-07 (4.42e-07)	3.19e-07 (4.57e-07)	3.95e-07 (4.52e-07)	3.77e-07 (4.65e-07)
GDPPC	−0.0005*** (0.0002)	−0.0005*** (0.0002)	−0.0004** (0.0002)	−0.0004** (0.0002)
FUELEXP	0.765** (0.388)	0.743* (0.397)	0.753* (0.408)	0.727* (0.417)
RPATENT	0.0001** (0.00004)	0.0001** (0.00004)	0.0001* (0.00003)	0.0001* (0.00004)
SCHOOL	0.308 (0.267)	0.384 (0.317)	0.280 (0.269)	0.355 (0.321)
TRADEGDP	−8.017 (5.776)	−9.708 (6.067)	−5.767 (5.313)	−7.205 (5.539)
XCHANGE	−1.208 (2.367)	−1.720 (2.475)	−0.014 (2.687)	−0.543 (2.789)
FDISTGDP	0.160 (0.103)	0.180* (0.109)	0.112 (0.108)	0.134 (0.113)
DTT dummy	7.742 (16.068)	2.332 (18.741)	10.147 (9.634)	7.366 (12.065)
BIT dummy	14.272*** (4.953)	15.237*** (5.373)	12.966*** (4.983)	13.844** (5.392)
OFC dummy	23.506*** (7.213)	24.542*** (8.064)	25.969*** (8.144)	27.074*** (8.950)
Year Dummy	Yes	Yes	No	No
Constant	−39.137 (30.221)	−66.142* (34.721)	−42.420 (27.841)	−45.201 (32.650)
Number of observations	2,005	2,005	2,005	2,005
Number of firm-destinations	1,416	1,416	1,416	1,416
R^2 overall	0.02	0.02	0.02	0.02
Wald Chi2	2,194.51***	2,075.28***	90.23***	67.82***
Hausman test (chi2)	6.01	5.79	6.81	6.46
Hausman test (p-value)	0.4224	0.5643	0.2349	0.2644

Notes: Figures in the parenthesis are robust standard error (adjusted for clustering); ***significant at 1%, **significant at 5% and *significant at 10%. Time dummies are not significant

diversified sectors in host countries. Nevertheless, the relative importance of host country determinants might change over time as priorities of the firm or the policies in the home and host countries undergo a change.

Firms engaging in outward FDI have increased in number over the years. This reflects an increase in the global ambition of Indian firms to explore global opportunities and seek resource, efficiency, technology and strategic assets, etc.

As more and more Indian firms invest abroad, one can expect that such outward FDI will create global production and distribution networks and benefit the firms in multiple ways[24]. In this regard, encouraging firms to enhance their participation in international production network has to form a part of India's outward FDI promotion policy. Such policy also needs to be accompanied by removal of domestic bottlenecks that exist in the form of hard and soft infrastructure, among others, as international production network requires lower border costs in terms of both money and time.

5.1 Implications for policy

The paper analyses the investment motive, of the entire gamut of Indian multinational firms recorded in official database, in many different host countries. The findings have several implications for policy as well. The significance of resource, technology (strategic-asset) and efficiency-seeking motives has been found after controlling for other relevant factors. These motives of internationalization are expected to enhance the competitive advantage of Indian multinational firms as they accelerate their learning from global environment and acquire/strengthen their firm-specific advantages. Therefore, in the light of the findings and the recent downward revision by RBI of the outward FDI limits under automatic route in August 2013, maintaining stability in India's outward FDI policy regime needs to be emphasized so that the eligible firms can plan their overseas investment horizon (and the volume) needed to achieve a scale adequate enough for enhancing competitive advantages through acquisition of technology and complementary resources[25].

In the light of efficiency-seeking FDI outflows from India, among others, policymakers need to expedite the domestic reforms particularly in the factor market such as labour and land to keep these firms interested in the home economy. On the other hand, such FDI is expected to enhance the participation of Indian firms in international production network, which could bring the benefits of fragmentation of production processes across national borders. Therefore, addressing domestic bottlenecks could act as a double-edged sword, i.e. firms will be interested in domestic investment, and even if they invest abroad, there would be the benefits of fragmentation within the international production network. However, the benefits could be heterogeneous across industries.

The host country policies can influence foreign investment flows primarily through their influence on the advantages of location in the host country (Gastanaga *et al.*, 1998). Host countries that are desirous of attracting Indian firms, especially the developing countries, could take bilateral investment promotion measures to receive desired investment, among others. Indian firms wanting to venture abroad in search of resource and efficiency could be lured by such measures from many of the host countries.

Nevertheless, evidence regarding the benefits accrued through internationalization needs to be gathered. In particular, the impact of outward FDI at the macro as well

as firm levels needs to be assessed, which is an area for further research. The heterogeneity in motive (and impact of outward investment) across sub-categories and industries within manufacturing and service sectors could also be explored in future research.

Notes

1. According to PricewaterhouseCoopers (2010) report, India is projected to be the largest source of emerging market multinational enterprises by 2024, 20 per cent higher than China, overtaking China by 2018.
2. There are a few descriptive/exploratory studies on India's outward FDI, e.g. Nagaraj, 2006; UNCTAD, 2007; Kumar, 2008; Nayyar, 2008; Athukorala, 2009; Ray and Gubbi, 2009; Balasubramanyam and Forsans, 2010; Kedron and Bagchi-Sen, 2012.
3. While examining the choice of entry mode, i.e. between JV and WOS, of 142 Indian manufacturing firms during 1992 to 1999, Kathuria (2010) included host country index as one of the explanatory variables. The effect of host country factors on the volume of outward FDI by firms originating from both manufacturing and non-manufacturing sectors is not investigated at the firm level.
4. The sources of data in previous studies are UNCTAD FDI/TNC database and EIU's World Investment Service databases (Hattari and Rajan, 2010), Ministry of Finance, Government of India and OECD (Pradhan, 2011), Ministry of Finance, Government of India (Nunnenkamp *et al.*, 2012), value and number of foreign acquisitions by Indian firms from Thomson One Banker (Buckley *et al.*, 2012), in-house dataset constructed by author for the pharmaceutical sector based on overseas acquisition activities of Indian pharmaceutical firms (Pradhan, 2010). The data quality on India's outward FDI has been an issue when it comes to destination-wise breakdown.
5. See Mathews (2002, 2006), Blonigen (2005), Faeth (2009), Li (2010) for a survey of theoretical models and empirical literature on FDI determinants.
6. Hattari and Rajan (2010) reported significant impact of energy production in host country on India's aggregate outward FDI. Also see Gaffney *et al.* (2013) for a discussion on resource dependent FDI strategy by multinational enterprises from emerging countries.
7. See Deng (2007, 2009) for strategic-asset seeking outward FDI by China.
8. The technology-seeking motive is further emphasized in Dasgupta (2010), Tiwari and Herstatt (2010), Kedron and Bagchi-Sen (2012). Also see Kedia *et al.* (2012) for a discussion on knowledge-seeking FDI by emerging multinational enterprises.
9. Proxy is used due to limited country and time coverage of wage data, i.e. for all destination countries and during the sample period, in ILO Yearbook of Labor Statistics. Nevertheless, a comparison of wage (ILO Yearbook of Labor Statistics) and GDP per capita (World Development Indicators) during 2000 and 2008 (for both developing and developed countries) revels unidirectional movement of the two variables (figures are reported in local currency units). For example, Mexico: labour cost in manufacturing increased from 43.59 (per hour) in 2000 to 69.97 in 2008, whereas annual GDP per capita increased from 62,232 in 2000 to 106,611 in 2008; Peru: labour cost in manufacturing increased from 41.93 (per day) in 2000 to 46.92 in 2008, during the same time period annual GDP per capita increased from 6,809 in 2000 to 12,407 in 2008; Philippines: labour cost in manufacturing increased from 10,410 (per month) in 2001 to 16,565 in 2008,

whereas annual GDP per capita increased from 46,112 in 2000 to 85,435 in 2008; United States: labour cost in manufacturing increased from 24.63 (per hour) in 2000 to 32.26 in 2008, whereas annual GDP per capita increased from 36,467 in 2000 to 48,407 in 2008; Germany: labour cost in manufacturing increased from 27.63 (per hour) in 2000 to 32.9 in 2008, whereas annual GDP per capita increased from 24,905 in 2000 to 30,128 in 2008.

10. The effect of BIT on FDI is mixed in empirical studies (Chaisse and Bellak, 2011).
11. RBI has recently put data on overseas investment in public domain via press release no 2010-2011/1855 in June 2011. Data is made available for all months starting from July 2007.
12. The amount reported towards equity and loan represents the actual outflows. However, the data do not capture investments made through mobilization for funds from external sources, e.g. external commercial borrowings.
13. To the best of knowledge, no study has used this firm-level dataset released by RBI. Previous studies on India's outward FDI have used aggregate data at the country or sectoral level. From the RBI data, the actual FDI outflow in the form of equity and loan has been used. Aggregate outflows such as those reported by Ministry of Finance are approved amount at the country level.
14. Outward FDI data for the year 2012-2013 is also available. However, the host country explanatory variables are not available at the time of econometric analysis.
15. Going by RBI's firm level data, the number of countries receiving FDI made by Indian firms in 2008-2009 is 102. On the contrary, 97 countries have received India's (bilateral) FDI in the same year as per the Ministry of Finance. This could be verified only for 2008-2009, as this was the latest available year in the Ministry of Finance.
16. See Goldberg *et al.* (2010), Mukim (2011) for a brief description about Prowess database (also visit http://prowess.cmie.com/). Note that the database contains both (stock exchange) listed and non-listed firms.
17. The RBI data on outward FDI by Indian firms also contain major activity of the joint venture/wholly owned subsidiary in the host country. However, many Indian firms have made investments in multiple JV/WOS in many destination countries i.e. the major activities in the destination country are not in the same sector. This makes it difficult to classify the investments in the destination country under one sector, when the investments are actually in multiple sectors. Note that the firm-destination panel requires total outward FDI in the destination country as dependent variable (which is total of all the JV/WOS in the destination country). Also, the interest is to study the difference in outward FDI by the sector of origin of the outward investing firm.
18. Aggregative studies include distance as another explanatory variable. However, in the firm-level analysis, for each firm, the effect of distance is expected to be captured by firm-destination effects (since each firm-destination pair forms a unique cross section in the panel) even though distance is not explicitly included in the model.
19. Previous studies on India's aggregate FDI outflows have used estimation methodologies such as Pooled OLS, Poisson Pseudo Maximum Likelihood, Tobit, Tobit & Censored Quantile Regression, Censored Poisson etc.
20. This is consistent with Hattari and Rajan (2010) but contrary to Pradhan (2011).

21. Pradhan (2010) reports a positive impact of intensity of patenting in host country on acquisition by Indian pharmaceutical sector. However, intensity of patenting did not have any significant effect in Pradhan (2011).
22. Gopalan and Rajan (2010) tries to unearth the ultimate destination of investment by looking at M&A data. Guesstimate suggests that about 10 per cent of FDI (inflows into India) represent round-tripped capital from India via tax heavens such as Mauritius (Nagaraj, 2013). However, outflows could be in the form of FDI or otherwise.
23. Additional host country explanatory variables were also included, e.g. ores and metals exports (combined with fuel exports), institutional quality, interest rate difference between India and host country, but none of them was found statistically significant. Data were sourced from World Bank, the Institutional Quality Database (IQD) and International Financial Statistics. Similarly, dummy for business group was not found significant. This could be because many standalone firms have invested abroad besides the business group affiliated ones.
24. Participation of Indian firms in international production network is low as evident from previous studies (Athukorala, 2008, 2011; Kimura and Obashi, 2010; Anukoonwattaka, 2011; Sen and Srivastava, 2011; Athukorala and Nasir, 2012).
25. Outward FDI limit by Indian firms under automatic route has been restored in July 2014 (with some restrictions) to the limit prevailing prior to August 2013.

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Appendix

Variable	Description	Expected sign	Source
Dependent variable			
Equity	Outward FDI made by firm in the form of equity (US $ millions)		Reserve Bank of India
Equity + Loan	Outward FDI made by firm in the form of equity and loan (US $ millions)		Reserve Bank of India
Host country variables			
GDP	GDP of host country (US $ million)	+	World Development Indicators, World Bank
GDPPC	GDP per capita of host country (US $)	−	World Development Indicators, World Bank
FUELEXP	Fuel exports % of merchandise exports	+/−	World Development Indicators, World Bank
RPATENT	number of resident patent application in host country	+	World Intellectual Property Organization (WIPO)
SCHOOL	School enrolment, secondary (% gross)	+	World Development Indicators, World Bank
TRADEGDP	Host country's trade with India (% of host country's GDP)	+	Constructed using UN Comtrade & UN ServiceTrade
XCHANGE	Bilateral exchange rate (foreign currency per unit of Indian rupee)	+	Calculated from International Financial Statistics (IFS), International Monetary Fund
FDISTGDP	FDI stock % of GDP	+	World Investment Report, 2012
DTT dummy	If any double taxation treaty (on income and capital) between India and host country	+	UNCTAD, Country-specific list of double taxation treaties
BIT dummy	If there is any bilateral investment treaty (BIT) in force between India and the host country (time-varying)	+	UNCTAD, Country-specific list of Bilateral Investment Treaties
OFC dummy	If the host country is classified as an Offshore financial center (OFC)	+	IMF & Financial Stability Forum (Source: Zoromé, 2007; Table X)
Sectoral dummies			
Dummy manufacturing	NIC code 10-32	+/−	Constructed (using 2-digit NIC code from CMIE-Prowess)
Dummy service	NIC code 55-98	+/−	Constructed (using 2-digit NIC code from CMIE-Prowess)

Table AI. Variable, description and data sources

Variable	Mean	SD	*n*
Equity	9.59	76.30	882
Equity + loan	12.78	77.56	882
GDP	65,96,970	64,33,682	882
GDPPC	42,136.97	9,466.035	882
FUELEXP	8.36	7.60	882
RPATENT	104,844.30	114,327.6	882
SCHOOL	101.47	10.37	882
TRADEGDP	1.13	1.86	882
XCHANGE	0.08	0.34	882
FDISTGDP	68.30	103.32	882
DTT	0.94	0.24	882
BIT	0.46	0.50	882
OFC	0.14	0.35	882
Dummy manufacturing	0.47	0.50	882
Dummy service	0.37	0.48	882

Table AII.
Descriptive statistics

Source: Authors' calculations

Table AIII.
Correlation matrix

Variable	Equity	Equity + loan	GDP	GDPPC	Fuelexp	Rpatent	School	Tradegdp	Xchange	Fdistgdp
Equity	1									
Equity + loan	0.98	1								
GDP	−0.08	−0.09	1							
GDPPC	−0.06	−0.06	0.37	1						
Fuelexp	0.06	0.05	−0.17	−0.06	1					
Rpatent	−0.07	−0.08	0.96	0.35	−0.21	1				
School	0.03	0.04	−0.39	0.34	0.22	−0.40	1			
Tradegdp	−0.03	−0.02	−0.33	−0.26	−0.11	−0.32	−0.33	1		
Xchange	0.001	−0.002	−0.11	−0.24	−0.02	0.08	−0.09	0.04	1	
Fdistgdp	−0.01	−0.004	−0.44	−0.26	−0.17	−0.42	−0.28	0.97	0.04	1

Source: Authors' calculations