
Overcoming institutional voids in the home country for internationalization: an exploratory examination of institutional strategies of Indian MNEs*

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Abstract

This study draws upon the institution-based view to examine the role of market and non-market institutional strategies of multinational enterprises from emerging markets (EMNEs) in shaping their decisions on outward foreign direct investment (OFDI) (decision to engage in OFDI and volume of investment). The proposed conceptual framework is tested on the OFDI decisions of listed Indian firms during the period 2008–2018. The results of random effects logistic regression and tobit regression provide robust evidence for the positive impact of institutional substitution and institutional signaling strategy on the decision to engage in OFDI as well as the volume of investment. An institutional borrowing strategy affects only the decision to engage in OFDI, whereas an internalization strategy does not help EMNEs while internationalizing. The study contributes to the literature on institutional voids and institutional escapism by identifying the strategies that facilitate overseas expansion. It adds to the EMNE literature, which has focused lately on explaining the role of non-market strategies in internationalization. The results of the study indicate the need for policy initiatives geared towards filling information voids, strengthening legal systems and development of credit markets.

Keywords: institutional voids, EMNEs, Indian MNEs, institution-based view

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1. Introduction

Increasing internationalization of multinational enterprises from emerging markets (EMNEs) has attracted significant attention from researchers as well as policymakers (e.g. Buckley et al., 2016; Li and Cantwell, 2021; Mondal, Lahiri and Ray, 2021; Pradhan, 2017). The rapid pace and unique internationalization strategies of EMNEs have been attributed, among other factors, to the national and subnational institutional environments in EMNEs' home countries (Nayyar and Prashantham, 2020; Stucchi, Pedersen and Kumar, 2015). A defining characteristic of the institutional environment in emerging markets is the ubiquitous institutional voids (Hoskisson et al., 2013; Khanna and Palepu, 1997). The absence or underdevelopment of various institutions and institutional actors that could support market transactions results in higher transaction costs, likelihood of opportunism, excessive rent to few actors and market power, thereby causing inefficiencies in executing market transactions and developing competitive advantages (Khanna, Palepu and Bullock, 2010). Drawing on the institution-based view, studies have demonstrated how institutional voids manifested as protectionism, corruption, lack of transparency and the like push or prevent EMNEs from investing overseas (e.g. Luo et al., 2019; Stoain and Mohr, 2016). These studies highlight EMNEs' outward foreign direct investment (OFDI) as a strategic response to home-country constraints.

Since each potential void is an actionable construct, examining internationalization as a strategic response without conducting an in-depth assessment of institutional strategies used by firms to address resource and legitimacy constraints emanating from such voids provides an *incomplete* explanation. Extant research has illustrated some market and non-market strategies that firms operating in emerging markets use to overcome voids in multiple dimensions of institutions, *such as internalization, institutional borrowing, institutional substitution, and institutional signaling* (Doh et al., 2017; Kim and Song, 2017; Marano, Tashman and Kostova, 2017; Pinkham and Peng, 2017).

However, whether and how such strategies affect the internationalization decisions of EMNEs remain unexamined, leaving a pertinent research gap in the literature. It is important because a strategy that helps mitigate institutional voids and improve firms' value and performance in the home country might not have a similar effect in foreign markets. For instance, whereas an internalization (through business group affiliation) strategy is linked to superior performance of firms in emerging markets (Khanna et al., 2010), the evidence of its role in facilitating internationalization remains mixed (e.g. Lamin, 2013; Stucchi et al., 2015). Furthermore, the process of institutional reforms often alters the set of potential strategic alternatives for local firms by extending the available strategic options, while making some existing strategies relatively unavailing. For instance, India's financial sector reforms have created a strong equity market, granting relatively improved access to equity

capital from the external (domestic) market and alleviating the need to rely solely on the internal financial market (Nayyar and Mukherjee, 2020; Stucchi et al., 2015). Along with the liberalization of OFDI policy, this has also allowed Indian firms to cross-list overseas and raise equity capital required for OFDI through the issue of American and global depository receipts (ADRs and GDRs) in international equity markets.¹ As the institutional environment in emerging markets varies remarkably and is constantly evolving, it warrants an examination of strategies that enable MNEs from them to overcome resource and legitimacy constraints caused by the voids and engage in outward internationalization.

Therefore, the present study explores the following research question- *Whether and how market and non-market strategies adopted by EMNEs to mitigate resource and legitimacy constraints from multiple institutional voids in the home country support their outward internationalization – the decision as well as the volume.* We draw on the institution-based view and the framework on responses to institutional voids of Doh et al. (2017) to build our propositions, which are tested on the OFDI decisions of Indian firms listed on the S&P BSE 500 stock market index during the period 2008–2018.

Indian MNEs have emerged as important contributors to global OFDI flows (UNCTAD, 2019), taking bold steps towards foreign markets amid persistent institutional voids in India and without explicit policy support from the government (Bhaumik and Driffield, 2011; Nuruzzaman, Singh and Gaur, 2019; Taylor, 2017). Despite this, the evidence on the internationalization strategies of Indian MNEs is relatively sparse (Nayyar, Mukherjee and Varma, 2021; Paul and Benito, 2018).

Using the random effects logistic regression and the tobit regression models, we find that institutional substitution through shareholding by foreign investors and institutional signaling through corporate social responsibility (CSR) reporting encourages Indian MNEs' OFDI decisions – the decision to engage in OFDI as well as the volume of investment. An institutional borrowing strategy makes firms more likely to engage in OFDI, whereas internalization of institutional voids through a business group's internal markets does not help Indian MNEs expand in foreign markets (in terms of the decision to engage as well as the volume of investment).

The study contributes to the institutional voids and institutional escapism literature first by identifying the market and non-market institutional strategies that enable EMNEs to address multidimensional institutional voids in the home country and internationalize successfully. Second, by recognizing the strategic value of CSR

¹ Reserve Bank of India, "Outward Indian FDI – Recent trends and emerging issues (Address delivered by Shri. Harun R Khan, Deputy Governor, Reserve Bank of India at the Bombay Chamber of Commerce & Industry, Mumbai on March 2, 2012)", 3 March 2021, https://rbi.org.in/scripts/BS_SpeechesView.aspx%3FId%3D674.

in mitigating legitimacy constraints in foreign markets, the study adds to the existing studies on EMNEs' internationalization, which have focused on other non-market strategies such as political capital, corporate philanthropy and corporate political actions (e.g. Luo et al., 2019; Ma, Ding and Yuan, 2016). Third, to the best of the authors' knowledge, the study pioneers the examination of institutional strategies in the context of the internationalization of Indian MNEs.

For policymakers, the findings of the study suggest the need to fill information voids by creating appropriate market intermediaries and ramping up market assistance activities to further the OFDI ambitions of local firms. Policy initiatives such as strengthening of legal systems, consolidation of the banking sector and deepening of debt markets which address other institutional voids are needed to help outward-investing firms overcome resource and legitimacy challenges involved in internationalization.

2. Theory and hypotheses development

The role of the institutional environment has assumed special relevance in explaining internationalization in and from emerging markets. Institutions are commonly defined as the "rules of the game" in a society or humanly devised formal and informal constraints that shape human interaction (North, 1990). The institutional framework of the country comprises regulatory, normative and cognitive institutions that provide stability and meaning to social behaviour (Scott, 1995). The institutional context within which the firms are embedded shapes their strategic choices and behaviour. The institution-based view suggests that the business strategies of firms are a reflection, among resources and industry context, of the formal and informal institutional constraints within which the business operates (Peng et al., 2009). Therefore, understanding the relationship between a firm's institutional environment and its strategic choices is of paramount importance (Doh et al., 2017, p. 295).

The term "institutional voids" was proposed by Khanna and Palepu (1997) to describe the weak institutional conditions in developing markets. Institutional voids describe the condition where institutions that are necessary for the efficient functioning of the markets are either missing or work ineffectively. These voids are widespread and are found in varying degrees in multiple arenas, usually originating from a variety of weaknesses: underdeveloped product and factor markets; an absence of important market intermediaries, including those responsible for disseminating timely and credible information related to business and markets; an uncertain regulatory environment; weak legal systems; ineffective contract enforcement; and the like. When these critical institutions are absent or work poorly, they make it difficult for the domestic firms to access physical,

financial and informational resources, enter into contractual relationships with specialized partners along the value chain and undertake innovative activities in the home country (Li and Ding, 2017). In essence, institutional voids cause the transaction costs relating to market activities to increase tremendously by enhancing the likelihood of opportunistic behavior and corruption, excessive rents to few actors and market power. In addition to causing economic inefficiencies in the home country and eroding the international competitiveness of firms, institutional voids create serious legitimacy challenges for EMNEs in the foreign markets (Pant and Ramachandran, 2012). They make EMNEs suffer from “adverse institutional attribution”, as foreign stakeholders (customers, government, investors, business partners) harbour serious doubts about the ability of these firms to conduct business in a legitimate manner (Ramachandran and Pant, 2010).

Faced with such conditions, firms devise various strategic responses that include adapting to institutional voids, shaping and/or altering them, and avoiding operating in such an environment altogether. Much of the extant research has focused on adaptation to institutional voids through the internal markets of business groups or firm diversification, i.e. “internalization strategy”. Business groups form the internal market for capabilities, functions and key value-adding activities that cannot be reliably accessed from external markets (e.g. Elango and Pattnaik, 2007; Khanna and Palepu, 2000; Khanna et al., 2010; Kim and Song, 2017; Makhija, 2004). Other studies have identified various market and non-market strategies devised by firms to alter or mitigate various kinds of institutional voids. Market strategies include geographical clustering in which favourable institutional conditions are created at the microcosmic level (Lundan, 2012), forming partnerships with foreign firms (Siegel, 2005). Kingsley and Graham (2017) highlighted the importance of an “institutional substitution” strategy to mitigate the informational voids foreign investors face while investing in emerging markets. This strategy emphasizes reliance on a firm’s private accumulated stock of knowledge rather than on external market intermediaries or re-creation of the missing public information. Pinkham and Peng (2017) look at the “institutional borrowing” strategy to mitigate institutional voids in contract enforcement for foreign firms that form international joint ventures in countries with poorly functioning court systems. The strategy allows for incorporating the superior-functioning institutions or court-based systems of another country in lieu of local ones into the contract. Foreign firms from countries with weak governance-related institutions also engage in superior institutional borrowing by listing their securities on developed countries’ stock exchanges (Siegel, 2005). Cross-listing in developed markets makes it easier to “borrow” superior governance and oversight qualities, resulting in reputation advantages and signaling legitimacy for emerging-market firms (Chittoor et al., 2008). Potential non-market strategies include exerting political influence to change the content of regulations (Boddewyn and Brewer, 1994), influencing government to change institutions (Boddewyn and Doh, 2011) and relying on networks and interpersonal

trust (Narayanan and Fahey, 2005). More recently, studies have recognized CSR as an important non-market strategy to signal greater legitimacy for firms operating in environments ridden with institutional voids. Ghoul, Guedhami and Kim (2017) point to the strategic value of a “signaling strategy” through CSR for enhanced access to capital and other resources when firms encounter institutional voids. The study suggested a positive association between the signaling advantages of CSR activity and institutional voids in the home country. Along the same lines, Marano, Tashman and Kostova (2017) draw attention to the effects of home-country institutional voids on MNEs’ perceived liability of origin in host countries, and to the benefits of signaling legitimacy through CSR to reduce these negative perceptions.

Under the avoidance response to institutional voids, Luo et al. (2019) noted the influence of the non-market strategy of corporate philanthropy in OFDI of privately owned Chinese enterprises. Stoain and Mohr (2016) also demonstrated OFDI as an avoidance response to regulatory voids in emerging markets, although without consideration of the firm’s institutional strategies. An increasing number of studies have noted that EMNEs internationalize to avoid market and institutional constraints of the home country, gain access to strategic assets unavailable therein and thereby compensate for their competitive disadvantages (Elia and Santangelo, 2017; Gaur et al., 2018; Luo and Tung, 2007 and 2018; Nayyar and Prashantham, 2020; Nayyar et al., 2021; Witt and Lewin, 2007; Yamakawa, Peng and Deeds, 2008). However, little is known about the firm-specific institutional strategies that support their internationalization.

Therefore, in this study, we aim to explore what kind of market and non-market strategies adopted by EMNEs to mitigate resource and legitimacy constraints from multiple home-country institutional voids support their outward internationalization? To answer this question, we draw on the framework of Doh et al. (2017) to understand whether and how institutional strategies such as internalization, substitution and signaling (through CSR and institutional borrowing) influence OFDI decisions (decision to engage in OFDI and volume of investment) of Indian MNEs.

2.1. Internalization

Institutional voids in the product, labor, and capital markets as well as regulatory weakness and ineffective judicial systems make it difficult and costly for firms to conduct business operations. Economic inefficiencies arise from nonexistent institutional infrastructure and from constrained access to resources – for instance, financial resources in underdeveloped capital markets (Khanna and Palepu, 1997). The absence of effective institutional mechanisms, such as reliable financial reporting, a dynamic community of analysts, venture capital firms, independent and rigorous oversight bodies, makes raising financial resources from external markets challenging and inefficient.

In such an institutional environment, large diversified business groups emerge to internalize the external market failures through the creation of internal markets. Affiliation with these business groups is seen as an important institutional strategy ("*internalization*") to adjust to institutional voids. Business group affiliation shields affiliated firms against institutional voids by filling them. Due to the strong position, credibility and reputation of the business group in the home country firms affiliated with them can access external product, labor and capital markets relatively more easily than unaffiliated firms (Khanna and Rivkin, 2001). Furthermore, group-level mechanisms of internal resource sharing through formal connections of interlocking directorships and informal connections such as family and ethnic ties provide affiliates with a reliable internal market for key resources (Chari, 2013). The affiliated firms also benefit by capitalizing on common brand names as well as research and development conducted by sister affiliates to enhance their own marketing and technological capabilities (Gaur et al., 2014).

While the strategic value of business group affiliation is recognized for the group's superior performance in the home country (Khanna et al., 2010), studies have also associated resource advantages from affiliation with reduced liabilities of foreignness and increased propensity of internationalization for affiliates (e.g. Chittoor et al., 2015; Ma and Lu, 2017). In addition, business groups usually have contacts and/or affiliates in the foreign market that result from their ability to benefit from their relationships with important external parties in the home country such as policymakers and market regulators (Lamin, 2013). These contacts and/or affiliates in foreign markets are an important source of first-hand information about opportunities in the foreign markets as well as knowledge about foreign business operations. As with sharing of other resources, information about opportunities and knowledge related to foreign markets and business practices gets shared between the affiliates of the group, thereby helping affiliated firms reduce uncertainty and the associated liability of foreignness (Guillen, 2003). These information advantages and resources are not commonly available to unaffiliated firms, which have to build them from scratch – an expensive and time-consuming process.

Even as institutional reforms take place in emerging markets and external markets are developed well enough to alleviate resource constraints for unaffiliated firms, it is observed that benefits derived from business group affiliation do not disappear. Lamin (2013) argued that informational advantages of business groups become even more important when institutional reforms take place. Yet, others have also demonstrated that affiliation advantages leave affiliates deeply embedded in the existing context and restrict their ability as well as their willingness to transform in response to outward-oriented institutional reforms (Kriauciunas and Kale, 2006; Stucchi et al., 2015). Based on this, we hypothesize the following:

Hypothesis 1: Internalization of external market failures through affiliation with business groups as a strategy to overcome home-country institutional voids may have a positive or negative effect on EMNEs' decision to engage in OFDI and on the volume of investment.

2.2. Institutional substitution

Information voids are commonly associated with institutional voids and entail situations where publicly available and credible information about the investment environment and opportunities is missing (Khanna and Palepu, 1997). Readily available, timely and credible sources of information include government publications and data, and market intermediaries such as third-party analysts and research and consultancy organizations. In countries where institutions function poorly, firms struggle to access relevant information in the absence of multiple information-focused market intermediaries (Khanna et al., 2010). Studies have shown that information voids increase uncertainty and pose challenges for foreign firms' decisions to invest in emerging markets (Kingsley and Graham, 2017).

We argue that in emerging markets information voids or the absence of institutional mechanisms responsible for generating, analysing and disseminating information relevant to foreign investment also constrain the outward internationalization decisions of EMNEs. These voids are more conspicuous in those emerging markets where OFDI is not actively supported, such as in the case of India.

As FDI is a fixed long-term investment decision that cannot be reversed easily or quickly without incurring significant costs, a lack of reliable information is likely to constrain a firm's international expansion (Vernon, 1971). In countries with well-developed institutions, home governments and/or appropriate institutions consistently gather, analyse and disseminate OFDI-relevant information such as general information on a foreign country or region, or sector-specific data on concrete investment opportunities (Sarmah, 2003). Furthermore, seminars, investment missions, trade fairs and conferences organized with the support of government agencies or chambers of commerce and business associations in host countries provide occasions for personal exchanges with potential host-country partners and government officials and the identification of investment opportunities (Gorynia et al., 2015, p. 244; Te Velde, 2007). The absence of such institutional mechanisms, which creates information voids, is especially concerning for EMNEs that are relatively inexperienced on the international stage (Hernandez and Guillen, 2018). When operating amid information voids, Kingsley and Graham (2017) highlighted the value of a substitution strategy, in which firms leverage their private stocks of knowledge and experience. The strategy of institutional substitution differs from internalization in the sense that it does not entail firms re-creating missing public information within their boundaries, but instead drawing upon their private accumulated experience (Doh et al., 2017).

The investment development path framework suggests that foreign investor shareholding is an important source of private information that can facilitate a firm's OFDI (Dunning, 1981 and 1988). Firms that have attracted foreign shareholders are more likely to be aware of overseas market opportunities, business environments and associated risks, either directly through interfirm linkages or indirectly through managerial input from the foreign investors (Aitken and Harrison, 1999; Bhaumik, Driffield and Pal, 2010). Such private information, which is not available to all the firms, would arguably serve as a proxy for missing public information, reducing the level of risk and uncertainty involved in international expansion, and making EMNEs more confident in their internationalization decisions. Based on this, we propose the following hypothesis:

Hypothesis 2: Institutional substitution through foreign shareholding, as a strategy to overcome information voids in the home country, has a positive effect on EMNEs' decision to engage in OFDI and on the volume of investment.

2.3. Institutional signaling and borrowing

Firms operating under poor institutional conditions have to devise appropriate strategies that signal their legitimacy and trustworthiness to various stakeholders in the home as well as foreign markets. This is because institutional voids not only affect the ease and transaction costs of conducting market-based exchanges in the home country but also follow EMNEs in the foreign markets in the form of "liability of origin" (Ramachandran and Pant, 2010; Madhok and Keyani, 2012). Liability of origin is the challenges unique to the internationalization of emerging-market firms, which arise because of where they are from and create legitimacy-based disadvantages in the foreign country (Ramachandran and Pant, 2010). Foreign stakeholders often engage in "adverse institutional arbitration" as they harbour various suspicions regarding the ability of EMNEs to conduct business in a legitimate manner (Pant and Ramachandran, 2012). For instance, foreign firms (suppliers, distributors and so on) might be unwilling to enter into business relationships or alliances with EMNEs which they perceive to be opportunistic and engaging in unethical business practices (Cuervo-Cazurra and Ramamurti, 2017). The opportunistic behavior is directly attributable to weak contract enforcement mechanisms in emerging markets (Khanna and Palepu, 1997). EMNEs also suffer from adverse stereotyping due to the poor corporate governance standards prevailing in their home country (Khanna and Palepu, 2006). The negative stereotyping based on "country of origin" effects is likely to prevail unless firms provide information or evidence to the contrary (Ghemawat, 2007).

Extant research on mitigating the legitimacy challenges in the home country has highlighted the importance of a firm's non-market strategy such as undertaking CSR activities (Ghoul et al., 2017). It is suggested that CSR activities are an

important strategic tool for signaling a firm's goodwill and good attributes to stakeholders. It helps enhance a firm's social capital with external stakeholders, reduce risk and thereby improve resource access and efficiency of market-based exchange agreements. Extending the examination of the relationship between institutional context and CSR, Marano et al. (2017) suggested that firms with greater internationalization intensity are likely to be more actively engaged in CSR activities in order to prevent the risk of negative legitimacy spillovers in the foreign markets. CSR reporting sends out a strong signal of legitimacy and trustworthiness to foreign partners and stakeholders by reflecting EMNEs' commitment to product quality and safety, environmental and social stewardship and anti-corruption behaviors, irrespective of the government's authority. In both contexts, the strategic value of such activities to the firm increased as home institutional voids increased.

Since firms that engage in CSR reporting enjoy greater access to resources in the home country and are able to alleviate legitimacy challenges in foreign markets, the following can be hypothesized:

Hypothesis 3: Institutional signaling through CSR reporting, as a strategy to overcome legitimacy constraints from home-country institutional voids, has a positive effect on EMNEs' decision to engage in OFDI and on the volume of investment.

2.4. Institutional borrowing

Institutional borrowing refers to the use of institutions from outside the domestic institutional environment to mitigate institutional voids (Pinkham and Peng, 2017). Borrowing better-functioning institutions has been illustrated as an important strategy for foreign firms to overcome voids in contract-related institutions (e.g. court systems) in the host country.

The market strategy of institutional borrowing can also be leveraged by EMNEs to signal legitimacy and better governance standards to foreign stakeholders (Siegel, 2005). This can be accomplished through the listing of securities on developed markets' stock exchanges. When a firm cross-lists its shares in a developed market stock exchange, it is bound to adopt higher standards of corporate governance and is subject to onerous accounting disclosures (Pan and Brooker, 2014; Purkayastha, Kumar and Gupta, 2021). By borrowing better governance standards and in general attaching themselves to the institutions containing stringent oversight mechanisms, cross-listing serves as a signaling strategy that establishes EMNEs as entities that would adhere to legitimate business conduct (Siegel, 2005). Furthermore, it also creates reputation advantages, increases the visibility of the EMNEs and provides foreign stakeholders with greater and reliable information to evaluate the firms (Baker, Nogsinger and Weaver, 2002).

The availability of credible information is expected to reduce the instances of negative stereotyping generalized on the basis of “country of origin” (Kang and Jiang, 2012). Cross-listing, however, also implies significant upfront costs for administrative and legal compliance for the firms (Bell, Filatotchev and Rasheed, 2012; Peng and Su, 2014), which may affect the resources available for internationalization, at least in the short run.

Based on this, we hypothesize:

H4a: Institutional borrowing through cross-listing on developed market stock exchanges, as a strategy to overcome legitimacy challenges from home institutional voids, has a positive effect on EMNEs’ decision to engage in OFDI.

H4b: Institutional borrowing through cross-listing on developed market stock exchanges, as a strategy to overcome legitimacy challenges from home institutional voids, has a negative effect on EMNEs’ volume of investment.

3. Methodology

The proposed model is tested on a sample of publicly listed firms from India. The rationale for choosing India as a research context and the sample of publicly listed firms are discussed in this section.

3.1 Research context: India’s rising OFDI flows and persistent institutional voids

During 2001–2019, the OFDI flow in India grew at a compounded annual growth rate of 18 per cent,² amounting to more than \$219 billion. Between 2005 and 2009, OFDI as a percentage of GDP in India surpassed that of China, the largest investor from emerging markets. Events such as the global financial crisis and the eurozone crisis led to a slowdown after 2009 and 2013, respectively (Iqbal et al., 2018), but, unlike in other BRIC nations, OFDI in India rebounded quickly from 2014 onwards. The magnitude and resilience of OFDI have led UNCTAD to put India on the list of the top 20 global sources of FDI for the period 2019–2021 (UNCTAD, 2019). Furthermore, while the pandemic dampened OFDI in the country – recording a year-on-year decline of 40 per cent during April–December 2020 – the flows picked up to reach the previous year’s level (\$3.5 billion)³ in October 2020.

² First author’s own calculation based on FDI data from UNCTAD FDI Statistics, <https://unctad.org/en/Pages/DIAE/FDI%20Statistics/FDI-Statistics.aspx> (accessed 16 February 2021).

³ Reserve Bank of India (RBI), Overseas Direct Investment Database, www.rbi.org.in/Scripts/Data_Overseas_Investment.aspx (accessed 16 February 2021).

The increase in India's OFDI during the last decade has occurred against the backdrop of persistent institutional voids. As reported in the Global Competitiveness Report 2018 published by the World Economic Forum (WEF), corruption is the most problematic factor that Indian private sector firms face while doing business, followed by difficulty in accessing financial resources (WEF, 2018). The implementation of various financial sector reforms has led to the deepening of the equity market but the corporate debt market remains at a nascent stage of development. Similarly, India's ratio of domestic credit to GDP is 51 per cent, much lower than the 136 per cent and 70 per cent recorded in Malaysia and Brazil respectively – countries that have a similar gross domestic savings rate as India.⁴ The underdevelopment of labour market institutions is also noteworthy. While the score on skill availability (pillar 5) has moved a notch from 4.06 in 2008 to 4.3 in 2018 (on a scale of 7), no improvement is observed in terms of labour market efficiency (4.16 out of 7; pillar 7). In this context, India at 75th position lags far behind not only advanced economies but also other emerging markets such as China (38th) and Russia (60th) (WEF, 2008 and 2019). The institutional voids pertaining to contract enforcement and security of property rights have been similarly persistent. The data (scores) from the Economic Freedom of the World Index for 2008–2018 indicate minimal changes or improvement in the legal structure and security of property rights in India, with the score ranging from 5.13 to 5.51 (on a scale of 10). While this is similar to other emerging markets, for instance Brazil (5.19–5.97), China (5.13–5.50), the voids are conspicuous when compared to the advanced economies (e.g. United Kingdom: 7.71–8.20).⁵

The rising contribution of Indian MNEs to global OFDI flows amid persistent institutional voids in the home country warrants an examination of their institutional strategies, thereby providing an appropriate empirical context for the present study.

3.2. Data and sample

Since the majority of OFDI from emerging markets is accounted for by large firms (Dau, 2012; Mondal and Gandepalli, 2020), our sample consists of Indian firms listed on the S&P BSE 500, an Indian stock market index comparable to the global S&P 500 index. The BSE 500 index represents about 93 per cent of the market capitalization of all firms listed in the BSE⁶ and has been used in studies

⁴ Malpass, David, World Bank Group President, "A stronger financial sector for a stronger India", speech delivered at NITI Transforming India Lecture, Vigyan Bhavan, New Delhi, India, 26 October 2019.

⁵ All the reported figures are obtained from the Fraser Institute website, which publishes the Economic Freedom of the World Index every year; www.fraserinstitute.org/economic-freedom/dataset (accessed 25 November 2021).

⁶ See www.bseindia.com.

to examine the internationalization of Indian firms (e.g. Chittoor, Aulakh and Ray, 2015; Mondal and Gadepalli, 2020). We obtain the list of BSE-500 firms along with data on their identity and financial information from Prowess, a database of the Center of Monitoring Indian Economy (CMIE). Prowess is the most comprehensive and reliable source of firm-level data, used in several studies undertaken in the context (e.g. Chittoor et al., 2015; Elango and Dhandapani, 2020). We excluded foreign-owned firms and central and state government enterprises as their OFDI is not comparable to domestic and privately owned firms (Kumar et al., 2020). We also excluded financial services firms as the industry is subject to different accounting principles and OFDI regulations (Mondal and Gadepalli, 2020). After all the eliminations, including the firms for which data on desired financial variables were not available, the final sample consisted of 275 firms. The final sample of firms exhibits wide diversity in terms of ownership structure (a business group affiliated vis-à-vis unaffiliated firms), industry classification (34 unique 2-digit industries as per NIC 2008 classification), firm age and size.

3.3. Variables

To test the proposed hypotheses, we developed two dependent variables and four independent variables. Various firm-, industry- and region-specific factors that may affect firms' OFDI decisions are controlled for.

3.3.1. Dependent variable

To examine the decision to engage in OFDI, we constructed a dichotomous variable that takes on value 1 if the firm made an OFDI transaction in any particular year during 2008–2018 and 0 if not. The volume of OFDI is measured as the actual amount of direct investment made by the firm in any particular year during 2008–2018. Nearly 70 per cent of firms in our final sample conducted OFDI at least once during the sample period which is guided by the data availability.⁷ The data on firm-level OFDI flows is obtained from the overseas direct investment (ODI) database of the Reserve Bank of India (RBI).⁸ To check whether and how much a firm has invested, we manually checked for its name in the annual compilations of the data obtained from the RBI.

⁷ Authors' calculation based on the RBI outward direct investment database, www.rbi.org.in/Scripts/Data_Overseas_Investment.aspx.

⁸ The RBI's overseas direct investment database provides official data (as reported by authorized foreign exchange dealers) on actual OFDI made by Indian firms in overseas joint ventures and wholly-owned subsidiaries, in the form of equity, loans and guarantees for each calendar month starting from June 2007.

3.3.2. Independent variables

Independent variables: Following the extant studies, the four independent variables to proxy for the four strategies we aim to examine in this study are operationalized as follows:

- i. Internalization is operationalized as a firm's affiliation status. It is a dichotomous variable that takes a value of 1 if the firm is affiliated with a business group in the home country and 0 if not (e.g. Gaur et al., 2014).
- ii. Institutional substitution through foreign shareholding is operationalized as the percentage of a firm's total equity that is held by foreign investors (promoters and non-promoters) (e.g. Buckley et al., 2016).
- iii. Institutional signaling is operationalized as the amount spent on CSR activities. The Indian Companies Act, 2013 mandated that companies meeting certain financial thresholds spend a prescribed amount on CSR activities and report the same in annual financial statements (Sharma and Aggarwal, 2021). The data on CSR expenditure are available from 2015 onwards; therefore we carry out the analysis on a reduced sample.
- iv. Institutional borrowing is operationalized as a dichotomous variable that takes a value of 1 if the shares of the company are listed or traded on developed markets stock exchange and 0 if not (e.g. Lopes and Rodrigues, 2007).

3.3.3. Control variables

We control for firm-specific factors such as size, profitability, financial leverage, age, traditional monopolistic resources (marketing intensity and technological intensity) and prior internationalization (export sales) experience. Large, profitable firms have more resources under their command, making them more likely to internationalize through risky and resource-intensive modes such as OFDI. In a similar vein, firms with little or no debt have slack resources that enable them to undertake OFDI projects having negative present value (Das and Kapil, 2015). The absence of established routines and practices, the proliferation of rules and the consequent organizational resistance to change make young firms more able to undertake OFDI (Elango and Pattnaik, 2007). Their role remains unclear in context of EMNEs, but traditional monopolistic resources are linked to the nature and extent of a firm's internationalization (Dunning, 1988). We also controlled for firm's prior export sales, as they facilitate OFDI through a "learning by doing" effect (Johanson and Vahlne, 1977; Thomas and Narayanan, 2017). Furthermore, to account for the distinct internationalization patterns of firms from different sectors, we added sector dummies (Grøgaard, Gioia and Benito, 2013). We also controlled for foreign participation in the industry, since EMNEs' OFDI is often interlinked with inward

FDI activity at home (Luo and Tung, 2007; Wang et al., 2012). Last, since a firm's OFDI is related to the level of economic development (Dunning, 1981), which varies significantly across the subnational regions in emerging markets (Chen, 2012), we controlled for the state's economic development. Year dummies are added to control for time effects. The details of all the control variables are presented in table A1 in the appendix.

3.4. Estimation method

Given the nature of our dependent variables, we estimate two different models.

$$\text{OFDI decision: } \text{OFDI}_{it}^* = \gamma X_{it} + \mu_{it}$$

$$\text{Volume of OFDI: } \text{VOFDI}_{it}^* = \gamma Z_{it} + \nu_{it}$$

where X and Z represent matrices of independent and control variables, and μ_{it} and ν_{it} are normally distributed residuals. The same set of variables have been used to explain both the decision to undertake OFDI and the decision of the volume of OFDI.

$$\text{VOFDI}_{it} = \text{VOFDI}_{it}^* \text{ if } \text{OFDI}_{it} = 1 \text{ and } \text{OFDI}_{it} = 1 \text{ if } \text{OFDI}_{it}^* > 0$$

$$\text{VOFDI}_{it} = 0 \text{ if } \text{OFDI}_{it} = 0 \text{ and } \text{OFDI}_{it} = 0 \text{ if } \text{OFDI}_{it}^* = 0$$

Hence, the observed value of OFDI (VOFDI) is zero when a firm decides not to invest abroad and takes a positive value when a firm decides to invest abroad.

To examine the decision of a firm to engage in OFDI, we use random effects binary logistic regression. Logistic regression is based on estimation of maximum likelihood and is a suitable method to use when the dependent variable is binary and independent variables are a combination of continuous and discrete variables. The likelihood ratio test of rho is used to check whether a random effects or ordinary logistic regression model is more appropriate. The rejection of the null hypothesis suggests that the random-effects model is preferable (Tatoğlu, 2012; Tuna and Karaca, 2016). The random effects specification is desirable also because some of the important explanatory variables – affiliation with the business group and listing on foreign exchange – are time-invariant and cannot be accommodated in a fixed-effects specification (Kennedy, 1998).

For the decision on the volume of OFDI, we use a random effects tobit regression method. It is suitable under the conditions of limited dependent variables, known as a corner solution response (Woolridge, 2012, p. 596). Under such conditions, the regression methods of ordinary least squares or traditional random and fixed effects of panel data produce biased and inconsistent coefficients estimates. When the error term satisfies the basic classical assumption, the tobit model produces coefficient estimates that are unbiased and consistent.

The estimation methods (logit and tobit) used in this study have been popular among researchers examining similar OFDI decisions (e.g. Wei, Zheng, Liu and Lu, 2014; Nuruzzaman et al., 2019). We used a lagged structure model because it is reasonable to assume a lag between the time when a firm takes OFDI-related decisions (based on external environmental conditions and its attributes) and the time when the investment is made (Elango and Pattnaik, 2007; Yoo and Reimann, 2017). The use of lagged structure models also helps address the problem of potential endogeneity and strengthens causal inferences (Greene, 2003). We also used a two-stage least square regression to check for endogeneity concerns (Bascle, 2008).

4. Results

The descriptive statistics and correlation matrix are presented in table 1. All the correlation coefficients are sufficiently low, indicating that multicollinearity is not a problem.

The results of the random effects logistic regression and the tobit regressions are presented in tables 2 and 3 respectively. Models 1a (for the logistic regression) and 1b (for the tobit regression) includes all the control variables. The variables for internalization substitution borrowing are introduced in models 2a, 3a and 4a respectively for the logistic regression, and models 2b, 3b, and 4b for the tobit regression. Models 5a and 5b are full models. To test the effect of signaling through reporting of expenditure on CSR activities, we re-run the model on a reduced sample (2015–2018). The CSR variable is added in models 6a and 6b of the logistic regression (table 2) and the tobit estimation (table 3) respectively. Models 7a and 7b are full models for the reduced sample (which includes CSR).

The variable for internalization (business group affiliation) does not reach a statistical level of significance in models 2a and 2b. This suggests that internalization as a strategy to overcome institutional voids (hypothesis 1) does not affect EMNEs' decisions to undertake OFDI or the volume of investment. The variables remain insignificant in the full models also – models 5a and 5b – and also in the full model estimation on the reduced sample (models 7a and 7b).

As predicted, the coefficient of the variable representing institutional substitution (foreign shareholding) is found to be significant across all the models (models 3a, 3b, 5a, 5b and 7b), lending strong support to hypothesis 2. Shareholding by foreign investors constitutes an EMNE's private source of the reliable and relevant information required to support OFDI decisions, helping them overcome information voids in the home country. The possession of information about foreign market opportunities, business environment, risks involved and other elements reduces uncertainty and makes EMNEs (Indian MNEs here) more confident about undertaking OFDI and investing extensively.

Table 1. Correlation matrix and descriptive statistics

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) CSR	1											
(2) BGA	0.105	1										
(3) FX listing	0.118	0.155	1									
(4) Foreign ownership	0.148	0.183	0.117	1								
(5) Firm age	0.099	0.191	0.1	0.047	1							
(6) Log Firm size	0.437	0.342	0.211	0.317	0.156	1						
(7) Tech intensity	-0.01	-0.08	0.029	-0.04	-0.04	-0.02	1					
(8) Profitability	0.111	-0.04	-0.06	0.091	0.016	-0.06	0.038	1				
(9) Export intensity	0.035	-0.07	0.037	0.065	-0.04	-0.08	0.111	0.121	1			
(10) Debt-equity ratio	-0.03	0.041	0.062	-0.01	-0.02	0.07	-0.02	-0.35	-0.02	1		
(11) Log Industry FDI	-0.02	-0.05	-0.04	0.033	0.01	-0.02	0.073	0.11	0.055	-0.013	1	
(12) Log GDP per capita	0.014	-0.01	-0.04	0.018	0.017	0.1	0.034	-0.04	-0.02	0.034	-0.01	1
Mean	112.7	0.699	0.075	16.24	37.93	4.57	0.001	10.63	13.79	0.767	4.7	11.66
Standard deviation	336.64	0.458	0.263	15.35	24.17	0.658	0.011	22.97	24.67	4.29	0.523	0.426

Source: Estimations using Stata 16.
Note: BGA = business group affiliation, CSR = corporate social responsibility, FX = foreign stock exchange, SDP = state domestic product

Table 2. Results of random-effects logistic regression (Dependent variable: Decision to engage in OFDI or not)

Variables	Model 1a	Model 2a	Model 3a	Model 4a	Model 5a	Model 6a	Model 7a
H1: Internalization (BGA)		0.401 (0.436)			0.190 (0.441)		-0.474 (0.581)
H2: Institutional substitution (foreign ownership)			0.036*** (0.010)		0.035*** (0.010)		0.029** (0.015)
H3: Institutional borrowing (FX listing)				1.192** (0.507)	0.939* (0.541)		0.222 (0.827)
H4: Institutional signaling (CSR)						0.001*** 0	0.001*** 0
Firm age	0.002 (0.007)	0.001 (0.007)	0.001 (0.007)	0.001 (0.007)	0 (0.007)	-0.002 (0.010)	-0.001 (0.010)
Firm size	0.808*** (0.205)	0.766*** (0.214)	0.665*** (0.205)	0.764*** (0.208)	0.614*** (0.215)	1.172*** (0.325)	1.043*** (0.346)
Technological intensity	35.186*** (11.736)	35.856*** (11.586)	36.265*** (11.759)	34.568*** (11.266)	36.052*** (11.327)	64.432** (26.284)	63.561** (26.01)
Profitability	0.007 (0.006)	0.007 (0.005)	0.005 (0.005)	0.007 (0.006)	0.005 (0.005)	0.001 (0.01)	-0.001 (0.01)
Prior export experience	0.010** (0.005)	0.010** (0.005)	0.009** (0.004)	0.010** (0.005)	0.009** (0.004)	0.010 (0.007)	0.009 (0.007)
Debt-equity ratio	-0.008 (0.017)	-0.007 (0.017)	-0.008 (0.016)	-0.008 (0.018)	-0.009 (0.016)	-0.007 (0.025)	-0.009 (0.024)
Manufacturing sector	1.018*** (0.381)	1.017*** (0.381)	1.044*** (0.379)	1.008*** (0.381)	1.036*** (0.381)	1.564*** (0.565)	1.576*** (0.564)
Industry foreign participation	0.265* (0.145)	0.272* (0.146)	0.264* (0.146)	0.267* (0.145)	0.270* (0.146)	0.772** (0.377)	0.756** (0.376)
SDP per capita	0.155 (0.417)	0.176 (0.412)	0.174 (0.408)	0.203 (0.428)	0.222 (0.414)	0.546 (0.608)	0.563 (0.610)
Constant	-9.013* (4.956)	-9.342* (4.87)	-9.128* (4.892)	-9.423* (5.044)	-9.609** (4.897)	-18.284** (7.498)	-17.998** (7.498)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wald chi-square	64.59***	68.14***	91.22***	73.69***	94.50***	39.67***	44.56***
Log likelihood	-1 171.6631	-1 171.018	-1 162.594	-1 169.847	-1 161.2198	-394.404	-392.42
Observations	2 532	2 532	2 532	2 532	2 532	794	794
Endogeneity statistics (2-SLS regression for full models)							
Durbin chi-square					6.125		12.345
Wu-Hausman					1.214		2.031

Source: Estimates using Stata 16.

Note: BGA = business group affiliation. CSR = corporate social responsibility. FX = foreign stock exchange. SDP = state domestic product.

^a Robust standard errors in parentheses.

^b *** p < 0.01. ** p < 0.05. * p < 0.10.

^c Marketing intensity was dropped due to multicollinearity.

Table 3. Results of tobit regression model (Dependent variable: Volume of OFDI)

Variables	Model 1b	Model 2b	Model 3b	Model 4b	Model 5b	Model 6b	Model 7b
H1: Internalization (BGA)		4 349.253 (3 454.396)			2 550.156 (3 424.393)		-847.096 (2 304.101)
H2: Institutional substitution (foreign ownership)			291.972*** (86.461)		274.681*** (87.304)		181.768*** (63.336)
H3: Institutional borrowing (FX listing)				10 170.235* (5 744.484)	8 023.758 (5 658.046)		2 596.913 (3 522.905)
H4: Institutional signaling (CSR)						13.327*** (2.895)	13.233*** (2.849)
Firm age	-1.068 (67.575)	-14.697 (68.506)	-13.525 (66.097)	-10.696 (67.810)	-28.269 (67.145)	-13.373 (41.829)	-16.603 (41.568)
Firm size	9 726.830** (1 805.284)	9 190.601*** (1 850.681)	8 517.693*** (1 814.998)	9 268.291*** (1 820.186)	7 895.869*** (1 863.234)	5 855.714*** (1 571.298)	4 493.686*** (1 684.342)
Technological intensity	160 708.67 (107 468.94)	167 338.94 (107 641.99)	170 575.94 (106 548.17)	155 759.36 (107 464.46)	169 945.41 (106 780.15)	88 726.802 (75 958.941)	95 013.189 (74 806.265)
Profitability	38.163 (46.662)	42.885 (46.925)	25.986 (46.485)	37.448 (46.599)	28.789 (46.689)	-44.517 (38.525)	-52.623 (38.176)
Prior export experience	43.033 (41.304)	44.477 (41.356)	34.120 (40.907)	40.769 (41.313)	33.756 (40.995)	26.797 (31.684)	17.887 (31.354)
Debt-equity ratio	-237.590 (209.386)	-229.545 (209.028)	-245.472 (208.568)	-245.706 (208.853)	-247.537 (208.066)	-133.357 (144.888)	-146.622 (142.817)
Manufacturing sector	5 433.599 (3 567.625)	5 409.590 (3 573.122)	5 608.730 (3 491.269)	5 290.430 (3 568.442)	5 468.019 (3 499.962)	6 329.810*** (2 294.959)	6 448.092*** (2 252.758)
Industry foreign participation	998.944 (1 558.026)	1 072.055 (1 559.190)	1 048.113 (1 555.188)	1 021.361 (1 557.856)	1 107.208 (1 556.299)	6 442.720*** (1 770.873)	6 517.160*** (1 755.618)
SDP per capita	3 056.924 (3 961.544)	3 346.146 (3 975.853)	3 352.689 (3 880.489)	3 558.256 (3 973.56)	3 907.920 (3 906.002)	2 178.372 (2 485.439)	2 541.940 (2 452.746)
Constant	-113 133.500** (47 316.364)	-117 039.400** (47 523.179)	-115 634.600** (46 386.573)	-117 310.200** (47 398.418)	-121 089*** (46 663.817)	-100 523.200*** (31 369.270)	-101 319*** (30 918.204)
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wald chi-square	59.17***	60.97***	72.06***	62.83***	75.23***	73.58***	83.11***
Observations	2 533	2 533	2 533	2 533	2 533	794	794

Endogeneity statistics (2-SLS regression for full models)

Durbin chi-square					3.806		10.591
Wu-Hausman					0.754		1.925*

Source: Estimates using Stata 16.

Note: BGA = business group affiliation, CSR = corporate social responsibility, FX = foreign stock exchange, SDP = state domestic product.

^a Normal standard errors in parentheses.

^b *** p < 0.01, ** p < 0.05, * p < 0.10

We also find strong support for hypothesis 3, as the variable representing institutional signaling strategy (CSR) is significant across models 6a, 6b, 7a and 7b. The strategic value of CSR reporting in overcoming legitimacy constraints from home-country institutional voids supports the likelihood as well as the volume of OFDI. Regarding hypotheses 4a and 4b, institutional borrowing as a strategy to overcome legitimacy challenges from home institutional voids, the variable for shares listing on the foreign stock exchange is found to be significant in models 4a, 5a and 4b, but loses significance in the full models (5b and 7b). This suggests that cross-listing of shares enhances the likelihood that an EMNE will undertake OFDI (hypothesis 4a) as it helps them overcome governance-related legitimacy challenges in the foreign markets, but does not explain the volume of such investment (hypothesis 4b).

Among the control variables, larger firms are more likely to engage in OFDI and more intense in their OFDI. Technological intensity and prior export experience influence the decision to engage in OFDI.

Concerning endogeneity, the results of Durbin chi-square and Wu-Hausman F test statistics from the two-stage least square regression for full models (models 5a and 7a in table 2 and models 5b and 7b in table 3) reveal no cause of concern.

5. Summary of findings

The paper examines the roles of various market and non-market strategies that EMNEs devise to overcome resource and legitimacy constraints from home-country institutional voids in supporting their OFDI decisions on whether to engage in OFDI and on the volume of investment. Testing the hypotheses on the OFDI decisions of publicly listed Indian firms reveals the encouraging effects of the institutional substitution strategy through shareholding by foreign investors and the institutional signaling strategy through CSR reporting on both decisions. Although the strategy of institutional borrowing through cross-listing of a company's shares on stock exchanges in developed markets makes EMNEs more likely to invest, strong support is not found for its effect on the volume of their investment. Surprisingly, we do not find support for the internalization strategy, i.e., affiliation with business groups. It is the strategy most commonly used by EMNEs to overcome market-supporting institutional voids in the home country (Khanna and Palepu, 1997), but it does not help EMNEs' overseas expansion. The finding can be attributed to the evolving institutional environment which requires a certain degree of agility and flexibility for firms to respond effectively. Although affiliation with business groups is documented to help emerging-market firms improve their domestic performance, its advantages with respect to their internationalization may taper off because affiliated firms are embedded in the institutional arrangements dictated by the group (Roth and Kostova, 2003).

6. Policy implications

The findings of the study present some important implications for policymakers, who need to be cognizant of the potential positive development effects of OFDI for the home country. These include creation of additional employment opportunities for skilled workers from the processes involved in long-term internationalization projects, improvement of institutions and increases in R&D activities of parent firms (Beule and Somers, 2017; Hendricks, 2017). To realize these potential benefits, it is imperative to enact policy measures that facilitate, support or promote OFDI. Although India's OFDI policy has become quite liberal since 2000, it falls short of providing direct or explicit support to outward-investing Indian firms.

The study provides evidence that the initial step in this direction could include plugging the informational voids, i.e. developing robust institutional mechanisms and market intermediaries, at both national and subnational level, that could disseminate reliable, accurate and quality information about opportunities in the foreign markets and provide market assistance by carrying out country-specific as well as sector relevant research and risk assessment. Such home country measures would be beneficial for local firms, especially small and medium enterprises and firms without prior international experience and linkages to foreign firms in the home country. Furthermore, strengthening of legal institutions that guarantees effective (speedy, fair, and affordable) contract enforcement and protection of property rights is imperative. Specific steps in this area could include (1) expediting the integration of Supreme Court's case management system with all the high courts and subordinate courts across the country, and (2) setting up separate commercial courts or specialized chambers within the existing high courts (World Bank, 2009).

This is required to overcome resource and legitimacy challenges which in turn support firms' overseas ventures. While some Indian MNEs engage in institutional borrowing by cross-listing on developed markets stock exchange, this does not come without cost, such as those relating to listing expenses, administrative processes and legal compliance costs (Peng and Su, 2014), and is therefore not a strategic option accessible to all firms.

Steps also need to be taken for increasing the availability of credit and deepening of capital markets, especially debt market. To this end, policy measures such as consolidation of public-sector banks, privatization could boost the banking sector's ability to generate credit, and liberalizing the regulations for domestic institutional investors could contribute towards deepening of debt market by making available long-term finance.

7. Limitations and future research directions

Lastly, while the present study fills an important research gap it suffers from some limitations which provide scope for future research work. The research setting of this study was purposefully limited to one emerging market. Given that the nature and quantum of institutional voids differ remarkably across EMs, studies from other relatively underexamined EMs, especially from Africa and Latin America, would be valuable. Another natural extension of the study would be to examine the role of institutional strategies in OFDI location choice decisions, particularly regarding bridging the institutional distances. Future studies could also extend the examination of foreign shareholding as a mechanism of information substitution to consider the differential effect of different types of foreign investors- promoters, institutional investors, venture capitalists etc., as they differ with respect to risk appetite, investment horizon and motivation, among other factors. Consistent with our objective, we examine the role of foreign equity shareholding as providers of information about foreign market opportunities and knowledge. Foreign investors are a source of more than just information. While we control for other effects- that foreign investor may have on firm's marketing and technological resources, in our empirical model, we maintain that a survey-based study could isolate the information provision (substitution-strategy) effect more clearly.

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Appendix 1. Details of control variables

Variable	Measure	Source
Firm size	Natural log of total assets	Prowess database, Center of Monitoring Indian Economy
Firm age	Number of years since incorporation	
Marketing intensity	Ratio of expenditure on marketing activities to sales	
Technological intensity	Ratio of expenditure on research and development activities to sales	
Prior international experience	Ratio of export sales to total sales	
Profitability	Ratio of profit before tax and extraordinary items to sales	
Financial leverage	Debt-to-equity ratio	
Sector dummy	1 = Manufacturing; 0 = Services	
Foreign participation in industry	Amount of annual FDI equity inflows in each 2-digit industry, according to National Industrial Classification (NIC) 2008 classification	
Subnational economic development	Natural log of state domestic product per capita	RBI Handbook of Statistics for Indian states