THE INFLUENCE OF INWARD FDI ON OUTWARD FDI THROUGH KNOWLEDGE DIFFUSION

by

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ABSTRACT OF THE DISSERTATION

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Foreign Direct Investment (FDI) is a form of cross-border investment in which the investment firm can affect control over the daily operation of subsidiary activities. Therefore, FDI involves not only capital movement across borders but also, and more importantly, transfer of knowledge and capabilities. In this dissertation, I study how FDI inflow into a country affects the country’s subsequent outward FDI activities. I address this topic by using empirical evidence from China employing data at the firm-level and outward FDI project-level throughout the period 2000-2014. The Chinese context is particularly appropriate for the purpose of this research issue not only because of the pro-learning social and business environment in China but also because of the rapid increases in both inward and outward FDI over the study period, starting from extremely low levels initially.

Grounded on the knowledge-based view of the firm, this dissertation
studies the influence of inward FDI, as an underexplored source of knowledge, on local firms’ internationalization capabilities. The effects of inward FDI are examined in two settings, first minority foreign participation in Chinese enterprises, and second industry linkages between local and foreign firms. Minority foreign equity ownership participation (less than 50%) can produce direct knowledge transfer from foreign multinational firms to local firms, while industry linkages provide the potential for foreign knowledge spillovers.

Furthermore, the International Business and Global Strategy literature has focused less on outward FDI motives owing to the difficulty of measuring them, and instead has inferred FDI motives from location choices. Overcoming this limitation, this dissertation makes use of manager’s self-reported business intentions in a host country to study separately market-seeking outward FDI, strategic asset-seeking (also known as technological knowledge-seeking) outward FDI, and outward FDI motive complexity and ambidexterity. I also explore how inward FDI affects the foreign location choices of local firms, by comparing different scenarios related to FDI motives.

The general findings can be concluded as knowledge diffusion through IFDI facilitates local firms’ international market learning and OFDI motive complexity. Although IFDI does not determine the technological knowledge learning of the local firms, foreign entrants located in the same city of the local firms affect the location choice of the local firms, especially if the local firms are seeking technological knowledge in the host country.
Preface

The subject of International Business enters my sight when I took an elective course *Multinational Enterprises* when I majored in International Economy and Trade. My professor was a Korean Female, who had her Ph.D. training in International Business from a Japanese research institution. She spoke minimum Chinese and had to use English to lecture the class (which was great, looking back!). The textbook she introduced to us, *International Business: Competing in the Global Marketplace* (5th edition), is still in use (newer editions, of course) by many International Business instructors nowadays including me when we teach our students.

At first, I had a lot of fun reading cases about multinational enterprises. The case on Disney’s multi-domestic strategies left me the deepest impression in which I was amazed by the differences in attitude Disney received in various cultures and how Disney intended to adapt to local institutions. Later on, when I entered my Master’s program focusing on International Trade where I was exposed to a lot of foreign direct investment spillovers literature, my interest gradually switched from multinational enterprises’ host country strategies to multinational enterprises’ host country effects which seemed to be more relevant in the context of China at the time. Nevertheless, in this dissertation, I blend these two areas closely, by exploring how foreign multinational enterprises’ host country effects might influence local firms’ globalization strategies, in the context of China.

My personal feelings toward multinational enterprises in China were
complex. In my early childhood, I witness my grandparents missed their pension payments due to the bankruptcy of the factories they retired from. The factories which were state-owned did not survive the competition with foreign entrants, which seemed to be a pandemic phenomenon in China. I remember this so clearly because, as a kid, I lived with and was financially dependent on my grandparents. But interestingly, nobody in China then was blaming foreign entrants or had an anti-globalization attitude. After I graduated from college, our generation was encouraged to work for foreign multinational enterprises. I became an intern in the Hongkong and Shanghai Banking Corporation (HSBC) and, ironically, I found myself learning more practical skills in those months than in college for four years (My college Guangdong University of Foreign Studies is prestigious nationwide in the area of International Trade and I am an honored graduate, from a highly ranked dual lingual program). During the HSBC internship, I sharpened my skills in Microsoft Word and Excel, public speaking, event organization, financial management, time management and so on. I also started to broaden my social network and have acquaintances who are from other countries, which had a direct influence on my later-on visiting studentship at George Washington University and also indirectly contributed to my current opportunity at Rutgers University.

I believe we can infer Chinese companies’ encounters from what individuals have experienced with foreign entrants. Local Chinese firms’ performance could be seriously affected by foreign competitors. Meanwhile, local firms might also benefit from knowledge spillovers and developmental
opportunities brought by foreign multinational enterprises. In general, foreign entrants, like all the other matters in the world, mean both challenges and opportunities to local firms. My research intends to tease out under what circumstances challenges are more likely to happen, and under what conditions opportunities are more likely to emerge, by exploring different types of connections between local firms and foreign firms. In addition, challenges or opportunities depend on what local firms intend to achieve. Using Shanghai Automotive Industry Corporation (now SAIC Motor Corporation Limited)’s collaboration with foreign firms in China as an example, SAIC’s performance in market share and revenue remained top domestically during the years when a lot of foreign multinational enterprises entered China, largely owing to SAIC’s partnership with Volkswagen in 1984 and with General Motors in 1997. But SAIC has lagged in innovation and internationalization compared to other Chinese local car manufacturers (e.g. BYD, Chery) as SAIC has overly relied on the foreign partnership at home. Therefore, whether local firms benefit from foreign entrants and how do local firms benefit or not benefit from foreign entrants depends on, first, the type of foreign connections, and second, the goal or activities of local firms.

It is such an awkward thing that I am writing my dissertation on internationalization in an era of increased anti-globalization sentiment and legislation. Political leaders in two major globalization players, the United States and the United Kingdom advocate national protectionism and de-globalization. President Trump initiated a trade war with China and built a wall at the border of
Mexico, while Prime Minister Johnson supports Brexit from the European Union. If any country has the reason to be against globalization, China should be one of them. Most regions experienced economic distress when the country first welcomed global competition. Waves after waves, factories closed, and workers lost jobs. Regions such as the Northeastern part of China was in poverty for decades. However, Chinese people have used the last wave of globalization as learning and developmental opportunities to bounce back from the shock.

The paramount lesson I learned from all my International Business classes is that globalization is an inevitable trend. And of course, globalization is also a neutral concept, just as a coin that has two sides. It is extremely difficult, if not impossible at all, to just enjoy the upside of globalization but not deal with the downside of it (for example the COVID-19 outbreak nowadays). Finally, I recommend those who are in support of de-globalization refers to Chinese history between 1440-1840 where the central government across two dynasties executed retreat policy of the country and eventually leads to absolute stagnation and thus underdevelopment of the nation.
Acknowledgment

I thank Professor John Cantwell for this Ph.D. study opportunity. This dissertation will not be completed without his continuous effort in advising and encouraging me. His advising is detail-oriented and full of support. Professor Cantwell not only edits my writing language but also offers me guidance on framing an introduction sentence by sentence. When I have issues with identifying empirical evidence, Professor Cantwell introduced me to scholars (e.g. Jane Lu), who had applied Chinese data, during conferences. Professor Cantwell has also assisted me in opening up an account in Amarel Cluster with the Rutgers Office of Advanced Research Computing, which was of great help for me to conduct the fuzzy match and significantly enlarged my sample size after my dissertation proposal. He teaches me every skill a good researcher desires. Additionally, Professor Cantwell also shared with me good qualities a scholar needs. He emphasizes positive thinking, focusing on the tasks at hand, doing our diligence before reaching out for help, and always being humble.

I thank the rest of my dissertation committee, Professor Farok Contractor, Professor Ajai Gaur, and Professor Harald Bathelt. Professor Contractor offered me insights and interesting facts related to China’s economy. China has a very distinct economic system and developmental path. Professor Contractor encouraged me to consider this particularity in approaching the research question and framing my theoretical contribution. Professor Gaur offered a lot of guidance on my empirical design and methodology. He always makes time to meet me and talk to me when I have confusion. Professor Bathelt has been
sharing with me the most detail-oriented feedback, including the position of a sentence, formula selection, results interpretation, and implications of my research. I greatly appreciate that Professor Farok Contractor, Professor Ajai Gaur, and Professor Harald Bathelt fit me into their very busy schedules when they also have other duties as editors, department chairs, and other committee members. I sincerely thank Professor Cantwell, Contractor, Gaur, and Bathelt for their helpful comments. All errors in this dissertation remain mine.

I also would like to thank Rutgers Graduate School – Newark for offering me the dissertation fellowship. The fellowship offers me financial support and enables me to focus on dissertation writing without being distracted by activities that I would otherwise have to do to be self-sufficient. I thank Dean Taja-Nia Henderson who offered me a lot of support during this fellowship and during the Three Minute Thesis Competition, through which I realized more practical implications my research could cover. I owe many thanks to Dana Library, the director Consuella Askew, business librarian Au Ka-Neng and Roberta Tipton for locating relevant literature and databases for me, and providing us graduate students private workspace in the library. My appreciation also would like to go to Dr. Petra Christmann (Department Chair of Management and Global Business) and Dr. Suresh Govindaraj (Ph.D. program director) for their funding support, allowing me to collect feedback and new ideas on my research at conferences since the start of my Ph.D. study. I also thank Gonçalo Filipe, Monnique DeSilva, Dawn Gist, and Audrey Louis for their administrative support.
I am indebted to my grandparents, Jianhua Li and Juhua Zhu, who raised me since my birth. I thank them for their unselfish support and encouragement on my Ph.D. study, a period I should have spent to take care of them. They both left me during my Ph.D. study (my grandmother left me a whole year before my dissertation proposal, while my grandfather left me a month before my dissertation defense). I miss them very much. Their spirit and passion towards life will keep guiding me in becoming an independent, responsible and disciplined person. I am also indebted to my husband, Marcus Crews, who has always prioritized my needs and wants, including supporting me to finish my dissertation first during the COVID-19 lockdown when he also has a dissertation to be done. Being a scholar and academic writer himself, my husband has been offering me a lot of valuable comments on my work. This journey without him will not be as smooth and cheerful. I certainly cannot forget to thank my wonderful son, Jaydin Tai Bo-Ju Crews, who has been incredibly disciplined and cooperative since birth (his birthday was a couple of months before my dissertation defense). As I am writing this acknowledgment, he agreed to “lock” himself with his toys and give me 20 (but in fact 10) minutes.

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1. Introduction

1.1 Host Country Effects of IFDI and Home Country Determinants of OFDI

This dissertation focuses on foreign direct investment (FDI) activities, a form of cross-border investment in which the investment firm can affect control over the daily operation of subsidiary activities. From one location’s perspective, FDI can be inward or outward. Inward investment refers to foreign companies invest in the home market (Buckley, Clegg, and Wang, 2002; Gu and Lu, 2011), whereas outward investment refers to domestic companies invest in foreign markets (Johanson and Vahlne, 1977; Gu and Lu, 2011).

Contemporary International Business literature studies inward and outward FDI separately. On the inward FDI side, International Economists (e.g. Caves, 1974) emphasizes host country effects such as productivity spillovers, global value chain integration, institutional evolution and so on. On the outward FDI side, seminal work in International Business (e.g. Hymer, 1976) encompasses determinants initiated from the home country. These determinants include assets accumulated in the parent firm and home country institutional factors. Unfortunately, these two streams of literature, the host country effects of inward FDI and home country determinants of outward FDI, were seldom integrated even though the categories of each share commonality.

By reviewing the literature, separately, on host country inward FDI effects and on home country outward FDI determinants, I realize that the inward FDI effects and outward FDI determinants can be concluded in the same categories: asset-type, transaction-type, and institution-type.
For the asset-type category, inward FDI has been documented to affect the intangible assets, such as technology and innovation capabilities, of local firms (Caves, 1974). In general, there are four channels through which such effects can take place: demonstration, competition, industry upstream and downstream linkages, and employee mobility (Blomström and Kokko, 1998). For example, through observing foreign firms in the same industry or becoming a supplier or buyer of foreign firms, an indigenous firm is more likely to improve its operation efficiency, upgrade its manufacturing techniques, and thus improve its productivity (Buckley, Clegg, and Wang, 2002; Wei and Liu, 2006; Buckley, Clegg, Zheng, Siler, and Giorgioni, 2010; Liu, Siler, Wang, and Wei, 2000). In addition, developed country multinational enterprises (MNEs) are good at training managers and offering managerial know-how in less developed host countries. Patibandla and Petersen (2002) finds that transnational corporations trigger a cumulative process of human capital in high-tech industries via backward linkages with local firms and non-firm actors.

On the outward FDI side, embedded in the Eclectic Paradigm (Dunning, 1977; Dunning and Lundan, 2008), International Business scholars argue that asset kind Ownership advantage is a determinant of firms’ outward FDI. Asset kind Ownership advantage refers to the possession of property rights and/or intangible rights that can grant an oligopoly position of the firm and thus the above-normal economic return. Asset kind Ownership advantage argument is rooted in the seminal work of Hymer (1976) which argues that MNEs accumulate
competitive advantages at home and attempt to duplicate and leverage on such advantage to offset the liability of foreignness in the host country.

For the transaction-type category, inward FDI creates transaction linkages with indigenous firms as foreign MNEs inevitably require suppliers and buyers in the local market. The entry of foreign enterprises boosts the demand for intermediary products in the supply chain. Once local suppliers achieve economies of scale, local firms benefit from a lower price for their intermediary production factors (Markusen and Venables, 1999). Besides, local suppliers or buyers of foreign firms also build up asset specificity with foreign MNEs, which further integrates local enterprises to the global value chain (Ahmadjian and Lincoln, 2001).

On the outward FDI side, transaction kind Ownership advantage explains the favorable conditions arising from the ability of a firm to coordinate multiple business lines or geographically dispersed value creation activities and to capture the benefits of diversification. Transaction Cost Economics (TEC) (Buckley and Casson, 1976) argues that common governance, including strategic alliances, brings complementary assets to the firm, and possibly allows the firm to take advantage of synergies. Morck, Yeung, and Zhao (2008) finds that Chinese outward FDI firms accord with the TCE concept, such that their experience in managing vast and diversified domestic customer base allows them to handle unexpected challenges in global sourcing and internationalization.
For the institution-type category, inward FDI not only adapts to the local institutional environment, it also shapes its external environment as being "a living organism with its personality, inertia and history (Hymer, 1968, p.5)." To list a few, inward FDI can affect host country labor standards (Lee, 1997), corruption norms (Kwok and Tadesse, 2006), corporate social responsibility practices (Spar and Yoffie, 1999), and government regulations on conducting business (Cantwell, Dunning, and Lundan, 2010). Frenkel and Scott (2002) agrees that the participation of global firms in implementing core labor standards foster organizational change and fill the regulatory vacuum in the third world country. Additionally, MNEs are vehicles or catalyst for the host countries to diverge from corruption society (Oliver, 1997). Furthermore, in the case of China, the reality of more and more foreign firms invested in China for burgeoning domestic markets requires the Chinese government to be more accommodating to foreign business. Gradually, the Chinese government has become more opening and liberal in terms of the market economy, permitting wholly-owned foreign subsidiaries rather than just international joint ventures (IJVs) in the mid-1990s (Li and Cantwell, 2012). Besides, in order to promote the long-term competitiveness of local firms, Chinese governments start the privatization process by allowing the majority of state-owned enterprises (SOEs) to become listed firms and finance through local and global stock markets.

On the outward FDI side, the home country and parent firm institution affect the internationalization behavior of the firm is based on the institutional literature which advocates that the quality of domestic institutions is a key
explanation of economic development. Here institutions refer to the formal and informal institutions that govern the value-added process within the firm, and between the firm and its stakeholders. It is the code of conduct, norms, corporate culture and the institutional environment the firm operates in. Institutional based view argues that institutions, as a third perspective other than industry features and firm idiosyncratic characteristics, affect the strategic choices of organizations (Peng, Wang, and Jiang, 2008). Studies done in emerging markets show that government policy at home shapes the trajectory of MNE internationalization (Deng, 2009; Luo, Xue, and Han, 2010). Government support such as approval process, funding, and tax preferential policies enable emerging market firms to overcome shortages in information and resource constraints and promote their success in expanding their business abroad (Ghemawat, 2003; Wang, Kafouros, and Boateng, 2012; Cheng and Yu, 2008; Meyer and Peng, 2005; Peng, Wang, and Jiang). Child and Rodrigues (2005) also concludes that Chinese OFDI is 'institutionally embedded' rather than simply a firm's strategic choice.

1.2 Scope of the Dissertation
First and foremost, the internationalization activities studied in this dissertation is FDI, meaning neither export nor licensing will be studied, although non-FDI internationalization activities will be included as controlling factors in the research. Since FDI include wholly-owned subsidiaries, international joint ventures, merger and acquisitions, and greenfield investments, these internationalization activities are in the scope of the research. In other words, this
research is about a multinational enterprise A set up a foreign subsidiary in a host country and how that subsidiary affects the host country’s local firms’ ability to set up subsidiaries in other countries which also include the multinational enterprise A’s home country.

Additionally, there are several directions to study the inward and outward FDI relationship. In this dissertation, I focus on the direction from inward FDI to outward FDI, with inward FDI being the potential cause or determinant of outward FDI.

Furthermore, out of the three categories (asset-type, transaction-type, and institution-type) reviewed above, this dissertation focuses on the asset-type connections between inward and outward FDI. The other two types will be controlled in the research design, for example, I control foreign competition and state ownership.

The research context of this dissertation is China throughout the period 2000-2014. During this period, China can be safely considered as an emerging market in which Dunning’s Investment Development Path (IDP) can be observed from one of the early stages where outward FDI pick up after the rapid increases in inward with both inward and outward FDI starting from extremely low levels initially. After the year of 2014, as it is shown in Figure 1, Chinese outward FDI exceeds its inward FDI, indicating China might enter the next stage of IDP and the mechanism of inward FDI affecting outward FDI can be different. The selection of the starting year 2000 was due to data availability, but it is also the year when China formally joined the World Trade Organization (WTO).
The Chinese context is particularly appropriate for the purpose of this research issue also because of the pro-learning social and business environment in China, which yields strong evidence of inward FDI affecting outward FDI. One thing worth mentioning is that the mechanism studied in this dissertation mainly applied to the manufacturing sector, not service (such as utilities, insurance, banking, or call centers) nor primary sectors (such as extractive industries), as the initial novelty of FDI (as opposed to international trade and licensing) was the internationalization of production (Dunning, 1977).

Thus it must follow that the research question in this dissertation is: How does inward FDI in a developing context affect subsequent outward FDI activities of local firms?

Figure 1 Chinese Inward and Outward FDI Trends
(Source: China Statistical Year Book 2019, 2018 Statistical Bulletin of China’s Outward Foreign Direct Investment; Unit: 100 million US $)
1.3 General Contribution

The literature on the host country effects of inward FDI and home country determinants of outward FDI was seldom integrated. Considerably less attention has been devoted to the relationship between inward and outward FDI (Child and Rodriguez, 2005; Deng, 2012). Dunning's Investment Development Path (Dunning, 1982; Dunning and Narula, 1996; Narula and Dunning, 2010) arguing a location attracts inward FDI before outward FDI emerges from the same has considered both inward and outward FDI in the analysis but the relationship between inward and outward FDI is not the focus of the model.

More importantly, contemporary International Business literature studies antecedents of becoming an MNE but seldom disaggregates FDI activities in the host country. Overcoming this limitation, this dissertation devotes to exploring the antecedents of different types of FDI activities, namely FDI motives. This dissertation contributes to the understanding of FDI motives in three ways, which will be explained in detail in section 2.2.3. First, I bring a new subcategory of FDI motives to better reflect the nuance of FDI activities in different developmental stages. Second, I revise the classic assumptions of FDI motives using emerging market context. Third, I revisit the connection between FDI motive and location advantages and emphasize the distinctions between the two.

1.4 Organization and Overview of the Dissertation

The next section, chapter 2, listed relevant definitions and reviews the limited body of literature on inward and outward FDI relationships. A research gap is
identified after the literature review. In the theory development section, chapter 3, I focus on two general types of inward FDI: (1) foreign minority ownership participation and (2) industry linkages between indigenous and foreign firms. Chapter 4 to Chapter 8 develops hypotheses representing five empirical essays of the dissertation. In essay one (chapter 4), I replicate the literature by studying how inward FDI affects the likelihood of a firm becoming an MNE, which provides the baseline of the inward-outward FDI relationships. From essay two to essay four, I study different major motives of emerging market firms' outward FDI, disaggregating the mechanism of inward-outward FDI relationships. Last but not least, in essay five, I study the outward FDI location patterns of firms originating from a given Chinese city are consistent with the geographic pattern of inward FDI in that city, especially when the outward FDI projects are market-seeking or strategic asset-seeking (not if outward FDI projects are more natural resource-seeking or efficiency-seeking). Essay five is there to emphasize the distinctions between FDI motives and host country location characteristics.

Starting chapter 8, I disclose details about the empirical design of the dissertation, including the selection of the research setting, data source, data cleaning and management, and variable coding. Chapter 8 also shows the summary statistics of the sample and variables. In chapter 9, I report empirical techniques applied to each essay and the corresponding results. Chapter 10 discusses the theoretical and practical implications of the findings. I also point out the limitations of the studies and identify future research directions. The dissertation is concluded in chapter 11.
2. Literature Review

2.1 Definitions

**Foreign Direct Investment:** Based on Hymer (1976), this dissertation defines Foreign Direct Investment (FDI) as a cross-border investment in the form of controlling ownership in a business in one country by an entity based in another country. FDI distinguishes from foreign portfolio investment by a notion of direct control by investors in daily business operations. The country that receives the investment and where the foreign affiliate is located is called the host country while the country where the investment is from and the parent firm resides in the home country of the FDI. Owing to the different angle viewing the transaction, one FDI project could be inward FDI from the host country perspective and outward FDI from the home country perspective. Inward FDI (IFDI) refers to foreign entities invest and operate businesses in a local economy. Outward FDI (OFDI) can be defined as domestic companies invest and operate businesses in a foreign market. FDI, although oftentimes measured by the volume of capital movement, involves not only capital but also a package of resources such as technology, managerial skills, and business networks.

**Ownership Advantage:** The concept of ownership advantage in International Business is included in the Eclectic Paradigm which is introduced to explain the FDI activities, compared to export and technology licensing. The Eclectic Paradigm contends that FDI only takes place when the following three advantages co-exist: Ownership advantage of the parent firm (O), Locational Advantage of the host country/region (L), and Internalization (I) advantage of the
hierarchical structure between the parent and the subsidiary (Dunning, 1977, 1993). Ownership advantage derives from the possession of proprietary assets, both tangible and intangible, that grants the investing firm economic rent when operating abroad. Ownership advantage is a firm-level construct but the firm benefits from its nationality. In other words, ownership advantage largely represents the competence of the home country. Ownership Advantage, borrowing a lot of elements in barriers of entry (Bain, 1964; Mason, 1939), was rooted in the industrial organization (IO) theory of monopolistic power in structural market imperfections. A foreign subsidiary was desired to remove competition in the host location by appropriating parent firm-specific monopolistic properties (Hymer, 1976; Kindleberger, 1969; Vernon, 1966). O can be further categorized into those originating from monopolistic possession of certain tangible and intangible assets (Oa), those from common governance to reduce transaction costs (Ot), and those from formal and informal institutional environment the firm operate in (Oi) (Dunning and Lundan, 2008; Cantwell, 2015).

**Knowledge Diffusion:** Knowledge diffusion is defined as the possible acquisition of knowledge from external sources by indigenous firms (Keller, 2004). It contains two possible channels: purposefully knowledge transfer or an unintentional spillover from the knowledge supply side (Acharya and Keller, 2009). FDI knowledge spillover is defined as an informal flow of knowledge-based resources from foreign to local firms (Eapen, 2012). Broadly interpreted, knowledge includes marketing knowledge and technological knowledge.
Marketing knowledge concerns information on customers, competitors, and distributors within the marketplace relevant to the focal firm (Morgan, Zou, Vorhies, and Katsikeas, 2003). Technological knowledge refers to the product, process, and distribution technology, as well as management know-how (Blomström and Kokko, 1998).

**Absorptive Capacity**: Cohen and Levinthal (1989) defines absorptive capacity as the fraction of knowledge in the public domain that the firm can assimilate and exploit. It measures the ability to absorb available external knowledge. Absorptive capacity determines a firm’s ability to incrementally increase its technological knowledge stock through adaptation and application of outside knowledge. Absorptive capacity is a function of R&D investment, complexity, and relatedness of external knowledge (Criscuolo and Narula, 2008).

**Defensive Market-seeking FDI**: defensive market-seeking FDI is one subcategory of market-seeking motive, the other one being offensive market-seeking. Defensive market-seeking FDI is defined as the FDI firm intends to defend its market share in the host country, meaning the FDI firm either has an existing customer base in the host country or has a greater ease of identifying potential customers in a host market (Kim and Atuahene-Gima, 2010). Defensive market-seeking FDI usually means that the FDI firm is at a more mature stage of understanding the host market compared to offensive market-seeking FDI firms (Buckley, Cross, Tan, Xin, and Voss, 2008).

**Strategic Asset-seeking FDI**: Based on Dunning (1993), the strategic asset-seeking FDI is to promote long long-term strategic objectives, especially
that of sustaining or advancing global competitiveness (e.g. augmentation of the
global portfolio of physical assets and human competences, which perceive will
either sustain or strengthen their ownership-specific advantage or weaken those
of competitors). Because of the abuse of asset-seeking activities (Cuervo-
Cazurra and Narula, 2015), I would like to apply the precise version of the
definition by Dunning and Narula (1995) that strategic asset-seeking motive
refers to the upgrade of technological assets through FDI in R&D facilities.

Usually, the competence creation mandate subsidiary has a strategic asset-
seeking motive. Strategic asset-seeking and knowledge-seeking are used
interchangeably in this dissertation to mean: technological knowledge-seeking.

**Competence Creation Subsidiary:** A competence creation subsidiary
gains a more creative role by generating new knowledge following the
comparative technological advantage of the country in which the subsidiary is
located (Cantwell and Mudambi, 2005). Competence creation is one of the
dichotomy categorizations of R&D purposes in the host country, another one
being competence exploiting. While the competence exploitation mandate is
mainly for the purpose to adapt products developed in the parent firm/home
country to local needs (market-seeking and resource-seeking motive), the
competence creation mandate goes beyond local market orientation to
internationally integrated operations (asset-seeking motive). The knowledge
generated in competence creating subsidiary can not only serve the local market
(local-local) but the whole parent group and its sister subsidiaries (local-global).

Based on Birkinshaw and Hood (1998) framework on subsidiary evolution,
whether a subsidiary can become a competence creation mandate depends on (1) host location factors, (2) subsidiary choice, and (3) headquarter assignment.

**Ambidexterity in FDI motive:** The initial concept of ambidexterity was introduced by Duncan (1976), a term defined as “to be aligned and efficient in the management of today’s business demands while simultaneously adaptive to changes in the environment.” The term then became a paradigm in organizational learning in which a frequently asked research question is how organizations balance the distribution of resources between exploration and exploitation. Ambidexterity in FDI means strategic asset-seeking FDI and exploitative motives, such as market-seeking and efficiency-seeking FDI occur simultaneously in one FDI project (Luo and Rui, 2009).

Defining the research context: Based on World Investment Report (2015), most inward FDI in developing countries are from a developed country. MNEs are interested in manufacturing in developing countries as well as accessing raw materials, by doing that, they take advantage of the growing market for advanced products, and semi-skilled labor. In terms of IFDI, this study mainly refers to advanced country MNEs investing in developing countries. This indicates that knowledge flow is mainly from MNE to local firms as MNEs are at an advantage in terms of technology and managerial know-how.
2.2 Prior Research on Inward FDI’s Influences on Outward FDI

2.2.1 Theoretical Lenses

Five major theoretical lenses have been applied to explain the inward FDI influence on outward FDI. They are (1) FDI spillovers and competition analysis; (2) resource dependence of diversification; (3) organizational learning on improving resource fungibility; (4) prospect theory on discouraging risk-taking behavior; and (5) global production network perspective. Gu and Lu (2011) refers to the FDI spillover literature and argues that both the spillover and competition effects of foreign entrants can apply to indigenous firms. The spillover effects are more likely to happen when foreign firms co-investments with local firms. Gu and Lu (2011) employs empirical evidence from the venture capital database worldwide. Co-investments in venture capital scenarios resemble international joint ventures in the FDI literature. Gu and Lu (2011) assume that co-investments can lead to resource transfer and information diffusion from foreign firms to local firms. Nevertheless, Gu and Lu (2011)’s assertion suffers from traditional criticism of the accessibility and effectiveness of international knowledge transfer. For instance, Zhao (2006) claims that IJVs often fail to transfer knowledge to local partners because foreign MNEs have a strong motivation to protect their intellectual property. Institutional barriers between home and host countries and complementarity between foreign and local firms also hinder international knowledge transfer (Inkpen, 2000).

Furthermore, Gu and Lu (2011) argue that if the foreign firms have standalone investments in the host country, without partnering with local firms,
the local firms tend not to benefit from the knowledge spillovers of the foreign firms and also suffer from the competition from the foreign firms. The competition effect will crowd out indigenous firms and thus the international investment of indigenous firms. Therefore, co-investment between foreign and local firms leads to a positive inward-outward FDI relationship owing to foreign spillovers while standalone investment from foreign firms leads to a negative inward-outward FDI relationship due to foreign competition.

Xia, Ma, Lu, and Yiu (2014), applying the resource dependence logic of diversification, argues involvements with foreign firms lead to an increased level of outward FDI activities by domestic firms, regardless of the partnership (possible spillovers) or competition with foreign firms. The resource dependence logic of diversification supports a positive inward-outward FDI relationship. Its central argument is the local firms tend to engage in escapism behavior (escape abroad to seek further development opportunities) when facing strong partners or competitors in the domestic market from foreign countries. The resource dependence logic of diversification offers insights on inward-outward FDI relationships with both theoretical and practical justifications, especially in the emerging market context where foreign firms are more advantageous than local firms. Nevertheless, this perspective largely ignores the learning component of local firms from foreign counterparts.

Li, Yi, and Cui (2017) draws upon both the organizational learning perspective and the prospect theory, and propose that the inward-outward FDI relationship can be both ways. On the one hand, local firms involved with inward
internationalization (such as IJVs) have strong motivation to improve its resource fungibility. On the other hand, local firms that have already gained from inward internationalization activities can be risk-averse and reluctant to participate in outward FDI. The dual-angle reflects the reality of the inward-outward FDI relationships. However, this research does not touch upon what kinds of inward activities are more likely to yield organization learning outcomes and what kinds of inward activities can lead to risk-averse behavior.

Hertenstein, Sutherland, and Anderson (2017), using five company cases from China's auto components industry, argue that local firms, by joining the global production network of foreign MNEs at home, are more likely to become an MNE. In addition, the outward FDI strategies, including FDI location choices, FDI motives in the host country, entry mode and entry timing, of the local firms which are the local supplier of foreign MNEs are heavily influenced by global flagship MNEs. In general, the global production network perspective supports a positive inward-outward FDI relationship.

2.2.2 Findings from the Literature

The following section reviews the channels of inward FDI affecting outward FDI. In each channel, the relationship can be both positive and negative.

2.2.2.1 Knowledge diffusion channel

Gu and Lu (2011) identifies positive inward-outward FDI relationship when the inward investment mode is co-investments. They define co-investment as a
business jointly owned and conducted by foreign and indigenous firms. Co-investment, an analogy to IJVs, has a comparatively high level of communication and proximity between the foreign partners and indigenous firms. In a co-investment organization, partners share profit and risk. Due to common interest and mutual understanding, the co-investment partners reduce competitive responses and increases substantial information exchange. The connections between business partners facilitate the transfer and diffusion of technical and managerial knowledge, which boosts the local firm’s competitiveness in the long run. They summarize that the spillover effect of co-investment in a country increases the probability of its OFDI. The spillover mechanism should be more salient in developing market context. Mudambi (2008) argues that, as it is shown in the smiling curve, the intangibles of both ends (R&D knowledge and marketing knowledge) from advanced country MNEs fuel the catch-up process of emerging market firms via original equipment manufacturer network. This should result in a higher outward FDI propensity of local firms.

Ma, Wu, and Zhang (2015) finds a negative relationship between foreign presence and international expansion of indigenous firms. Similar logic as the IFDI spillover effect, the presence of foreign companies allows local firms to gain access to new and diverse knowledge, organizational skills and capabilities. As outward FDI can be costly, risky, and resource-intensive, local firms tend to avoid OFDI if they can acquire strategic resources by collaborating with foreign firms that operate at home. This concludes that high levels of foreign presence can impede overseas investment by weakening the foreign expansion motivations.
2.2.2.2 Market competition channel

Wang, Hong, Kafouros, and Boateng (2012) argues although prior studies documented positive spillover effect of foreign presence, a negative relationship between inward FDI and outward FDI exists when market competition effect dominates and the “crowd-out” effect is present. Gu and Lu (2011) argues that the competition effect of inward FDI dominates when a stand-alone investment is prevalent in a country. Stand-alone investment mode is an analogy to wholly-owned subsidiaries, in which case the business is operated by foreign investors solely. Due to limited interaction with foreign entrants, local firms find difficult to incorporate tacit knowledge into its daily operation. Additionally, standalone investment does not consider the interest (such as growth and survival) of indigenous firms as they do not share common interests. Therefore, a substantial degree of competition in the same industry is entailed due to market stealing and labor stealing competition effects.

Using a resource dependence logic, Xia, Ma, Lu, and Yiu (2014) acquires the opposite results as Gu and Lu (2011) for competition effect. Inward FDI changes the landscape of competition in the final product market, positively associating with the level of outward FDI. When local firms and foreign firms are in the same industry, providing the same and substitutable products in the common final consumer market, foreign firms generally own more market power than indigenous firms, especially in the emerging market scenario. The power imbalance pushes indigenous firms to seek developmental opportunities abroad and mitigate the market stealing by enlarging market share in a global sphere.
Yang, Jiang, Kang, and Ke (2009) agrees with the resource dependence view of diversification logic by arguing firms often react to higher competitive pressures by engaging in international expansion. This, in turn, allows them to reposition themselves and address their competitive disadvantages by accessing scarce resources that are tied to foreign markets. It then concludes that the industries with higher involvement of foreign enterprises, local firms tend to escape abroad for developmental opportunities.

2.2.2.3 Production factors channel

Girma, Görg, and Kersting (2019) argues that the IFDI tends to increases the factor price such as wages and rent of land, due to the surge in demand caused by foreign firms operating in the host country. From one perspective, indigenous firms cannot afford the price increase at home and shift business operations abroad to affordable areas. From another perspective, the local firms fail to gain access to high-quality production factors such as important suppliers and human capital, which affects the competence accumulation at home and decreases OFDI activities. Conversely, MNEs from advanced economies help prevent brain drain to some extent and thus are beneficial for the competence accumulation in the long run if there is enough employee mobility.

From a resource dependence logic of diversification, Xia et al (2014) argues that foreign firms rely on geographical proximate businesses for raw materials and intermediate products. In other words, some local firms serve as a supplier to foreign enterprises. Since foreign firms can offer better price or control advanced resources needed for local suppliers such as technology, there is a
power imbalance between foreign firms and local suppliers. To reduce dependence on foreign firms, local suppliers in an unfavorable power position tend to diversify into new geographic locations to alter the unfavorable situation at home. The power imbalance between foreign firms and local firms also grants foreign firms the opportunities to demand local suppliers to provide better quality products and thus stimulate the upgrading of local suppliers. Similar to vertical spillover logic, local suppliers after constant stimulation from foreign firms improve their competitive advantage and ready for the global market.

2.2.2.4 Market institutions channel
Foreign MNEs facilitate the evolution of host country market institutions, through which process the domestic market becomes as liberal and free to the MNE home country. IFDI is an institutional diffusion vehicle. Cantwell, Dunning, and Lundan (2010) identifies domestic institutions as a potential channel for linking IFDI and OFDI. As the more and more foreign business operates in the host country and more and more local businesses benefit from a foreign presence in terms of technology diffusion, host government gradually realizes that active participation in learning is as important as IFDI in terms of increasing the absorptive capacity of local actors. The government then will encourage OFDI projects and support asset-seeking and reverse knowledge transfer behavior. The growing IFDI has led to a greater appreciation of international linkages and greater interest in promoting international connections via multiple formats including OFDI.
2.2.3 A Critique and New Directions: Revisiting FDI Motives

This dissertation focuses on the knowledge diffusion channel because knowledge is at the core of creating and maintaining a competitive advantage (McEvily and Chakravarthy, 2002). The knowledge diffusion channel explains how foreign MNEs’ knowledge diffusion in the host country affects local firms’ subsequent outward FDI activities. I borrow from the relational perspective (e.g. Bathelt and Glückler, 2003) and the knowledge-based view of the firm, arguing emerging market firms acquire knowledge from external sources, mainly from its production network. Furthermore, I also take into consideration the prospect theory which indicates that firms that have successfully acquired knowledge at home from foreign MNEs might be less motivated to invest abroad.

In order to tease out the two effects (positive and negative), I organize the study by different inward FDI categories and various outward FDI motives. I am interested in studying what kinds of inward FDI lead to positive inward-outward FDI relationship and what kinds of inward FDI lead to the opposite. More importantly, I am interested in learning what type of knowledge different inward FDI activities tend to transfer (e.g. does equity foreign ownership mainly transfer...
marketing knowledge while industry linkages with foreign MNEs mainly transfer technological knowledge), and what kinds of outward FDI activities different inward FDI can affect (e.g. does equity foreign ownership mainly affect market-seeking OFDI while industry linkages with foreign MNEs mainly affect knowledge-seeking activities?).

Contemporary inward-outward FDI literature answers how foreign entrants affect indigenous firms’ decisions in becoming an MNE or not but seldom disaggregate FDI activities in the host country. Nevertheless, the influence of foreign entrants on different FDI activities might vary. For example, foreign ownership participation might mainly affect market-seeking OFDI but not strategic asset-seeking OFDI. In this dissertation, I intend to expand our understanding of FDI motives, in particular the role of foreign entrants on indigenous firms’ intended activities in the host country.

This dissertation contributes to the understanding of FDI motives in three ways. Regarding the basic category of FDI motives, I refer to Dunning (1993) and Dunning and Lundan (2008). First, I bring a new subcategory of the market-seeking FDI to better reflect the nuance of FDI activities in different developmental stages. The market-seeking motive is the most popular in FDI. In the sample of Chinese OFDI projects between 2000 and 2014, more than 60% of the projects were claimed to have a market-seeking motive. Therefore, it might make sense to look into the nuance of each reporting and summary subcategories to better understand this motive. International Marketing literature (e.g. Kim and Atuahene-Gima, 2010) suggests that market-seeking activities can
be divided into two categories based on the stages of market development. Buckley et al (2008) has a similar categorization in which market-seeking activities are divided into offensive market-seeking and defensive market-seeking, with defensive market-seeking being in a more mature stage of market development.

Second, I revise the classic assumptions of FDI motives using emerging market context. Emerging market MNEs (EMNEs) yield two interesting scenarios which we seldom see in developed country MNEs (DMNEs). Pananond (2015) finds that EMNEs internationalize initially to be a supplier of DMNEs in the global market and gradually intends to evolve and upgrade its position in the global value chain using its connections with DMNEs. This indicates that foreign MNEs have a significant role to play in EMNEs’ FDI motive choice. It also indicates that the FDI motive evolves, from exploitative initially to exploratory in a later stage. Furthermore, EMNEs usually perceive stronger competition pressure in the global market and also receive stronger institutional support from the home country. Therefore, EMNEs are more likely than DMNEs to engage in multiple motives at the same time. This might update the traditional view of FDI motives which believes that one FDI project is associated with one FDI motive.

Third, I revisit the connection between FDI motive and location advantages and emphasize the distinctions between the two. Previous studies (e.g. Alon, 2010; Buckley, Clegg, Cross, Liu, Voss, and Zheng, 2007; Kostad and Wiig, 2012) tend to infer FDI motives from host country characteristics such as demographics and economic indices. Nevertheless, we need to revisit the
foundation of FDI motive which is a reflection of managers’ economic choices (Cuervo-Cazurra and Narula, 2015). Although managers decide host locations based on FDI motives (or the other way around), host country location characteristics and FDI motive should not have a one-on-one association because FDI motive is a firm-level or project-level construct. In other words, FDI motive is a firm-level decision in conjunction with location-specific characteristics and the firm-specific advantages of an MNE have an important role to play in FDI motive. Therefore, the most effective way to measure motive is to ask decision-making managers. In this study, I use manager self-reported business intentions in the host country to code FDI motives.

3. Theoretical Background: Knowledge Diffusion from Foreign MNEs

3.1 Knowledge-based View of the Firm and the Relational Perspective

International expansion is one type of firm growth. The traditional knowledge-based view of the firm argues that firm growth is the endogenous outcome of continuous intra-firm knowledge creation. According to Penrose (1959), for firms to survive in a dynamic environment, they need to develop an area of specialization or a technology base that shapes the firms’ basic position in knowledge creation. The knowledge-based view of the firm emphasizes the mechanisms that a firm internally combine and transfer tangible resources for knowledge creation and innovation activities (Gassmann and Keupp, 2007). Nevertheless, in the network economy today, knowledge can more often be acquired from exogenous sources, for example through imitative behavior.
(Fernhaber and Li, 2010; Oehme and Bort, 2015) and vicarious learning
(Bingham and Davis, 2012; De Clercq, Sapienza, Yavuz, and Zhou, 2012).

Dunning (1998) recognized that the Ownership Advantage of MNEs can be acquired through both internal and external sources. In the era of alliance capitalism, the external transfer, such as on-going global-local connection, plays a role in knowledge generation for local firms. External knowledge transfer can be a partial substitute for in-house technological development. This is because both technology and products are becoming more and more complex, and one firm can't master all kinds of relevant technology (Cantwell and Piscitello, 1999). When external knowledge overlaps with the complementary paths of technological development, a firm can take advantage of the knowledge from an external provider and realize rapid development (Prashantham, Zhou, and Dhanaraj, 2019; Wiklund and Shepherd, 2003). In addition, when a certain type of technology is standardized and in the mature phase, firms are more likely to adopt the readily available technology and free more resources for other innovative activities, from an economic standpoint. Furthermore, inter-firm agreements for technology transfer generally result in a more focused profile of technological specialization, and thus a gradually improved firm innovation and also financial performance (Wan and Hoskisson, 2003).

The relational approach of economic activities (e.g. Bathelt and Glückler, 2003) explains how knowledge can be acquired via external sources, especially via interactions among local economic actors. Local economic actors cannot be treated as independent entities but must be viewed within their respective socio-
economic contexts; that is, they are closely interconnected in communication and adjustment processes with their suppliers, customers, service providers, and state authorities (Grabher, 1993). The relational approach no longer treats location factors, such as labor cost and knowledge base, separate from economic activities in a place. It argues that economic activities are embedded in a place, which facilitates local business network formation and the knowledge flow. As a result of the social-economic exchange, knowledge is diffused locally and local economic actors co-evolve together (Bathelt, Cantwell, and Mudambi, 2018). In essence, this geographic relational perspective views the interpersonal and inter-organizational networks as advantages of local business development. The resources an organization has are less likely to be organizationally bounded but extended to its geographical partners.

Using the relational approach of economic geography, I argue that local firms can acquire knowledge from foreign entrants through various interactions within the hierarchy or via the arm's length transactions. The relation starts with inward internationalization activities described in the global production network perspective by Hertenstein, Sutherland, and Anderson (2017). These incoming economic actors interact with local people and organizations, engaging in information exchange and network building. Gradually, local businesses' absorptive capacity toward the knowledge base of these incomers increase and local businesses tend to rely upon the existing business ties to determine future business activities including outward FDI (Deng, Delios, and Peng, 2019).
3.2 Knowledge-based View of the Firm in the Context of EMNEs

External knowledge acquisition has played an important role in the internationalization of experience-scarce firms (Oviatt and McDougall, 2005; Casillas and Acedo, 2013). Contemporary literature argues that knowledge acquisition from external sources or vicarious learning allows firms to reduce perceived risks and uncertainty in unfamiliar tasks, making firms more likely to pursue international opportunities (Bruneel, Yli-Renko, Clarysse, 2010; Freeman, Edwards, and Schroder, 2006; Johanson and Vahlne, 2009; Love, Roper, and Zhou, 2010). These prior studies have highlighted the importance of sourcing knowledge from networks, but seldom specify with whom internationalizing firms are connecting (Prashantham and Dhanaraj, 2015; Prashantham, Kumar, and Bhattacharyya, 2019). In addition, the influence of inward FDI on outward FDI is largely neglected in International Business literature (Hertenstein, Sutherland, and Anderson, 2017; Deng, 2012). In this dissertation, I argue that network connections with foreign firms at home help the investing firms to acquire the knowledge necessary for competing in global markets.

EMNEs are documented as an appropriate example of firms acquiring knowledge from external sources. Emerging market firms (EMFs) are categorized as weak firms that lack proprietary resources and capabilities possessed by large MNEs from advanced economies (Contractor, 2013; Luo and Zhang, 2016). Oftentimes, EMFs are recognized as asset explorers in international markets (Luo and Tung, 2007). Instead of exploiting abundant existing asset-based and transaction-based advantages in the host country,
EMFs tend to seek resources and capabilities abroad (Deng, 2007, 2009). Technologically weaker firms or temporal laggards are more likely to take advantage of readily accessible knowledge from external sources (Bierly III, Damanpour, and Santoro, 2009). Based on the linkage-leverage-learning model identified by Mathews (2006) and composition-based view (Luo and Child, 2015; Luo and Bu, 2018), EMFs oftentimes leverage on knowledge from external sources for internal development. By studying MNEs from Argentina, Brazil, Hong Kong, and India, Lall (1983) found that EMFs can outperform their counterparts from developed markets owing to their affiliation with a business group in the host country, as well as because of the ethnic connections.

EMFs’ asset augmenting strategies are not, however, limited to the post internationalization era. EMFs are motivated learners at home as well. Thomas, Eden, and Hitt (2008) finds that group membership, connections with government, and previous alliance experiences contribute to the success of EMFs in the host country. The liability of newness of EMFs, and being latecomers in global competition, are what urge EMFs to make strategic connections to access resources to achieve survival.

One of the important sources of external knowledge at home is inward FDI (Jin, García, and Salomon, 2019). Emerging markets have abundantly available sources in the environment due to active inward FDI. In an emerging market context, most inward FDI in developing countries comes from developed countries (UNCTAD, 2015). With the entry of foreign MNEs, a significant amount of knowledge flow is from foreign MNEs to local EMFs, as MNEs are at an
advantage in terms of technology and managerial know-how. Occasionally, EMNEs even sacrifice short-term profits and market share to form strategic alliances with foreign investors to ensure technology diffusion from its foreign partners (Contractor, 2013).

Technology diffusion is generally defined as the acquisition of technology by indigenous firms because of foreign presence (Keller, 2004). It contains two possible aspects: purposeful transfer and an unintentional spillover from the knowledge supply side (Acharya and Keller, 2009). Table 1 reviews the two possible channels of foreign MNEs’ influencing local firms’ knowledge acquisition. Foreign MNEs’ influences can be categorized into (1) foreign equity ownership participation (minority foreign ownership) in EMFs, and (2) industry linkages between foreign MNEs and EMFs. Through foreign ownership, EMFs can obtain purposeful knowledge transfer from foreign MNEs. Whereas, when foreign MNEs co-locate with EMFs, unintentional knowledge spillover, especially through supplier-buyer relationships, flows from foreign MNEs to EMFs.

Table 1 Review of Foreign MNEs’ Influences in an Emerging Market Context

<table>
<thead>
<tr>
<th>Channels</th>
<th>(1) Foreign Participation</th>
<th>(2) Industry Linkages with Foreign MNEs</th>
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<tr>
<td></td>
<td>• In-house knowledge transfer within the partnership entity (Teece, 1977; Steensma, Tihanyi, Lyles, and Dhanaraj, 2005)</td>
<td>• Forward Linkages (Liu, Wang, and Wei, 2009): foreign firms help the development of local distribution and sales channels.</td>
</tr>
<tr>
<td></td>
<td>• External knowledge exchange with the foreign partner’s parent group (Li and Cantwell, 2012)</td>
<td>• Backward Linkages (Hertenstein, Sutherland, and Anderson, 2017): local firms use existing resources more efficiently or adopt new technologies to satisfy foreign buyers’ requirements on quality and production efficiency.</td>
</tr>
<tr>
<td>Outcomes</td>
<td>Knowledge transfer to EMFs</td>
<td>Knowledge spillover to EMFs</td>
</tr>
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</table>
3.3 Foreign Ownership Participation and International Knowledge Transfer

Before discussing the direct linkage of foreign presence and O advantage, I intend to set the boundary conditions of IJVs. Based on the ownership structure, there are three types of foreign subsidiaries, namely (1) wholly-owned foreign subsidiaries, (2) JIVs majority-owned by foreign parties, (3) JIVs majority-owned by domestic partners. In this dissertation, I only include the third category as the first and second cannot be viewed as domestic entities as their ultimate beneficial owners are their foreign parent firms. If an OFDI project is conducted by a foreign subsidiary whose ultimate owner is the foreign parent, even if the subsidiary is located in host country A, this OFDI project cannot be attributed to country A but to the foreign parent’s home country (Cantwell, 1992). Since this study focuses on OFDI from China, I only include firms whose majority ownership belongs to Chinese entities.

The traditional International Business literature (e.g. Dunning, 1958; Hymer, 1976; Vernon, 1966; Buckley and Casson, 1976) refers to competence exploiting the motive of MNE and indicates international knowledge transfer function of FDI in the host country. This stream literature argues that MNE subsidiaries are equipped with technological competence and are capable to transfer such competence to other locations around the globe. Hymer (1976) states that foreign firms are usually stronger than local firms in technology and managerial skills so that they will be able to use these advantages to offset the liability of foreignness in the host country. Vernon (1966) agrees that
multinational corporations are usually the technology leader in a product line. Later on, the FDI spillover literature contents that foreign MNEs in the host country are technologically advantageous than host country local enterprises (see a review of Görg and Strobl, 2001). Even literature (Aitken and Harrison, 1999) casts doubt on the overall productivity spillover effect of FDI acknowledges the foreign equity participation boosts its own plant’s productivity. Hence, foreign ownership, particularly in developing country context, can be viewed as a competitive advantage to the investment firm.

Kogut and Zander (1993) observes that tacitness of knowledge and the advantage of MNE transferring knowledge internally within the organization. The internal transfer of extremely specialized assets is quicker and easier than arm-length transactions. The main source of competitiveness in IJVs is from their foreign headquarters. The partnership with foreign firms offers local firms opportunities for knowledge accumulation beyond their current resource base (Li and Cantwell, 2012). With effective planning and arrangement, the inter-organizational collaboration will provide partners with access to new knowledge, mainly because of the information exchange between employees in these two organizations (Kumar and van Dissel, 1996). Nonaka and Takeuchi (1995) also claims that knowledge acquisition mostly takes place at the employee individual level.

The employee level information exchange is usually realized by the MNE training program and headquarter visit. IJV’s parent firm tends to spend the effort to integrate IJV local partners into its management system. Senior managers in
IJVs are selected to be trained for the business mission and values in the corporate group, through which senior managers adopt modern management systems. Technicians are also trained periodically either at the headquarter or at capable subsidiaries, during which workers can observe in detail how the equipment is operated. Non-management personnel is trained locally, MNE viewed this as an important step to synchronize company value. IJVs employees can also go to “sister” subsidiaries to receive training as the “sister” unit might develop new knowledge that is useful to IJVs. Corporate senior managers also visit IJVs to listen to issues on production, finances, and talent management. By offering advice and comments, the foreign parent is transmitting management philosophies to the IJVs.

Overall, in the emerging market context, foreign subsidiaries including IJVs are considered advantageous than purely domestic firms. Although literature (e.g. Buckley et al, 2008; Zhao, 2006) points out the difficulty of international knowledge transfer, emerging market firms in general still benefit from their foreign partners for knowledge diffusion.

3.4 Industry Linkages with Foreign MNEs and Foreign Knowledge Spillovers

The impact of FDI on host country indigenous firms have been widely studied in areas such as development economics, international business, technology management, international management, political economy, and regional studies. In this section, I focus on the unintentional knowledge spillover effect of foreign
presence on indigenous firm capability advancement, which is regarded as an economic externality.

The topic of inward FDI and knowledge diffusion could be traced back to John Dunning (1958)’s research on US investments in the UK and later Richard Caves (1974)’s 3 channels of FDI productivity spillovers (allocative efficiency, technical efficiency, and technology transfer). The literature on the IFDI influencing local firms’ capability building is inconclusive (see a review of Perri and Peruffo, 2016). Recent studies tend to focus more on the demand side, namely the absorptive capacity of the local firms. However, without available external knowledge on the supply side, discussing the absorptive capacity of local firms is meaningless. The supply-side factors investigated in empirical studies include entry mode of FDI (e.g. Blomström and Sjöholm, 1999; Dimelis and Louri, 2002; Javorcik, 2004; Javorcik and Spatareanu, 2008), sources of FDI (e.g., Buckley, Clegg, and Wang, 2002; Javorcik, Saggi, and Spatareanu, 2004), and motives of investment (e.g. Driffield and Love, 2007; Girma, 2005; Protsenko, 2003).

The literature on the spillover effect of FDI recognizes that influence of foreign firms from developed countries on the productivity and knowledge stock of the indigenous firms in developing host countries through four main channels: demonstration, competition, linkages, and employee mobility (Blomström and Kokko, 1998; Liu and Buck, 2007; Perri and Peuffo, 2016; Wei and Liu, 2006). This dissertation mainly focuses on industry linkages, following most of the
empirical work in FDI spillover literature (e.g. Driffield, Munday, and Roberts, 2002; Javorcik, 2004; Blalock and Gertler, 2007).

In order for technology transfer or technological spillover to take place, foreign firms need to have a certain level of interaction with local firms. Knowledge diffusion is a type of economic externality that happens between specific foreign and indigenous firms, with some kinds of formal or informal associations between the two required (Morrissey, 2012).

The vertical linkages with foreign MNEs, also known as backward and forward linkages in the supply chain, originates knowledge flow via the process of local suppliers and distributors’ adaptation to foreign MNEs (Jindra, Giroud, and Scott-Kennel, 2009). Backward linkage takes place when foreign firms purchase goods and services from local firms. In other words, backward linkages represent spillovers from foreign-invested firms to their indigenous suppliers. Because foreign firms might have quality and production efficiency requirements, local firms are pushed to use their existing resources more efficiently or adopt new technologies. FDI spillovers literature MNEs have limited incentive to prevent knowledge diffusion to upstream suppliers as quality improvement in suppliers benefits MNEs directly. Therefore, the ways of intellectual protection identified in international knowledge transfer literature (e.g. Zhao, 2006) is seldom the case in backward linkages. The more local firms sell intermediate products to foreign firms, the more likely local firms will benefit from knowledge spillovers from foreign MNEs.
Forward linkages exist when foreign firms sell goods and services to local firms. Local firms can benefit from forward linkages if foreign firms help the development of local distribution and sales channels. These channels involve the adoption of modern communication technologies which, for example, can resolve contract enforcement issues (Dries and Swinnen, 2004).

The reason why supplier and buyer relationships with foreign MNEs bring knowledge spillovers is because of (1) foreign MNEs’ technological leader position in an industry/knowledge field and (2) its local embeddedness causing co-evolution of local and foreign firms’ knowledge base.

Knowledge leader tends to have more knowledge spillover in the host location than technology laggard. Tong and Hu (2003) finds out that foreign firms originating from technologically advanced countries are associated with more productivity spillover in the host country than those from regions with comparatively low technological competence such as Hongkong, Macao, and Taiwan. Advanced country MNEs tend to have a focused area of expertise and outsource upstream counterparts. When MNEs are sourcing in the host country, the backward linkages explained above tend to happen. The more advanced foreign MNEs are, the higher the quality standards usually apply, which tend to speed up the local firms’ capability building.

The reciprocal nature of knowledge creation requires local embeddedness of foreign firms when sourcing or selling in the host location (Cantwell and Smeets, 2013). MNE subsidiaries need to tap into the local knowledge base in order to benefit from the learning feedback. This subsequently benefits local
firms for foreign knowledge exposure (Cantwell, 1989). Geographical proximity stimulates face-to-face interactions and expedites the transmission of knowledge (Jaffe, 1993). Learning and demonstration effects are more effective among agglomerated firms (Barrios, Görg, and Strobl, 2006). More local embeddedness generates more spillover (Beugelsdijk, Smeets, and Zwinkels, 2008). Spillover is an outcome of strategic games between the involved parties including foreign-invested firms, indigenous firms, and host country governments. Multinational firms need to adapt their technologies to the local environment. This adaptation is also a continuous learning process. Accompanied by the gradual localization process, more “learnable” knowledge might be available to indigenous firms. Moreover, the increasing embeddedness into the host country environment may also broaden the scope and strengthen the intensity of the interaction with indigenous firms. Non-knowledge intensive industry --- not too much interaction with local firms or not cutting edge knowledge to local firms and those knowledge are less useful for competence accumulation.

Figure 3 Conceptual Model
4. Inward FDI and Market-seeking Outward FDI Hypotheses

4.1 Effect of Foreign Ownership

Foreign entrants tend to have more knowledge about international markets and cutting edge technologies, to overcome their liability of foreignness in the host country. Such knowledge is easier to be transferred in international joint ventures than in arm-length market mechanisms, due to the embeddedness of knowledge in organizational routines (Teece, 1977). The traditional International Business literature (e.g. Dunning, 1958; Hymer, 1976; Vernon, 1966; Buckley and Casson, 1976) has referred to the competence exploiting motives of MNEs and referenced the international knowledge transfer function of FDI in the host country. This stream of literature argues that MNE subsidiaries are equipped with technological competence and are capable of transferring such competences to other locations around the globe. Hymer (1976) stated that foreign firms are usually stronger than local firms in technology and managerial skills so that they will be able to use these advantages to offset the liability of foreignness in the host country. Vernon (1966) agreed that MNEs are usually the technology leader in a product line. The argument that “foreign firms are competitive” is applicable in an emerging market context where local players are known to suffer from a lack of global branding and proprietary technologies (e.g. Mathews, 2002, 2006; Madhok and Keyhani, 2012; Peng, 2012; Wang, Luo, Lu, Sun, and Maksimov, 2014; Yiu, Ming, Lau, and Bruton, 2007).
The information exchange is usually realized by MNE training programs and headquarter visits. An International Joint Venture’s (IJV) parent firm tends to expend effort to integrate IJV local partners into their management system. Senior managers in IJVs are selected to be trained for the business mission and values in the corporate group, through which senior managers of EMFs adopt modern management systems. Technicians are also trained periodically, either at the headquarters or at capable subsidiaries, during which workers can observe in detail how the facility is operated. Non-management personnel is trained locally, which MNEs have viewed as an important step to synchronize company value. IJV employees can also go to “sister” subsidiaries to receive training, as the sister unit might develop new knowledge useful to IJVs. Corporate senior managers also visit IJVs to learn about issues with production, finances, and talent management. By offering advice and comments, the foreign parent company transmits management philosophies to the IJVs.

EMFs with minority foreign ownership tend to enjoy the technological advancement of its foreign partner, while still maintaining its autonomy to make important decisions, such as those related to internationalization. Partnerships with foreign firms offer local firms opportunities for knowledge accumulation beyond their current resource base (Li and Cantwell, 2012). With effective planning and arrangement, the inter-organizational collaboration will provide partners with access to new knowledge, preparing EMFs for subsequent foreign market opportunities, challenges, and unexpected contingencies.
Foreign partners share international experiences, as well as managerial and technical knowledge, with indigenous firms (Fernhaber, McDougall, and Oviatt, 2007); in other words, a bundle of information that is readily available to EMFs before their actual internationalization. Due to the level of detail and frequency in updates, EMFs can borrow such information without needing to engage in multiple attempts abroad to gain international experience, nor spending extensive effort in developing or adapting technologies to satisfy the foreign market. Morrow (1988) recognized the role of technology in breaking down barriers for companies to reduce the impact of the “age of the international entrepreneur.” Being able to learn from foreign partners, EMFs can leapfrog the initial stage of internationalization and reach a relatively more advanced stage of internationalization.

\textit{H1 EMFs with foreign ownership participation, compared to purely domestically owned firms, are more likely to engage in the defensive market-seeking OFDI.}

4.2 Effect of Industry Linkages with Foreign MNEs

While knowledge transfer in IJVs is mostly a purposeful behavior between agreed-upon organizational partners, knowledge spillovers from co-location usually benefit the knowledge recipient, regardless of the willingness on the part of the knowledge provider. When being an actor in a local innovation system, which sometimes depends on the geographical proximity with industry clusters, a firm tends to benefit from knowledge spillovers through demonstration,
competition, linkages, and employee mobility (Blomström and Kokko, 1998; Liu and Buck, 2007; Perri and Peuffo, 2016; Wei and Liu, 2006). Regional knowledge spillovers are generally limited to 50-75 miles from the point of knowledge creation (Jaffe, Trajtenberg, and Henderson, 1993). These include formal and informal linkages with other firms in the region and beyond, local universities and public research agencies, consultants, industry associations, regulatory bodies, and training facilities (Amann and Cantwell, 2012). Technology spillover could lead to an increase in productivity of local firms (Buckley, Clegg, and Wang, 2002; Wei and Liu, 2006; Buckley, Clegg, Zheng, Siler, and Giorgioni, 2007), triggering a cumulative process of human capital accumulation, especially in high-tech industries (Patibandla and Petersen, 2002), thereby introducing a catfish effect to activate the learning motives of local businesses (Wooster and Diebel, 2010).

An example of EMFs co-locate with foreign MNEs at home is Fuyao Glass Industry Group Co. Ltd, an automobile component (glass) manufacturer incepted in 1987. Fuyao has purposefully established branches in the Jilin provinces to serve Volkswagen’s international joint venture in Changchun city, Jilin province since the year 2000. While being a domestic local supplier to Volkswagen, Fuyao has been required to comply with Volkswagen’s quality standards, for example, have technicians participating in training offered by the Volkswagen group. This supply relationship with Volkswagen familiarizes Fuyao with essential complementary technologies to serve the European market (Hertenstein, Sutherland, and Anderson, 2017).
Starting the year 2007, Fuyao was invited to supply Volkswagen’s European plants, involving brands such as Audi, Bentley, and so forth (Ling, 2008). The same year in 2007, after supplying Volkswagen for consecutive 7 years, Fuyao acquired FüMoTec in Heidelberg, Germany as its first outward FDI project (Hertenstein, Sutherland, and Anderson, 2017). During the seven years, Fuyao effectively built a knowledge system that fits the modern automotive component supply chain within the international standard and now has successfully become a global player at a comparatively young age, to an institutionally “far-away” country, and is experiencing on-going international growth.

*H2 EMFs having industry linkages with foreign MNEs in the same city are more likely to engage in the defensive market-seeking OFDI.*

5. Inward FDI and Strategic Asset-seeking Outward FDI Hypotheses
First of all, strategic asset-seeking FDI involves high risk and large resource commitment. Oftentimes, MNEs have to sacrifice short-term profit to satisfy long term asset augmenting goals. Usually, MNEs with a strong competitive advantage, mainly referring to its technological leading position internationally, have a higher propensity to engage in asset-seeking motive and invest in R&D facilities abroad (Cantwell and Mudambi, 2005).

Usually, subsidiary achieves competitiveness from its parent firm by parent firm directly transferring technologies to the subsidiary. Occasionally, the
subsidiary engages in knowledge-seeking journey. This journey can be difficult if the subsidiary does not have support from the parent firm. One difficulty can be the subsidiary does not yet have a formal competence creating mandate. In general, the role of an MNE subsidiary can be based on the characteristics of a subsidiary’s capabilities, its relationship with the rest of the MNE group, and strategic position of the location this subsidiary is based in (Andersson & Forsgren, 2000). Competence creating mandate can be achieved from either top-down or bottom-up procedures. Birkinshaw (1996) observes that subsidiaries capability building can be driven by subsidiary managers’ entrepreneurial effort rather than only parent firm input. Through identifying new opportunities in the local market and upgrading competitiveness using local resources, the subsidiary will be able to extend and reinforce its existing charter through subsidiary driven charter extension (SDE) and subsidiary driven charter reinforcement (SDR) (Birkinshaw and Hood, 1998). However, in the case of bottom-up procedures, the subsidiary does not have resources shared from the headquarters in the beginning. The subsidiary has to rely on its organizational slack, if any, to engage in knowledge-seeking activities such as R&D lab building which requires a lot of capital and human resources.

Furthermore, Location usually has an important role to play in determining how much innovative activity the subsidiary does. MNE oftentimes seek knowledge and establish R&D facilities in locations that are most conducive to technology creation (Cantwell and Kosmopoulou, 2002), either because the location has specialized and complementary knowledge to the MNE group or
because the location is a global center of excellence where general-purpose technology is developed very well in the location. However, advanced locations do not always have the best diplomatic relationships with emerging markets for historical and political reasons (Li, Meyer, Zhang, and Ding, 2018). In case of not positive diplomatic relationships, emerging market firms suffer from political image issues (Li, Cui, and Lu, 2014) which can seriously impact the effectiveness of the OFDI project. Strategic asset-seeking FDI project is the most impacted one because of intellectual property protection and homeland security concerns in the advanced economy (Cuervo-Cazurra, Inkpen, Musacchio, and Ramaswamy, 2014).

5.1 Effect of Foreign Ownership

Foreign partners in an IJV often fail to transfer technological knowledge to local partners because foreign MNEs have a strong motivation to protect their intellectual property (Zhao, 2006). The goal of the foreign partner is usually to enlarge market share in the host country, rather than knowledge transfer. Furthermore, institutional barriers between home and host countries and the lack of complementarity between foreign and local firms also hinder technological knowledge transfer (Inkpen, 2000). Therefore, foreign ownership might not build up the technological capability of local firms.

Due to the risk and effort associated with strategic asset-seeking FDI projects, local firms might not be interested in such learning if they can access foreign knowledge at home. Ma, Xu, and Zhang (2015) finds a negative
relationship between foreign presence and international expansion of indigenous firms. Similar logic as the IFDI spillover effect, the presence of foreign companies allows local firms to gain access to new and diverse knowledge, organizational skills and capabilities. As outward FDI can be costly, risky, and resource-intensive, local firms tend to avoid OFDI if they can acquire strategic resources by collaborating with foreign firms that operate at home. This concludes that high levels of foreign presence can impede overseas investment by weakening the foreign expansion motivations.

Since emerging market firms can benefit from knowledge transfer from inward FDI in their home markets, inward FDI represents an important, alternative source for them to acquire technological knowledge (Li, Li, and Shapiro, 2012). Moreover, accessing foreign knowledge from inward FDI in domestic markets is less costly than obtaining similar knowledge from direct investments in developed markets. MNEs will likely incur liabilities of foreignness in overseas markets and many EMNEs have yet to accumulate sufficient international experience to efficiently engage in global technology-seeking activities (Luo and Tung, 2007).

\[H3\] EMFs with foreign ownership participation are less likely to engage in strategic asset-seeking OFDI.
5.2 Effect of Industry Linkages with Foreign MNEs

Foreign firms in knowledge-intensive industries such as pharmaceuticals, automobile and machinery, scientific and computer services tend to create spillovers. Local firms that are in the area of these foreign multinational corporations can enjoy the benefits of knowledge spillover through supplier-buyer relationships (Freeman, Edwards, and Schroder, 2006). When local firms become suppliers or buyers of foreign MNEs, foreign MNEs tend to impose quality and efficiency standards to local firms. These standards push local firms to exhaust their existing resources and capabilities and speed up their industry upgrading processes. Strategic asset-seeking is one of the effective ways for industry upgrading. In some cases, local suppliers invest in foreign partners’ home region to seek advanced but complementary knowledge, to better serve the foreign suppliers locally and globally (Hertenstein, Sutherland, and Anderson, 2017). In the emerging market scenario, global flagship MNEs are also interested in becoming their suppliers from emerging markets their global suppliers considering the cost advantage of EMFs. Furthermore, although the diffused knowledge from foreign MNEs to EMFs is possibly not cutting edge, it builds up the absorptive capacity of the comparatively weak firms and opens the door for their further learning. Therefore, EMFs which have industry linkages with foreign MNEs have the confidence and motivation in handling such risky and costly, but long-term beneficial OFDI activities.

H4 EMFs having industry linkages with foreign MNEs in the same city are more likely to engage in strategic asset-seeking OFDI.
6. Inward FDI and Motive Complexity (Ambidexterity) Hypotheses

6.1 Effect of Foreign Ownership

Ambidexterity describes a situation the organization faces when it has to emphasize the simultaneous fulfillment of two disparate ends rather than forcing a selection between two alternatives (Eisenhardt and Martin, 2000; Gavetti and Levinthal, 2000; March, 1991; Raisch and Birkinshaw, 2008). The initial concept of ambidexterity was introduced by Duncan (1976), a term defined as “to be aligned and efficient in the management of today’s business demands while simultaneously adaptive to changes in the environment.” EMFs, as a latecomer in internationalization, are found to engage in multiple FDI motives in one FDI project to expedite the internationalization benefits, aiming at both financial performance and innovation outcomes in a short time frame as their catch-up strategy (Luo and Rui, 2009).

The ambidextrous strategy is usually costly and difficult for an organization to implement because ambidexterity requires a firm to achieve these competing goals: efficiency and flexibility, low cost and customer responsiveness, stability and adaptability, short-term profit and long-term growth, at the same time. Even exploration alone is a very costly and risky, ambidextrous strategy requires additional resources and capabilities for an organization to coordinate disparate activities. EMFs with foreign ownership already gain learning benefits from foreign partners. Therefore, EMFs with foreign ownership are less motivated than purely domestic firms to engage in ambidexterity in OFDI projects.
Furthermore, Gibson and Birkinshaw (2004) argue that an organization needs discipline, departmental mutual support, and trust to accomplish the ambidextrous strategy. Buckley, Clegg, and Tan (2010) finds that foreign MNEs and emerging market local companies are likely to suffer from a strong structural dissimilarity, which might lead to lower complementarity and different goals in daily operation. Therefore, it would be more difficult for an IJV to coordinate ambidextrous strategy.

*H5 EMFs with foreign ownership participation are less likely to engage in motive complexity.*

### 6.2 Effect of Industry Linkages with Foreign MNEs
Luo and Rui (2009), through four in-depth case studies, supplies an ambidexterity perspective to view EMFs internationalization as their study finds that strategic asset-seeking motive and other three exploitative motives occur simultaneously in emerging market MNEs. Facing an unprecedented dynamic global competition, MNEs nowadays are compelled to deal with survival and sustainable growth at the same time. EMFs, compared to MNEs from developed countries, lack of core competencies, meanwhile as late-comers in globalization, suffer liability of emergingness and liability of newness (Eila and Santangelo, 2017). Additionally, an extensive corpus of empirical research documents a positive relationship between organizational ambidexterity and firm performance (O’Reilly and Tushman, 2013). Indeed, ambidexterity is linked to positive outcomes in firm survival (e.g. Hill and Birkinshaw, 2014), financial performance
(e.g. Lubatkin, Simsek, Ling, and Veiga, 2006); and innovation (Suzuki, 2009). In order to catch up in global competition, even just to maintain its domestic market share, EMFs have a strong desire to adopt an ambidextrous strategy.

**Foreign MNEs influence EMFs’ multitasking capabilities by offering indigenous firms pressure to handle challenging tasks and resources to complete these tasks.** Knowledge spillovers from Industry linkages with foreign firms also enhance the absorptive capacity of local firms to handle more advanced learning, therefore, local firms can devote more spare resources in coordinating ambidextrous strategy. The more local firms interact with foreign firms under industry linkages, the more likely local firms will benefit from the above mechanisms.

**H6 EMFs having industry linkages with foreign firms in the same city are more likely to engage in motive complexity.**

7. **City-region Linkages via Inward and Outward FDI Hypotheses**

In this essay, I explore do inward FDI to a city-region affect subsequent outward FDI from this city-region, with a focus on outward FDI location choices. Based on the definition of foreign direct investment, multinational corporations not only bring capital but also codified knowledge to the host location, making the knowledge developed in one location transferable to other locations (Maskell and Malmberg, 1999). In a more recent endeavor (e.g. Cantwell, 1995), International Business scholars realize that FDI not only transfers knowledge to the host local
but also develops knowledge locally in the host country while interacting with local customers, suppliers and competitors. This is relevant to the relational approach of economic geography, arguing that firm does not just act according to spatial attributes but also create spatial attributes by training of employees, cultivate regional suppliers and distribution channels, even from competing with horizontal actors (Stroper and Walker, 1983). Hence, FDI is involved with both codified and tacit knowledge dissemination and this knowledge dissemination reinforces trans-local linkages.

FDI initiated trans-local linkages supplementing other types of trans-local linkages such as colonial ties, ethnicity-based social networks, and global sourcing and international trade networks, because FDI initiated linkages emphasis on manufacturing and technological and managerial knowledge transfer, rather than just culture and trade-related business ties. Based on Bathelt and Li (2014), the trans-local linkages from FDI, compared to other internationalization activities such as exporting and licensing, can be more long-lasting because the linkage is based on material knowledge and human capital. Besides, FDI connections can exploit both spatial proximity within local clusters, as well as organizational proximity within corporate networks at a distance. Hence, the trans-local linkages through FDI engagement are deeper and more durable.

Second, this research concerns the emerging market economy context. Although emerging market firms do not deviate from firms from other parts of the world in terms of creating shareholder values (Gubbi, Aulakh, Ray, Sarkar, and
Chittoor, 2010), they are unique in terms of not only lacking superior technological and managerial capabilities (Luo and Tung, 2007; Ramamurti, 2009) and being embedded in domestic institutional fragility (Shi, Sun, Yan, and Zhu, 2017) but also facing fast-changing global competition (Luo and Rui, 2009). These features require emerging market firms to be fast and effective learners to survive. Emerging market firms’ learning largely depends on external sources of knowledge, especially during early stages, as the springboard perspective (Luo and Tung, 2007) and the Linkage-leverage-learning (LLL) perspective (Mathew, 2006) suggest. The developing context is particularly important due to the sequence of inward and outward FDI development in this context and the pro-learning environment and catching up the motivation of local actors in the developing countries.

Emerging market firms as nascent multinational corporations initially lack outward-oriented business networks and intermediaries for gathering, analyzing, and disseminating intelligence about global markets (Casanova and Miroux, 2017; Li, Yi, and Cui, 2017). One aspect of learning and information gathering was from foreign businesses at home, either through a direct partnership or indirect interaction in the environment such as knowledge spillover from global lead firms. Therefore, historical inward FDI, being a knowledge source of local firms, has a strong influence on the local economy and technology development and also the subsequent outward FDI activities.
7.1 Path Dependent Nature of City-region Linkages

As described by Dunning’s Investment Development Path (IDP; Dunning, 1982; Dunning & Narula, 1996; Narula & Dunning, 2010), a five-stage model relating a country’s net capital outflows to its level of economic development, a location attracts Inward foreign direct investment (FDI) before outward FDI emerges from the same. IFDI interacts with local actors and thus increases Ownership advantages of local firms which can be applied in subsequent OFDI activities. Although IDP can be broadly applied to understanding a nation’s capital inflows and outflows, emerging market contexts allow us to readily observe the dynamics of this phenomenon. For example, inward FDI in China has been booming ever since the early 1990s while increases in China’s outward FDI began to surge starting the year 2005. In this chapter, the main effect hypothesized in this research is to answer whether FDI initiated trans-local linkages are sustainable over time. The trans-local linkages analysis below is decomposed into (1) trans-local linkages formed from historical inward FDI stock, which becomes a context for subsequent local economic activities and (2) trans-local linkages established in contemporary outward FDI activities. These inward and outward aspects of trans-local linkages are a series of relationship development and I propose that these outward-oriented trans-local linkage patterns depend on the inward-oriented one.

Referring to Hegel’s dialectic view in a social revolution, evolutionary economists regard the development of a location subject to path dependency logic, a combination of both continuity and evolution (Martin and Sunley, 2006;
Nelson and Winter, 2002). In other words, history matters, although not in a deterministic manner.

The direction of a region’s economic development is structured by its historical and existing economic activities. Similarly, the current trans-local linkage patterns are shaped by past trans-local activities whose actors are embedded in the place socially and institutionally (Zukin and DiMaggio, 1990). A region’s development is motivated and also constrained by its past experiences (Martin and Sunley, 2006). These past experiences straddle a broad set of stakeholders including rivals, customers, suppliers, government, and societies, which promotes cumulative actions based on relational ties. These historical relational ties provide contextual influences and routines to the business location strategies (Bathelt and Glückler, 2003).

In terms of applying path dependency logic to internationalization, firms embedded in a region tend to use past experiences and relational ties is because international activities associated with high levels of uncertainty when moving across space and territories can be heavily influenced by the location’s historical experiences (Makino and Tsang, 2011). This tie lessens the liability of foreignness for foreign entry. Organizations tend to reply to specific historical social ties and trust built from previous interactions when initiating new international projects (Karreman, Burger, and van Oort, 2017; Hansen, Fold, and Hansen, 2016).

From an evolutionary perspective, historical events influence the development path of a location. In this study, IFDI functions as the historical past.
Inward FDI from developed countries to developing countries usually bring with them technological assistance and knowledge spillover. These multinational corporations from developed countries set up assembling plants in a foreign location with comparatively cheap skilled labor to serve local and global customers. Inevitably, MNEs from developed countries have to offer local employee training, technological assistance by sending technicians and consultants, and even overseas exchange learning opportunities to local managers in order to facilitate the local plant operation (Li and Cantwell, 2012). These activities infuse knowledge and business network ties to local businesses and gradually establish durable trans-local linkages as the IFDI activity increases.

With the development of the local economy in an emerging market, local firms have interests in expanding business operations abroad due to manufacturing cost increases, saturated domestic markets, and the motive to learn cutting edge technologies. Because internationalization activities are usually costly and risky, being an emerging market firm suffer from not only liability of foreignness (Kogut and Zander, 1993) but also the liability of newness and emergingness (Elia and Santangelo, 2017), emerging market firms tend to depend on historical ties and enter familiar host country environment to operate OFDI projects and seek a related and complementary field of technology. IFDIs usually bring with them (home) country-specific marketing channels, managerial know-how, and technological assistance to the host country, which forms the inertia in a local economy and might affect the heuristic of local firms’ OFDI
decisions. Especially considering emerging market firms are nascent multinational corporations (Ramamurti and Hillemann, 2018), the path-dependent logic is extremely relevant to predict emerging market firm location choices and thus the continuity of trans-local linkages.

The trans-local linkages develop over time from the historical process and are experience-based, cumulative, and reflexive (Deng, Delios, and Peng, 2019). I, therefore, argue that the trans-local linkages observed from emerging market economy’s OFDI projects are a heritage to its IFDI location patterns. Besides, I acknowledge that path-dependent is not past dependent. Therefore, historical IFDI is not a determinist factor but a necessary (not sufficient) condition for a location’s future development, with other factors such as sudden policy shock also being influential. I then hypothesize the main effect.

\[ H7 \text{ The proportion of a city’s inward FDI from a specific country increases the extent of the city’s outward FDI projects to that country.} \]

7.2 The Contingencies of Inward FDI levels

The condition of trans-local linkages varies from location to location. The path dependence of trans-local linkages has two contingencies, with one on the historical side (expected) and the other evolution side (unexpected). The level (high, medium, low) of IFDI is on the historical side. FDI in developing countries significantly promotes local economic development. Based on the Investment Development Cycle (Dunning, 1982), IFDI needs to be accumulated to a certain
level for OFDI from the region to emerge. OFDI requires certain capabilities of
the firm, such as risk assessment of targeted international markets,
organizational slack, the ability to handle advanced technologies and so on,
which are subject to long-term accumulation at home. IFDI, especially in the
emerging market economies, facilitates the capability growth, also known as the
absorptive capacity of the local firms. The more the local firms exposed to inward
internationalization, the more likely these local firms build capabilities for OFDI.
City regions' absorptive capacity which enables the understanding of tacit
knowledge and identifies potential global regions with a similar knowledge base.

For cities with better economic development and are globally connected,
more and more global lead firms will be attracted to the region and thus more
similar knowledge is transferred, which strengthens the path dependency
mechanism. When IFDI located in a region (either city or province), it needs
suppliers and services. Therefore, IFDI, especially large multinationals, tends to
create a local concentration of firms, also known as industrial clusters (Porter,
1990). These industrial clusters created by foreign multinationals tend to attract
more firms with similar specialization (Enright, 2000; De Propris and Driffield,
2006). With more and more similar foreign firms located in a region, the region’s
technology specialty emerges and the trans-local linkage patterns become
clearer due to frequent interpersonal and inter-organizational interactions among
a fixed set of firms.

H8 The relationship in H7 is more salient in cities with more IFDI.
7.3 The Contingencies of Outward FDI motives

Subsidiaries exist for various reasons (Dunning, 1993). The reasons include exploitative ones such as market-seeking, natural resource-seeking, efficiency-seeking, and trade supportive investment. It can also be exploratory, namely strategic asset-seeking. Strategic asset-seeking FDI is to promote long-term strategic objectives, especially those of sustaining or advancing global competitiveness (e.g. augmentation of the global portfolio of physical assets and human competences, which perceive will either sustain or strengthen their ownership-specific advantage or weaken those of competitors) (Dunning, 1993).

Different types of outward FDI thus leverage the network of IFDI differently and values differently the knowledge path dependency. Knowledge development processes are path-dependent because they follow the trajectory of past developments as connected to their social consequences (Mutch, 2016; Peng, Ahlstrom, Carraher, and Shi, 2017). Path dependence also reflects the notion of institutionalization and imprinting, referring to historical patterns of specific micro-level events such as face-to-face communications and other ways in organizing learning activities (Martin & Sunley, 2006; Mutch, 2016).

If the OFDI project is learning-oriented and exploratory, what this emerging market firm has learned from home tend to be more relevant. Because the exploratory motive tends to follow the IFDI trajectory and follow the historical trend of knowledge development. Compared to other motives such as market-seeking which can be quickly altered by temporary impulses such as government policies, OFDI projects with a learning motive tend to use the absorptive capacity
accumulated at home and seek knowledge that is consistent with the current knowledge base. Other motives tend to depend more on local government policy and host country factor endowment independently rather than relying on the social networks built with IFDI at home. Therefore, I hypothesize that:

\[ H9 \text{ The relationship in H7 is more salient in strategic asset-seeking OFDI than in other types of OFDI.} \]

8. Data and Measurements

8.1 Empirical Settings: the inward and outward FDI activities in China

The study examines the IFDI-OFDI relationship in the Chinese context, using subnational and firm-level evidence from China. IFDI in China has been booming since the early 1990s while increases in China’s OFDI began to surge starting the year 2005. China is the second-largest economy in the world and is number one among developing and transition economies for IFDI stock as of year-end 2016 (UNCTAD, 2017). Concerning OFDI, China’s rapid OFDI growth rate catapulted China to having the 5th largest OFDI activity globally and ranks highest among developing countries for capital outflow as of 2016 (UNCTAD, 2017). Enduring interest in China’s economic evolution has led to the availability of an abundance of data on both inward and outward Chinese FDI over a comparatively long time frame (i.e., since the 1980s). Furthermore, provincial disparities in terms of factor endowment, economic development, and global connectivity, and the regional diversity in geography, industry structure, and
formal and informal institutions provides a natural lab to test the pluralism of IFDI-OFDI relationship and its corresponding conditions.

China, as an emerging economy, has a very dynamic pro-learning environment domestically. In order to make sure inward FDI activities benefit, at least not impede, the development of the domestic economy and the stability of the society, the Chinese government issued the *Catalogue for the Guidance of Foreign Investment Industries* in 1995. The Catalogue experienced several major updates in 1997, 2002, 2004, 2007, 2011, 2015, and 2017. This catalogue is important in shaping the inward FDI industry distributions because the catalogue is the basis on which the Chinese government (1) encourage, (2) permit, (3) restrict, or (4) prohibit an inward FDI project.

The first major provisions to the Catalogue took place in 2002, as a response to China joining WTO in 2001. In these provisions, China encourages environmentally friendly and high-technology industries. R&D centers related to bioengineering, new materials, aerospace, and renewable energy are welcome. The encouraged list was expanded from 186 items to 262 items while the restricted list shrank from 112 items to 75 items. Several prohibited items, such as telecommunication and general intermediate industrial products, started to be open to foreign investors. In order to facilitate the economic development of inland provinces, the provisions encouraged FDI inflow to southwest and northwest regions.

In the 2007 amendment, the Catalogue further encourages high-technology industries, to accelerate the pace of the domestic industry and
economic advancement, to enhance knowledge assimilation and independent innovation by indigenous firms. The Chinese government has a strong intention to associate industrial restructuring to inward FDI. Machinery, vehicles, and pharmaceutical industries are among the top list of encouraging items. At the same time, China started to prohibit foreign investors to mine non-renewable resources including wild lives and endangered plants. More importantly, the Catalogue eliminates the special support for export-oriented foreign businesses, switching policy focus from subsiding export processing zone to encourage technology-based foreign manufacturing interacting with local enterprises.

8.2 Data Source
I use firm-level data with a relatively long period between 1998 and 2014 and broad geographical scope covering 30 provinces in China and 169 host countries to observe the effect of foreign participation and subsequent outward foreign direct investment behavior of indigenous firms. This allows me to understand the internationalization process across time and form a basis of comparison studies among provinces/regions with different levels of foreign participation.

ARIES contains firm-level records of mid-to-large scale Chinese industrial firms whose annual sales are over 5 million RMB, between 1998 and 2013. ARIES offers firm-level information such as ownership structure (e.g. foreign ownership), financial performance, R&D expenditure, firm size, and age, etc. OFDI directory is a list of Chinese firms that have invested in non-financial industries abroad including tax heaven destinations between 1983 and 2014. OFDI directory provides information for outward FDI projects including OFDI date, parent firm name, and province, subsidiary name and the host country, and subsidiary business activities in the host country.

8.3 Data Merge and Cleaning
I merge ARIES and OFDI directory so that each firm will have ownership, financial, and OFDI information. Previous research merging the same data source only apply exact match (e.g. Shi et al., 2017), generating 1748 firms, which missed a great number of observations due to firm name typos, versions, and firm name change. I apply the fuzzy match algorithm based on firm names in the above three datasets. Fuzzy match algorithm gives a percentage of similarity based on Chinese characters. I have also searched for the name change and different versions of OFDI firm names in the National Enterprise Credit Information Publicity System (http://www.gsxt.gov.cn/index.html). ARIES contains 912,085 industrial firms. OFDI directory contains 17824 firms. The initial round of fuzzy match based on firm names generates 6260 firms. One OFDI firm might have multiple documented names in ARIES as ARIES surveys firms in multiple
years during which name change or different versions might appear. The fuzzy match increases the sample size by approximately 50%, from 1131 firms (1423 OFDI projects, using exact match) to 2064 firms (2780 OFDI projects).

The final number 2064 is 11% of 17824 because only 7200 out of 17824 is matchable. After all, ARIES only contains industrial firms ranging two-digit industry code from 06 to 46 in terms of Chinese Industrial Classification for National Economic Activities (UNSD:2006, International standard industrial classification of all economic activities, NEQ). However, the OFDI list contains a wider range of firms beyond 06-46, for instance, a significant volume of trading (import and export) companies and shipping companies. I randomly selected 104 firms from 17824 to see the distribution of industry categories. Among the 104 firms, 41 is within the range of 06-46 industry categories, 12 within 47-50 (construction), 1 within 51-52 (wholesale and retail), 8 within 73-75 (IT and science service, e.g. geology prospecting); 8 within 53-60 (transportation), 1 within 61-62 (hospitality), 3 within 01-05 (agriculture), 2 within 70 (real estate), 6 within 66-69 (financial and investment services), 4 within 76-79 (infrastructure such as water and electricity), 18 within 71-72 (commercial services, mainly trading companies). Firms in the industry of real estate, construction, utility, finance and so on are not included in the ARIES. This offers us a general idea that, maybe among the 17824 OFDI firms, only around 7200 firms are industrial firms (can potentially be matched with ARIES). The fuzzy match generating 6260 finds 87% of the matchable sample.
Because I mainly use ARIES information to predict the OFDI behavior, so I keep a one year lag between ARIES and OFDI (for example, firm A invests abroad in 2010, the ARIES information matching firm A for this specific OFDI project is 2009). However, ARIES does not survey every industrial firm each year. Out of the 6260 matched sample, I identify 4361 samples with a corresponding year match. Additionally, I deleted all cases with majority foreign ownership because the studies focus on local firms. 2835 sample satisfies this criterion. I also have deleted tax heaven cases (Hong Kong, Macau, Taiwan, Bermuda, Luxembourg, British Virgin Islands), which is common practice in FDI studies. The final number of observations is 2064 firms (2780 OFDI projects). These 2780 projects are in 133 host countries, from 30 provinces, between the year 2000 and 2014.

8.4 Variables and Measurements

8.4.1 Dependent Variables

The dependent variables are mainly FDI motives. I code the motives of each OFDI project using Dunning (1993) motive definitions. These motives are natural resource-seeking, market-seeking, efficiency-seeking, strategic asset-seeking, and trade supportive investment. The raw data of motives are from the OFDI directory, a column in which the manager reports the intended activities in the host country.

Defensive market-seeking is based on Kim and Atuahene-Gima (2010) and Buckley, Cross, Tan, Xin, and Voss (2008), whether the OFDI firm is
exploiting, defending or maintain existing customer base in the host country (also known as market exploitation) rather than exploring markets in the host country (also known as market exploration). Defensive market-seeking FDI is one type of market-seeking FDI, the other one being offensive market-seeking. These two market-seeking motives are mutually exclusive in the sample. Defensive market-seeking FDI means that the OFDI firm has already known its customers in the host country while offensive market-seeking firms are still investigating local market needs and wants. Under offensive market-seeking, parent firms tend to report that they do not know exactly who to sell to, they are investigating the market in the host country and might not involve in profit-generating activities temporarily. Whereas, parent firms under defensive market-seeking motive have greater ease of identifying potential customers in a host market and plan to devote more resources to maintain customer relationships. Defensive market-seeking is a dichotomous variable, coded as 1 if the focal firm is doing market exploitation in the host country, otherwise 0.

**Strategic asset-seeking** is based on Dunning (1993) definition and coded as 1 if the OFDI project has the following intended activities: opening an R&D center, scientific research, and development, product development, knowledge acquisition, seeking technical consultancy, and talent and new technology introduction to the organization. What is worth mentioning here is that strategic assets only refer to assets that can upgrade the technological capabilities of the MNE (Dunning and Narula, 1995).
**Motive complexity** is measured as the count of motives in one OFDI project. One OFDI project can have more than one motive in the host country. The motive categories included in the sample are the basic categories, natural resource-seeking, market-seeking, efficiency-seeking, strategic asset-seeking and trade supportive investment, in Dunning (1993).

**Ambidexterity** is one type of motive complexity, meaning both exploratory and exploitative motive appears in the same OFDI project. In this research, exploratory motive refers to strategic asset-seeking while exploitative motives include market-seeking, efficiency-seeking, natural resource-seeking and trade supportive investment. Ambidexterity is coded as 1 if the OFDI project has motive complexity with one motive being strategic asset-seeking.

### 8.4.2 Independent Variables

The independent variables relate to foreign MNEs’ connections with indigenous firms. There are two general categories of such connections, in-house foreign ownership participation, and arm’s-length transactional industry linkages with foreign MNEs proxied with input-output (I-O) table. The I-O table approach is widely used in FDI spillover literature (e.g. Driffield, Munday, and Roberts, 2002; Javorcik, 2004; Blalock and Gertler, 2007). Arm’s-length transactional industry linkages include forward linkages and backward linkages (e.g. Liu, Wang, and Wei, 2009). In the forward linkages, foreign MNEs are the upstream suppliers (sellers) to emerging market firms. In the backward linkages, foreign MNEs are the downstream customers (buyers) of emerging market firms.
**Foreign ownership** is a measure of equity partnership between foreign firms and indigenous firms, and the possibility of foreign knowledge transfer (Chetty, Johanson, and Martín, 2014). The foreign ownership, a continuous measure, is the ratio of the realized foreign capital input to the realized total capital input of a certain firm in a given year. What is worth mentioning is that foreign ownership is a continuous measure between 0 and 0.5 (minority foreign ownership participation). The ratio does not go beyond 0.5 (majority foreign ownership participation) because majority foreign ownership will shift the decision making power from the indigenous firm to the foreign partner. The motive of the majority foreign-owned subsidiary's OFDI can be very different from indigenous emerging market firms as the majority of foreign-owned subsidiaries do not lack multinationality and internationalization experiences. Therefore, the learning framework in this dissertation does not apply to the majority of foreign-owned subsidiaries.

**Foreign backward linkages** measure the extent to which foreign MNEs using intermediate inputs (including manufacturing goods in 25 industries) purchased locally. Foreign backward linkages are proxied as

\[ \sum_{i=1}^{n} \alpha_{xy} \text{foreign}\%_{industry\ output\_x}, \text{ where } \alpha_{xy} \text{ obtained from the provincial I-O table is the proportion of industry y output supplied to industry x, and where foreign}\% \text{ is the foreign share in industry x measured by how many industry outputs in industry x is by foreign firms in a given city. To illustrate the meaning of the value, here is an example. The data shows that the metal smelting and rolling industry sold 0.03\% of its intermediate products to metal manufacturing, 0.3\% to} \]
general equipment manufacturing, 1.57% to transportation equipment manufacturing. The shares of foreign output in these sectors were 85.75%, 75.19%, 79.35%, respectively, in 2002, in the city of Guangzhou. The backward linkage with foreign MNEs measured by the industrial output of these sectors should then be 0.0149 (=85.75% x 0.03% + 75.19% x 0.3% + 79.35% x 1.57%), implying that approximately 1.49% of industry output in metal smelting and rolling industry was sold to foreign firms located in the city of Guangzhou in 2002.

**Foreign forward linkages** measure the extent to which foreign MNEs supply intermediate inputs to indigenous firms. Foreign backward linkages are proxied as \( \sum_{i=1}^{n} \beta_{xy} \text{foreign\%}_{(industry sales - export)\_y} \), where \( \beta_{xy} \) obtained from the provincial I-O table is the proportion of industry y input supplied by industry x, and where foreign\% is the foreign share in industry y measured by how many industry sales minus export in industry y is by foreign firms in a given city. Sales minus export is used because exported goods by foreign firms are not expected to have the knowledge spillover effects on the domestic market. Rodriguez-Clare (1996) suggested that if foreign-invested firms do not source locally and only focus on export, the inward FDI could create an “enclave” economy and local enterprises cannot benefit at all.

The foreign MNEs and indigenous firms are in the same city. Therefore, the foreign backward linkages and foreign backward linkages are measured at the city level of each year. In total, the sample includes 231 cities in 30 provinces across 25 two-digit manufacturing industries.
Table 2 I-O Table Industry Code Matching Chinese Industrial Classification (CIC)

<table>
<thead>
<tr>
<th>I-O Table</th>
<th>CIC</th>
<th>Before 2007</th>
<th>After 2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>01,02, 03,04, 05</td>
<td>Agriculture, forestry, animal husbandry and fishery</td>
<td>Agriculture, forestry, animal husbandry and fishery</td>
</tr>
<tr>
<td>02</td>
<td>06,11, 12</td>
<td>Coal mining and washing industry</td>
<td>Coal mining and washing industry</td>
</tr>
<tr>
<td>03</td>
<td>07</td>
<td>Oil and gas extraction</td>
<td>Oil and gas extraction</td>
</tr>
<tr>
<td>04</td>
<td>08,09</td>
<td>Mining and dressing of metal</td>
<td>Mining and dressing of metal</td>
</tr>
<tr>
<td>05</td>
<td>10</td>
<td>Mining and dressing of non-metallic ore</td>
<td>Mining and dressing of non-metallic ore</td>
</tr>
<tr>
<td>06</td>
<td>13,14, 15</td>
<td>Food manufacturing and tobacco processing</td>
<td>Food manufacturing and tobacco processing</td>
</tr>
<tr>
<td>07</td>
<td>17</td>
<td>Textile industry</td>
<td>Textile industry</td>
</tr>
<tr>
<td>08</td>
<td>18,19</td>
<td>Clothing, leather, and down feather products</td>
<td>Clothing, leather, and down feather products</td>
</tr>
<tr>
<td>09</td>
<td>20,21</td>
<td>Wood processing and furniture manufacturing</td>
<td>Wood processing and furniture manufacturing</td>
</tr>
<tr>
<td>10</td>
<td>22,23, 24</td>
<td>Manufacture of paper, printing products, and stationery</td>
<td>Manufacture of paper, printing products, and stationery</td>
</tr>
<tr>
<td>11</td>
<td>25</td>
<td>Petroleum processing, coking, and nuclear fuel processing industries</td>
<td>Petroleum processing, coking, and nuclear fuel processing industries</td>
</tr>
<tr>
<td>12</td>
<td>26,27, 28,29</td>
<td>Chemical industry</td>
<td>Chemical industry</td>
</tr>
<tr>
<td>13</td>
<td>30</td>
<td>Non-metallic mineral products</td>
<td>Non-metallic mineral products</td>
</tr>
<tr>
<td>14</td>
<td>31,32</td>
<td>Metal smelting and rolling</td>
<td>Metal smelting and rolling</td>
</tr>
<tr>
<td>15</td>
<td>33,43</td>
<td>Metal manufacturing</td>
<td>Metal manufacturing</td>
</tr>
<tr>
<td>16 (1)</td>
<td>34</td>
<td>General and special equipment manufacturing</td>
<td>General equipment manufacturing</td>
</tr>
<tr>
<td>16 (2)</td>
<td>35</td>
<td>Special equipment manufacturing</td>
<td>Special equipment manufacturing</td>
</tr>
<tr>
<td>17</td>
<td>36</td>
<td>Transportation equipment manufacturing</td>
<td>Transportation equipment manufacturing</td>
</tr>
<tr>
<td>18 (1)</td>
<td>36</td>
<td>Electrical, machinery and equipment manufacturing</td>
<td>Electrical, machinery and equipment manufacturing</td>
</tr>
<tr>
<td>18 (2)</td>
<td>37,38</td>
<td>Repair of metal products, machinery, and equipment</td>
<td>Repair of metal products, machinery, and equipment</td>
</tr>
<tr>
<td>19</td>
<td>39</td>
<td>Communication equipment, computer, and other electronic equipment manufacturing</td>
<td>Communication equipment, computer, and other electronic equipment manufacturing</td>
</tr>
<tr>
<td>20</td>
<td>40</td>
<td>Instrumentation, cultural products, office supplies, and their relevant machinery manufacturing</td>
<td>Instrumentation, cultural products, office supplies, and their relevant machinery manufacturing</td>
</tr>
<tr>
<td>21</td>
<td>41</td>
<td>Other manufacturing industries</td>
<td>Other manufacturing industries</td>
</tr>
<tr>
<td>22</td>
<td>42</td>
<td>Scrap and recycling industries</td>
<td>Scrap and recycling industries</td>
</tr>
<tr>
<td>23</td>
<td>44</td>
<td>Production and supply of electricity and heat</td>
<td>Production and supply of electricity and heat</td>
</tr>
<tr>
<td>24</td>
<td>45</td>
<td>Gas production and supply</td>
<td>Gas production and supply</td>
</tr>
<tr>
<td>25</td>
<td>46</td>
<td>Production and supply of water</td>
<td>Production and supply of water</td>
</tr>
</tbody>
</table>
**IFDI Location quotients** of a specific country, a measure that calculates the relative importance of FDI country to a city among FDI countries in all cities. In the following formula, c means the city, i denoting to city i, j referring to country j. The numerator is the share of a country’s FDI in city i. The denominator explains the share of a country’s FDI in all cities. Therefore, the location quotient shows the relative importance of a country’s FDI in the city. The value above 1 usually means that the specific country j is more important to the city i compared to all cities’ average. Location Quotients: \[ \frac{c_{ij}}{\sum_i c_{ij}} / \frac{\sum_j c_{ij}}{\sum_i \sum_j c_{ij}} \]

For example, United Kingdom occupies 0.4% of all IFDI in Tianjin while, in all cities (aggregates), the United Kingdom accounts for 0.2% of all IFDI. Therefore, the location quotients of the United Kingdom in Tianjin is 0.4/0.2=2.

In the first step, I review the correlation between inward and outward FDI country profiles for each city and the overall correlations across 14 cities. The overall correlation is 0.094, indicating that there is a positive correlation between inward and outward FDI country profiles. What is worth mentioning is that the unit of FDI quantity is not consistent among different cities across different years. Some use the FDI dollar amount, some use project count, while others use the number of established companies. IFDI quotients, a standardized measure, its value will not be affected by how the absolute quantity of an individual item is collected.
8.4.3 Control Variables

The control variables are mainly at the firm level and the host country level. I have also controlled for industry fixed effect and year fixed effect. At the firm level, I control for foreign competition, state ownership, R&D intensity, prior OFDI attempts, export ratio, profit ratio, firm size, firm age.

Foreign competition is measured by the market share of foreign firms in the same city in the same industry, at the four-digit level based on Chinese Industrial Classification for National Economic Activities.

State ownership is controlled because state ownership can be considered as a home-cultivated firm-specific advantage for many Chinese firms. Meyer, Ding, Li, and Zhang (2014) and Duanmu (2014) find that home government political support helps Chinese state-owned enterprises move quicker and be more aggressive in internationalization. Similar to foreign ownership, state ownership is a continuous measure and is calculated as the ratio of the realized state capital input to the realized total capital input of a certain firm in a given year.

R&D intensity is measured as the ratio of R&D expenditure to the total industry output of the firm. R&D intensity represents the traditional Ownership advantage or firm-specific advantage, which allows the firm to offset partially liability of foreignness in the host country, regardless of the FDI motives.

Prior OFDI attempts represent internationalization experiences of the OFDI firm. OFDI firms with prior internationalization experiences tend more likely
to take on risky projects and have more market commitment in the host country according to the Uppsala model. The variable prior OFDI attempts is measured as the count of OFDI projects before the current OFDI project by the same parent firm.

Export ratio, also called export intensity, is calculated by the export revenue to total sales (Ciravegna, Majano, and Zhan, 2014; Love, Roper, and Zhou, 2016), representing international experiences and familiarity of foreign markets.

Export location quotients of a specific country, a measure that calculates the relative importance of an export recipient country to a Chinese city among all countries with all cities. The formula is similar to the IFDI location quotient, with the share means a city’s export (rather than receiving IFDI) to a certain country. Therefore, the location quotient shows the relative importance of a country’s to a city in terms of receiving its export. The value above 1 usually means that the specific country j is more important to the city i compared to all cities’ average.

The profit ratio is measured as the ratio of operating profit to total sales revenue (Mohr and Batsakis, 2018), representing another type of firm-specific advantage, mainly in the domestic market. Similarly, firm size and firm age (Teixeira and Coimbra, 2014) are also controlled. Firm size is calculated as the natural log of the number of employees. Firm age is calculated by ARIES statistical year minus firm inception year.
Since the studies focus on FDI motives that are relevant to host country characteristics. I control for host country GDP per capita, host country psychic distance to China, host country geographic distance to China, host country R&D expenditure. I also control for host country political stability, and host country diplomatic relations to China since institutional factors can affect a firm’s OFDI decision (Coeurderoy and Murray, 2008; Shrader, Oviatt, and McDougall, 2000).

Host country GDP per capita in general measures production cost and market size of the host economy (Chen and Yeh, 2012). The data is retrieved from World Bank World Development Indicators.

Psychic distance is a composite measure of language, the legal system, and religious system similarities as explained in Johanson and Wiedersheim-Paul (1975) and Johanson and Vahlne (1977). This measure indicates how easily a country’s product and business practice can be accepted in the host country. The data is retrieved from Berry, Guillen, and Zhou (2010) in which it is called administrative distance.

Geographic distance is measured as the great circle distance between two countries according to the coordinates of the geographic center of the countries. The data is retrieved from the CIA World Fact Book.

Host country R&D expenditure is a ratio, calculated as a country’s R&D expenditure to its total GDP of the year. The data is retrieved from World Bank World Development Indicators.
Dyadic diplomatic ties use United Nations General Assembly Voting Data compiled by Bailey, Strezhnev, and Voeten (2017). The larger the value means the two countries enjoy more affinity in global affairs. A higher score means the two countries are more likely to be with better diplomatic ties.

The host country political risk uses Political Constraint Index (xconst) developed by Henisz (2000). Xconst measures how much freedom government executives can make changes to domestic policies. Possible scores for xconst range from 0 (most hazardous) to 7 (most constrained).

9. Empirical Testing and Results

9.1 Summary Statistics
Table 3 shows the descriptive statistics of host country characteristics in several dimensions including economic development, technological development, political stability, geographic distance and institutional distances between the home and host countries.

Defensive market-seeking, similar to trade supportive investment, has a high standard for host country GDP per capita. Psychic distance does not matter that much to the defensive market-seeking FDI.

Strategic asset-seeking FDI has the highest standard for host country GDP per capita and host country technological development. Although political stability matters to strategic asset-seeking FDI, dyadic diplomatic ties between home and host country does not matter that much.
Ambidexterity and motive complexity have a high standard for psychic distance. In addition, OFDI firm with motive complexity tends to locate in geographic proximate locations. Motive complexity also has a high standard for positive dyadic diplomatic relationships between home and host countries.

Table 4 presents a correlation table among 21 variables (industry and year fixed effect not included). Several groups of variables have high correlations. The first group is foreign linkages, including foreign competition, foreign forward linkages, and foreign backward linkages. The second group is Host_gdpercapita and Host_RnD/GDP. The third group is the geographic distance, dyadic diplomatic ties, and political stability measure. Due to the high correlations (potential of multicollinearity), variance inflation factors (VIFs) will be presented for each hypothesis testing. The maximum VIF is 7.37, below rule-of-thumb cutoff by Ryan (1997). Descriptive statistics of all 21 variables (industry and year fixed effect not included) are presented in table 5. Foreign ownership is between 0 and 0.5.
Table 3 FDI Motives and Host Country Characteristics

<table>
<thead>
<tr>
<th>Host country index (mean)</th>
<th>Defensive market-seeking</th>
<th>Strategic asset-seeking</th>
<th>Ambidexterity</th>
<th>Motive complexity</th>
<th>Natural resource-seeking</th>
<th>Efficiency-seeking</th>
<th>Trade supportive investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP percapita</td>
<td>26685.1</td>
<td>39633.6</td>
<td>38625.1</td>
<td>22199.7</td>
<td>15030.7</td>
<td>17389.1</td>
<td>27871.4</td>
</tr>
<tr>
<td>Geographic distance</td>
<td>7284.45</td>
<td>8260.15</td>
<td>8241.18</td>
<td>6603.87</td>
<td>6823.93</td>
<td>5993.78</td>
<td>7376.18</td>
</tr>
<tr>
<td>R&amp;D/GDP</td>
<td>1.39417</td>
<td>2.15619</td>
<td>2.03989</td>
<td>1.18241</td>
<td>0.608942</td>
<td>0.958592</td>
<td>1.44166</td>
</tr>
<tr>
<td>Diplomatic ties</td>
<td>0.371502</td>
<td>0.097695</td>
<td>0.132608</td>
<td>0.486119</td>
<td>0.685109</td>
<td>0.580596</td>
<td>0.378764</td>
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<tr>
<td>Political stability</td>
<td>5.61442</td>
<td>6.43939</td>
<td>6.40123</td>
<td>5.36427</td>
<td>5.05333</td>
<td>5.03865</td>
<td>5.65721</td>
</tr>
<tr>
<td>N (Obs = 1)</td>
<td>1347</td>
<td>194</td>
<td>160</td>
<td>1000</td>
<td>154</td>
<td>796</td>
<td>913</td>
</tr>
</tbody>
</table>

Table 4 Correlation Table

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>19</th>
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</thead>
<tbody>
<tr>
<td>Defensive market-seek</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Strategic asset-seek</td>
<td>0.0823</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Abidexterity</td>
<td>0.1450</td>
<td>0.8983</td>
<td>1</td>
<td></td>
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</tr>
<tr>
<td>R&amp;D_intensity</td>
<td>0.4386</td>
<td>0.5534</td>
<td>0.4201</td>
<td>1</td>
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<td></td>
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Notes: * P < 0.05
Table 5 Summary Statistics of OFDI Motives Analysis

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Table 6 reports the results of H1 and H2. The baseline model only includes control variables. Model 1a tests H1. Model 2a and Model 3a test H2. Forward linkages with foreign firms are tested in Model 2a while backward linkages with foreign firms are tested in Model 3a. The full model is the complete model testing H1 and H2 together. The significance level of the Wald Chi-squared statistics indicates the explanatory variables explained a significant portion of the variation in the dependent variable.
9.2 Testing for Market-seeking Outward FDI

Table 6 Logistic Regression on Defensive Market-seeking

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Notes: * P < 0.1, **P < 0.05, **** P < 0.01
H1 predicts the effect of foreign ownership on defensive market-seeking. The effect, above 1, means positive in logistic regression. The significance is at the 0.05 level. Therefore, H1 is supported. The results show that local firms with minority foreign equity ownership are more likely to engage in the defensive market-seeking.

H2 predicts the effect of foreign spillovers on defensive market-seeking. Interestingly, the effect of forward linkages, below 1, means a negative relationship. The effect of backward linkages, above 1, means a positive relationship. This means that forward linkages with foreign firms negatively impact the likelihood of defensive market-seeking while backward linkages with foreign firms have a positive impact.

The results in H2 potentially indicate that local firms do not benefit from forward linkages with foreign firms in terms of the defensive market-seeking, although local firms benefit from backward linkages with foreign firms at home. The host country characteristics which are controlled represent the economic distance between China and the host country. The coefficient less than 1 indicates a negative effect, meaning defensive market-seeking FDI tends to invest in a host country in which the economic distance is minimum so that customers are more likely to accept the products.
### 9.3 Testing for Strategic Asset-seeking Outward FDI

#### Table 7 Logistic Regression on Strategic Asset-seeking

<table>
<thead>
<tr>
<th>DV: Strategic asset-seeking</th>
<th>Baseline Model</th>
<th>Model 1b</th>
<th>Model 2b</th>
<th>Model 3b</th>
<th>Full Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign ownership</td>
<td>1.439 (1.257)</td>
<td></td>
<td></td>
<td></td>
<td>1.548 (1.353)</td>
</tr>
<tr>
<td>Foreign forward linkages</td>
<td></td>
<td>0.647 (0.230)</td>
<td></td>
<td></td>
<td>1.177 (0.546)</td>
</tr>
<tr>
<td>Foreign backward linkages</td>
<td></td>
<td></td>
<td></td>
<td>0.426** (0.164)</td>
<td>0.379* (0.191)</td>
</tr>
<tr>
<td>Foreign competition</td>
<td>0.761 (0.191)</td>
<td>0.767 (0.193)</td>
<td>0.920 (0.270)</td>
<td>1.054 (0.304)</td>
<td>1.035 (0.311)</td>
</tr>
<tr>
<td>State ownership</td>
<td>0.908 (0.192)</td>
<td>0.913 (0.194)</td>
<td>0.900 (0.191)</td>
<td>0.913 (0.194)</td>
<td>0.923 (0.197)</td>
</tr>
<tr>
<td>PriorOFDIattempts</td>
<td>0.983 (0.019)</td>
<td>0.983 (0.019)</td>
<td>0.983 (0.019)</td>
<td>0.982 (0.019)</td>
<td>0.982 (0.019)</td>
</tr>
<tr>
<td>Exportratio</td>
<td>0.774 (0.199)</td>
<td>0.771 (0.199)</td>
<td>0.758 (0.195)</td>
<td>0.755 (0.194)</td>
<td>0.755 (0.194)</td>
</tr>
<tr>
<td>Profitratio</td>
<td>2.707*** (0.852)</td>
<td>2.722*** (0.858)</td>
<td>2.579*** (0.817)</td>
<td>2.509*** (0.791)</td>
<td>2.545*** (0.806)</td>
</tr>
<tr>
<td>Logfirmsize</td>
<td>1.203*** (0.051)</td>
<td>1.202*** (0.051)</td>
<td>1.206*** (0.052)</td>
<td>1.210*** (0.052)</td>
<td>1.209*** (0.052)</td>
</tr>
<tr>
<td>Firmage</td>
<td>0.974** (0.011)</td>
<td>0.974** (0.011)</td>
<td>0.974** (0.011)</td>
<td>0.974** (0.011)</td>
<td>0.975** (0.011)</td>
</tr>
<tr>
<td>Host_RnD/GDP</td>
<td>1.830*** (0.135)</td>
<td>1.828*** (0.134)</td>
<td>1.828*** (0.135)</td>
<td>1.819*** (0.135)</td>
<td>1.816*** (0.134)</td>
</tr>
<tr>
<td>Industry fixed effect</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year fixed effect</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Constant</td>
<td>0.005*** (0.002)</td>
<td>0.004*** (0.002)</td>
<td>0.004*** (0.002)</td>
<td>0.004*** (0.002)</td>
<td>0.004*** (0.002)</td>
</tr>
<tr>
<td>Number of obs</td>
<td>2735</td>
<td>2735</td>
<td>2735</td>
<td>2735</td>
<td>2735</td>
</tr>
<tr>
<td>LR χ²</td>
<td>179.2</td>
<td>179.3</td>
<td>180.7</td>
<td>169.6</td>
<td>184.7</td>
</tr>
<tr>
<td>P-value (LR χ²)</td>
<td>***</td>
<td>***</td>
<td>***</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.128</td>
<td>0.128</td>
<td>0.129</td>
<td>0.045</td>
<td>0.132</td>
</tr>
</tbody>
</table>

Notes: * P < 0.1, **P < 0.05, **** P < 0.01
Table 7 shows the results of H3 and H4. Both H3 and H4 predict the strategic asset-seeking FDI, with foreign ownership and foreign spillovers respectively. Neither H3 nor H4 is supported. The result shows that foreign equity ownership does not matter for strategic asset-seeking motive while backward linkages with foreign firms mean a negative impact. This indicates that the prospect theory risk aversion perspective might not restrict to direct knowledge transfer but also foreign knowledge spillover. With knowledge from foreign partners, EMFs are demotivated to engage in strategic asset-seeking FDI. The main influencing factors for strategic asset-seeking are firm R&D intensity and host country R&D expenditure.

Table 8 shows similar results in table 7. Neither H5 nor H6 is supported. The main influencing factors for ambidexterity are firm R&D intensity and host country R&D expenditure, and the political stability of the host country.

Table 9 shows that H6 can be supported if motive complexity means motive counts in one OFDI project. The main influencing factors for motive complexity are backward linkages with foreign firms and positive diplomatic ties between the home and the host countries.
9.4 Testing for Motive Complexity

Table 8 Logistic Regression on Ambidexterity

<table>
<thead>
<tr>
<th>DV: Ambidexterity</th>
<th>Baseline Model</th>
<th>Model 1c</th>
<th>Model 2c</th>
<th>Model 3c</th>
<th>Full Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign ownership</td>
<td>0.860 (0.849)</td>
<td>0.847 (0.325)</td>
<td>0.513* (0.211)</td>
<td>0.387* (0.210)</td>
<td></td>
</tr>
<tr>
<td>Foreign competition</td>
<td>0.653 (0.183)</td>
<td>0.651 (0.182)</td>
<td>0.703 (0.229)</td>
<td>0.843 (0.269)</td>
<td>0.780 (0.260)</td>
</tr>
<tr>
<td>State ownership</td>
<td>1.016 (0.230)</td>
<td>1.013 (0.230)</td>
<td>1.012 (0.229)</td>
<td>1.020 (0.232)</td>
<td>1.029 (0.235)</td>
</tr>
<tr>
<td>PriorOFDAttempts</td>
<td>0.986 (0.019)</td>
<td>0.986 (0.019)</td>
<td>0.986 (0.019)</td>
<td>0.985 (0.019)</td>
<td>0.984 (0.019)</td>
</tr>
<tr>
<td>Exportratio</td>
<td>0.988 (0.268)</td>
<td>0.989 (0.268)</td>
<td>0.979 (0.266)</td>
<td>0.968 (0.261)</td>
<td>0.981 (0.266)</td>
</tr>
<tr>
<td>Profitratio</td>
<td>2.884*** (0.965)</td>
<td>2.878*** (0.964)</td>
<td>2.828*** (0.954)</td>
<td>2.717*** (0.911)</td>
<td>2.778*** (0.936)</td>
</tr>
<tr>
<td>Logfirmsize</td>
<td>1.201*** (0.055)</td>
<td>1.202*** (0.055)</td>
<td>1.203*** (0.055)</td>
<td>1.208*** (0.056)</td>
<td>1.208*** (0.056)</td>
</tr>
<tr>
<td>Firmage</td>
<td>0.971** (0.012)</td>
<td>0.971** (0.012)</td>
<td>0.971** (0.012)</td>
<td>0.971** (0.012)</td>
<td>0.971** (0.012)</td>
</tr>
<tr>
<td>Host_RnD/GDP</td>
<td>1.370*** (0.124)</td>
<td>1.370*** (0.124)</td>
<td>1.369*** (0.125)</td>
<td>1.361*** (0.124)</td>
<td>1.359*** (0.124)</td>
</tr>
<tr>
<td>Political stability</td>
<td>1.269*** (0.098)</td>
<td>1.269*** (0.098)</td>
<td>1.268*** (0.098)</td>
<td>1.268*** (0.098)</td>
<td>1.270*** (0.098)</td>
</tr>
<tr>
<td>Industry fixed effect</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Year fixed effect</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Constant</td>
<td>0.001*** (0.001)</td>
<td>0.001*** (0.001)</td>
<td>0.001*** (0.001)</td>
<td>0.001*** (0.001)</td>
<td>0.001*** (0.001)</td>
</tr>
</tbody>
</table>

Number of obs | 2719 | 2719 | 2719 | 2719 | 2719 |
LR χ² | 135.4 | 135.4 | 135.6 | 138.1 | 138.8 |
P-value (LR χ²) | *** | *** | *** | *** | *** |
Pseudo R² | 0.111 | 0.111 | 0.111 | 0.113 | 0.114 |

Notes: * P < 0.1, **P < 0.05, **** P < 0.01
<table>
<thead>
<tr>
<th>DV: Motive Count</th>
<th>Baseline Model</th>
<th>Model 1d</th>
<th>Model 2d</th>
<th>Model 3d</th>
<th>Full Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreign ownership</td>
<td>-0.039 (0.186)</td>
<td>-0.048</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign forward linkages</td>
<td>0.040 (0.077)</td>
<td></td>
<td>-0.067</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign backward linkages</td>
<td></td>
<td>0.124* (0.073)</td>
<td>0.164*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Foreign competition</td>
<td>0.069* (0.049)</td>
<td>0.068</td>
<td>0.046</td>
<td>0.007</td>
<td>0.024</td>
</tr>
<tr>
<td>State ownership</td>
<td>0.021 (0.042)</td>
<td>0.020</td>
<td>0.022</td>
<td>0.021</td>
<td>0.017</td>
</tr>
<tr>
<td>RnD_intensity</td>
<td>0.187 (0.230)</td>
<td>0.186</td>
<td>0.181</td>
<td>0.167</td>
<td>0.171</td>
</tr>
<tr>
<td>PriorOFDIattempts</td>
<td>-0.009* (0.004)</td>
<td>-0.009** (0.004)</td>
<td>-0.009** (0.004)</td>
<td>-0.009** (0.004)</td>
<td>-0.009** (0.004)</td>
</tr>
<tr>
<td>Exportratio</td>
<td>-0.033 (0.047)</td>
<td>-0.033</td>
<td>-0.031</td>
<td>-0.026</td>
<td>-0.026</td>
</tr>
<tr>
<td>Profitratio</td>
<td>0.173** (0.080)</td>
<td>0.173**</td>
<td>0.175**</td>
<td>0.177**</td>
<td>0.175**</td>
</tr>
<tr>
<td>Logfirmsize</td>
<td>0.014* (0.008)</td>
<td>0.014*</td>
<td>0.014*</td>
<td>0.013*</td>
<td>0.013*</td>
</tr>
<tr>
<td>Firmage</td>
<td>-0.001 (0.002)</td>
<td>-0.001</td>
<td>-0.001</td>
<td>-0.001</td>
<td>-0.001</td>
</tr>
<tr>
<td>Diplomatic ties</td>
<td>0.069** (0.030)</td>
<td>0.069**</td>
<td>0.068**</td>
<td>0.067**</td>
<td>0.068**</td>
</tr>
<tr>
<td>Industry fixed effect</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Year fixed effect</td>
<td>Year</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Constant</td>
<td>0.287*** (0.053)</td>
<td>0.288***</td>
<td>0.286***</td>
<td>0.281***</td>
<td>0.283***</td>
</tr>
</tbody>
</table>

Number of obs 2728 2728 2728 2728 2728
LR χ² 25.09 25.14 25.36 27.94 28.46
P-value (LR χ²) *** *** *** *** ***
Pseudo R² 0.0036 0.0036 0.0037 0.0040 0.0041

Notes: * P < 0.1, **P < 0.05, **** P < 0.01
9.5 Testing for City-region Linkages via Inward and Outward FDI

9.5.1 Hypothesis 7 testing

9.5.1.1 Summary Statistics

The goal of the city analysis in Hypothesis 7 is to show whether a city with a large number of IFDI from a specific country will be more likely to also establish a larger number of OFDI projects to the country. Table 10 shows that the correlation between the independent variable and the dependent variable varies among cities. Therefore, the answer to the research question in chapter 7 might depend on city types.

Table 10 Inward-outward FDI Country Profile Correlation

<table>
<thead>
<tr>
<th>City</th>
<th>Correlation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shanghai</td>
<td>0.488</td>
</tr>
<tr>
<td>Qingdao</td>
<td>0.299</td>
</tr>
<tr>
<td>Beijing</td>
<td>0.259</td>
</tr>
<tr>
<td>Dalian</td>
<td>0.133</td>
</tr>
<tr>
<td>Xi’an</td>
<td>0.12</td>
</tr>
<tr>
<td>Shenzhen</td>
<td>0.107</td>
</tr>
<tr>
<td>Chongqing</td>
<td>0.061</td>
</tr>
<tr>
<td>Tianjin</td>
<td>0.016</td>
</tr>
<tr>
<td>Xiamen</td>
<td>0.014</td>
</tr>
<tr>
<td>Ningbo</td>
<td>-0.058</td>
</tr>
<tr>
<td>Guangzhou</td>
<td>-0.166</td>
</tr>
<tr>
<td>Chengdu</td>
<td>-0.181</td>
</tr>
<tr>
<td>Wuhan</td>
<td>-0.258</td>
</tr>
<tr>
<td>Changsha</td>
<td>-0.279</td>
</tr>
<tr>
<td>Overall</td>
<td>0.094</td>
</tr>
</tbody>
</table>

To identify the causal link between inward and outward FDI, I use the Necessary Condition Analysis (NCA) developed by Dul (2016). Necessary condition analysis facilitates answering a certain type of research question:
whether A is a necessary but not sufficient condition for B to happen. NCA only
involves the variables of interests. There is no need to add control variables such
as export and twin city relationship between a Chinese city and its FDI partner
country, adding which in traditional regression methods is to perform the test of
sufficient conditions. This allows me to use the full 7112 OFDI sample for this
research purpose without losing observations due to dataset merge for acquiring
control variables. In NCA, the traditional independent variable is called condition
X while the dependent variable is named outcome Y. In Hypothesis 7, condition
X is a city’s IFDI location quotients from a country while condition Y is the
number of the city’s OFDI projects to that country. The unit of analysis is at the
city level. NCA also gives bottleneck conditions in which “if X does not reach a
certain level, Y will never happen.”

9.5.1.2 Results and Interpretation

First of all, the NCA model presents the effect size. There are two effect
sizes. The first one, ce_fdh, is based on a ceiling line that is drawn with a step
function. It connects the highest values of the outcome Y for the values of the
condition X. The effect size, cr_fdh, is based on a straight ceiling line that has
been drawn through the points that are part of the step function. Based on the
general rule of thumb in Dul (2016), the effect size 0.025 and 0.017 in the result
table 11 are small effects.

I have also tested the significance of the effect, as an effect size observed
could be a random chance. The test resamples the data to create a range of
samples (permutations) in which the condition X and outcome Y are unrelated.
The outcome of the test is the probability that I observe the results if this is the case. The probability is represented by the p-value. Similar to the traditional regression models, the more the p-value approaches zero, the more unlikely the observed effect is caused by random chance. I choose permutation number as 10,000, the p-value, therefore, is 0.000. Both p-values are less than 0.05, suggesting that the probability that the observed effect size is due to random chance is small enough and can be neglected. The bottleneck value shows starting which value the necessary condition becomes effective.

In other words, H7 is supported, suggesting that the proportion of a city's inward FDI from a specific country is a necessary condition for OFDI location choice when IFDI Location Quotients reach 5.537.

Table 11 NCA Results on IFDI Location Quotients and OFDI Project Count

<table>
<thead>
<tr>
<th>Location Quotients IFDI</th>
<th>ce_fdh (p)</th>
<th>cr_fdh (p)</th>
<th>Bottleneck</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.025 (0.000)</td>
<td>0.017 (0.000)</td>
<td>5.537</td>
<td></td>
</tr>
</tbody>
</table>

N: 5364 city-country pairs
Effect size(s):
0 < d < 0.1 small effect
0.1 ≤ d < 0.3 medium effect
0.3 ≤ d < 0.5 large effect
d ≥ 0.5 very large effect

Based on the results displayed above, the path-dependent nature of inward-outward trans-local linkages is approved but in a weak position. It does confirm with the understanding using the relational perspective of economic geography that economic activities are deeply embedded in structures of social relations of the location (Granovetter, 1985), and emerging market firms’ behavior can be shaped by interactions with foreign incoming firms. FDI help to
create local firms through knowledge transfer and knowledge spillovers (Thompson, 2002; Depner and Bathelt, 2005). The knowledge received from foreign companies creates a knowledge flow path dependency for local firms’ knowledge development trajectory. When considering outward activities, local firms tend to select places that are of similar knowledge base or related industries (Hilber and Voicu, 2010).

![NCA Plot: IFDI location quotients - OFDI count](image)

**Figure 4** NCA graph of IFDI-OFDI trans-local linkages

Besides NCA, I have also chosen three cities to collect control variable *export location quotients*, to conduct regression analysis. These three cities are Shenzhen, Qingdao, and Chengdu. Out of the 2780 projects, there are 187 projects from these three cities from 66 countries. I construct location choice data structure, meaning each project has 66 country choices, leading to a dataset with
12342 (187x66) observations. The dependent variable OFDI = 1 means a particular country is selected as the OFDI destination.

Table 12 Summary Statistics of OFDI Location Choices

<table>
<thead>
<tr>
<th></th>
<th>Obs</th>
<th>Mean</th>
<th>Std</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFDI</td>
<td>12,342</td>
<td>0.015</td>
<td>0.122</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>IFDI_location quotients</td>
<td>12,342</td>
<td>0.118</td>
<td>0.634</td>
<td>0</td>
<td>10.674</td>
</tr>
<tr>
<td>Export_location quotients</td>
<td>7,814</td>
<td>0.909</td>
<td>0.707</td>
<td>0</td>
<td>2.876</td>
</tr>
<tr>
<td>Strategic asset-seeking</td>
<td>12,342</td>
<td>0.069</td>
<td>0.254</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Natural resource-seeking</td>
<td>12,342</td>
<td>0.011</td>
<td>0.103</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Market-seeking</td>
<td>12,342</td>
<td>0.781</td>
<td>0.414</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Efficiency-seeking</td>
<td>12,342</td>
<td>0.225</td>
<td>0.417</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Trade supportive motive</td>
<td>12,342</td>
<td>0.214</td>
<td>0.410</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Host_RnD/GDP</td>
<td>12,342</td>
<td>1.357</td>
<td>1.254</td>
<td>0</td>
<td>4.018</td>
</tr>
<tr>
<td>Diplomatic ties</td>
<td>12,210</td>
<td>0.474</td>
<td>0.507</td>
<td>-0.708</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 13 shows the logistic regression results of location choice. Model 3e has a very high VIF number due to the repetition of the independent variable so this model is not appropriate to refer to for findings. Mainly referring to Model 1e and model 2e, we can see that IFDI location quotients have a positive effect on the location choice of local firms, indicating H7 is supported. The proportion of a city’s inward FDI from a specific country increases the extent of the city’s outward FDI projects to that country, although I did not find strategic asset-seeking OFDI being significantly different from other OFDI motives.
Table 13 Logistic Regression on OFDI Location Choices

<table>
<thead>
<tr>
<th>DV: OFDI</th>
<th>Baseline Model</th>
<th>Model 1e</th>
<th>Model 2e</th>
<th>Model 3e</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFDI_location quotients</td>
<td>1.433*** (0.061)</td>
<td>1.431*** (0.064)</td>
<td>0.836 (0.393)</td>
<td></td>
</tr>
<tr>
<td>IFDI_location quotients x Strategic asset-seeking</td>
<td>1.018 (0.141)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFDI_location quotients x IFDI_high</td>
<td>1.571 (0.752)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFDI_location quotients x IFDI_medium</td>
<td>1.803 (0.853)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Export_location quotients</td>
<td>1.145 (0.125)</td>
<td>1.007 (0.111)</td>
<td>1.008 (0.112)</td>
<td>0.979 (0.112)</td>
</tr>
<tr>
<td>Strategic asset-seeking</td>
<td>1.061 (0.347)</td>
<td>1.064 (0.352)</td>
<td>1.050 (0.364)</td>
<td>1.055 (0.356)</td>
</tr>
<tr>
<td>Natural resource-seeking</td>
<td>2.633 (2.040)</td>
<td>2.477 (1.928)</td>
<td>2.481 (1.932)</td>
<td>2.133 (0.741)</td>
</tr>
<tr>
<td>Market-seeking</td>
<td>0.849 (0.187)</td>
<td>0.841 (0.188)</td>
<td>0.841 (0.188)</td>
<td>0.813 (0.185)</td>
</tr>
<tr>
<td>Efficiency-seeking</td>
<td>1.040 (0.235)</td>
<td>0.986 (0.225)</td>
<td>0.985 (0.225)</td>
<td>1.011 (0.239)</td>
</tr>
<tr>
<td>Trade supportive motive</td>
<td>0.866 (0.195)</td>
<td>0.818 (0.188)</td>
<td>0.818 (0.188)</td>
<td>0.799 (0.186)</td>
</tr>
<tr>
<td>Host_RnD/GDP</td>
<td>1.084 (0.094)</td>
<td>1.079 (0.095)</td>
<td>1.080 (0.095)</td>
<td>1.123 (0.104)</td>
</tr>
<tr>
<td>Diplomatic ties</td>
<td>0.963 (0.195)</td>
<td>0.986 (0.202)</td>
<td>0.986 (0.202)</td>
<td>0.992 (0.206)</td>
</tr>
<tr>
<td>IFDI_high City</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFDI_medium City</td>
<td></td>
<td></td>
<td></td>
<td>0.520** (0.193)</td>
</tr>
<tr>
<td>Industry fixed effect</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Year fixed effect</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Constant</td>
<td>0.019*** (0.006)</td>
<td>0.018*** (0.006)</td>
<td>0.018*** (0.006)</td>
<td>0.031*** (0.014)</td>
</tr>
<tr>
<td>Number of obs</td>
<td>7729</td>
<td>7729</td>
<td>7729</td>
<td>7729</td>
</tr>
<tr>
<td>LR χ²</td>
<td>5.63</td>
<td>54.26</td>
<td>54.28</td>
<td>59.42</td>
</tr>
<tr>
<td>P-value (LR χ²)</td>
<td>***</td>
<td>***</td>
<td>***</td>
<td>***</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.003</td>
<td>0.035</td>
<td>0.035</td>
<td>0.038</td>
</tr>
</tbody>
</table>

Notes: * P < 0.1, **P < 0.05, **** P < 0.01
9.5.2 Hypothesis 8 testing

9.5.2.1 Summary Statistics

Based on the city level IFDI in table 12, I divide the 14 cities into three groups: high IFDI, medium IFDI, and low IFDI.

Table 14 City Rankings based on IFDI level

<table>
<thead>
<tr>
<th>City</th>
<th>IFDI level</th>
<th>Region</th>
<th>IFDI project #</th>
<th>OFDI project #</th>
<th>Population (million, in 2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Wuhan</td>
<td>Low</td>
<td>Midsouth</td>
<td>182</td>
<td>73</td>
<td>11.08</td>
</tr>
<tr>
<td>2 Chengdu</td>
<td>Low</td>
<td>Southwest</td>
<td>268</td>
<td>90</td>
<td>16.33</td>
</tr>
<tr>
<td>3 Xi’an</td>
<td>Low</td>
<td>Northwest</td>
<td>1175</td>
<td>68</td>
<td>12.12</td>
</tr>
<tr>
<td>4 Changsha</td>
<td>Low</td>
<td>Midsouth</td>
<td>1710</td>
<td>39</td>
<td>8.43</td>
</tr>
<tr>
<td>5 Chongqing</td>
<td>Low</td>
<td>Southwest</td>
<td>4023</td>
<td>205</td>
<td>30.48</td>
</tr>
<tr>
<td>6 Dalian</td>
<td>Medium</td>
<td>Northeast</td>
<td>2745</td>
<td>292</td>
<td>5.96</td>
</tr>
<tr>
<td>7 Ningbo</td>
<td>Medium</td>
<td>East</td>
<td>7425</td>
<td>775</td>
<td>8.28</td>
</tr>
<tr>
<td>8 Qingdao</td>
<td>Medium</td>
<td>East</td>
<td>10669</td>
<td>473</td>
<td>4.14</td>
</tr>
<tr>
<td>9 Tianjin</td>
<td>Medium</td>
<td>North</td>
<td>24748</td>
<td>573</td>
<td>9.04</td>
</tr>
<tr>
<td>10 Guangzhou</td>
<td>Medium</td>
<td>Midsouth</td>
<td>25296</td>
<td>180</td>
<td>15.07</td>
</tr>
<tr>
<td>11 Beijing</td>
<td>Medium</td>
<td>North</td>
<td>38111</td>
<td>3080</td>
<td>15.03</td>
</tr>
<tr>
<td>12 Shenzhen</td>
<td>High</td>
<td>Midsouth</td>
<td>52943</td>
<td>418</td>
<td>21.54</td>
</tr>
<tr>
<td>13 Shanghai</td>
<td>High</td>
<td>East</td>
<td>76408</td>
<td>713</td>
<td>12.53</td>
</tr>
<tr>
<td>14 Xiamen</td>
<td>High</td>
<td>Midsouth</td>
<td>10454</td>
<td>155</td>
<td>24.28</td>
</tr>
</tbody>
</table>

9.5.2.2 Results and Interpretation

This results section intends to compare the IFDI-OFDI relationship among the three IFDI levels based on effect sizes and significance level.
High IFDI

Table 15 NCA Results on IFDI Location Quotients and OFDI project count (IFDI high-level cities)

<table>
<thead>
<tr>
<th>location quotients IFDI</th>
<th>ce_fdh (p)</th>
<th>cr_fdh (p)</th>
<th>Bottleneck</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.223 (0.000)</td>
<td>0.152 (0.000)</td>
<td>1.306</td>
</tr>
</tbody>
</table>

N: 2673 city-country pairs
Effect size(s):
0 < d < 0.1 small effect
0.1 ≤ d < 0.3 medium effect
0.3 ≤ d < 0.5 large effect
d ≥ 0.5 very large effect

Figure 5 NCA graph of IFDI-OFDI trans-local linkages (high-level IFDI)

Medium IFDI

Table 16 NCA Results on IFDI Location Quotients and OFDI Project Count (IFDI mid-level cities)

<table>
<thead>
<tr>
<th>location quotients IFDI</th>
<th>ce_fdh (p)</th>
<th>cr_fdh (p)</th>
<th>Bottleneck</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.027 (0.006)</td>
<td>0.021 (0.006)</td>
<td>8.859</td>
</tr>
</tbody>
</table>

N: 2175 city-country pairs
Effect size(s):
0 < d < 0.1 small effect
0.1 ≤ d < 0.3 medium effect
0.3 ≤ d < 0.5 large effect
d ≥ 0.5 very large effect
Low IFDI

Table 17 NCA Results on IFDI Location Quotients and OFDI Project Count (IFDI low-level cities)

<table>
<thead>
<tr>
<th>Location quotients IFDI</th>
<th>ce_fdh (p)</th>
<th>cr_fdh (p)</th>
<th>Bottleneck</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.008</td>
<td>0.004</td>
<td>1.411</td>
</tr>
</tbody>
</table>

N: 516 city-country pairs

Effect size(s):
0    < d  <   0.1 small effect
0.1 ≤ d <  0.3 medium effect
0.3 ≤ d <  0.5 large effect
d ≥  0.5 very large effect

Therefore, the effect sizes have a ranking: IFDI high-level sample (medium effect) > IFDI medium level sample (small effect) > IFDI low-level sample (not significant)

H8 is confirmed in the analysis, showing that the three mega metropolitan areas in China with a high level of IFDI reveal stronger results for the path dependence logic. These three megacities are all the in the east coast of China, enjoying the benefits from the first round of China attracting IFDI (the mid-west and inland regions of China is the second round) and now join the list world global cities (ATKearney Global Cities Report, 2019) for its global connectedness and economic development. As can be seen from the results, these three cities reveal a reciprocal relationship with the developed world where the IFDI was mainly from, while other cities are either catching up by showing a small effect in the NCA analysis or no effect at all. The second round of China attracting IFDI in mid-west and inland areas such as Wuhan, Chengdu, Xi’an, and Changsha needs more time to reveal its effectiveness.
9.5.3 Hypothesis 9 testing

9.5.3.1 Summary Statistics

In Hypothesis 9, I intend to test whether the relationship in H7 is more salient for strategic asset-seeking outward FDI.

Strategic asset-seeking OFDI is a type of FDI project with a long-term orientation and developmental goals. Because of the abuse of asset-seeking activities (Cuervo-Cazurra and Narula, 2015), I apply the precise version of the definition by Dunning and Narula (1995) that strategic asset-seeking motive refers to the upgrade of technological assets through FDI in R&D facilities. Firms conducting strategic asset-seeking FDI usually report establishing Research and Development centers in the host country, seeking technological knowledge, reserve or attract talents / human capital in the subsidiary or the parent firm. Out of the 7112 OFDI projects, 823 projects are strategic asset-seeking.

Table 18 Top 10 Strategic Asset-seeking OFDI Destinations

<table>
<thead>
<tr>
<th>Country</th>
<th>SA_OFDI %</th>
</tr>
</thead>
<tbody>
<tr>
<td>The U.S.</td>
<td>0.36452</td>
</tr>
<tr>
<td>Japan</td>
<td>0.121507</td>
</tr>
<tr>
<td>Germany</td>
<td>0.051033</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.044957</td>
</tr>
<tr>
<td>Canada</td>
<td>0.041312</td>
</tr>
<tr>
<td>Korea</td>
<td>0.041312</td>
</tr>
<tr>
<td>Singapore</td>
<td>0.040097</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>0.025516</td>
</tr>
<tr>
<td>Australia</td>
<td>0.020656</td>
</tr>
<tr>
<td>Sweden</td>
<td>0.018226</td>
</tr>
</tbody>
</table>
Among the 7112 OFDI projects, there is 823 strategic asset-seeking OFDI projects. These projects cluster to the United States, Japan, Germany, and the United Kingdom, etc. 6 out of the top 10 strategic asset-seeking OFDI destinations are also listed top as the IFDI countries.

The trend of five motives between 1983 and 2014 is shown in Figure 6. The motives are strategic asset-seeking (SA), trade supportive (TR), efficiency-seeking (EF), market-seeking (MA), and natural resource-seeking (NR).

Table 19 Top 10 IFDI countries

<table>
<thead>
<tr>
<th>Country</th>
<th>IFDI %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>0.024803</td>
</tr>
<tr>
<td>Singapore</td>
<td>0.019133</td>
</tr>
<tr>
<td>The U.S.</td>
<td>0.015365</td>
</tr>
<tr>
<td>South Africa</td>
<td>0.013092</td>
</tr>
<tr>
<td>The Russian Federal</td>
<td>0.008788</td>
</tr>
<tr>
<td>Canada</td>
<td>0.008205</td>
</tr>
<tr>
<td>Germany</td>
<td>0.004736</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.004282</td>
</tr>
<tr>
<td>Nigeria</td>
<td>0.003817</td>
</tr>
<tr>
<td>Indonesia</td>
<td>0.003627</td>
</tr>
</tbody>
</table>

Figure 6 OFDI Trend by Motives
9.5.3.2 Results and Interpretation

This result section will present the comparison of strategic asset-seeking motive and other motives.

**Strategic asset-seeking Motive**

The results in table 18 show that the effect size for the step ceiling is very large (0.603) and the effect of a straight-line ceiling is large (0.401). And the effects are significant.

Table 20 NCA Results on IFDI Location Quotients and SA OFDI Project Count

<table>
<thead>
<tr>
<th>location quotients IFDI</th>
<th>ce_fdh (p)</th>
<th>cr_fdh (p)</th>
<th>Bottleneck</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.603</td>
<td>0.401</td>
<td>6.564</td>
</tr>
<tr>
<td>N: 1861 city-country pairs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effect size(s):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0  &lt; d  &lt;  0.1 small effect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.1 ≤ d  &lt;  0.3 medium effect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.3 ≤ d  &lt;  0.5 large effect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d  ≥  0.5 very large effect</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Figure 7. NCA graph of IFDI-OFDI trans-local linkages (SA motive)
Trade Supportive Motive

Table 21 NCA Results on IFDI Location Quotients and TR OFDI Project Count

<table>
<thead>
<tr>
<th></th>
<th>(\text{ce_fdh (p)})</th>
<th>(\text{cr_fdh (p)})</th>
<th>Bottleneck</th>
</tr>
</thead>
<tbody>
<tr>
<td>location quotients IFDI</td>
<td>0.023 (0.000)</td>
<td>0.015 (0.000)</td>
<td>0.369</td>
</tr>
</tbody>
</table>

N: 3241 city-country pairs

Effect size(s):

0 < \(d\) < 0.1 small effect
0.1 \(\leq d\) < 0.3 medium effect
0.3 \(\leq d\) < 0.5 large effect
\(d\) \(\geq 0.5\) very large effect

Market-seeking Motive

Table 22 NCA Results on IFDI Location Quotients and MA OFDI Project Count

<table>
<thead>
<tr>
<th></th>
<th>(\text{ce_fdh (p)})</th>
<th>(\text{cr_fdh (p)})</th>
<th>Bottleneck</th>
</tr>
</thead>
<tbody>
<tr>
<td>location quotients IFDI</td>
<td>0.223 (0.000)</td>
<td>0.146 (0.000)</td>
<td>1.342</td>
</tr>
</tbody>
</table>

N: 4503 city-country pairs

Effect size(s):

0 < \(d\) < 0.1 small effect
0.1 \(\leq d\) < 0.3 medium effect
0.3 \(\leq d\) < 0.5 large effect
\(d\) \(\geq 0.5\) very large effect

Efficiency-seeking Motive

Table 23 NCA Results on IFDI Location Quotients and EF OFDI Project Count

<table>
<thead>
<tr>
<th></th>
<th>(\text{ce_fdh (p)})</th>
<th>(\text{cr_fdh (p)})</th>
<th>Bottleneck</th>
</tr>
</thead>
<tbody>
<tr>
<td>location quotients IFDI</td>
<td>0.022 (0.000)</td>
<td>0.014 (0.000)</td>
<td>5.536</td>
</tr>
</tbody>
</table>

N: 2362 city-country pairs

Effect size(s):

0 < \(d\) < 0.1 small effect
0.1 \(\leq d\) < 0.3 medium effect
0.3 \(\leq d\) < 0.5 large effect
\(d\) \(\geq 0.5\) very large effect
**Natural resource-seeking Motive**

Table 24 NCA Results on IFDI Location Quotients and NR OFDI Project Count

<table>
<thead>
<tr>
<th>Location quotients IFDI</th>
<th>ce_fdh (p)</th>
<th>cr_fdh (p)</th>
<th>Bottleneck</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.014</td>
<td>0.009</td>
<td>0.671</td>
</tr>
</tbody>
</table>

N: 1313 city-country pairs

Effect size(s):

0  <  d  <  0.1 small effect
0.1 ≤ d  <  0.3 medium effect
0.3 ≤ d  <  0.5 large effect
d  ≥  0.5 very large effect

Therefore, the effect sizes have a ranking as: SA (large effect) > MA (medium effect) > TR (small effect) > EF (small effect) > NR (not significant).

The results approve the prediction that strategic asset-seeking OFDI projects show the strongest effect in the path-dependent logic. The results yield interesting comparisons among other motives. Strategic asset-seeking is growing after 2010, indicating the future will see a stronger effect overall regarding the path-dependent inward-outward FDI trans-local linkages, with more and more Chinese OFDI projects targeting at the developed world. Strategic asset-seeking OFDI shows the largest effect size among all motives, meaning the relationship in H7 is the most salient in strategic asset-seeking OFDI. Additionally, the largest value of the bottleneck condition for strategic asset-seeking OFDI means that strategic asset-seeking OFDI has the highest requirement for IFDI accumulation. Before the IFDI quotients reach 6.564, the relationship in H7 can be weak for strategic asset-seeking. That is why we see a lot of strategic asset-seeking OFDI projects from developed cities (e.g. Shanghai, Shenzhen) where IFDI accumulation is high.
Market-seeking occurs in 60% of Chinese OFDI projects, casting doubt on the popular media press’s understanding of emerging market firms not being market-driven. Market-seeking being in the second strongest in approving the path-dependent logic showing that business networks, not just knowledge specialization, built from IFDI matters to emerging market firm OFDI location choices.

The trade supportive investment is not essentially replying on networks built with IFDI as trade and FDI decisions are relatively independent to each other, with international trade decisions are more embedded in government policies and local factor endowments. Trade supportive motive is the second-largest motive in Chinese OFDI projects. While foreign firms in China create a large volume of international trade with their origins, “made in China” has penetrated non-IFDI partner countries such as those in the African continent and Middle East countries as well.

Efficiency-seeking OFDI is more likely to subject to the Global Value China perspective, that China gradually transfers manufacturing capacities to developing Asian and African countries, while the domestic economy engages in industry upgrading (Frost, 2004; Fu, Supriyadi, and Wang, 2018).

Natural resource-seeking motive being not significant at all shows that this motive is heavily influenced by non-IFDI factors such as government policy regarding the national economic development needs for natural resources. In recent years, natural resource-seeking motive is shrinking.
9.6 Robustness Check of Foreign Ownership

Foreign ownership tends to introduce bias to the sample selection because foreign-owned enterprises are documented to have better performance and be more internationally connected. Therefore, for the foreign-owned enterprises that have OFDI projects, we cannot tell, from regression results, whether the OFDI behavior was because of foreign ownership or because of their outstanding financial performance, export intensity, and so on. I then applied propensity score matching (PSM) techniques to acquire a control group of firms whose financial performance and export intensity etc. are comparable to the foreign-owned firms in the treatment group.

Please note that the following procedures are not perfect. A better procedure would require panel data which can tell us a full story before the ownership change. With the panel data (but ARIES has too many missing values for this purpose), I can observe the firm-level characteristics (e.g. financial performance) in t-1 before the firm adopts foreign ownership in t. Then I can eliminate samples with a significantly higher performance before foreign ownership, which allows me to eliminate the situation (selection bias) when foreign partners purposefully choose a better performed local firm to form the IJV. If a firm has better performance before foreign ownership, we cannot tease out whether its OFDI behavior is due to foreign ownership or due to its better performance. The following procedure serves the same purpose, but in a stricter format (type I error might occur). Since the current cross-sectional data is not
able to include firm-level characteristics in t-1, I cannot take into consideration the scenario that the firm-level characteristics such as financial performance increases because of foreign ownership. In other words, even if the foreign ownership does not show significant differences in affecting OFDI likelihood between the treatment and control groups, it does not mean foreign ownership does not affect OFDI likelihood. Instead, it only means that foreign ownership does not affect OFDI likelihood via other firm-level characteristics that are not controlled in the function (but the effect of foreign ownership affecting OFDI likelihood via the controlled firm-level characteristics is possible).

In the following procedure, I control for these firm-level characteristics: R&D intensity, prior OFDI attempts, export ratio, profit ratio, firm size, and firm age, meaning the propensity score of these characteristics are comparable between the treatment and control groups. I use the psmatch2 command in Stata (Leuven and Sianesi, 2003; Chang and Chung, 2017), making the difference in propensity score must be less than 0.05. As a result, 263 pairs of foreign-owned and non-foreign owned firms are identified.

Table 25 Balancing Tests for Matched Foreign and Non-foreign Owned Firms

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>T-test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Treatment</td>
<td>Control</td>
<td>t-stat</td>
</tr>
<tr>
<td>RnD_intensity</td>
<td>0.016</td>
<td>0.012</td>
<td>0.92</td>
</tr>
<tr>
<td>PriorOFDAttempts</td>
<td>1.688</td>
<td>0.380</td>
<td>3.76</td>
</tr>
<tr>
<td>Exportratio</td>
<td>0.304</td>
<td>0.320</td>
<td>-0.51</td>
</tr>
<tr>
<td>Profitratio</td>
<td>0.083</td>
<td>0.068</td>
<td>1.14</td>
</tr>
<tr>
<td>Logfirmsize</td>
<td>6.474</td>
<td>6.610</td>
<td>-0.76</td>
</tr>
<tr>
<td>Firmage</td>
<td>9.764</td>
<td>9.699</td>
<td>0.10</td>
</tr>
<tr>
<td>Hotelling test</td>
<td>T²</td>
<td>F-stat</td>
<td>P&gt;F</td>
</tr>
<tr>
<td></td>
<td>7.033</td>
<td>0.917</td>
<td>0.412</td>
</tr>
</tbody>
</table>
The balancing tests in table 25 show PSM creates comparable samples between the treatment and control groups. In the individual t-tests, the results show that the difference in the mean is not significantly different at the one percent level for R&D intensity, export ratio, profit ratio, firm size, and firm age. But prior OFDI attempts show differences between groups. I then conduct the Hotelling test, a test of the joint significance of all these variables. The Hotelling test is insignificant, which means that the null hypothesis (the treatment and control groups are comparable on selected dimensions) cannot be rejected. I then use this 526 sample for the average treatment effect on the treated (ATT) to measure the differences between the two groups in the likelihood of defensive market-seeking.

Table 26 Differences in Defensive Market-seeking Tendencies

<table>
<thead>
<tr>
<th>Sample</th>
<th>Treatment</th>
<th>Control</th>
<th>Difference</th>
<th>S.E.</th>
<th>T-stat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unmatched</td>
<td>0.529</td>
<td>0.489</td>
<td>0.039</td>
<td>0.032</td>
<td>1.23</td>
</tr>
<tr>
<td>Matched</td>
<td>0.529</td>
<td>0.452</td>
<td>0.076</td>
<td>0.049</td>
<td>1.56</td>
</tr>
</tbody>
</table>

The results in table 26 show that foreign-owned firms are more likely to defensive market-seeking. The difference between foreign-owned and non-foreign owned enlarges in the matched sample, although the significant according to t-stat is marginal.

9.7 Results Overview

Table 27 gives an overview of the nine hypotheses, six out of nine being supported. H1 and H2 are supported. The logistic regression in Table 6 shows that both foreign ownership and foreign spillovers positively affect local firms'
tendency in defensive market-seeking. In the two mechanisms of foreign spillovers, backward industry linkages show a positive effect whereas forward linkages have a negative impact. Therefore, regarding the defensive market-seeking, the findings are that direct knowledge transfer from foreign partners and indirect knowledge spillovers from foreign buyers in the same city increase the likelihood of defensive market-seeking OFDI of local firms. The effect of foreign ownership also (marginally) passes the robustness check for sample selection bias, as it is shown in table 26.

Table 27 Results Overview

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Dependent Variable</th>
<th>Independent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Foreign Ownership</td>
</tr>
<tr>
<td>4</td>
<td>Defensive market-seeking</td>
<td>H1 √</td>
</tr>
<tr>
<td>5</td>
<td>Strategic asset-seeking</td>
<td>H3 ×</td>
</tr>
<tr>
<td>6</td>
<td>Motive Complexity</td>
<td>H5 ×</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IFDI Location Quotients</td>
</tr>
<tr>
<td>7</td>
<td>OFDI location choice</td>
<td>H7 √</td>
</tr>
<tr>
<td>7</td>
<td>IFDI level (moderator)</td>
<td>H8 √</td>
</tr>
<tr>
<td>7</td>
<td>FDI motive (moderator)</td>
<td>H9 √</td>
</tr>
</tbody>
</table>

H3 and H4, hypotheses regarding the strategic asset-seeking OFDI, are not supported. The coefficient of foreign ownership and foreign forward linkages are not significant. Although the coefficient of foreign backward linkages is significant but negative, which is the opposite of the prediction. Hence, the findings regarding strategic asset-seeking motive are that direct knowledge transfer from foreign partners and indirect knowledge spillovers from foreign sellers in the same city do not affect the technological learning abroad, whereas knowledge spillovers from foreign buyers demotivate technological learning.
Regarding motive complexity, I use two measures, ambidexterity and motive count. Ambidexterity is a special type of motive complexity, with both exploratory and exploitative motives in the same project. Neither foreign ownership nor foreign spillovers are found to be significant for ambidexterity, meaning IFDI does not lead to ambidextrous strategy in local firms’ OFDI. However, the results for motive complexity are slightly different, showing that industry linkages with foreign buyers in the same city increase motive counts of local firms, although I did not find significant effects for foreign ownership and industry linkages with foreign sellers. This indicates that indirect knowledge spillovers lead to motive complexity of local firms in OFDI, although the motive complexity is not necessarily ambidexterity. Most likely, the motive complexity refers to multiple exploitative motives in the same OFDI project. Therefore, the finding regarding motive complexity is that indirect knowledge spillovers from foreign buyers motivate local firms to engage in multiple exploitative motives in the same OFDI project.

H7, H8, and H9, related to OFDI location choices, are supported. I use both NCA and logistic regression for H7, showing that a local firm is more likely to choose a country as OFDI destination when this country has more IFDI in the local firm’s city. In addition, the bottleneck conditions from NCA show that IFDI from a certain country becomes a necessary condition for OFDI location choice when IFDI quotients reach 5.537. H8 and H9 use the NCA method. I compare the effect size for three IFDI levels in H8 and the effect size for five OFDI motives in H9. Cities with high-level IFDI reveal the largest effect size and cities with low-
level IFDI have the smallest, also not significant, effect. Furthermore, strategic asset-seeking OFDI shows the largest effect size among all motives and also the largest value of the bottleneck condition, meaning the relationship in H7 is the most salient in strategic asset-seeking OFDI.

10. Discussions

10.1 Theoretical Implications

Conventional internationalization theories suggest that firm tend to learn from own prior experience, so that they can minimize the hazard of failure (e.g. e.g. Andersen, 1993; Bilkey and Tesar, 1977; Johanson and Vahlne, 1977, 2009, 2017). But recent literature (e.g. Chang and Rhee, 2011) argues that, in this increasingly globalized world, external forces such as global competition from foreign MNCs have a significant role to play. Our theoretical contribution lies at the heart of knowledge acquisition by adding foreign knowledge transfer (who you connect with) and knowledge spillover (where you are located) as an enabler of rapid internationalization. The conceptual framework could apply to all firms with the liability of newness or firms that lack initial FSAs. By collaborating with foreign MNCs, emerging firms will be able to access to advanced knowledge readily and leapfrog in international competition.

Knowledge acquisition has been identified as an antecedent of internationalization of emerging market firms in much of the relevant literature. The types of knowledge include (1) knowledge about the foreign markets, which
firms usually get from their international experiences (e.g. Batskis and Mohr, 2017; Casillas and Moreno-Menéndez, 2014; Coeurderoy and Murray, 2008; Chetty and Campbell-Hunt, 2004; Nadolska and Barkema, 2007); (2) technological knowledge, which is related to firms’ internal capabilities (e.g. Autio, Sapienza, and Almeida, 2000; Chang and Rhee, 2011; Knight and Cavusgil, 2004; Ramos, Acedo, and Gonzalez, 2011). Nevertheless, core competencies are not accessible to everyone and are instead confined to network insiders (Johanson and Vahlne, 2009). By joining foreign MNCs networks, such as contractual partnership or co-location, emerging market firms (who are generally categorized as a laggard in knowledge generation) can increase their capabilities in a shorter time frame.

Regarding literature on EMNEs, although the phenomenon of EMNEs’ internationalization is well-recognized among International Business scholars, its antecedents require more exploration as the current country-specific advantages (CSAs) approach is not sufficient (Ramamurti and Hillemann, 2018). In particular, an overly heavyweight has been placed on institutional influences on emerging market firms’ internationalization. Since institutions such as policy support and societal norms are accessible to all firms operating in an emerging market (lack of variation as an explanatory variable) and institutional environment is very context-specific (lack of generalizability), Ramamurti and Singh (2009) and Verbeke and Kano (2015) advocate International Business scholars coming up with more generalizable constructs in explaining antecedents of emerging market internationalization.
This research contributes to EMNC literature by enriching the understanding of home country led firm-specific advantages that can be one of the antecedents of their internationalization. Particularly, I investigate the potential source of EMFs’ firm-specific advantages by studying foreign participation in an emerging market context. I then conclude that foreign participation in an emerging market will facilitate local firms’ capability building through direct knowledge transfer and indirect knowledge spillover, and thus lead to OFDI. This indicates that EMFs’ internationalization processes could be different than developed country multinational corporations. (Gammeltoft, Barnard, and Madhok, 2010; Gaur, Ma, and Ding, 2018; Guillén and García-Canal, 2009; Ramamurti, 2012). EMNEs often initiate their internationalization-related learning process domestically, e.g., through domestic joint-venture or subcontracting relations with foreign investors or, for those in large emerging economies, by investing or making acquisitions in distant states/provinces. Recognizing better the influence of these domestic learning processes may also explain some of the reported EMNC departures from existing process models.

The geographic linkage chapter adds to the understanding of inward-outward FDI relationships. Previous studies (e.g. Gu and Lu, 2011; Xia, Ma, Lu, and Yiu, 2014, Hertenstein, Sutherland, and Anderson, 2017) generate inconsistent results for inward-outward FDI relationships. The role of geography in IB. I also intend to enrich the understanding by testing one of the less studied contingencies, FDI motive. FDI motive mainly remained at a conceptual level due to its difficulty to measure or links to host country factor endowment. However, it
is not just the spatial attributes that determine business motive but also other complex factors, so the motive measure I use is the direct survey from managers. Using manager self-reported business motives in the host country, rather than using location factor endowment as a proxy, this research can tease out the inward-outward FDI relationship based on motives.

This research also speaks to the location choice literature, by arguing that IFDI has an important role to play. This answers the call for more research on the role of home country effect, especially IFDI which was largely neglected and treated independently from OFDI (Deng, 2012). It further confirms that firm strategies are not exogenous but are influenced by local actors.

Lastly, by engaging in a geographical perspective understanding inward-outward FDI relationships, this research advocated the role of location in economic development. Location matters for FDI research. As more and more International Business research has moved to firm-level evidence, the location factor gradually becomes vague (Dunning, 1998, 2009). The function of a location matters to foreign direct investors as resources and capabilities are still locally bounded (Bathelt and Taylor, 2002).

10.2 Practical Implications

This research offers practical implications to an organization: “who” you are connecting with and “where” you are located matter to your future development and growth. Firms wish to internationalize early can consider building an equity
partnership with foreign MNCs at home. However, foreign equity partnership might not promote distance travel in early internationalization. Firms interested in investing in institutional distant countries should consider being geographically proximate to foreign MNCs to absorb foreign technological spillover.

It also has policy implications for emerging market policy-makers that inward FDI and outward FDI are interconnected, suggesting that policymakers should consider leveraging them in unison. While outward FDI can increasingly serve as a complementary channel to help drive home-country development, the influence of inward FDI is not neglectable. The implications of this research could inform government and corporate leaders that learning about international markets and foreign advanced technologies can take place at home before actual outward internationalization activities, which help speed up the internationalization process. While outward FDI deserves support and promotion, inward FDI is an integral part of globalization and potentially facilitates “go global” activities to thrive. Rather than supporting outward FDI directly, the emerging market government can shift some attention to inward FDI and ensure the interaction between foreign investors and local sectors.

Lastly, this research has implications on the recent upward trend of deglobalization, nationalism, and protectionism in particular. The more a nation welcomes inward internationalization, the more your local firms can benefit from the irreversible trend of globalization. We also seem to be able to answer the popular question “what makes Chinese firms so aggressive in
internationalization?” It is not (just) the domestic institutional support, but the ongoing globalization and the embracing attitude towards globalization.

10.3 Limitations and Future Directions

Due to data availability, I cannot test firm performance and innovation performance after outward FDI. But it would be interesting to learn how foreign participation affects the performance of local firms. For example, how the defensive market-seeking affects subsequent subsidiary performance. Also, in future studies I would like to investigate the innovation performance of strategic asset-seeking and ambidextrous firms, to further investigate how learning-oriented motives affect both the subsidiary and the parent firm's long term development goals.

11. Concluding Remarks

In this dissertation, I explore an under-studied antecedent of outward FDI, inward FDI. Inward FDI has been prevalent in China since the early 1990s after Deng Xiaoping’s 1992 South China Tour. This political event confirms to the world that China welcomes globalization and respects the market economy. Many foreign multinational enterprises entered China in the 1990s, including large MNEs such as General Motor, Unilever, and Panasonic. Some of the Chinese local enterprises form an IJV (or other types of partnership) with foreign MNEs at home, while others become suppliers, customers, or competitors to foreign MNEs within the geographical proximity.
In this dissertation, I study how these partnerships and industry linkages with foreign MNEs at home affect indigenous firms’ OFDI activities and location choice. The results argue that minority foreign equity ownership transfers marketing knowledge to local firms and urges the early FDI of local firms. As for spillover effects, backward linkages show a more positive and significant effect than forward linkages in supporting market-seeking activities. However, neither forward nor backward industry linkages promote knowledge-seeking outward FDI of local firms. The motive complexity is promoted by backward linkages. It can be concluded that knowledge diffusion through IFDI facilitates local firms’ international market learning and OFDI motive complexity, but not technological knowledge learning in the host country.

In addition, the trans-local linkages via bilateral FDIs are confirmed, meaning the location quotient of a country in IFDI positively affects the location choice of OFDI. This suggests that, although IFDI cannot determine the knowledge-seeking motive of the local firms, foreign entrants located in the same city of the local firms affect the location choice of the local firms, particularly knowledge-seeking firms. The analysis of the trans-local linkages also indicates that foreign incoming business actors not only transfer codified knowledge to the location but also engage in tacit knowledge and network building with local business actors. Internationalization involves multiple recurring and interacting processes, rather than a single process. The trans-local linkages built from IFDI are strengthened when local actors catch up in OFDI activities by primarily considering the IFDI partner country as a destination.
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