Assessment of Overseas Subsidiary Survival in Chinese Provinces: A Longitudinal Study of Indian Multinationals

Khanindra Ch. Das* and Mantu Kumar Mahalik

Abstract

This study provides a longitudinal survival assessment of Indian subsidiaries in Chinese provinces. We construct a panel dataset of Indian subsidiaries operating in Chinese provinces during 2004–2017 and examine survival using a panel probit model and Cox regression. The results support the real options perspective, the economic geography approach and the institution-based view. Subsidiary exits were associated with smaller size, albeit higher in the manufacturing sector. There is a positive impact of sub-national economic geography factors on subsidiary survival. The finding contributes to the South–South investment literature as it highlights the role of sub-national factors in shaping subsidiary survival.

* Das: Birla Institute of Management Technology, Plot No. 5, Knowledge Park II, Greater Noida, UP-201306, India; Mahalik: Department of Humanities and Social Sciences, Indian Institute of Technology, Kharagpur, West Bengal, India. Corresponding author: Das, email <kchdas@gmail.com>. An earlier version of the article was presented at the 11th All India Conference of China Studies at Christ University, Bengaluru, India. We thank G. Venkat Raman, Ravi Bhoothalingam, Madhavi Thampi, Swati Dutta and Jabin T. Jacob for their helpful discussion and valuable comments on an earlier version of this article. Further, we thank three anonymous referees and editors of the journal for insightful comments.

1. Introduction

Indian investment in China increased after the global financial crisis of 2007–2008 had subsided. The annual flow of investment was US$30.58 million in 2009–2010, peaking at US$89 million in 2014–2015. There has been a mild slowdown in investment flow from India in the subsequent years (US$39 million in 2016–2017). Nevertheless, a decade of investment by Indian firms in China has seen diversity across many sub-regions characterised by individual local advantages. Similarly, Chinese firms' investment in India was negligible in 2008–2009 but increased at a much faster pace to US$495 million in 2014–2015. There has been a slowdown in equity inflow from China to India since 2015–2016 (see Figure 1) but it has remained seven times higher than Indian investment in China (US$277 million in 2016–2017). There are challenges and opportunities on both sides of the border although their nature and magnitude vary. In particular, Indian firms in China are constrained by both market and non-market factors (Das 2020). Market factors include a tough operating environment for foreign players, competition from large and local firms and lack of economies of scale and scope. Non-market constraints include lack of experience in the Chinese market, legal and regulatory barriers, access to business networks and cultural and language barriers, among others.

Investment location choice in the host country is important for both practitioners and policymakers. This is because the choice of foreign location has the potential to either

Figure 1 Bilateral FDI Flows ($US millions)
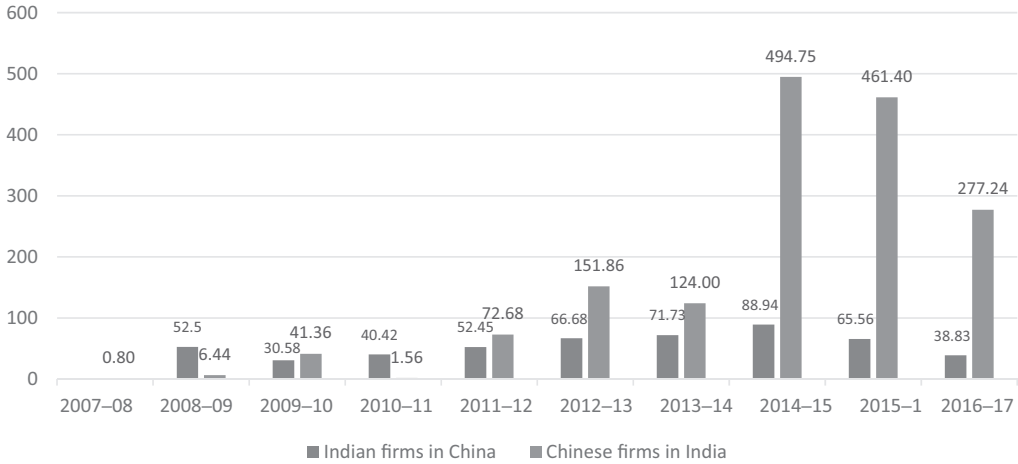
Source: Authors' compilation from Reserve Bank of India (RBI) and Department of Industrial Policy and Promotion (DIPP), India.

enhance or diminish the performance of firms (Jain, Kothari and Kumar 2016), and it has a bearing on economic development. There are several determinants of firm location that include macroeconomic, political, legal, endowment of resources, regulation and institutions (Wakasugi 2005; Cheng and Stough 2006; Cole, Ellioti and Zeang 2009; Ma, Tong and Fitza 2013a; Das and Banik 2015; Kang 2018).[1] Further, the performance of a subsidiary can be partly driven by the same set of factors that determine location choice. While the factors driving the location of multinational subsidiaries in Chinese sub-regions are dealt with elsewhere[2] (Chen 1997; Cheng and Stough 2006; Amity and Javorcik 2008; Ma, Delios and Lau 2013b; Das 2020), in this study we examine a different issue, namely the role of sub-national factors along with the impact of subsidiary and parent firm-specific characteristics in shaping the survival of emerging multinationals' subsidiaries in another emerging country, that is Indian subsidiaries established in Chinese provinces.

We are interested in China because, first, it has been India's largest trade partner since 2013–2014. At the same time, India has incurred the highest trade deficit against China (that is US$51 billion in 2016–2017 as per India's Ministry of Commerce

databank). One of the ways to reduce this trade asymmetry is to increase exports to China. In this context, foreign investment and subsidiary presence in China could be one of the ways to establish export markets. If subsidiaries of Indian multinationals can perform and survive in Chinese sub-regions, the asymmetry in the trade relation may be reduced by channelling some of the Indian products to China. The survival of Indian subsidiaries in China therefore assumes importance, which could be shaped by various challenges present in the host region. As this aspect of bilateral economic relations has not been examined systematically, we aim at filling this gap by analysing the survival and performance of Indian subsidiaries operating in Chinese provinces using a sample of both manufacturing and services sector firms.

Second, not all new ventures created through overseas investment survive or perform well, which may be dependent on the business environment and local challenges in the host country. In the case of emerging multinationals' investment in other emerging markets (South–South investment), there could be additional challenges to subsidiary survival. While the subsidiaries of developed country multinationals in emerging countries

could enjoy the benefits of nationality based agglomeration (He 2003; Debaere, Lee and Paik 2010), such externalities could be limited in the case of emerging multinationals due to lack of nationality based agglomeration in the host region. Thus, we analyse survival of subsidiaries in the case of South–South investment with India as home country and China as the host. Further, in light of differing behaviour of emerging country multinationals compared to their developed country counterparts (Ramamurti 2012; Li et al. 2018), we examine the role of the three sets of factors in subsidiary survival: (1) subsidiary-specific factors; (2) parent firm-specific factors; and (3) sub-national economic geography forces. It may be noted that subsidiary performance could be impacted not only by the subsidiary and parent firm level attributes, as they relate to their assets and resources, but also by the location of the subsidiary, as the locations differ in terms of economic and institutional parameters. Previous research on overseas subsidiary performance has primarily dealt with parent and host-country factors (Garg and Delios 2007) whereas subsidiary-specific determinants and sub-regional factors have received limited examination (Ma, Tong and Fitza 2013a; Song 2014a). Ma, Tong and Fitza (2013a) have used subsidiary dummies to explain subsidiary performance of Fortune Global 500 corporations in China. However, the impact of subsidiary-specific time varying factors could not be ascertained. Song (2014a) dealt with survival with respect to subsidiary-specific factors but ignored the sub-national factors as the emphasis was on overall host country market conditions. We address these gaps in our analysis.

Third, China has been the centre of attraction for production and trade activities. Multinationals from all continents have located subsidiaries in China. Though Indian firms' presence in China is smaller compared to developed country counterparts, it is interesting to examine whether agglomeration of multinationals from other nations and domestic private firms impacts the subsidiary survival of Indian multinationals. With the increase in the number of firms venturing into China, a systematic investigation of Indian subsidiary performance in China is warranted. Therefore, we use an innovative approach to combine data from multiple sources and examine the issue of subsidiary survival.

It may be noted that subsidiary survival and performance research have grown significantly since Delios and Beamish (2001). Many previous studies on subsidiary survival have addressed the role of parent firm-specific and host country factors (Delios and Beamish 2001; Garg and Delios 2007; Song 2014a) and a limited number of studies have considered sub-national factors (Ma, Tong and Fitza 2013a). However, sub-national factors could play a crucial role in shaping subsidiary survival and performance especially in the emerging market context. Although there are a few studies on internationalisation of emerging country multinationals and performance using industry and firm level factors (Singla and George 2013), the issue of subsidiary survival and the role of sub-national characteristics have been missing in the field of international trade and economic development.

In addition, much early subsidiary research examined subsidiary exits from various vantage points and were primarily based on developed and newly industrialised country multinationals (Delios and Beamish 2001; Wakasugi 2005; Kim, Delios and Xu 2010; Wang and Larimo 2015). However, emerging country multinationals differ from developed country multinationals in terms of firm-specific advantages (Ramamurti 2012) and location choice (Li et al. 2018). Therefore, there is scope to analyse survival of subsidiaries established by developing country firms in another emerging country.

Further, there are very few studies of the performance of Indian firms' overseas subsidiaries using subsidiary as the unit of analysis. Garg and Delios (2007) examined the effect of business group affiliation and the development stage of the host country on the subsidiary survival rate of Indian multinationals and found that the business group affiliation of the parent firm *per se* did not impact the chances of survival. Although the

development status of the host country and business group affiliation jointly influenced survival chances, the impact of sub-national economic geography forces on the probability of subsidiary survival has received limited attention. In this research, we investigate this perspective using a sample of Indian subsidiaries in China.

The study contributes to the subsidiary survival literature in two distinct ways. First, as subsidiary performance can be affected by regional differences in the host country, the study uses sub-regional factors to predict survival. Second, the study combines three levels of factors (namely subsidiary, parent firm and host-province specific) and uses both economic geography and international business perspectives to predict the survival of emerging multinationals' subsidiaries in another emerging country. Subsidiary performance is analysed using three ratios, namely return on asset (ROA), return on turnover or sales (ROS) and return on capital (ROC) over time. Thereafter, panel probit econometric analysis is carried out, followed by Cox proportional hazard regression to predict the survival of subsidiaries using the three levels of factors. Hypotheses relating to each level of factors are developed and tested in subsequent sections of the article.

When it comes to the factors predicting subsidiary survival, it is found that subsidiary-specific and sub-national factors have a significant role in shaping the likelihood of survival. In particular, the size of the subsidiary has a positive impact on the likelihood of survival in line with the real options perspective. However, the probability of survival has not been positively predicted by local market experience, captured by subsidiary age, as there could be local non-market barriers. Nevertheless, productivity improving sub-national variables, such as the agglomeration of private and foreign firms, positively impacted the likelihood of subsidiary survival in China. We also find an industry effect in terms of a lower survival probability of manufacturing subsidiaries compared to services sector counterparts. The firms investing in China must pay attention to sub-national

and subsidiary-specific factors to improve their chances of survival.

The reminder of this article is organised as follows. Theoretical background and hypotheses are discussed in the next section. Data and models are discussed in Section 3. The results are presented in Section 4. Section 5 concludes and provides some of the implications for policy and practice.

2. Theoretical Background and Hypotheses Development

The conceptualisation of new venture survival varies depending on the approach adopted. The approaches can be outcome-oriented or process-oriented. The outcome oriented approach considers sale or liquidation as the yardstick, whereas the process-oriented approach uses reorganisation and contractual renegotiation as the criteria to define survival (see Wang and Larimo 2015). Subsidiary survival can therefore be examined using the former approach as the latter is more suitable in the case of joint venture and other contractual arrangements. Accordingly, the survival of foreign subsidiaries can be studied based on some of the dominant frameworks in the international business and economics literature.

Previous studies on subsidiary survival have predominantly examined the issues through the lens of international business. The resource-based view (RBV), real options perspective (ROP) and institution-based view (IBV) (Han et al. 2018; Konara and Shirodkar 2018) are some of the international business frameworks used to understand subsidiary survival. The RBV suggests that multinational's resources and capabilities determine subsidiary performance. Resources that are valuable, rare, imperfectly imitable and non-substitutable provide for sustainable competitive advantage that influences subsidiary performance (Barney 1991). The ROP sheds light on how multinationals respond to unexpected changes in flexibility (Chung et al. 2010). The ROP further suggests that smaller investments carry more real options than larger investments (Cuypers and Martin 2010). The IBV holds that besides

resources and capabilities, multinational firms' international business processes and outcomes are shaped by institutional environment of the host country (Peng 2002). Researchers examining emerging multinationals have combined RBV and IBV to explain internationalisation (Wang et al. 2012; Gaur, Kumar and Singh 2014, Saikia, Das and Borbora 2020). While RBV and IBV can provide strong theoretical support to the internationalisation of emerging multinationals, an integration with economic geography forces can yield interesting insights in explaining the survival of subsidiaries.

In this article, we integrate these international business frameworks and sub-national economic geography forces. The latter is a branch of economics concerned with the study of location of production in space (Krugman 1991). In the following sub-sections, we have developed testable hypotheses involving subsidiary-specific, firm-specific and province-specific factors.

2.1 Subsidiary-specific Factors

From the real options perspective, smaller investments can be associated with more flexible exits. Song (2014a), examining Korean foreign direct investment, reported that compared to foreign subsidiaries making larger investments, subsidiaries making smaller investment are more likely to engage in earlier exits when market conditions become more unfavourable. Larger subsidiaries also tend to exhibit better performance as they tend to engage more in internationalisation and product diversification (Chiao et al. 2008). Besides the real options perspective, there are additional reasons why smaller subsidiaries may exit the foreign market, in this case China as host country. As the competition from local players is higher, and due to the tough operating environment in China, the smaller subsidiaries are usually at a disadvantage. This leads us to the following hypothesis:

Hypothesis 1 *Smaller subsidiaries in China face higher risk of closure compared to the larger ones.*

Subsidiary experience plays a key role in overcoming the liability of foreignness. With age, subsidiaries accumulate local market knowledge and develop social links and rapport with local shareholder groups (Gaur and Lu 2007). Subsidiaries also develop locally embedded resources and capabilities (Makino and Delios 1996). As subsidiaries age, they have a better understanding of local context, which allows them to develop products and services that suit local conditions. Local market knowledge helps in deploying the intangible assets of parent firms in local conditions leading to better subsidiary performance (Contractor, Yang and Gaur 2016). This suggests a positive role of subsidiary age in predicting performance and survival. However, a negative impact of host country experience on subsidiary survival has also been reported (Gaur and Lu 2007). Multinationals from developing countries may experience decay in their initial internalised advantages especially in other developing countries (Yuan, Pangarkar and Wu 2016).

Increase in market experience is also likely to facilitate access to local networks (Dahms 2017). A greater local market knowledge about the needs of the local and regional consumers, quality of supplies and cultural nuances can come through subsidiary age. This leads us to hypothesise the following:

Hypothesis 2 *As the subsidiary grows older in a Chinese province, the chance of it being closed reduces.*

2.2 Firm-specific Factors

The Uppsala internationalisation model (Johanson and Vahlne 1977) suggests that international experience is tacit in nature and crucial for multinational firms as the lack of it limits the ability to set up and manage subsidiaries in foreign market (Li and Meyer 2009). When a multinational firm forms a foreign subsidiary, the subsidiary draws from

the intangible knowledge base and experience of the parent. Although foreign firms can be disadvantaged compared to local counterparts in their understanding of the host market, this disadvantage can be reduced by using international experience and the intangible knowledge-based advantages of the parent. Firm-specific intangible assets include both international experience and proprietary knowledge in the form of intellectual property, internal organisational routines, production processes and the firm's relationships and reputations (Contractor, Yang and Gaur 2016). Although an intangible knowledge-base is developed within the parent firm, some of it is derived from the firm's internationalisation process especially by emerging multinationals. There is evidence of a positive association between international experience and subsidiary survival (Papyrina 2007). Yet in other studies, there is no significant effect of international experience on subsidiary survival (Kim, Delios and Xu 2010) as the experience and capabilities acquired in the internationalisation process can be experiential or vicarious and partly specific to the host country in which it was acquired.

Many previous studies have studied the impact of host country experience on subsidiary survival and profitability (Delios and Beamish 2001; Liu et al. 2016). However, host country experience can be problematic especially in emerging countries where there is substantial sub-national variation in economic, political and cultural institutions. In such cases, firms can utilise the capability set gained through the experience of operating multiple international subsidiaries in diverse countries and contexts. This line of argument can be found in Dadzie, Larimo and Nguyen (2014) in which they used the number of foreign manufacturing units at the time of establishment as a measure of international experience. Parent firm's accumulated experience in the foreign market is important to reduce operational uncertainties in international expansion, which can have crucial effects on performance of foreign subsidiaries (Dadzie, Larimo and Nguyen 2014).

We view such international experience as a firm-specific intangible advantage that can be adapted in another market. Firms operating multiple subsidiaries internationally can integrate diverse knowledge and utilise its linkages with other subsidiaries as well as with economic agents external to the firm. These intangible advantages are part of the resource-based view originating from both the parent's home market experience and the degree of internationalisation. In addition, Indian firms lack China-specific experience relative to many other host countries. This leads us to the following hypothesis:

Hypothesis 3   *Parent firm's age and the experience of operating international subsidiaries have a positive impact on the survival of subsidiaries in China.*

2.3 Economic Geography Forces at the Sub-national Level

Sakakibara and Yamawaki (2008) observed that the economic and institutional factors specific to host regions significantly influence the performance of overseas subsidiaries. However, their definition of region was super-national, consisting of the United States, the European Union, East Asia, and ASEAN countries. When it comes to host country sub-national regions, barring a few studies (Ma, Tong and Fitza 2013a; Hsu, Chen and Caskey 2017; Li and Lo 2017), the role of economic geography forces at the sub-national level has received limited attention in explaining foreign subsidiary survival. This could be partly due to overlaps of economic geography forces with international business frameworks including locational advantages[3] and institutional theories, and partly due to data limitations.

Sub-national factors can be of different types. Some of these factors (for example, agglomeration, transportation infrastructure) can be productivity enhancing in nature (Widodo, Salim and Bloch 2014) while others are related to factor prices (Mataloni 2011). Ma, Tong and Fitza (2013a) examined the effect of subnational regions on the variability in the performance of Fortune Global 500 corporations' subsidiaries in China using variance decomposition. Hsu, Chen

and Caskey (2017) explained foreign subsidiary performance in China through location-bound advantages and local density. Li and Lo (2017) examined Taiwanese subsidiaries of the electronics industry in China. Though agglomeration led subsidiaries to develop less capability scope because of specialisation, it contributed to subsidiary performance.

Although it has been found that multinational subsidiaries in China performed better when located closer to business hubs than political hubs (Teng, Huang and Pan 2017), the impact of subnational factors on subsidiary survival or closure remains far from obvious. It is important to distinguish performance and survival as both have different antecedents (Delios and Beamish 2001). The former may fluctuate, and the latter can be a rare event. Besides, existing research indicates that firm performance can be shaped by regional differences especially in emerging countries (Chan, Makino and Isobe 2010; Ma and Delios 2007). This leads us to the following hypothesis:

Hypothesis 4 *Indian subsidiaries located in economically agglomerated sub-regions in China enjoy higher probability of survival.*

Testing of the above four hypotheses pertaining to foreign subsidiary survival requires the use of both international business frameworks and sub-national economic geography forces.

3. Data and Model

Data for this study are collected from various sources including the Reserve Bank of India (RBI), annual reports of Indian multinationals, the Centre for Monitoring Indian Economy (CMIE) and the *China Statistical Yearbook*. The first step in data collection has been to identify the list of Indian multinationals venturing into China. We rely on information made available by RBI (and complemented by information disclosed in the webpages of the Embassy of India in Beijing, the Consulate General of India in Shanghai, and the Consulate General of India, Guangzhou) to identify Indian multinationals investing in Chinese provinces. Thereafter, China-based subsidiaries of these multinationals were identified, and their details collected from respective sections of annual reports. The headcount of names provided us with 127 subsidiaries during the study period. However, due to lack of relevant data the survival analysis could be carried out for only 92 subsidiaries. These subsidiaries belong to both the manufacturing and services sectors. The manufacturing subsectors include chemicals, pharmaceuticals, rubber and plastic products, metals, electronics, electrical equipment, machinery and equipment, motor vehicles and transport equipment. Services sub-sectors include wholesale trade, computer programming, consultancy and related services and management consultancy. However, due to lack of data, the analysis does not cover Indian commercial banks in China offering financial services through branches/sub-offices. The number of subsidiaries located is not large, but seems to give a good coverage. There are three reasons for this. First, we have tracked Indian parent firms that have made foreign investment from databases provided by official sources that include RBI as well as Indian embassies and consulates based in China. Second, we have used annual reports of the parent firms to track these subsidiaries. Third, there are limits to the bilateral economic relationship between China and India due to country-specific challenges and market access barriers limiting the number of subsidiaries.

Data relating to subsidiary companies form a crucial part of survival analysis. Major information required for survival analysis is the event history of start year of subsidiary and the termination year, if any. The event history is collected meticulously by referring to various annual reports of the parent company and subsidiary-specific financial indicators (such as profit after tax, turnover, total assets, capital) are also collected from the annual reports. It may be noted that financial indicators relating to subsidiary companies are reported under sub-section (3) of section 129 of the *Companies Act 2013*, and under section 212(8) of the *Companies Act 1956*. Firm-specific data are collected

from the Centre for Monitoring Indian Economy. The host-region specific data are collected from the *China Statistical Yearbook*.

The performance of China-based subsidiaries is assessed using three rates-of-return ratios, namely (i) ROA, (ii) ROS and (iii) ROC. ROA is a commonly used measure to assess performance of subsidiaries (Ma, Tong and Fitza 2013a; Hsu, Chen and Caskey 2017). However, the measure may give a biased estimate of performance in the case of service sector subsidiaries. As there are service sector subsidiaries in our sample, we have used additional measures of performance, namely ROS. Further, ROC is used since asset turnover could vary based on the market value of assets (Chan, Makino and Isobe 2010). Following the Uppsala school (Johanson and Vahlne 1977, 2009), we recognise time as an important variable and trace the performance of subsidiaries over time since establishment (or acquisition).

Further, to examine the predictors of subsidiary survival we form a panel dataset containing subsidiary, firm and provincial variables. There are 92 subsidiaries in the sample, belonging to 57 emerging Indian multinationals, for which subsidiary-level data is available, and they are spread across 20 provinces. The panel unit is subsidiary, and the time dimension is 2004–2017. To determine the significant predictors of subsidiary survival we have specified the following panel probit model and included three levels of factors.[4] The econometric model to be estimated is of the following form:

$$P(SURVIVE_{it} \mid S_i F_i P_i, \alpha_i) = G(S'_{it}\beta + F'_{it}\gamma$$
$$+ P'_{it}\delta + \alpha_i + \varepsilon_{it}) \qquad (1)$$

where, $P(SURVIVE_{it}) \in \{0,1\}$ is the probability of survival of ith subsidiary in the year t. 'S' contains variable relating to subsidiary companies, 'F' encompasses parent firm-specific variables, and 'P' comprises variables associated with the host-province. α_i captures time-invariant subsidiary level unobserved effects. It may be noted that, apart from the panel probit model, there are alternative methods for survival analysis. Most common among them is the Cox proportional hazard regression (see Song 2014a, 2014b; Giovannetti, Ricchiuti and Velucchi 2017). However, panel models have several advantages (see Hsiao 2005), which enable us to control for unobserved effects. Therefore, the panel probit model is estimated as the baseline whereas the Cox regression is estimated as a robustness check. As the panel probit model is non-linear, fixed effects run into an econometric problem.[5] Hence, the estimation is carried out using a random effects probit model.

To test the above stated hypotheses, we have included size of the subsidiary measured by natural log of assets (*S_SIZE*), age of the subsidiary in years (*S_AGE*), number of overseas subsidiary established by the parent firm (*F_OSUB*) and agglomeration of private and foreign firms using a revenue measure (*P_AGG*).[6] Additional control variables are profitability of the subsidiary measured by net profit divided by assets (*S_Profitability*), age of the parent firm in years (*F_AGE*), export intensity of the parent firm (*F_EXPINT*), average wage prevailing in the province (*P_WAGE*), dummy for coastal provinces (core versus non-core regions) (*P_COAST*), trade openness of the province (*TR_GRP*) as a proxy for economic institutional factor,[7] density of highways and railways (*HR_DEN*) and a dummy for manufacturing sector subsidiaries (*D_MANU*) with service sector as the control. These variables are constructed in line with the previously established literature, but minor deviation is allowed based on data availability. For instance, Johnson, Yin and Tsai (2009) represented parent international experience by the number of years that a firm had been involved in international activities. In this study, we have used the number of existing/active overseas subsidiaries established by the parent firm. Among the sub-nation economic geography forces, agglomeration has a productivity-enhancing feature (see Mataloni 2011). The details of the variables are given in Table 1. Descriptive statistics are also reported in Table 2.

While estimating the probit model, the explanatory variables are lagged by one period because the event of closing down a

subsidiary does not always occur instanta-neously in response to exogenous changes. In this way we also aim to control for any reverse causality in the estimation.

4. Results and Discussion

4.1 Performance of Subsidiaries

Using a sample of about 92 subsidiaries established by Indian firms in China during 2004–2017 and measuring returns by ROA, ROS and ROC, it is observed that the median subsidiary has negative returns throughout the initial seven years of establishment or acquisi-tion (Figure 2). The median return turns marginally positive in the eighth to the 10th year. However, after the 10th year, median returns become negative again. Also, the

number of subsidiaries surviving in China for more than 10 years is lesser than one-fifth of the sample subsidiaries and survivors are more likely to be in the service sector. This indicates that the majority of subsidiaries in China, especially in manufacturing, are per-forming quite poorly over their lifetime.

4.2 Econometric Results and Discussion

The pooled mean of the predicted variable (probability of surviving) is 0.947 (see Table 2). While the pooled mean of sample subsidiary age is 5.228 years, profitability is negative with an average loss of 51.9 per cent and a median loss of 2.8 per cent. Firm characteristics are quite diverse, which can be observed from the high range of firm age, overseas subsidiaries and export intensity. The average value of the

Table 1 Variable Description and Data Sources

Variable name	Variable description/construction	Expected sign	Data source
SURVIVE	=1 if survived =0 if closed		Constructed
Subsidiary-specific (S)			
S_SIZE	Size of the subsidiary, that is the ln(Asset). Asset values are in millions of Indian Rupees	+	Parent Annual Report
S_AGE	Age of the subsidiary	+	Parent Annual Report
S_Profitability	Profitability of the subsidiary, that is the ratio of profit after tax to asset	+	Parent Annual Report
Firm-specific (F)			
F_AGE	Age of the parent firm	+	Constructed using Annual Report and CMIE
F_OSUB	Degree of Internationalization, that is the number of active overseas subsidiaries established by the parent firm	+	Constructed based on Annual Report
F_EXPINT	Export intensity of parent firm	+/−	CMIE
Province-specific (P)			
P_AGG	Agglomeration, that is the share of private and foreign firms in total industrial revenue generated in the province	+	*China Statistical Yearbook* (various issues)
P_WAGE	Wage, that is the average wage of staff and workers	−	*China Statistical Yearbook* (various issues)
P_COAST	Dummy for coastal province	+/−	Coughlin and Segev (2000)
TR_GRP	Provincial trade (export and import) as share of gross regional product	+	*China Statistical Yearbook* (various issues)
HR_DEN	Length of highway and railway per square KM area of the province	+	*China Statistical Yearbook* (various issues)
D_MANU	Dummy for manufacturing sector subsidiaries (Section C of the National Industrial Classification 2008)	+/−	Constructed based on National Industrial Classification (NIC) classification of the parent firm

Table 2 Descriptive Statistics

| Variable name	Mean	Median	Standard deviation	Maximum	Minimum	Number of observations
SURVIVE	0.947	1	0.225	1	0	486
Subsidiary-specific (L.S)						
S_SIZE	4.655	4.568	2.473	12.161	−5.597	486
S_AGE	5.228	5.0	3.053	16.0	0	486
S_Profitability	−0.519	−0.028	9.680	114.506	−125.971	486
Firm-specific (L.F)						
F_AGE	37.932	30.0	24.179	109.0	0	486
F_OSUB	37.645	16.0	66.251	340.0	1	485
F_EXPINT	40.573	23.85	35.924	157.50	0	481
Province-specific (L.P)						
P_AGG	0.647	0.711	0.123	0.772	0.201	482
P_WAGE	651,484	600,588	310,369.4	1,241,355	103,985	482
P_COAST	0.905	1	0.294	1	0	482
TR_GRP	0.903	1.023	0.481	1.722	0.080	482
HR_DEN	1.606	1.574	0.460	2.170	0.485	482
D_MANU	0.494	0	0.500	1	0	486

Source: Authors' calculation.

agglomeration variable in the pooled sample of 20 provinces is 0.647, which implies that the private and foreign funded enterprises contributed 64.7 per cent of industrial revenue during the study period. The manufacturing sector subsidiaries account for 49.40 per cent of our sample observations. The results of panel probit estimation are reported in Table 3. The explanatory variables are introduced sequentially starting with subsidiary-specific factors. Subsidiary size has positive sign and significance, whereas subsidiary age has negative impact on survival probability. The former lends support to the real options perspective (Hypothesis 1).[8]

However, we do not find support for Hypothesis 2. The subsidiaries are less likely to survive as the number of years in the

Figure 2 Performance of Indian subsidiary in China (Median)
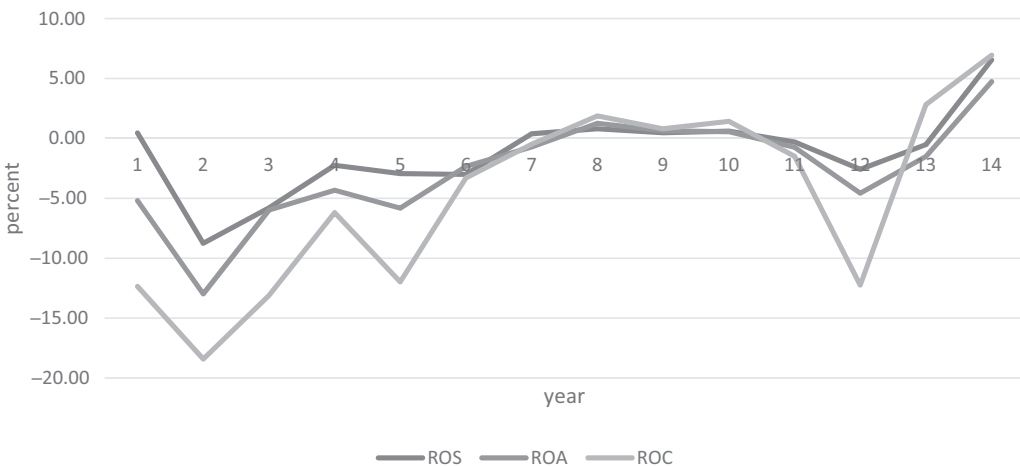
Source: Authors' calculation. *Note*: horizontal axis represents year since a subsidiary is under control of Indian parent firm.

host-region increases. Our finding implies that subsidiary age may not truly reflect local market experience due to non-market barriers encountered in local conditions. Even with age, China-based subsidiaries may not gain adequate local market knowledge due to language, cultural and institutional barriers. Subsidiary age *per se* may not help in predicting better survival probability in the presence of a complex local environment. Business environment in the host-region can be dynamic and the subsidiary may not be able to overcome such complexity even when the subsidiary is not a novice.

Subsidiary profitability has a positive impact on survival but ceases to be significant once all the three levels of factors are introduced. Qualitatively comparable results are obtained when net profit margin (as a share of sales) is used as an alternate measure of subsidiary profitability.

The parent firm's age and internationalisation experience did not have a significant impact on subsidiary survival probability (Hypothesis 3). This suggests that the resource-based view is not effective in explaining subsidiary survival in the case of Indian subsidiaries in China compared to the other theoretical frameworks considered.

Table 3 Panel Probit Estimation. Dependent variable SURVIVE (=1 if the subsidiary has survived, =0 if closed)

	(1) S	(2) S+F	(3) S+P	(4) S+F+P	(5) S+F+P	(6) S+F+P	(7) S+F+P
S_SIZE	1.049***	0.931***	1.920***	1.638***	1.486***	2.503***	2.408***
	(0.301)	(0.358)	(0.463)	(0.495)	(0.457)	(0.549)	(0.547)
S_AGE	−1.404***	−1.782***	−2.317***	−2.804***	−2.20***	−2.832***	−2.726***
	(0.295)	(0.620)	(0.430)	(0.472)	(0.548)	(0.532)	(0.515)
S_Profitability	0.044*	0.013	0.075***	−0.006	−0.056	−0.083	−0.080
	(0.026)	(0.140)	(0.025)	(0.536)	(0.460)	(0.537)	(0.523)
F_AGE		−0.009		−0.002	0.029	0.065	0.075
		(0.039)		(0.050)	(0.053)	(0.051)	(0.052)
F_OSUB		0.041		0.036	0.013	0.002	−0.005
		(0.030)		(0.030)	(0.025)	(0.024)	(0.022)
F_EXPINT		−0.009		−0.028	−0.051*	−0.115***	−0.103***
		(0.018)		(0.025)	(0.031)	(0.033)	(0.033)
P_AGG			24.703***	30.408***	24.939**	24.073***	22.001**
			(8.346)	(7.875)	(11.395)	(7.818)	(9.378)
P_WAGE			6.24e-06*	8.07e-06**	5.92e-06	0.00001**	9.20e-06*
			(3.43e-06)	(3.97e-06)	(3.69e-06)	(4.48e-06)	(4.74e-06)
P_COAST			−1.803	−3.675	−2.895	−7.867**	−7.337**
			(2.967)	(3.870)	(5.607)	(3.449)	(3.640)
TR_GRP						9.296***	8.828**
						(3.374)	(3.463)
HR_DEN							1.057
							(3.140)
D_MANU					−4.706*	−7.105***	−6.651***
					(2.680)	(2.313)	(2.347)
Constant	12.215***	18.536***	−2.339	3.042	4.240	4.781	3.743
	(2.929)	(6.170)	(4.718)	(5.291)	(5.500)	(4.785)	(4.853)
Observations	486	480	482	476	476	476	476
Subsidiaries	92	90	91	89	89	89	89
Log Likelihood	−68.908	−61.632	−63.929	−57.777	−57.503	−54.183	−54.246
χ^2	27.14***	12.91**	35.40***	46.79***	20.54**	36.84***	39.52***

Note: Time dummies are not reported as the estimates in some of the models did not converge even after 1,000 iterations. In other models (for example, model 4), we found qualitatively similar results after inclusion of time dummy.
***$p < 0.01$
**$p < 0.05$,
*$p < 0.10$.

Among other parent firm-specific variables, export intensity has a negative sign and significance, especially in the unrestricted models (columns 5–7, Table 3). This implies that the export intensity of the parent and physical presence in China are not complementary. This is not surprising given the tendency of Indian manufacturing firms during the study period to locate in China for sourcing semi-finished products for the home, regional and global markets.

When it comes to the host-province specific factors, it is found that subsidiaries locating in agglomerated space have higher chances of survival (Hypothesis 4). This lends support to the contention that subsidiary performance can be shaped by regional differences especially in emerging countries (Chan, Makino and Isobe 2010). Among the province-level controlling factors, we found a positive impact of trade openness. However, the coefficient of wage is quite small and not significant consistently across models.[9] Therefore, productivity enhancing features of the province assume greater significance than factor prices in the survival of subsidiaries. On the other hand, the coefficient of trade openness is highly significant at the 1 per cent level of significance. This suggests that trade openness, as a proxy for trade supporting institutions in the province, has a positive impact on the probability of survival of Indian subsidiaries in China. It further reinforces the argument that Indian firms are involved in the sourcing of inputs and semi-finished products for use in national and regional operations. However, highway and railway density ceased to be significant predictors of subsidiary survival though it may have played a role in subsidiary location decision.

Another striking result of our analysis is the presence of sectoral impact on subsidiary survival probability. The subsidiaries of manufacturing firms are found to have lower chances of survival in China compared to the services sector counterparts. It may be noted that India's competitiveness rests in the service sector, which contributes the most to Indian GDP. This indicates that domestic competitiveness of a sector may have a bearing on successful internationalisation of firms when such competitiveness is relatively lacking. Subsidiaries of Indian service sector firms have made relatively successful expansion to the Chinese market leading to better subsidiary survival probability. In contrast, expansion of manufacturing firms into China with low levels of competitiveness and coupled with smaller size of operation has not been that successful.

4.3 Robustness Check

The Cox proportional hazard regression is estimated to check consistency of results obtained from the panel probit model. The Cox model helps in estimating closure probability given that the subsidiary has survived for a specified time period. The model has been used by several researchers in the field of international economics and business to study closure of international subsidiaries (for example, Song 2014a, 2014b; Giovannetti, Ricchiuti and Velucchi 2017). We estimate the following hazard function.

$$h_i(t) = h_0(t)exp(x_i\beta) \qquad (2)$$

where, $h_t(t)$ is the rate at which subsidiaries exit at time t given that it has survived in $t-1$, x_i is the vector of predictors for the ith subsidiary that affects survival. The model to be estimated, after including three sets of explanatory variables, is of the following form. The description of variables remains same as before (see Table 1).

$$
\begin{aligned}
h_i(t) = h_0(t)EXP(&S\_SIZE_i\beta_1 \\
&+ S\_Profitability_i\beta_2 + F\_AGE_i\beta_3 \\
&+ F\_OSUB_i\beta_4 + F\_EXPINT_i\beta_5 \\
&+ P\_AGG_i\beta_6 + P\_WAGE_i\beta_7 \\
&+ P\_COAST_i\beta_8 + TR\_GRP_i\beta_9 \\
&+ HR\_DEN_i\beta_{10} + D\_MANU_i\beta_{11})
\end{aligned}
$$
$$(3)$$

The Cox regression specified above is estimated using observations on both closed and surviving subsidiaries with 2017 as the cut-off year. It is therefore a censored Cox model. This is done in order to overcome the

small sample problem in the uncensored Cox model. The parameter $h(t)$, and the hazard ratio associated with the regressors, is estimated to measure the effect of different regressors on the closure probability of subsidiaries. Hazard ratios greater (less) than 1 suggest that the closure rate increases (decreases) with higher value of predictor and the corresponding probability of survival decreases. The predictors are used with a 1-year lag (as in the case of panel probit model). The results are found to be qualitatively similar to the panel probit model. The results are explained below.

First, we find support for Hypothesis 1. The hazard ratio associated with size of subsidiary (S_SIZE) is below 1. In the panel probit model, the impact of S_SIZE on subsidiary survival was found to be positive. Equivalently, a hazard ratio less than 1 in the Cox model implies that large subsidiaries face a lower hazard rate and hence a higher chance of survival. However, Hypothesis 2 could not be tested using the Cox model as subsidiary age (S_AGE) is used as time variable in the Cox model specification. Further, the hazard ratio of subsidiary profitability (S_Profitability) is statistically significant in all the models and well below 1 (see Table 4). Thus, profitability is found to have significant impact on the survival of subsidiaries. Second, the hazard ratios associated with F_AGE and F_OSUB are below 1, albeit they are not significant in the estimation. The findings are in line with Hypothesis 3. Further, subsidiaries of export reliant parent firms are found to experience higher hazard ratios in excess of 1. The finding is statistically significant and consistent with the coefficient estimates obtained from the panel probit regression where parents' export intensity (F_EXPINT) yielded a negative and significant impact on the survival of subsidiaries.

Third, the hazard ratio of agglomeration (P_AGG) is found to be much below 1 although the statistical significance was missing at conventional levels. However, provincial characteristics such as economic infrastructure (captured by HR_DEN) yielded a lower hazard ratio (below 1) with associated statistical significance. Thus, the lower than 1 hazard ratio associated with P_AGG and HR_DEN provides support for Hypothesis 4. This was also the case in the panel probit models. Further, the hazard ratio associated with manufacturing sector subsidiaries (D_MANU) is greater than 1. This is equivalent to getting negative and significant coefficients in the panel probit estimation. Thus, we find similar results from two different models that predict subsidiary closure in China. Other control variables (P_WAGE, P_COAST) also yielded hazard ratios in the desired range, albeit some of the coefficients were not significant. The only exception was TR_GRP where the hazard ratio was found to be above 1 although it yielded a positive and significant impact on the survival of subsidiaries in the panel probit estimation. Overall, we see that the Cox models yield qualitatively similar results and support the earlier results based on panel probit estimation.[10] However, Cox models do not capture unobserved effects, which is possible to control for in the panel probit models. Therefore, we have put more weight on the panel probit results.

5. Conclusion and Policy Implications

In this research, we have estimated the likelihood of survival of Indian subsidiaries in Chinese provinces using subsidiary, parent firm and host-province specific factors. We found support for the real options perspective, sub-national economic geography and institutional forces. Indian investment in China has grown and diversified for about a decade since the global economic crisis of 2008 though the investment flow did not match that of Chinese investment in India. The analysis of performance of Indian subsidiaries in China reveals that the majority of subsidiaries fail to earn a positive return, indicating that business in China is met with various China-specific challenges. This is one of the important observations about subsidiary performance in China.

Irrespective of sector, it has been found that a smaller size of operation leads to lower chances of subsidiary survival. Thus,

Table 4 Cox proportional hazard model (coefficients represent hazard ratio). (Cox time variable: S_AGE)

	(1) S	(2) S+F	(3) S+P	(4) S+F+P	(5) S+F+P	(6) S+F+P	(7) S+F+P
S_SIZE	**0.81**[*]	**0.91**	**0.66**[***]	**0.78**	**0.68**[*]	**0.73**	**0.81**
	(−1.85)	(−0.67)	(−2.69)	(−1.29)	(−1.82)	(−1.33)	(−0.87)
S_Profitability	0.62[***]	0.51[**]	0.60[**]	0.23[***]	0.26[***]	0.27[***]	0.15[***]
	(−2.56)	(−2.38)	(−2.59)	(−3.31)	(−2.93)	(−2.79)	(−2.61)
F_AGE		0.99		1.00	0.98	0.98	0.95
		(−0.41)		(0.00)	(−0.79)	(−0.53)	(−1.37)
F_OSUB		0.99		0.98[*]	0.99	0.98	0.98
		(−1.03)		(−1.77)	(−1.07)	(−1.12)	(−1.56)
F_EXPINT		1.01		1.03[**]	1.04[**]	1.03[**]	1.04[**]
		(0.73)		(2.40)	(2.49)	(2.41)	(2.01)
P_AGG			0.02	0.02	0.02	0.002	3.74
			(−1.19)	(−1.06)	(−0.82)	(−1.11)	(0.22)
P_WAGE			0.99[***]	0.99[***]	0.99[***]	0.99[***]	0.99[***]
			(−3.84)	(−4.01)	(−3.43)	(−3.37)	(−2.29)
P_COAST			3.00	12.70	53.11	80.02	14.94
			(0.79)	(1.37)	(1.41)	(1.42)	(0.97)
TR_GRP					.	2.44	6.53
						(0.80)	(1.42)
HR_DEN					.	.	0.03[*]
							(−1.80)
D_MANU					5.23	4.71	2.46
					(1.33)	(1.24)	(0.75)
Observations	86	85	85	84	84	84	84
Subsidiaries	86	85	85	84	84	84	84
Log Likelihood	−51.20	−46.46	−40.10	−32.97	−31.96	−31.62	−29.71
LR χ^2	8.94[**]	9.75[*]	31.03[***]	36.64[***]	38.67[***]	39.34[***]	43.17[***]

Note: We have reported z-stat in parentheses corresponding to each hazard ratio.

***$p < 0.01$

**$p < 0.05$

*$p < 0.10$.

subsidiaries will need to achieve reasonable scale to survive in the Chinese market. However, subsidiary age is found to have a negative impact on the probability of survival. This contrasts with established wisdom (Contractor, Yang and Gaur 2016), but it could be due to the subsidiary's inability to enhance local market knowledge. This can be particularly true in China-based subsidiaries as the local environment is different in language, cultural and institutional dimensions. These non-market factors limit the ability of subsidiaries to enhance local market knowledge, and even if they gain a better understanding of such nuances it may be costly to combine local market knowledge with parent firm-specific assets to develop product or services suitable for the local market.

The parent firm's experience, both home and international, did not improve the chances of survival of Indian subsidiaries in China. This suggests the limited role played by the resource-based view in explaining emerging multinationals' subsidiary performance in another emerging market with considerable variation in sub-national parameters. Nevertheless, the host-region specific factors have a role in predicting survival of subsidiaries. Sub-national agglomeration has not only attracted Indian investment in both manufacturing and services sectors but also played a role in shaping subsidiary survival. Our results suggest that agglomeration along economic lines has a positive impact on subsidiary survival probability. Agglomeration as an economic geography force is productivity enhancing in nature and it has exerted a more

significant positive impact on subsidiary survival than factor prices. Our finding not only confirms earlier research (Teng, Huang and Pan 2017; Ma and Delios 2007) but also strengthens the evidence regarding the effect of economic agglomeration on survival. Nevertheless, subsidiary exits are found to be higher in manufacturing than in the services sector.

One theoretical implication that emanates from the research is that the institution-based view needs extension to incorporate sub-national institutions to explain internationalisation and subsidiary performance. The extension will be of particular relevance in emerging markets where significant intra-country heterogeneity exists. Such institutional heterogeneity will not only incorporate both market and non-market institutions but also go beyond economic agglomeration to explain internationalisation and performance aspects of South–South investment. Recent attempts in the institutional dimension have been limited to the role of home-government support and interstate political relations (Han et al. 2018) and regulatory institutional distance (Konara and Shirodkar 2018).

Our results support the contention that under the typology of South–South investment, the survival of subsidiaries in an emerging market context can be affected by regional differences. Indian firms investing in China will need to account for the host-region specificities to increase the likelihood of survival and to succeed in China. Our analysis not only supports the importance of sub-national factors in subsidiary survival in an emerging host country, but also provides implications for firm strategy and sub-national governance. In particular, firms investing in China will need to have strategy with respect to size of operation to achieve economies of scale to be competitive in the local environment. Similarly, given the negative impact of subsidiary age on survival, which could be due to the dynamic economic environment and non-market institutions in China, firms will need to be clear about their commitment to their business in China by adopting either a short-term or long-term

strategy. To eliminate the impact of regional factors on subsidiary survival, sub-national governments will need to follow best practices to facilitate a business friendly environment for private and foreign investors and facilitate understanding of the non-market institutions.

The findings of our research provide scope and direction for future research. Especially in the emerging market context, the relative importance of non-market constraints in shaping subsidiary survival over market constraints need examination by using measures of both types of sub-national institutions. Similarly, subsidiary adaptability to diverse types of institutions in the host region and the impact of such alignment on performance and survival will provide invaluable insights for policy and practice.

Endnotes

1. Jain et al. (2016) provide a critical review of research articles published since 1975 on location determinants.

2. See Li et al. (2018) for a survey on FDI location choice of multinationals from developed and emerging economies.

3. Kang (2018) examines the interactive effect of institution and the locational advantage on location choice of emerging market multinationals.

4. As robustness check, we also estimate the hazard ratio using the Cox proportional hazard regression.

5. In non-linear panel data models, fixed effects are generally inconsistent as n grows with fixed T. This is referred to as the *incidental parameter problem*, which suggests that α_i should be treated as random.

6. Various measures of agglomeration are available. Industry output or product-based measure of agglomeration is one of them. The measure has been used in past studies (Head and Ries 1996; Cole et al. 2009). Further, non-public owned establishments are more spatially concentrated compared with public owned ones (Lu 2010). Accordingly, we have used industrial revenue generated by domestic private and foreign firms to construct the agglomeration variable.

7. Institutional (and economic) factors have a significant positive influence on trade and growth performance of countries (Rasekhi et al. 2017).

8. We also used alternate measure of size, ln(Turnover), and observed similar result. The results are not reported for brevity.

9. Nemoto and Zuo (2017) discuss informal employment in China due to segmented labour market.

10. Inclusion of a time dummy in the Cox model led to a flat region resulting in a missing likelihood.

References

Amity, M. and Javorcik, B. S. 2008, 'Trade costs and location of foreign firms in China', *Journal of Development Economics*, vol. 85, pp. 129–49.

Barney, J. B. 1991, 'Firms resources and sustained competitive advantage', *Journal of Management*, vol. 17, pp. 99–120.

Chan, C. M., Makino, S. and Isobe, T. 2010, 'Does subnational region matter? Foreign affiliate performance in the United States and China', *Strategic Management Journal*, vol. 31, pp. 1226–43.

Chen, C. 1997, 'Provincial characteristics and foreign direct investment location decision within China', Chinese Economic Research Centre Working Paper no. 97/16, The University of Adelaide.

Cheng, S. and Stough, R. R. 2006, 'Location decisions of Japanese new manufacturing plants in China: A discrete-choice analysis', *The Annals of Regional Science*, vol. 40, pp. 369–87.

Chiao, Y.-C., Yu, C.-M. J., Li, P.-Y. and Chen, Y.-C. 2008, 'Subsidiary size, internationalization, product diversification, and performance in an emerging market', *International Marketing Review*, vol. 25, pp. 612–33.

Chung, C. C., Lee, S.-H., Beamish, P. W. and Isobe, T. 2010, 'Subsidiary expansion/ contraction during times of economic crisis', *Journal of International Business Studies*, vol. 41, pp. 500–25.

Cole, M. A., Ellioti, R. J. R. and Zeang, J. 2009, 'Corruption, governance and FDI location in China: A province-level analysis', *Journal of Development Studies*, vol. 45, pp. 1494–512.

Contractor, F., Yang, Y. and Gaur, A. S. 2016, 'Firm-specific intangible assets and subsidiary profitability: The moderating role of distance, ownership strategy and subsidiary experience', *Journal of World Business*, vol. 51, pp. 950–64.

Coughlin, C. C. and Segev, E. 2000, 'Foreign direct investment in China: A spatial econometric study', *The World Economy*, vol. 23, pp. 1–23.

Cuypers, I. R. P. and Martin, X. 2010, 'What makes and what does not make a real option? A study of international joint ventures', *Journal of International Business Studies*, vol. 41, pp. 47–69.

Dadzie, S., Larimo, J. and Nguyen, H. L. 2014, 'Foreign subsidiary performance: Evidence from Ghana', *Journal of Transnational Management*, vol. 19, pp. 165–87.

Dahms, S. 2017, 'Determinants of foreign-owned subsidiary performance in emerging economies: Evidence from Taiwan', *Management Research Review*, vol. 40, pp. 626–47.

Das, K. C. 2020, 'Indian investment in Chinese provinces: Spatial distribution, locational determinants, challenges and implications', *The Singapore Economic Review*, forthcoming. https://doi.org/10.1142/S0217590820500666

Das, K. C. and Banik, N. 2015, 'What motivates Indian firms to Invest abroad?', *International Journal of Commerce and Management*, vol. 25, pp. 330–55.

Debaere, P., Lee, J. and Paik, M. 2010, 'Agglomeration, backward and forward linkages: Evidence from South Korean investment in China', *Canadian Journal of Economics*, vol. 43, pp. 520–46.

Delios, A. and Beamish, P. W. 2001, 'Survival and profitability: The role of experience and intangible assets in foreign subsidiary performance', *The Academy of Management Journal*, vol. 44, pp. 1028–38.

Garg, M. and Delios, A. 2007, 'Survival of the foreign subsidiaries of TMNCs: The influence of business group affiliation', *Journal of International Management*, vol. 13, pp. 278–95.

Gaur, A. S., Kumar, V. and Singh, D. 2014, 'Institutions, resources, and internationalization of emerging economy firms', *Journal of World Business*, vol. 49, pp. 12–20.

Gaur, A. S. and Lu, J. 2007, 'Ownership strategies and subsidiary performance:

Impact of institutions and experience', *Journal of Management*, vol. 33, pp. 84–110.

Giovannetti, G., Ricchiuti, G. and Velucchi, M. 2017, 'Size and technology: The odd couple for affiliates survival', *Structural Change and Economic Dynamics*, vol. 40, pp. 64–71.

Han, X., Liu, X., Xia, T. and Gao, L. 2018, 'Home-country government support, inter-state relations and the subsidiary performance of emerging market multinational enterprises', *Journal of Business Research*, vol. 93, pp. 160–72.

He, C. 2003, 'Location of foreign manufacturers in China: Agglomeration economics and country of origin effects', *Papers in Regional Science*, vol. 82, pp. 351–72.

Head, K. and Ries, J. 1996, 'Inter-city competition for foreign investment: Static and dynamic effects of China's incentive areas', *Journal of Urban Economics*, vol. 40, pp. 38–60.

Hsiao, C. 2005, 'Why panel data?', *The Singapore Economic Review*, vol. 50, pp. 143–54.

Hsu, C.-W., Chen, H. and Caskey, D. 2017, 'Local conditions, entry timing, and foreign subsidiary performance', *International Business Review*, vol. 26, pp. 544–54.

Jain, N. K., Kothari, T. and Kumar, V. 2016, 'Location choice research: Proposing new agenda', *Management International Review*, vol. 56, pp. 303–24.

Johanson, J. and Vahlne, J.-E. 1977, 'The internationalization process of the firm—A model of knowledge development and increasing foreign market commitment', *Journal of International Business Studies*, vol. 8, pp. 23–32.

Johanson, J. and Vahlne, J.-E. 2009, 'The Uppsala internationalization process model revisited: From liability of foreignness to liability of outsidership', *Journal of International Business Studies*, vol. 40, pp. 1411–31.

Johnson, J., Yin, E. and Tsai, H. 2009, 'Persistence and learning: Success factors of Taiwanese firms in international markets', *Journal of International Marketing*, vol. 17, pp. 39–54.

Kang, Y. 2018, 'Regulatory institutions, natural resource endowment and location choice of emerging-market FDI: A dynamic panel data analysis', *Journal of Multinational Financial Management*, vol. 45, pp. 1–14.

Kim, T.-Y., Delios, A. and Xu, D. 2010, 'Organizational geography, experiential learning and subsidiary exit: Japanese foreign expansions in China, 1979–2001', *Journal of Economic Geography*, vol. 10, pp. 579–97.

Konara, P. and Shirodkar, V. 2018, 'Regulatory institutional distance and MNCs' subsidiary performance: Climbing up vs. climbing down the institutional ladder', *Journal of International Management*, vol. 24, pp. 333–47.

Krugman, P. 1991, *Geography and Trade*. Massachusetts, MIT Press.

Li, P.-Y. and Lo, F.-Y. 2017, 'Agglomeration effect on subsidiary capability scope and performance: An empirical study of electronic industry in China', *International Journal of Business and Emerging Markets*, vol. 9, pp. 4–18.

Li, P. Y. and Meyer, K. E. 2009, 'Contextualizing experience effects in international business: A study of ownership strategies', *Journal of World Business*, vol. 44, pp. 370–82.

Li, X., Quan, R., Stoian, M.-C. and Azar, G. 2018, 'Do MNEs from developed and emerging economies differ in their location choice of FDI? A 36-year review', *International Business Review*, vol. 27, pp. 1089–1103.

Liu, X., Gao, L., Lu, J. and Lioliou, E. 2016, 'Does learning at home and from abroad boost the foreign subsidiary performance of emerging economy multinational enterprises?', *International Business Review*, vol. 25, pp. 141–51.

Lu, J. 2010, 'Agglomeration and economic activities in China: Evidence from establishment censuses', *Regional Studies*, vol. 44, pp. 281–97.

Ma, X. and Delios, A. 2007, 'A new tale of two cities: Japanese FDIs in Shanghai and Beijing, 1979-2003', *International Business Review*, vol. 16, pp. 207–28.

Ma, X., Delios, A. and Lau, C.-M. 2013b, 'Beijing or Shanghai? The strategic location choice of large MNEs' host-country headquarters in China', *Journal of International Business Studies*, vol. 44, pp. 953–61.

Ma, X., Tong, T. W. and Fitza, M. 2013a, 'How much does subnational region matter to foreign subsidiary performance? Evidence from "Fortune" Global 500 corporations' investment in China', *Journal of International Business Studies*, vol. 44, pp. 66–87.

Makino, S. and Delios, A. 1996, 'Local knowledge transfer and performance: Implications for alliance formation in Asia', *Journal of International Business Studies*, vol. 27, pp. 905–27.

Mataloni Jr., R. J. 2011, 'The structure of location choice for new U.S. manufacturing investments in Asia-Pacific', *Journal of World Business*, vol. 46, pp. 154–65.

Nemoto, J. and Zuo, H. 2017, 'Is informal employment a result of market segmentation? Evidence from China', *Australian Economic Review*, vol. 50, pp. 309–26.

Papyrina, V. 2007, 'When, how, and with what success? The joint effect of timing and entry mode on survival of Japanese subsidiaries in China', *Journal of International Marketing*, vol. 15, pp. 73–95.

Peng, M. 2002, 'Toward an institution-based view of business strategy', *Asia Pacific Journal of Management*, vol. 19, pp. 251–67.

Ramamurti, R. 2012, 'What is really different about emerging market multinationals?', *Global Strategy The Journal*, vol. 2, pp. 41–7.

Rasekhi, S., Sheidaei, Z. and Asadi, S. P. 2017, 'A causal relationship between trade efficiency and economic efficiency: Evidence from dynamic simultaneous equations models', *The Journal of International Trade & Economic Development: An International and Comparative Review*, vol. 26, pp. 473–87.

Saikia, M., Das, K. C. and Borbora, S. 2020, 'What drives the boom in outward FDI from India?', *International Journal of Emerging Markets*, vol. 15, pp. 899–922.

Sakakibara, M. and Yamawaki, H. 2008, 'What determines the profitability of foreign direct investment? A subsidiary-level analysis of Japanese multinationals', *Managerial and Decision Economics*, vol. 29, pp. 277–92.

Singla, C. and George, R. 2013, 'Internationalization and performance: A contextual analysis of Indian firms', *Journal of Business Research*, vol. 66, pp. 2500–06.

Song, S. 2014a, 'Unfavorable market conditions, institutional and financial development, and exits of foreign subsidiaries', *Journal of International Management*, vol. 20, pp. 279–89.

Song, S. 2014b, 'Entry mode irreversibility, host market uncertainty, and foreign subsidiary exits', *Asia Pacific Journal of Management*, vol. 31, no. 2, pp. 455–71.

Teng, L., Huang, D. and Pan, Y. 2017, 'The performance of MNE subsidiaries in China: Does it matter to be close to the political or business hub?', *Journal of International Management*, vol. 23, pp. 292–305.

Wakasugi, R. 2005, 'The effects of Chinese regional conditions on the location choice of Japanese affiliates', *The Japan Economic Review*, vol. 56, pp. 390–407.

Wang, C., Hong, J., Kafouros, M. and Boateng, A. 2012, 'What drives outward FDI of Chinese firms? Testing explanatory power of three theoretical frameworks', *International Business Review*, vol. 21, pp. 425–38.

Wang, Y. and Larimo, J. 2015, 'Subsidiary survival of multinational enterprises in China: An analysis of Nordic firms', in P. Konara, Y. J. Ha, F. McDonald and Y. Wei eds, *The Rise of Multinationals from Emerging Economics: Achieving a New B*. New York, Palgrave Macmillan.

Widodo, W., Salim, R. and Bloch, H. 2014, 'Agglomeration economics and productivity growth in manufacturing industry: Empirical evidence from Indonesia', *Economic Record*, vol. 90, pp. 41–58.

Yuan, L., Pangarkar, N. and Wu, J. 2016, 'The interactive effect of time and host country location on Chinese MNCs' performance: An empirical investigation', *Journal of World Business*, vol. 51, pp. 331–42.