Outward foreign direct investment from Indian manufacturing firms – does transaction cost theory explains early choices?

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Abstract: The objective of the paper is to see whether transaction cost theory explains early choices of Indian multinationals, when outward foreign direct investment (OFDI) policy was still not liberal. This is done through three research questions: 1) what determines choosing between joint venture (JV) and wholly-owned subsidiary (WOS) for Indian manufacturing firms; 2) whether factors are different from the one for the developed country firms; 3) do they differ if investment is made in another developing country vis-à-vis a developed country setting. The analysis is carried out on a sample of 88 WOS and 162 JVs made by 142 firms. Results indicate that different transaction cost variables influenced entry choice in developed countries vis-a-vis developing countries.

Keywords: foreign direct investment; internationalisation; diversification; joint ventures; wholly-owned subsidiary; WOS; emerging market multinationals; transaction cost theory; India.

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1 Introduction

Venturing out had been exception rather than the norm in many of the emerging economies including India and China until the early 1990s. Given the vast domestic market and the inward looking policy focus, firms from emerging economies especially India and China had lacked a culture of risk taking that is often taken for granted for firms from developed countries. Even the financial institutions and capital markets were inadequate to promote such entrepreneurship and hardly any role models to be imitated (Arora and Gambardella, 2005). The last two decades however has witnessed a surge in outward foreign direct investment (OFDI) from several of these emerging countries. According to UNCTAD (2011), the stock of OFDI from developing economies reached US$3.1 trillion in 2010 forming 15.3% of global OFDI stock, which was up from US$857 billion (10.8% of global outward FDI stock) 10 years ago. This is nearly a four-fold increase in 10 years.

Studies have attributed this to the liberalisation or globalisation process embarked on by these countries (Balasubramanyam and Forsans, 2013). There exist plethora of studies explaining this phenomenon. Some have attributed this to be a strategic choice of investing abroad by local firms given the sudden increase in competition (Popli et al., 2017), others have tried to look it from the perspective of Dunning’s ownership-location-internalisation (OLI) paradigm (Kumar, 2008; Pradhan, 2008; Ramamurti and Singh, 2009; Sun et al., 2012) and few others have attributed this to the bundling skills (Hennart, 2012; Buckley et al., 2016a, 2016b, 2017) of these firms along with the firm specific ownership advantages.

Earlier studies investigating factors influencing outward investment suffered from a major limitation in that they have looked the choice of a developed country firm entering into another developed country namely the USA, Japan or Europe. This is corroborated by a survey article by Canabal and White (2008) documenting studies carried out over 1980 to 2006 period. Of the 126 articles published in 45 journals during the period, only a handful look outward investment from developing economies. The relevance of the factors that explain the choice of a developed country multinational corporation (MNC) has been questioned in several of the studies [see Ray et al. (2017) for a recent critique] as these latecomer firms lack many of the traditional advantages associated with well-established MNCs of the developed countries. Moreover, for these traditional MNCs since the host and home countries were at the comparative level of development, the entry choice primarily became a feature of two kinds of factors:

- overall sectoral technological intensity (i.e., industry specific factor)
- relative technological advantage of firms (i.e., firm specific factor) (Anand and Delios, 2002).

Interestingly, when firms from developing countries plan to invest, they can enter in both countries with lesser or comparable development and/or countries with higher level of development, i.e., their internationalisation paths would be different. Consequently, the entry choice would differ. In that case, the choice is governed a great deal by country-specific factors, since countries less developed would not offer any significant advantage in terms of learning or seeking new assets (Hennart, 2009).

As mentioned, there are several studies for emerging economies focusing on India (Kumar, 2008; Pradhan, 2008; Ramamurti and Singh, 2009; Kathuria, 2010; Buckley
et al., 2016a, 2016b, 2017), most of these studies treat investment from emerging economies and factors influencing these investment to be the same irrespective of whether it is in developed or developing countries. Karna et al. (2014) though a two-step clustering approach first time distinguish different categories of emerging market MNCs. We however argue that factors influencing investment choice, i.e., internationalisation would be different depending on whether the investment by emerging market MNCs is in developed country or developing country.

The evolution of OFDI policy in India clearly indicates that the policy facilitation helped Indian firms mainly since 2000. According to Khan (2012), the significant outflow of FDI resulted from 2000 onwards with two key changes:

a. introduction of Foreign Exchange Management Act (FEMA) in June 2000
b. removal of the neutrality condition (requiring full repatriation of outward investment within 5 years) in 1999.

The data substantiates this as average OFDI from India during 1990 to 1999, which was paltry US$70 mn rose to US$6.6 bn during 2000 to 2008 (see Figure 1). The outward FDI performance index as calculated by UNCTAD, which was 0.013 in 1992–1993 increased slightly to 0.08 in 2000–2002, but rose dramatically to 0.368 in 2005–2007. This makes it interesting to see that despite having a permissive policy in 1990s, what made Indian firms to invest abroad? The study would have important policy implications for firms from other emerging or developing economies, which still have restrictive outward FDI policy. The data shows that even in 2005–2007, half of the countries were having Outward FDI performance index similar to what India had in 1992–1994. Thus, knowing the factors would facilitate the firms from these countries to also venture abroad.

Figure 1 Outward FDI and merger and acquisitions (M&A) by firms–1990 to 2012 (see online version for colours)

This study contributes to the literature by carrying out the analysis for an emerging country, namely India, to see
a what determines the choice between joint venture (JV) and wholly-owned subsidiary (WOS) for manufacturing firms from developing country
b whether factors are different than for the developed country foreign firms
c do factors differ if investment is made in another developing country instead of a developed country setting.

The remaining paper is organised as follows: Section 2 gives the evolution of OFDI policy in India. Section 3 deals with the theoretical background of the study and provides theories explaining firm’s entry mode choices. Section 4 formulates the hypotheses to be tested. Section 5 gives the data and the variables. Section 6 provides the results. Section 7 compares the results with that of other studies carried out for developed countries and paper concludes with Section 8. The section also gives the implications of the study for comparative management as well as for the firms aspiring to invest abroad from other developing or emerging economies.

2 Outward FDI policy regime in India–evolution

The OFDI policy in India has primarily been general in nature and not sector-specific. The first set of formal guidelines for OFDI was issued by the Government of India (GoI) in December 1969. The guidelines permitted Indian firms minority participation in turnkey projects involving no cash remittances (Gopinath, 2007). The OFDI policy regime in India however can be characterised in three discernible phases-restrictive, permissive and liberal. The significant upsurge in OFDI from India since the late-1990s can be linked to:

a the changed policy regime from permissive to liberal
b the greater access to financial markets.

doing this, the first phase spanned 15 years from 1978 to 1992. During the phase overseas investments by Indian firms were possible only in the form of minority-owned JVs and for the purpose, no cash remittances were allowed. The policy stipulated that 50% of declared dividends should be repatriated to India and every proposal had to be placed before an ‘inter-ministerial committee on joint ventures’ for approval.

The second phase, termed as the ‘permissive phase’, spanning for 12 years from 1992 to 2003 witnessed a gradual relaxation. The steps taken include an automatic route for overseas investments up to US$2 million in 1992, which was raised to US$4 million in 1995; allowing cash remittances and removal of restrictions on minority ownership. The clearing for proposals up to US$15 million required approval from the Reserve Bank of India (RBI) and overseas investment of more than US$ 15 million required permission of the Ministry of Finance. In 2000, the upper limit for automatic approval revised to US$50 million per annum (a 12.5 times rise), without any profitability condition. This was again doubled to US$100 million in 2002, of which 50% could be obtained from any authorised dealer in foreign exchange.

The third or the ‘liberal phase’ started from 2004 onwards (Nayyar, 2008). In 2004, firms were allowed to invest up to 100% of their net worth under the automatic route. In 2005, this was raised to 200%. In another key policy change, the prior approval from the
RBI was dispensed with and firms could obtain the entire remittance through any authorised dealer in foreign exchange.

This liberalisation of the OFDI policy regime was intertwined with greater access to financial markets. Financial deregulation in the domestic capital-market began almost simultaneously with economic liberalisation of the early 1990s and by the early 2000s Indian firms had significant access to domestic capital markets. The rules for access to international financial markets were also progressively liberalised in the early 2000s. In April 2003, banks in India were permitted to provide credit to majority-owned affiliates or WOS of Indian firms abroad up to 10% of their unimpaired capital funds. In November 2006, this limit was raised to 20%. In addition, starting in June 2005, banks in India were allowed to extend credit to Indian firms for investment in existing or new JVs and in WOS.

Besides this, Indian firms were also allowed the use of special-purpose vehicles (SPV) in international capital markets to finance acquisitions abroad. Perhaps that is the reason, unlike most international M&A that are characterised by equity swaps, Indian firms acquired foreign firms mostly for cash (Balasubramanyam and Forsans, 2013; Nayyar, 2008). For larger acquisitions, Indian firms have used the leveraged buy-out route with the help of SPV in international financial markets. Thus, the rapid growth in FDI outflows from India that began late 1990s, and the boom in foreign acquisitions by Indian firms that started from 2005, were both made possible by significant changes in the policy regime and greater access to financial markets. Interestingly, these policy changes facilitated Indian firms to move across borders without any compulsion to do so.

3 Choice of entry modes—theories

A firm deciding to invest in a foreign country has to make two sequential choices:

a whether to acquire/buy an existing firm or set up the facility; and if it decides to set-up own facility

b whether to do it alone by establishing a WOS or engage a local partner by creating a JV, i.e., entry mode choice.

These decisions are called strategic because each choice has benefits and risks. Though acquisitions are fast means of building up a base for production in an alien environment, they are piggy-bagged by post-acquisition failures due to technological mismatch, lack of knowledge of the new market and cultural differences, etc. (Dikova and Witteloostuijn, 2007), apart from the assets valuation problems before acquisition (Harzing, 2002). Whereas, Greenfield investments provide a great deal of flexibility and choice with regard to location, plant size, etc. and even allows the firm to keep its trade secrets to itself, besides facilitating propagating corporate cultures abroad. On the flip side, they often have the longest gestation period and increase the investment risk (Brouthers and Brouthers, 2000) in the form of exposure to currency fluctuations (Davidson, 1983), political and economic stability in the country (Anderson and Gatignon, 1986). JVs though facilitate investors to draw on the experience, and resources of local partner that minimises risks, but are replete with challenges due to differing capabilities, interests and goals of local partner (Dikova and Witteloostuijn, 2007) and sometimes opportunism behaviour (Hennart, 1991; Gomez-Casseres, 1989). Moreover, like any other partnership
concern, in JVs there is the risk of partners’ interests changing over time (Chang and Rosenzweig, 2001). Thus, each mode has its benefits and challenges.

The OLI framework or the ‘eclectic paradigm’ given by Dunning (2000), explains what makes a firm more outward oriented (Kumar, 2008; Pradhan, 2008). According to this, there are three reasons why a firm carries out operations abroad – ownership (O) or comparative advantages such as proprietary knowledge, access to finance, etc., the locational factors (L) when certain locations are more endowed with particular resource than others and the Internalisation theory (I) which stems from the ‘transaction cost (TC) theory’ states that if the net benefits from internalising cross border intermediate product markets are high, the more likely the firm is to carry out operations abroad. However, several theories exist explaining the choice of entry mode of firms [refer Canabal and White (2008) and Andersen (1997) for a brief summary]. The behavioural theory given by Cyert and March (1963) through its underlying assumption that firms stay close to their past practices and routines, explain that the process of internationalisation is gradual and sequential only. In this sequential learning, the U-model (Uppsala) of internationalisation of firm emphasises that:

a firms move to distant countries only after having established themselves in markets closer to home (Kogut and Singh, 1988)

b the more the knowledge gained about a particular market, the more will be the commitments made in terms of ownership (Arora and Fosfuri, 2000) starting from exports to setting up of production facility.

The ‘resource-based view of the firm’ given by Wernerfelt (1984) argues that entry mode choice is a result of interplay between a firm’s endowment of complementary capabilities. According to this, there are two kinds of capabilities. Downstream capabilities like marketing, distribution and country-specific institutional expertise are imperfectly mobile across countries, whereas upstream capabilities like R&D activities or intangible technology advantages are mobile (Anand and Delios, 2002). The cross border M&A (or JVs) are driven by the complementarities between internationally mobile and non-mobile capabilities (ibid.).

The ‘syncretic theory’ developed by Hill et al. (1990) and Contractor (1990) emphasises that different entry modes provide different levels of ownership commitments, degrees of control and risk (Arora and Fosfuri, 2000). For example, licensing of technology would be low risk, low ownership and at the same time, would offer a low degree of control, whereas WOS and acquisitions are high risk but offer a high degree of control. The approach suggests that entry-mode decision is interplay of strategic, environmental and transaction-specific variables.

TC theory given by Williamson (1979) and formalised by Anderson and Gatignon (1986) and Hennart (1988) for entry choice posits that the choice between full and partial ownership (i.e., WOS vs. JV) depends on the costs and benefits of sharing ownership vis-à-vis full-ownership, under conditions of risk and uncertainty. JV is preferred over WOS when the investing firm requires complementary assets or intermediate inputs (such as industry-specific knowledge, market familiarity, access to technology, distribution network and natural resources), which if procured from the market entail high TCs or would be difficult to replicate or acquire (Hennart, 1991; Makino and Neupert, 2000).

Building on TC theory, Hennart’s (1991) study for Japanese investment in US identifies several key variables. The need for JV will be strong: when parent firm:
1. has little local experience
2. needs access to local resources
3. diversifies into a new industry
4. enters a high growth industry.

Whereas, firms which need to transfer large amount of tacit knowledge, or which
differentiate their products through advertising will prefer WOS, as the transfer of
knowledge and brands are subject to free-riding by the partner (Anderson and Gatignon,

Though studies, in general, have found support for TC explanation for the entry
choice between JV and WOS (see for example, Gomez-Casseres, 1989; Hennart, 1991;
Hennart and Larimo, 1998; Makino and Neupert, 2000, etc.), there are studies that have
emphasised the importance of the non-TC factors also such as host government
restrictions, host country risk and uncertainty, and strategic factors (Hill et al., 1990; Kim
and Hwang, 1992, etc.). Studies by Erramilli (1996), Shane (1994) while not finding
support for TC theory, have concluded that the choice is nationality specific. The
conclusion of these studies have been refuted by Makino and Neupert (2000), Hennart
and Larimo (1998), which have found cultural distance more potent factor than
nationality. The present study contributes to literature by investigating the role of TCs on
entry choice of firms from a developing country.

4 Model, hypothesis and data

To verify the TC theory for Indian MNCs, several hypotheses are established. While
formulating the model and choosing the appropriate variables, the study builds on
Hennart (1988) and Anderson and Gatignon (1986). Since most previous studies have
been done for developed countries, some of the variables require modification in the
Indian context. This is because investment by firms from the developed countries is in
countries that are either at the comparative development level or in countries with lower
development level. However, Indian firms have invested in both categories of countries –
the more developed (upstream investment) and the countries below India’s level of
development (downstream investment). This implies that the choice is governed not only
by exploitation of existing capabilities but also desire to enhance capabilities (Madhok,
1997).

4.1 Model

Since the nature of the choice for firm is discrete (an ‘either-or’ choice), probit model
which allows the use of a discrete dependent variable has to be used. The dependent
variable in probit model takes the value 1 if the firm opts for WOS mode and 0 otherwise.
The explanatory variables are continuous variables which affect the choice of the firm.
The coefficients of these variables will give the direction of the relationship between
the probability and that variable (for example, the sign of the coefficient of ‘Foreign
Experience’ will tell us whether previous OFDI experience facilitates WOS or JV
choice). In probit model, the coefficient is not directly interpretable, it is the marginal
effect that measures the effect of a change in an explanatory variable on the mean of the dependent variable (Greene, 2003). The model is:

\[ \text{MODE} = \alpha + \beta_x X_a + u; \]

where \( \alpha \) and \( \beta_x \) are unknown parameters and \( u \) is the residual. \( \text{MODE} = 1 \) if firm prefers WOS; and 0 otherwise.

The discussion in previous section indicates that entry choice depends on three categories of factors – two related to TC (gain and cost from sharing equity) and one unrelated to TC. The same factors have been used to choose variables affecting entry choice of Indian firms.

4.2 Gains from JV

Hennart (1991) argues that the JV will be preferred: when investing firm:

1. has little local experience
2. need access to local resources
3. diversifies into a new industry
4. enters a high growth industry.

Besides these there are internal uncertainty factors that indicate the choice in favour of JVs such as cultural distance between home and the host country, etc. (Anderson and Gatignon, 1986).

4.2.1 Foreign experience (Forexp)

The process of entering in a foreign country is by nature a dynamic process (Johanson and Vahlne, 1977) and knowledge of the global economy could affect the entry mode choice (Harzing, 2002). A firm with more experience in international investments would be more knowledgeable about foreign culture, institutional characteristics and other site-specificities (Hennart, 1991; Arora and Fosfuri, 2000). Whereas, first time investors may overstate risks and understate returns of international markets (Davidson, 1983). Thus, an experienced firm would prefer WOS and a firm without significant foreign experience may first need to acquire the capabilities, and consequently its purchase is subject to high TCs. Thus, to deal with the local environment, firm may prefer JVs (or acquisitions) (Hennart, 1991; Wilson, 1980). The only argument where first time investors may opt for WOS is due to their ethnocentric orientation (Anderson and Gatignon, 1986), which may induce investors to demand to have their own nationals in key positions – easier to achieve via full-ownership (Weichmann and Pringle, 1979). The literature in general has supported the role of experience in setting up of WOS.

Hypothesis 1 Indian firms are more likely to invest in JV when they have no or limited prior foreign experience.

4.2.2 Access to local resources (Resour)

In natural resource industries, the local firms have first-mover advantages as they benefit from government policies that often reserve them for locals, thus get differential rents
(Gomez-Casseres, 1989; Hennart, 1991). Moreover, government policies often discourage/prohibit full ownership in these industries by foreign firms and it is costly for a foreign firm to circumvent these policies. Thus, one would expect a greater propensity to JV in resource intensive industries.

Hypothesis 2  Indian firms are more likely to invest in JV when they belong to natural resource intensive industries.

4.2.3 Diversification into other industry (Diver)

Diversification has two aspects: a firm entering into an unrelated industry or entry by a diversified firm. In both cases, the firm would have less specialised knowledge of the product in question and therefore entry will be through the JV mode (Chang and Rosenzweig, 2001). From TC point of view, diversification in new industry makes it difficult as well as costly for the foreign firm to acquire product-specific knowledge or access to distribution, etc. through contract or replication, which can be more efficiently obtained through JV (Hennart, 1991), whereas, a focused firm would try to exploit its knowledge of the product and thereby invest in a WOS. Dikova and Witteloostuijn (2007), Arora and Fosfuri (2002), Contractor and Kundu (1998), Hennart (1991), among others have found that entry with a new line of business is more likely to be in the form of a JV or acquisition rather than a WOS.

Hypothesis 3  Indian firms are more likely to invest in JV if they are already diversified or diversifying into newer areas.

4.2.4 Cultural/geographical distance/regional preferences (region)

While making the investment decision, a firm often considers factors such as the geographical distance and the relative advantages of the host country. Apart from geographical distance, the cultural distance also plays a key role in the decision (Mayrhofer, 2004; Chang and Rosenzweig, 2001). The distance not only introduces the possibility of friction in the management of the firm (Harzing, 2002), but also enhances uncertainty (Anderson and Gatignon, 1986; Kogut and Singh, 1988) and creates high information costs (Root, 1983), which firms try to avoid by turning management over to JVs. Moreover, familiarity with a country reduces the (perceived) benefits of a JV from TC point of view (Gomez-Casseres, 1989). Thus, a country/region located closer (geographically and culturally) to India may be favoured for WOS, because of easy administration, less uncertainty and low information costs. The evidence of the role of cultural distance in influencing investment decision is fairly mixed. Hennart and Larimo (1998) in their comparative study of Japanese and Finnish investment in the USA and Arora and Fosfuri (2000) for chemical plants found that JVs are the preferred norm with increased cultural distance. Kim and Daniels (1991) and Contractor and Kundu (1998) using data on hotel industry found no effect of cultural distance on investment decision. Since the South Asian and African regions are geographically and culturally close, the Indian firms may prefer having a WOS in these regions.

Hypothesis 4  Indian firms are more likely to invest in WOS if they are investing in regions which are nearer both geographically and culturally.
4.3 Costs of sharing equity

There are two main factors that increase the costs of setting up JV:

a. when firms need to transfer large amount of tacit knowledge
b. firms using advertising to differentiate their products.

Both the cases—the transfer of knowledge and brands—are subject to free-riding by the partner and hence induces firms to go for WOS (Hennart, 1991). The technological intensity of the industry and the level of host country development also affect the cost of sharing equity, thus dictating the entry choice.

4.3.1 Technological advantage of the firm (RND)

The exchange of knowledge from parent to subsidiary or JV partner entails TCs, which increase for tacit knowledge and transferred to firms in poorly protected intellectual property regime. The situation is compounded because tacitness makes technology pricing difficult (Anderson and Gatignon, 1986) and preventing its leakage beyond JV partner is hard (Hladik, 1985). Moreover, a firm’s need for complementary technological know-how varies indirectly with its R&D intensity. Besides, when competitive advantage is built on superior application of technology, the preference would be for WOS (Brouthers and Brouthers, 2000). This implies a firm having high R&D intensity would have low propensity to JV. According to Anand and Delios (2002), technology know-how of a firm (called the upstream capabilities) being fungible, a firm having higher technological advantage can exploit it through WOS. The relation however is not monotonic, as despite having high R&D intensity, a developing country firm’s investment in a highly developed region such as Europe or US may have nothing much to exploit, rather the firm may have more to learn through JV. Since Indian firms have invested in both kinds of countries, investment in technologically advanced countries will facilitate them to acquire complementary assets, hence to go for JVs whereas in less developed countries they may be in a better position to exploit their technological advantages and hence may prefer WOS (Arora and Fosfuri, 2000).

Hypothesis 5a A technology active Indian firm is more likely to invest in WOS if host country is at the same or lower level of development than India.

Hypothesis 5b Investment by a technology active firm in technologically advanced nations would be through JV.

4.3.2 Technological intensity of the industry (Ind)

The entry mode is also influenced by the technology intensity of the sector. Kogut and Zander (1993) have pointed out that market based transactions in technology are more likely to occur when technologies are more codified and easier to transfer across firms. Teece (1977) and Balakrishnan and Koza (1993) have shown that the cost of transferring technology to other industries were lower for mature and standardised technologies, resulting in reduced asymmetric information and less opportunities for opportunist behaviour. This implies that WOS would be preferred for firms belonging to industries with complex and more proprietary knowledge, whereas for an industry having high asset-specificity, the risk involved in investing abroad may be diluted by engaging in a
JV. Which of the factors dominate is an empirical issue. Though TC explanation does not predict the relation, the resource view is unequivocal in suggesting the role of technology intensity. According to this view, for firms from developing countries, irrespective of their technological intensity, the investment in less developed countries would be of ‘asset exploitation’ thus would prefer WOS, whereas in more developed countries, for complex and higher level of technology, it would be of ‘asset seeking’ type and preference would be for JVs. If firms are classified into three categories based on their technology level – high-tech, medium-tech and low-tech firms, one can hypothesise that:

Hypothesis 6a  Indian firms irrespective of the technology intensity of the industry would be opting for WOS if the host country is at the same or lower level of development than India.

Hypothesis 6b  Investment by a firm belonging to high tech industry would be through JV if the host country is at higher level of development than India.

4.3.3 Brand equity (Advint)

TC theory suggests that firms that differentiate their products through advertising prefer to seek full ownership (Hennart, 1991). This is because a company’s image and reputation will be a public good to the other firm in the JV. Thus, ceteris paribus, when the potential for free riding is high, entry modes offering high control, i.e., WOS is more efficient (Hennart, 1991; Anderson and Gatignon, 1986). However, this is more relevant for firms in developed countries. For Indian firms investing outside, their brand will be relatively unknown and image may be of less value across the borders, when the investment is in more developed countries. Since these downstream capabilities would take time to build on in developed countries, they induce entry by acquiring (or JV) (Anand and Delios, 2002).

Hypothesis 7  Investment by advertising intensive firms in relatively underdeveloped countries would be through WOS.

4.3.4 Host country index (Countindx)

As investment by Indian firms is in both categories of countries – more developed and less developed than India, the level of development - in terms of legal framework, infrastructure, tariff, etc. – would determine the entry mode. In the event of the country development index being high (low), a firm would be willing to make more (less) financial commitments through WOS (JV) since this would indicate more (less) room for patenting, having better infrastructure, free trade flows and so on. The ‘resource view of firm’ however suggests that a positive (negative) differential index between host and India means firm’s investment would be of asset seeking (exploiting) type, hence JV (WOS) would be the preferred mode. Thus it is difficult to hypothesise which of these impacts would be more.

4.4 Other factors

Besides these, there are non-transaction specific factors like size, age, firm type, etc. that would influence entry choice.
4.4.1 Firm size (Size)
The size of the firm is an indicator of its financial position (Arora and Fosfuri, 2000). A smaller-sized firm will have lesser capacity to invest and bear risk, thus more affinity towards JV (Hennart, 1991). Controlling for industry heterogeneity, the size of the firm also indicates its success over its competitors in the domestic market and the likelihood of it possessing a comparative advantage over the competition abroad. Thus, Indian firms are more likely to invest in JV if they are small in size.

4.4.2 Age of the firm (Age)
The effect of ‘Age’ on entry mode can be hypothesised in two ways. Older firms by virtue of their experience can venture into new territories and bear the risks that go with these investments, thus preferring WOS mode. Simultaneously, older firms may be more conservative and therefore unwilling to engage in large investments abroad, thus may prefer JVs. Conversely, younger firms despite being more adventurous may not have the financial resources or the experience to make large risky investments outside India. Thus it is difficult to indicate the precise impact of Age on the entry choice.

4.4.3 Firm type (Firmtyp)
The financial backing that a firm has could also play a role in determining entry mode. Firms, which have the backing of a financially strong (weak) ‘group’ may perceive the risk differently than independent companies. In such a situation, a group company may have propensity to invest in a WOS (JV), whereas an independent firm may be resource constraint, thereby forcing it to go for JV. Alternatively, a stand-alone company would be more flexible than the group company, which is bound by group philosophy and culture. Since WOS provides more flexibility than the JV (Anderson and Gatignon, 1986), standalone firms may prefer WOS. Thus it is difficult to hypothesise the precise impact of Firm type on entry mode.

4.4.4 Industry concentration (Conc)
Industry concentration in the host country could also affect the entry mode choice. The higher the degree of concentration, the entry will have greater impact on existing firms, and the greater the probability that they will retaliate against investors (Hennart, 1991). Thus, high concentrated industry may induce entry through JV. Since earlier studies were focused on a single host industry and with respect to few countries (Arora and Fosfuri, 2000; Anand and Delios 2002, etc.), or single country but many industries (see for instance, Hennart, 1991), they could easily control for this. The present study deals with investments in several industries and in several countries, thus could not account for this.

5 Data collection and cleaning
The first task in carrying out the analysis is compilation of all the firms that have invested abroad during the restrictive phase. A list of firms investing outside India (i.e., Indian MNCs) from 1992 to 1999 was compiled using yearly publications of the Indian Investment Centre (IIC), a division of Ministry of Industry of GoI. The publication
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provides the names of the Indian firms investing abroad, the date of entry, field of operation, and the host country. The host countries are grouped into seven major regions viz. Africa, America, East Asia, Europe, Oceania, South Asia and West Asia.

The data indicates approximately 2000 investments during the period. In the first step, the non-manufacturing sector firms are excluded as their behaviour and the determinants of entry choice would be very different. This reduced the sample size to 655 entries. Unfortunately, a significant proportion of these entries are private-limited firms, for which data like advertising intensity, technology intensity, etc. is not accessible, thus had to be eliminated. Similarly, government-owned enterprises had to be dropped since their motivation is not always profit maximisation. Besides, these enterprises would be in a better position to bear larger risks due to government backing. One firm, which had an unusually high Advertising intensity (47.62%) (> 5-times the next firm), had to be omitted being an outlier. All these truncations resulted in the final sample consisting of 250 entries made by 142 firms during 1992 to 1999. Of these 250 entries, 162 (i.e., ≈ 65%) were JVs and remaining 88 (i.e., 35%) were WOS.

5.1 Data characteristics

Tables 1 and 2 illustrate the profile of the data. A large number of firms (94 firms) (i.e., ≈ 66%) are first time investors and only 34% of the firms (i.e., 48 firms) had prior foreign experience (Table 1). Of these 48 firms having multiple entries, seven firms had five or more entries during the period. These 142 firms entered in 49 countries in these 7 years. Seven countries namely, the USA (28), the UK (26), Nepal (19), Mauritius (18), Malaysia (14), Sri Lanka (11) and UAE (10) have received more than 50% of entries during the period.

<table>
<thead>
<tr>
<th>No. of firms</th>
<th>No. of entries made by the firm</th>
<th>Total outward investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>94 (66.2)</td>
<td>1</td>
<td>94</td>
</tr>
<tr>
<td>27 (19.0)</td>
<td>2</td>
<td>54</td>
</tr>
<tr>
<td>8 (5.6)</td>
<td>3</td>
<td>24</td>
</tr>
<tr>
<td>6 (4.2)</td>
<td>4</td>
<td>24</td>
</tr>
<tr>
<td>1 (0.7)</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2 (1.4)</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>1 (0.7)</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>3 (2.1)</td>
<td>10</td>
<td>30</td>
</tr>
<tr>
<td>142</td>
<td></td>
<td>250</td>
</tr>
</tbody>
</table>

Note: Figure in parenthesis give percentage of total firms.

From Table 2, we see that 26% of the firms in low-technology sector have 28% of the total entry, whereas a little over 13% of the high tech firms (19 firms) have nearly 26% (i.e., 66) of the entry. Pharmaceuticals, textiles, engineering, electrical and electronic equipment are the top five sectors from where Indian OFDI has originated.
Table 2  Industry-wise investment pattern

<table>
<thead>
<tr>
<th>Industry type</th>
<th>Classification</th>
<th>No. of entries</th>
<th>No. of firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Textile</td>
<td>25</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Packaging</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Leather and leather products</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Dyes and pigments</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous</td>
<td>27</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Paper, printing and stationary, aquaculture, aluminium and aluminium products</td>
<td>5 [1 each]</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>71 (28.4)</strong></td>
<td><strong>37 (26.1)</strong></td>
</tr>
<tr>
<td>Medium</td>
<td>Electrical/electronic equipment</td>
<td>12</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Engineering</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Paints/varnishes</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Chemicals</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Steel</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Tea</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Glass/glass products</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Fertilisers, pesticides and agro chemicals, plastic products, sugar, transmission line equipment</td>
<td>20 [4 each]</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Automobile/motorcycles, castings and forgings, cement</td>
<td>9 [3 each]</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Air-conditioners, cycles and accessories, domestic appliances, dry cells</td>
<td>8 [2 each]</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Auto ancillary, abrasives and grinding wheels, cables, cigarettes, detergents, diamond cutting, diversified, power generation, refineries</td>
<td>9 [1 each]</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>113 (45.2)</strong></td>
<td><strong>86 (60.6)</strong></td>
</tr>
<tr>
<td>High</td>
<td>Pharmaceuticals</td>
<td>52</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Personal care</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Computer, ceramic tiles, telecom equipment</td>
<td>3 [1 each]</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>66 (26.4)</strong></td>
<td><strong>19 (13.4)</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>250</strong></td>
<td><strong>142</strong></td>
</tr>
</tbody>
</table>

Notes: Figures in parentheses indicate percentage of the category; figures in brackets are number of entries in these categories. Italic industries are the ones having most entries.
5.2 Variable construction

The dependent variable in the model is a binomial, which takes the value 1 for WOS as entry mode and 0 if entry mode is JV.

5.2.1 Independent variables

Table 3 gives the variables and their definition with expected sign. Last column gives the sign as predicted in other studies for foreign firms’ investment from developed countries. It can be seen that for some of the variables like R&D intensity or advertising intensity, the expected sign depends on the nature of the host country, unlike for developed country firms where there is no ambiguity.

Studies like Harzing (2002) have defined experience as the number of years passed since the firm established its first foreign subsidiary. However, this requires knowing investment history of the firm, which unfortunately is not available. In absence, we measure foreign experience (FOREXP) of a firm as the number of investments made abroad prior to the entry in question during the period of analysis. The diversity (DIVER) of the firm is assessed using two measures. First measure uses the sales turnover of the top three most revenue earning products of the firm. However, the effect of the variable seems more pronounced when included as a dummy, i.e., a value of ‘1’ is attached if the most revenue earning product of the firm accounts for less than 50% of the total sales turnover (indicating that the firm’s earnings are through a diverse product line) and if not, the value ‘0’ is attached. Following Hennart (1991), a dummy variable is created to proxy for the investing firm’s need to access natural resource (RESOUR). The dummy is 1 if the entry is in a resource intensive industry such as rubber, pulp and paper, cement, tobacco, etc.

As hypothesised country/region located closer and having historical ties to India may be favoured for WOS, because of easy administration facilitated by cultural proximity. The present study tests for this region-specific impact using a dummy for each of the seven regions (REGION_Dummy).

The technological advantage of a firm is often measured through its R&D intensity (i.e., R&D expenditure to the total sales turnover, R&DINT). Since R&D expenditure of a firm includes investment in capital equipment at times, leading to surges in the expenditure, the average R&D intensity for three years before entry is used to smoothen the surges. As in India, the Company Law does not make it mandatory to report R&D expenditure if it is below 1% of sales turnover, some firms though engaged in R&D may not report these figures. To reduce the bias, an additional dummy indicator (RND) is constructed which takes the value ‘1’ if it fulfills either of the two conditions:

a the firm has a ministry of science and technology (MoST) recognised in-house R and unit

b reports some R&D expenditure; and ‘0’ otherwise.

The study also hypothesises that firms in the low (LOW-tech), medium (MEDIUM-tech) and high technology (HIGH-tech) would be going for JVs (WOS) when they are investing in more (less) developed countries. The classification, as used in the study is the one given by the MoST based on the R&D intensities of different industries. A dummy
for a firm falling in either of these three industries and 0 otherwise is used to capture industry-wise technological opportunities.

Table 3  Summary of variables and expected sign

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Description</th>
<th>Expected sign</th>
<th>Prediction for developed countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>MODE</td>
<td>Entry mode = 1 if wholly owned subsidiary (WOS); = 0 if JV</td>
<td>+ / +</td>
<td>+</td>
</tr>
<tr>
<td>FOREXP</td>
<td>Level of experience of firm at global level-no. of entries prior to investment.</td>
<td>+ / +</td>
<td></td>
</tr>
<tr>
<td>RESOUR</td>
<td>Investing firm is in resource industry</td>
<td>- / -</td>
<td>-</td>
</tr>
<tr>
<td>DIVER</td>
<td>Firm diversity – Div = 1 if top product contributes less than 50% of sales turnover and 0 otherwise.</td>
<td>- / -</td>
<td>-</td>
</tr>
<tr>
<td>REGIONS</td>
<td>Dummy indicating region of entry (Africa, America, Europe, E. Asia, S. Asia, W. Asia and Oceania)</td>
<td>+ / -</td>
<td>@</td>
</tr>
<tr>
<td>RND</td>
<td>RND = 1 if Firm has recognised R&amp;D unit or has spent on R&amp;D; = 0 otherwise</td>
<td>+ / ?</td>
<td>?</td>
</tr>
<tr>
<td>R&amp;D INT</td>
<td>R&amp;D intensity</td>
<td>+ / ?</td>
<td>?</td>
</tr>
<tr>
<td>INDTYP*</td>
<td>Dummy to indicate technological advancement of industry (low, medium and high)</td>
<td>+ / -</td>
<td>@</td>
</tr>
<tr>
<td>ADVINT</td>
<td>Advertising intensity</td>
<td>+ / ?</td>
<td>+</td>
</tr>
<tr>
<td>COUNTINDEX</td>
<td>Host country index</td>
<td>+ / -</td>
<td>@</td>
</tr>
<tr>
<td>SIZE</td>
<td>Total sales turnover of the firm</td>
<td>+ / +</td>
<td>+</td>
</tr>
<tr>
<td>AGE</td>
<td>Age of the firm at the time of entry</td>
<td>? / ?</td>
<td>+</td>
</tr>
<tr>
<td>FIRMTYP</td>
<td>Firmtyp = 1 if independent; and = 0 if group company</td>
<td>? / ?</td>
<td>@</td>
</tr>
</tbody>
</table>

Notes: + /– indicates that variable can have different sign depending on where firms are investing – in developed or in underdeveloped countries; ? – implies sign cannot be predicted. @ - these variables were not in Hennart (1991); $ - + for Africa and S. Asia regions; * For only high tech industry it is ‘−’.

Source: Predicted sign for developed country firms’ entry choice from Hennart (1991) and Anderson and Gatignon (1986)

Advertising intensity (ADVINT) (average of three years before entry) has been taken as a variable reflecting the brand building in the home country. The entry mode choice depends on host country development level in terms of legal framework, infrastructure, tariff, etc. Studies like Arora and Fosfuri (2000) have tried to control for some of these variables separately. Since those aspects are highly varied, a better way to assess the
development of a country is through an index (COUNTINDX). The host country index published by the ‘economic freedom network’ at www.freetheworld.com is a composite of indices on various aspects of a country such as government (government spending, size of the government, judiciary, etc.), legal systems (property rights, law and order), state of the economy and openness (GDP, inflation, interest rate, trade barriers, labour market), etc. This index ranges from 0 to 10. The index available to the year closest to the year of entry has been used for the analysis.\(^\text{10}\)

5.2.2 Control variables

Average sales turnover of the firm in the preceding three years is used as a proxy for the firm size. Since firms belong to different industries having different minimum efficient scale, the size (SIZE) is normalised using log of sales. The age (AGE) of the firm at the time of entry is arrived at by calculating the difference between the year of entry and incorporation year. Type of firm (FIRMTYP) is distinguished by a dummy that takes the value 1 for independent firms and 0 for group companies.

5.3 The econometric model and econometric issues

The independent and control variables as hypothesised above are measured at the end of year \(t-1\) to ensure that we measure entry-decision probability prior to the entry decision.

\[
\text{MODE}_{it} = \beta_0 + \beta_1 \text{FOREXP}_{i,t-1} + \beta_2 \text{RESOUR}_{i,t-1} + \beta_3 \text{DIVER}_{i,t-1} \\
+ \beta_4 \text{REGION}_i \text{ dummy} + \beta_5 \text{RND}_{i,t-1} \text{ (or R&DINT}_{i,t-1} \text{) } \\
+ \beta_6 \text{INDUSTRYTYPE} + \beta_7 \text{ADVINT}_{i,t-1} + \beta_8 \text{COUNTINDX}_k \\
+ \beta_9 \text{SIZE}_{i,t-1} + \beta_{10} \text{AGE}_{i,t-1} + \beta_{11} \text{FIRMTYP}_{i,t-1} + u_{it}
\]

Since we have a cross-section of firms investing outside India, they differ with respect to size and age, both of which could have introduced heteroskedasticity. Greene (2003) indicates that there are three tests – the Lagrargian multiplier (LM) test, likelihood ratio (LR) test and Wald test specific to the probit model to test the heteroskedasticity. For size, use of log of sales takes care of the heteroskedasticity partly. However, both LR and Wald test do not reject the null of homoskedastic disturbances with respect to age. The possible multicollinearity effects among few independent variables were checked by:

a correlation coefficient  

b alternatively dropping variables.

There was no multicollinearity. The models have been run using econometric software STATA 11.

5.3.1 Descriptive statistics

Table 4 provides descriptive statistics for the entire 250 entries. Columns 3 and 4 give these characteristics across the two modes – JV and WOS. From the table, we see that the average age of the firm (row 1) investing abroad is fairly high; this implies experience plays a key role in OFDI decision. However, younger firms have invested more in WOS (row 1, column 4). A higher country index has induced the firms to go more for WOS.
V. Kathuria

(row 3). Of the 250 entries, over 50% (126) belong to Medium-Tech industries (row 12). WOS are slightly higher in low-technology industries (row 11), whereas JVs are more in high-technology industries (row 13).

Table 4  Descriptive statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>All the firms (N = 250)</th>
<th>JVs (N = 162)</th>
<th>WOS (N = 88)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Age (years)</td>
<td>29.16 (19.88)</td>
<td>30.96 (20.48)</td>
<td>25.85* (18.38)</td>
</tr>
<tr>
<td>2  Foreign experience (no.)</td>
<td>1.09 (1.83)</td>
<td>0.95 (1.69)</td>
<td>1.36* (2.06)</td>
</tr>
<tr>
<td>3  Country index</td>
<td>7.08 (1.18)</td>
<td>6.84 (1.21)</td>
<td>7.54* (0.98)</td>
</tr>
<tr>
<td>4  Size (sales in rs.million)#</td>
<td>430.94 (781.24)</td>
<td>433.47 (817.14)</td>
<td>426.29 (714.95)</td>
</tr>
<tr>
<td>5  Advertising intensity (%)</td>
<td>0.99 (1.73)</td>
<td>1.02 (1.61)</td>
<td>0.94 (1.94)</td>
</tr>
<tr>
<td>6  R&amp;D intensity (%)</td>
<td>0.49 (2.24)</td>
<td>0.35 (1.53)</td>
<td>0.76 (3.15)</td>
</tr>
<tr>
<td>7  Firmtype$</td>
<td>0.66 [165]</td>
<td>0.65 [106]</td>
<td>0.58 [59]</td>
</tr>
<tr>
<td>8  R&amp;D intensity (%)</td>
<td>0.54 [134]</td>
<td>0.51 [83]</td>
<td>0.58 [51]</td>
</tr>
<tr>
<td>9  Diversity$</td>
<td>0.28 [71]</td>
<td>0.27 [44]</td>
<td>0.31 [27]</td>
</tr>
<tr>
<td>10 Resource dependence$</td>
<td>0.29 [72]</td>
<td>0.25 [41]</td>
<td>0.35 [31]</td>
</tr>
<tr>
<td>11 Industry type$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12 Low tech</td>
<td>0.27 [68]</td>
<td>0.20 [33]</td>
<td>0.40* [35]</td>
</tr>
<tr>
<td>13 Medium tech</td>
<td>0.504 [126]</td>
<td>0.54 [87]</td>
<td>0.44 [39]</td>
</tr>
<tr>
<td>14 High tech</td>
<td>0.22 [56]</td>
<td>0.26* [42]</td>
<td>0.16 [14]</td>
</tr>
<tr>
<td>14 Africa</td>
<td>0.13 [33]</td>
<td>0.12 [19]</td>
<td>0.16 [14]</td>
</tr>
<tr>
<td>15 America</td>
<td>0.14 [36]</td>
<td>0.11 [18]</td>
<td>0.20 [18]</td>
</tr>
<tr>
<td>16 E. Asia</td>
<td>0.17 [42]</td>
<td>0.20 [33]</td>
<td>0.10 [9]</td>
</tr>
<tr>
<td>17 Europe</td>
<td>0.27 [67]</td>
<td>0.23 [38]</td>
<td>0.33 [29]</td>
</tr>
<tr>
<td>18 Oceania</td>
<td>0.03 [7]</td>
<td>0.04 [6]</td>
<td>0.01 [1]</td>
</tr>
<tr>
<td>19 S. Asia</td>
<td>0.14 [34]</td>
<td>0.14 [22]</td>
<td>0.14 [12]</td>
</tr>
<tr>
<td>20 W. Asia</td>
<td>0.12 [31]</td>
<td>0.16 [26]</td>
<td>0.06 [5]</td>
</tr>
</tbody>
</table>

Notes: *Indicates difference in means is statistically significant at minimum 10% level. $Indicator is a dummy variable; # 1 US$ = Rs. 45 (approx. in late 1990s). Figure in parenthesis are standard deviation, figures in brackets are number of entries in these industries/regions.

Though, Europe (row 17) is the most preferred destination for Indian MNCs with 67 entries for both JVs and WOS. JVs are preferred in East Asia (row 16), and WOS and JVs are equally preferred in America (row 15). South Asia (row 19), despite having the lowest country index (=5.64) received the fourth best investment (i.e., 34 entries) from Indian firms. This is because of high familiarity of Indian firms with the region. This supports the TC hypothesis and U-model of internationalisation of production. A high investment in Africa (Row 14) signifies the role of historical ties.
Rows 4 to 11 indicate that with respect to size, advertising intensity, entry in diverse product line, R&D, firm type, and resource dependence, there is no statistical difference between the firms investing through JVs or WOS.

6 Results—testing for TC theory for early entry choice of Indian firms

Columns 2 and 3 of Table 5 give the results for the full sample. A positive coefficient implies that the independent variable tends to increase the probability that WOS will be opted and negative coefficient implies otherwise. The predicting capacity of the models is discussed with respect to two criteria:

a  contingency tables; and
b  likelihood ratio index (LRI) (Table 6).

Contingency table gives how many WOS and JV cases model could predict correctly, whereas LRI is a pseudo-R2 and is given by \( \text{LRI} = 1 – (\ln L / \ln L_0) \), where \( L_0 \) is the log likelihood computed with only a constant term. LRI is bounded between 0 and 1. If all the slope coefficients are 0, it equals 0 (Greene, 1997: 891).

Table 5  Results: TC determinants of entry choice (WOS vs. JV) of Indian MNCs

<table>
<thead>
<tr>
<th>Dep. variable: mode</th>
<th>Total sample</th>
<th>Investment in developing countries</th>
<th>Investment in developed countries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1(2)</td>
<td>Marginal effect (3)</td>
<td>Model 2(4)</td>
</tr>
<tr>
<td>FOREXP</td>
<td>0.117*</td>
<td>0.0412*</td>
<td>0.53*</td>
</tr>
<tr>
<td></td>
<td>(0.063)</td>
<td>(0.148)</td>
<td>(0.56)</td>
</tr>
<tr>
<td>RESOUR$</td>
<td>0.056</td>
<td>0.0197</td>
<td>−0.33</td>
</tr>
<tr>
<td></td>
<td>(0.225)</td>
<td>(0.56)</td>
<td>(0.56)</td>
</tr>
<tr>
<td>DIVER$</td>
<td>−0.135</td>
<td>−0.046</td>
<td>−0.684</td>
</tr>
<tr>
<td></td>
<td>(0.203)</td>
<td>(0.554)</td>
<td>(0.554)</td>
</tr>
<tr>
<td>S. Asia$</td>
<td>2.14*</td>
<td>0.55*</td>
<td>1.73*</td>
</tr>
<tr>
<td></td>
<td>(0.70)</td>
<td>(0.61)</td>
<td>(0.61)</td>
</tr>
<tr>
<td>Africa$</td>
<td>0.90*</td>
<td>0.34*</td>
<td>0.78</td>
</tr>
<tr>
<td></td>
<td>(0.66)</td>
<td>(0.74)</td>
<td>(0.74)</td>
</tr>
<tr>
<td>Oceana$</td>
<td>−0.62</td>
<td>−0.18</td>
<td>@</td>
</tr>
<tr>
<td></td>
<td>(0.67)</td>
<td>(0.74)</td>
<td></td>
</tr>
<tr>
<td>E. Asia$</td>
<td>−0.196</td>
<td>−0.066</td>
<td>−0.53</td>
</tr>
<tr>
<td></td>
<td>(0.64)</td>
<td>(0.71)</td>
<td>(0.71)</td>
</tr>
<tr>
<td>Europe$</td>
<td>0.45</td>
<td>0.165*</td>
<td>@</td>
</tr>
<tr>
<td></td>
<td>(0.63)</td>
<td>(0.71)</td>
<td></td>
</tr>
<tr>
<td>America$</td>
<td>0.448</td>
<td>0.167</td>
<td>1.1</td>
</tr>
<tr>
<td></td>
<td>(0.66)</td>
<td>(0.86)</td>
<td>(0.86)</td>
</tr>
</tbody>
</table>

Notes: *Denotes significance at minimum 10% level; figure in parenthesis are standard errors. @-dropped due to all entries either have single mode or below threshold of country-index. Model 1-For all firms; models 2 and 3-for countries less and more developed than India respectively (on the basis of country index); $-variable is a dummy, thus marginal effect for variable is a change from 0 to 1.
### Table 5
Results: TC determinants of entry choice (WOS vs. JV) of Indian MNCs (continued)

<table>
<thead>
<tr>
<th>Dep. variable: mode (WOS = 1, JV = 0)</th>
<th>Total sample</th>
<th>Investment in developing countries</th>
<th>Investment in developed countries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1(2)</td>
<td>Marginal effect (3)</td>
<td>Model 2(4)</td>
</tr>
<tr>
<td>10 RNDS</td>
<td>0.17</td>
<td>0.06</td>
<td>0.11 (0.6)</td>
</tr>
<tr>
<td>11 Low-tech$</td>
<td>0.835* (0.35)</td>
<td>0.31*</td>
<td>3.48* (1.12)</td>
</tr>
<tr>
<td>12 Medium-tech$</td>
<td>0.34 (0.29)</td>
<td>0.12</td>
<td>2.26* (0.88)</td>
</tr>
<tr>
<td>13 ADVINT</td>
<td>0.054 (0.065)</td>
<td>0.019</td>
<td>0.356* (0.13)</td>
</tr>
<tr>
<td>14 COUNTINDEX</td>
<td>0.54* (0.12)</td>
<td>0.19*</td>
<td></td>
</tr>
<tr>
<td>15 SIZE</td>
<td>0.13* (0.079)</td>
<td>0.046*</td>
<td>–0.081 (0.196)</td>
</tr>
<tr>
<td>16 AGE</td>
<td>–0.007* (0.006)</td>
<td></td>
<td>–0.018 (0.012)</td>
</tr>
<tr>
<td>17 FIRMTYP$</td>
<td>–0.04 (0.197)</td>
<td>–0.014</td>
<td>0.021 (0.49)</td>
</tr>
<tr>
<td>18 Constant</td>
<td>–5.53* (0.92)</td>
<td></td>
<td>–3.73* (1.22)</td>
</tr>
<tr>
<td>19 Pseudo R2</td>
<td>0.21</td>
<td></td>
<td>0.29 (1.22)</td>
</tr>
<tr>
<td>20 Wald $\chi^2$ (prob&gt;chi$^2$)</td>
<td>58.18 (0.000)</td>
<td></td>
<td>24.79 (0.003)</td>
</tr>
<tr>
<td>21 Log likelihood</td>
<td>–127.88</td>
<td></td>
<td>–26.65 (1.22)</td>
</tr>
<tr>
<td>22 Predicted correctly</td>
<td>75.2%</td>
<td></td>
<td>78.8%</td>
</tr>
<tr>
<td>23 N</td>
<td>250 (WOS = 88, JV = 162)</td>
<td></td>
<td>66 (WOS = 17, JV = 49)</td>
</tr>
</tbody>
</table>

Notes: *Denotes significance at minimum 10% level; figure in parenthesis are standard errors. @-dropped due to all entries either have single mode or below threshold of country-index. Model 1-For all firms; models 2 and 3-for countries less and more developed than India respectively (on the basis of country index); $-variable is a dummy, thus marginal effect for variable is a change from 0 to 1.

### 6.1 Analysis for entire Indian manufacturing sector-model 1

Rows 1 to 14 of the Table give results for the different variables constructed pertaining to the benefits (rows 1 to 9) and costs (rows 10 to 14) of setting JV vis-à-vis WOS. Rows 15–17 give results for the control variables. Consistent with our hypotheses, the results suggest that the Indian firms prefer WOS over JV when they have sufficient foreign experience (FOREXP), enter in culturally and geographically close regions (e.g., S. Asia and Africa), and invest in low technology sectors (LOW-tech), thus giving
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support to TC theory. The positive and significant sign for South Asia corroborate U-theory of firm’s investment. Interestingly, the affinity for WOS is high when Indian firms invest in relatively more developed countries (COUNTINDX), indicating that Indian firms are willing to make more financial commitment if the country has more institutions in place. Surprisingly, the diversity (DIVER), resource requirement (RESOUR) and fungibility of intangible assets (RND)-predicted to have influence on the entry choice, are not significant. Since RND has not attained significance and given the way it has been constructed, the model is rerun with R&D Intensity (R&DINT) as a variable representing technological intensity. The results though not reported, hardly change.

Among the control variables, firm’s SIZE and AGE are important contributor to entry choice. The significance and negative coefficient for AGE implies that older Indian firms are more conservative than the newer firms, thus prefer JVs, whereas a bigger firm (SIZE) has the greater ability to increase financial commitment abroad, thus, preferring WOS. The type of the firm (FIRMTYP) does not seem to have any influence on the entry choice.

As mentioned, the TC explanation works differently for firms when they invest in more developed countries, than their investment in relatively underdeveloped countries. One reason for partial explanation of TC theory (i.e., variables like ADVINT, or FIRMTYP or DIVER or RND/R&DINT not attaining significance) in Indian firms’ case could be the fact that the sample contained all the entries irrespective of the extent of development of the host country. Thus analysis is repeated for two groups of the firms separately-firms investing in countries, which are underdeveloped vis-à-vis India and vice versa.

6.2 Impact of country’s development on entry mode – models 2 and 3

Category 1 is for investment in countries below India’s development (i.e., model 2) and category 2 corresponds to countries which are more developed than India (i.e., model 3). Several hypotheses of TC theory are verified as well as interesting differences emerge for the choice of entry mode across the two groups. The results (columns 4 and 5) indicate that for investment in countries with relatively less development, not same TC variables are important as when firms invest in more developed countries.

Foreign experience (FOREXP), diversification (DIVER) nature of industry (LOW-tech and MEDIUM-tech), technological level of the firm (R&DINT) and brand image (ADVINT) facilitates in reducing TC when firms invest in less developed countries. A positive and significant sign of ADVINT implies that a strong brand is essential, if the firm wishes to carry it over to the host country with relatively less development through a WOS. Similarly, a firm having high technological assets would exploit it through WOS, when it plans to invest in countries with relatively less development. For these countries, Indian firms prefer WOS in both low-technology and medium-technology sectors, whereas for more developed countries, Indian firms could invest only in low-technology (LOW-tech) sector. Column 5 indicates that the probability for WOS is 6-8% higher for a firm that invests on Advertising compared to a firm that does not (row 13). Interestingly, the propensity to invest in WOS drops by nearly one-fourth if the firm diversifies (row 3, column 4).
With respect to control variables, SIZE and AGE influence entry choice only when firms invest in more developed countries (column 6). Thus, level of institutional development of the host country drives investment differently for Indian firms. Interestingly, TC variable - resource requirement (RESOUR) and control variable-firm type (FIRMTYP) do not influence Indian MNCs investment decision. The probability of setting up a WOS in a developed region is higher by one-tenth for a firm that is bigger in size compared to a smaller firm (row 15, column 6).

6.3 Performance of the model

Table 6 shows the prediction of different models estimated above. One way to measure how well the model fits the data is to classify observations (Amemiya, 1981), which is to be judged against the classification rate that would have been obtained by chance. The chanced classification rate is given by $a^2 + (1 - a^2)$, where $a$ is the proportion of JVs in the sample (Morison, 1974). From rows 5 and 6, it can be easily concluded that the model predicts better than the baseline prediction. At least 71% of the cases have been predicted correctly by different models. Rows 2 and 4 of the table indicate that models tend to over-predict JVs and slightly under-predict WOS.

**Table 6** Performance of the models–prediction vs. actual

<table>
<thead>
<tr>
<th></th>
<th>All firms</th>
<th>Country type 1</th>
<th>Country type 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Actual JV</td>
<td>162</td>
<td>49</td>
<td>107</td>
</tr>
<tr>
<td>2 JVs predicted</td>
<td>143 (88.3)</td>
<td>44 (89.8)</td>
<td>88 (82.2)</td>
</tr>
<tr>
<td>3 Actual WOS</td>
<td>88</td>
<td>17</td>
<td>71</td>
</tr>
<tr>
<td>4 WOS predicted</td>
<td>45 (51.1)</td>
<td>8 (47.1)</td>
<td>38 (53.5)</td>
</tr>
<tr>
<td>5 Total prediction</td>
<td>188 (75.2)</td>
<td>52 (78.8)</td>
<td>126 (70.8)</td>
</tr>
<tr>
<td>6 Baseline rate</td>
<td>54.4%</td>
<td>61.8%</td>
<td>52.04%</td>
</tr>
<tr>
<td>7 N (observations)</td>
<td>250</td>
<td>66</td>
<td>178</td>
</tr>
</tbody>
</table>

Note: Numbers in parentheses are the correct predictions in percentage.

7 Comparison with other studies

Since most other studies have been carried out for foreign firms from developed countries, the comparison may yield the significance of distinctive variables for developing countries. Table 7 compares the sign and significance of different variables. It can be seen that TC explanations are slightly different for developing countries’ firms that invest outside as compared to that of the firms from developed countries.

For developed countries firms’, diversification, resource based entry, possession of intangible assets and brand building affect the TC and hence entry choice. But for Indian firms, regional and cultural proximity and experience are more powerful predictor of TC theory. Similarly, nature of host country differently impacts these TC variables in Indian case (columns 3 and 4, Table 7). Brand building and technology intensity of the firm play an important role when Indian firms invest in relatively underdeveloped country. For entry into developed regions, non-TC factors such as Size and Age play a key role than many of the transaction-specific variables.
Table 7: Comparison with other studies

<table>
<thead>
<tr>
<th>Variable</th>
<th>Present study (model 1)</th>
<th>Present study (model 2)</th>
<th>Present study (model 3)</th>
<th>Previous studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 FOREXP</td>
<td>+ (s)</td>
<td>+ (s)</td>
<td>+</td>
<td>+ (s)</td>
</tr>
<tr>
<td>2 RESOUR</td>
<td>+</td>
<td>–</td>
<td>+</td>
<td>– (s)</td>
</tr>
<tr>
<td>3 DIVER</td>
<td>–</td>
<td>– (s)</td>
<td>–</td>
<td>– (s)</td>
</tr>
<tr>
<td>4 REGION*</td>
<td>+ (s)</td>
<td>+ (s)</td>
<td>+ (s)</td>
<td>@</td>
</tr>
<tr>
<td>5 RND</td>
<td>+</td>
<td>+</td>
<td>+/-</td>
<td>+ (s)</td>
</tr>
<tr>
<td>6 INDTYP</td>
<td>+ (s)</td>
<td>+ (s)</td>
<td>+ (s)</td>
<td>– (s)</td>
</tr>
<tr>
<td>7 ADVINT</td>
<td>+</td>
<td>+ (s)</td>
<td>–</td>
<td>+/-</td>
</tr>
<tr>
<td>8 COUNTINDX</td>
<td>+ (s)</td>
<td></td>
<td>@</td>
<td></td>
</tr>
<tr>
<td>9 SIZE/Relative size</td>
<td>+ (s)</td>
<td>–</td>
<td>+ (s)</td>
<td>–/- (s)</td>
</tr>
<tr>
<td>10 AGE/age of affiliate</td>
<td>– (s)</td>
<td>–</td>
<td>– (s)</td>
<td>+ (s)</td>
</tr>
<tr>
<td>11 FIRMTYP</td>
<td>–</td>
<td>+</td>
<td>–</td>
<td>@</td>
</tr>
</tbody>
</table>

Source: For developed countries studies – Hennart (1991), Makino and Neupert (2000) and *Gatignon and Anderson (1988)

8 Conclusions, policy implications and scope for further work

Issues governing foreign firms and their entry into host country have been studied extensively in developed countries’ contexts. Interestingly, the nineties and the beginning of this century has witnessed strong economic performance and OFDI from several developing countries. It is difficult to construe how the factors influencing OFDI from developed countries would explain the behaviour of developing countries MNCs, when both the process and path of internationalisation has been different. Besides, Studies have attributed this to the liberalisation or globalisation process embarked on by these countries with explanations ranging from strategic choice to Dunning’s OLI paradigm to bundling of skills. Interestingly, when Indian firms started venturing out, the policy was still evolving and it was mostly a permissive policy and not a liberal policy. This makes it interesting to see what made Indian firms to invest abroad when the policy was not liberal especially in the 1990s.

Under this backdrop, this study contributes to the literature by carrying out the analysis for a large developing country, namely India, when it was still having permissive OFDI policy, to see a) what determines the choice between joint venture (JV) and WOS for firms; and b) whether the factors are different than the one for the developed country foreign firms. In order to investigate the entry choice decision, the study used TC framework on a sample of 250 entries made by 142 Indian manufacturing firms during 1992 to 1999. About 35% of this entry (i.e., 88 entries) consisted of WOS while the remaining 162 entries were JVs.

Based on our analysis, we conclude that:
• Both TC and non TC factors influence entry choice of Indian firms.

• Among TC variables, entering in culturally and geographically close regions (e.g., S. Asia and Africa), investment in low-technology sectors (LOW-tech), and having sufficient foreign experience – reduce costs of transaction.

• The decision to go for WOS is buttressed by the host country’s level of institutional development, which may be reducing the TC.

• Among the control or non-TC variables, firm’s SIZE and AGE are important contributor to entry choice. The results showed that older firms are more conservative and prefer JVs to WOS. The results also indicated that the younger Indian MNCs, which were relatively big in size, having sufficient foreign experience and belonging to low-technology sector preferred going for WOS.

An important contribution of the paper is testing for the hypothesis that TC explanation works differently for firms when they invest in more developed countries, than their investment in relatively underdeveloped country. This is because the aim in the former case could be ‘asset-seeking’ manifested through WOS and in later could be ‘asset exploitation’ manifested through JVs. Thus analysis is repeated for two groups of the firms separately – firms investing in countries, where level of development is less than India and vice-versa.

The analysis yielded that foreign experience, diversification, nature of industry (LOW-tech and MEDIUM-tech), technology intensity of the firm and brand image facilitates in reducing TC when Indian firms invest in relatively less developed countries. Whereas for investment in relatively more developed countries, nature of industry and region are the only TC specific variables. For investment in these countries, non-transaction specific variable like SIZE and AGE influence entry choice significantly. Thus, building of both upstream and downward capabilities was found crucial for firms investing in relatively underdeveloped countries vis-à-vis India, whereas size, age and experience influenced entry choice in more developed countries.

8.1 Policy implications

This study has several policy implications from the comparative management perspective. If these firms who have invested abroad irrespective of the mode become successful, the rise of such Indian firms would then be a reflection of how the organisation of one culture adapt to the cultural environment of another culture. Besides, the entry also points to the policy relevance of how host cultures can best accommodate the organisational practices of an outside company. Lastly, the success of these firms would also point to what organisational practices are beneficially transferable from one culture to another.

For other developing countries point of view which want their firms to invest abroad, what is required is not a special program but an enabling economic environment that minimises the legal barriers to invest abroad and also facilitates them to raise funds from the domestic capital market.

However, for countries not having a conducive outward FDI policy, the study also has several policy implications for their companies who aspire to invest abroad. The results indicate that the firms from these countries can now identify those aspects that
they need to strengthen depending on the mode they prefer. Building a strong brand and acquiring technological assets, through investment in advertising and R&D are essential if firms intend to invest in WOS in countries relatively less developed. Similarly, for any firm aspiring to set-up a WOS, the first route is investing in the neighbouring region so as to have first-hand experience in investment.

8.2 Limitations and directions of future research

The study has also future avenues for research. Due to the non-availability of data, the study could not include the private-limited firms. Though the size of the firm was included as a variable, choice of entry mode is more a function of investment size vis-a-vis firm’s size (as has been used in several studies). This would have explained the degree of risk that the firm bears in an investment. The study can be extended by including the investment size. The studies for developed countries have used ‘company strategy’ as a non-transaction specific variable affecting entry choice (Dikova and Witteloostuijn, 2007; Harzing, 2002), and they could assess the contribution through a primary survey. Since the present study is based on secondary data, we could not include the variable. Including company strategy, private-limited firms, checking role of the investment size are few logical extensions of the present study. Lastly, the period used in the analysis is till 1999 and as India has moved from restrictive to liberal OFDI policy - a post 1999 analysis would shed light on the relative importance of these factors.

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References


Notes

1. The focus later on first expanded to newly industrialised economies (NIEs) like Taiwan (Makino et al., 2002), Singapore (Rajan and Pangarkar, 2000) and subsequently to China (Buckley et al., 2007) and India (Pradhan, 2008; Kumar, 2008).

2. The three type of emerging market MNCs can be global service providers (firms in developed markets serving local clients through wholly owned subsidiaries), integrated manufacturers (mainly in developing countries to sell their products through JVs or in developed countries to acquire assets through WOS) and lastly, established internationalisers (big firms similar to Western MNCs) (Karna et al., 2014).

3. The data shows that India’s OFDI flow, which averaged around US$22 million during 1985–1995, increased substantially in next 10 years reaching US$2,175 million in 2004 and peaking to US$21,147 mn in 2008 (Figure 1). Post-2008 global economic crises, the value has reduced to 12,456 mn US$ in 2011. In terms of OFDI stock, India with US$62 bn of accumulated investment at the end of 2008, was the tenth largest outward investing economy among all emerging markets (Sauvant and Pradhan, 2010).


5. In the Indian context several foreign firms that started as JVs now work independently as WOS. The notable examples include Mahindra-Ford (now Ford India), Kirloskar-Toyota (now Toyota India), Hero-Honda (now Honda motors), etc.

6. The culturally closeness with Africa for WOS is dictated by old historical ties. Several African countries like South Africa, Kenya, Mauritius, etc. are the former British colonies similar to India and trade including the slave trade from India to these countries was not uncommon. After their independence, the people migrated to these countries may have been instrumental in renewing ties with their families in India by seeking investment.

7. Many a times, it is easy to enter a foreign country in service sector than in manufacturing due to myriad clearances required from environment, industry, commerce departments, etc. before production can commence. Moreover, since most previous studies have carried out analysis for manufacturing firms only, this would make the comparison more appropriate.

8. The MoST has given recognition to the R&D labs of nearly 1,000 private sector firms. The recognition in the past conferred them a number of benefits including getting cheaper credit, easier import of technology and tax rebate (Kathuria, 2008).

9. The data shows that of the 128 cases, where the firms have MoST recognised in-house R&D, in nearly 59% cases (i.e., 75 observations) firms have not spent anything on R&D. And for 38 cases the R&D intensity is less than 1%. On the other hand, of the 122 cases, which do not have recognised R&D, in 35 cases, firms have spent some amount on R&D.

10. It is to be noted that some of the country specific variables like market size or GDP of the host country has relevance when the choice is between licensing and investment (see for example, Arora and Fosfuri, 2000). This is because the smaller market may induce investing firm to go for licensing and vice versa.