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Exploring the Impact of Establishment Mode on Intangible Strategic Asset Creation in Chinese MNEs: Springboard Cross-border Strategic Asset Seeking M&As Versus Greenfield R&D Related FDI Projects

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Exploring the Impact of Establishment Mode on Intangible Strategic Asset Creation in Chinese MNEs: Springboard Cross-border Strategic Asset Seeking M&As Versus Greenfield R&D Related FDI Projects

ABSTRACT

How does greenfield versus M&A FDI establishment mode influence intangible asset creation in the parent companies of Chinese MNEs undertaking overseas knowledge sourcing/strategic-asset-seeking types of FDI? We hypothesise that while springboard type cross-border acquisitions provide opportunities for the rapid addition of locally embedded competence creating foreign subsidiaries, challenges in developing intra-MNE knowledge diffusion channels may frustrate integration and thus retard subsequent growth of parent firms' intangible assets. Greenfield R&D FDI, by contrast, may initially lack local embeddedness but holds out the potential for superior intra-MNE linkages and thus reverse knowledge diffusion to the MNE parent. Our results, based upon propensity score matching and difference in difference models comparing CMNE parent outcomes for FDI projects over the 2003-2018 period, support this argument. We discuss implications for mainstream international business theorising, including springboard theory, which largely overlooks greenfield establishment mode as a means of rapid firm-level catch-up for emerging market MNEs.

Keywords: Chinese outward foreign direct investment, establishment mode, innovation, difference in difference modelling, strategic asset seeking

Introduction

Competitive advantage increasingly centres on the ability to generate and effectively deploy intangible assets. It is often argued Chinese MNEs (hereafter CMNEs) invest in psychically distant developed markets to acquire intangible assets, such as brands, technology, and distribution networks via strategic asset seeking (SAS) FDI (Sutherland et al., 2020; Deng, 2009, 2012b; Luo & Tung, 2007; Mathews, 2006; Rui & Yip, 2008). Indeed, many studies now confirm CMNEs locate in markets with high levels of strategic asset availability (Piperopoulos, et al., 2018; Anderson & Sutherland, 2015b). While still a minority, other studies use firm-level data to understand the SAS motivation of CMNEs (Chen, Li, & Shapiro, 2012; Ramasamy, Yeung, & Laforet, 2012). These studies largely corroborate the findings of location choice studies: CMNEs often enter developed markets for SAS purposes, with the intention of undertaking accelerated firm-level catch-up, or so-called "springboard" FDI, explained by the springboard theory (Luo & Tung, 2018).

Despite this, serious reservations have been expressed regarding the ability of CMNEs to integrate acquired foreign strategic assets and successfully springboard (i.e. successfully harness and utilise acquired strategic assets) (Sutherland et al. 2020). This is owing to their lack of absorptive capacity; the large psychic distances involved; their limited experience with foreign investment and markets (Howell, 2020; Gammeltoft, Filatotchev, & Hobdari, 2012; Rugman & Li, 2007); and the challenges of managing dual embeddedness (i.e. balancing intra-MNE knowledge diffusion with domestic embeddedness) that foreign investment, particularly M&As, brings (Meyer, Mudambi & Narula, 2011). To date, however, empirical research on the MNE parent firm-level outcomes of CMNE strategic asset seeking springboard related cross border M&As is still limited (Chen et al., 2012). Moreover, to our knowledge there is no research on

the impact of *greenfield* SAS related FDI projects (i.e. foreign R&D related FDI). We therefore address this gap by exploring whether Chinese cross-border greenfield R&D related FDI manifests itself in further strategic asset creation and undertake a comparative Difference in Difference (DiD)/Propensity Score Matching (PSM) analysis, comparing greenfield R&D knowledge sourcing/capability building related FDI with cross-border SAS related M&As. We do so from the perspective of the CMNE parent company and the subsequent growth in parent firm intangible assets. We thus consider whether greenfield R&D related FDI versus acquisition establishment mode is associated with superior post investment intangible asset generation, which we consider a suitable proxy to measure strategic asset growth.

To date, existing research has tended to emphasise the importance of cross-border SAS or springboard related M&As over greenfield R&D related FDI as a means of firm-level catch-up knowledge sourcing strategies for CMNEs (Deng, 2009) (and emerging market (E)MNEs more generally) (Luo & Tung, 2007). This is because it is argued CMNEs actively engage in accelerated internationalisation (Tan & Mathews, 2015; Mathews, 2006). Acquisitions provide for immediate possession of the intangible assets CMNEs lack and in turn quick access to a foreign milieu replete with competence creating opportunities, such as subsidiaries with strong foreign market embeddedness (Meyer et al., 2011). At the same time, however, foreign acquisitions (or joint ventures) may be difficult to exploit owing to limited intra-MNE knowledge diffusion "pathways" and "bandwidth" (Narula, 2014). This is required for the EMNE parent to effectively learn from the subsidiary due, for example, to the dual embeddedness challenge (Figueiredo, 2011). Greenfield R&D related projects, by contrast, may initially lack strong firm-level capabilities (such as local embeddedness) but may have potential for stronger intra-MNE knowledge flows than acquisitions, owing to better

links between parent and greenfield subsidiary facilitating intra MNE knowledge flows and co-operation (Blomkvist, Kappen, & Zander, 2014). Moreover, while greenfield R&D investments may start out small, they have the potential to grow rapidly.

Comparative research on how establishment mode influences reverse knowledge transfer and subsequent intangible asset creation in EMNEs, to our knowledge, is limited (Hennart & Slangen, 2015). To our knowledge, most establishment mode focused studies look at developed market (D)MNEs (Mudambi, Piscitello & Rabbiosi, 2014; Blomkvist, Kappen & Zander, 2014). The omission of EMNEs is surprising given the stress which has been placed on them as accessors of knowledge, particularly via acquisitions (Zhu, Ma, Sauerwald & Peng, 2019). As noted, we address this lacuna using firm-level intangible asset balance sheet data and DiD/PSM methodologies to explore the association between different outward FDI establishment modes and domestic (Chinese) intangible asset growth *vis a vis* a comparator group of similar Chinese businesses which (a) have not undertaken FDI but are similar in other ways and (b) similar CMNEs that have undertaken SAS related M&As (but not greenfield FDI). Interestingly, we find that Chinese parent firms that undertake greenfield cross-border FDI projects exhibit significantly higher intangible asset growth *vis a vis* similar domestic peers, as well as CMNEs that have used a "springboard" type SAS M&A strategy. Our findings, therefore, stand somewhat at odds with the influential (and popular) springboard theory (Luo & Tung, 2018).

This paper proceeds by providing further background and hypothesis development. This is followed by a description of methodology and data. Finally, results are discussed, including implications for mainstream International Business theory.

1. Background and hypothesis development

1.1 Chinese cross-border springboard strategic asset seeking FDI and firm-level catch-up: the neglect of establishment mode?

There is considerable interest in CMNEs owing to the quantitative expansion of Chinese outward FDI as well as its unusual qualitative nature, namely its SAS orientation, which has sparked conceptual debate (Alon et al., 2018; Buckley et al., 2018; Deng, 2012b; Zheng et al., 2022). Two early influential arguments, the springboard perspective (Luo & Tung, 2007) and link-leverage-learn (LLL) model (Mathews, 2006), for example, suggested outward FDI was often undertaken by EMNEs for the purposes of catch-up with DMNEs through accelerated internationalisation (Tan & Mathews, 2015). A vital motive for FDI was to get hold of strategic assets which could lead to firm-level catch-up with DMNEs. Such assets include critical resources or capabilities (including, for example, R&D capacity, proprietary technology, design facilities, brands and reputation, and distribution and production networks) which give firms competitive advantages over others (Teece, Pisano, & Shuen, 1997). SAS implies acquiring critical assets that one does not already possess 'to primarily enhance a firm's critical competencies rather than to exploit existing assets' (Deng, 2009: 83). Such assets are often intangible in nature (Hennart, 2012), including intellectual property rights (patents) and brands (trademarks), as well, more importantly, as the capacity to self-produce and create such intangibles - the development in other words of innovative capability within the MNEs transnational network.

Understanding whether EMNEs are capable of exploiting foreign subsidiaries in developed markets for strategic asset creation has thus become central to one of the main debates in contemporary Management discourse. In this regard, the EMNE

literature additionally highlights the importance of reverse knowledge flows from EMNE foreign subsidiaries to EMNE parent firms as key to growing their intangible assets (Zhu et al., 2019). Awate, Larsen, and Mudambi (2014), for example, explore how reverse knowledge flows from competence creating foreign subsidiaries has become crucially important to EMNE sustained competitiveness. These strategies, moreover, in general are 'in contrast to the [D]MNE where it is the headquarters that initiates the teaching knowledge flow – what we call knowledge sourcing' (Awate et al., 2014: 3).

For CMNEs, the attraction of accessing foreign knowledge may be amplified by the considerable gravitational pull of the domestic market. Many Chinese firms have preferential access to their local domestic markets where rents can be exploited by the deployment of foreign acquired strategic assets (Hennart, 2012; Petersen & Seifert, 2014). As DMNEs cannot access local Chinese markets easily, which are in this sense "imperfect" to DMNEs, knowledge accessing outward FDI may be particularly attractive. This often leads to reverse transfers of intangible assets for domestic market exploitation (Deng, 2012a). A World Bank report supports these arguments, suggesting a focal reason for Chinese outward FDI support is so that its MNEs can 'absorb foreign technology and use it to improve domestic production' (World Bank, 2013: 388). For large emerging markets such as China, developing strong domestic market positions via knowledge accessing is an important driver of SAS (Hennart, 2012; Luo & Tung, 2007; Ramamurti, 2012; Anderson et al., 2015).

1.2 How does establishment mode influence intangible asset growth in the CMNE parent?

If SAS for domestic repatriation and absorption is an important motivation for CMNE outward FDI, a further question arises: what are the impacts of different establishment

modes on intangible asset growth in the CMNE parent? Can Chinese MNEs, for example, benefit from SAS related greenfield R&D related FDI? Current EMNE literature is far less outspoken about the possibility of SAS taking place via greenfield investments in developed markets. This is because it is seen to be a considerably slower and more uncertain source of intangible asset creation and firm-level catch-up (Luo & Tung, 2018). For CMNEs, which generally lack traditional firm-specific ownership advantages (which are usually considered a precondition for greenfield FDI), the attraction of greenfield FDI seems less obvious (Rugman & Li, 2007). For greenfield investments, the prospect of immediate transfer of pre-established codified knowledge is generally not possible.

Recent research, however, shows such EMNE R&D related FDI strategies have looked to: (i) undertake technological scanning to track latest technological developments in developed markets, helping plan future investments (Di Minin et al., 2017); (ii) tap into advanced local R&D infrastructure (Schaefer, 2020; Di Minin et al., 2017); (iii) interact with the aforementioned technology leaders; (iv) recruit highly trained foreign research personnel and integrate them into the EMNEs organisational structure/fabric – creating deep networks and linkages with key human resources related to R&D (Schaefer, 2020; Schaefer & Liefner, 2017); (v) establish new technology partnerships/networks and to make use of 'external technological assistance by building or strengthening new or existing local cooperative relationships' (with both well-known large as well as lesser known smaller businesses) (Di Minin et al., 2017: 185) and universities and research centres (Liefner, Si, & Schäfer, 2019); and (vi) develop mechanisms for managing foreign R&D personnel, often involving frequent meetings and exchanges (Schaefer, 2020). Recruitment of highly trained personnel has now become 'among the most important technology-driven motive for setting up overseas R&D units' (Di Minin et

al., 2017: 185). This is supported by Schaefer et al.'s (2020) detailed case study of Huawei which: 'turned abroad to access state-of-the-art knowledge' because it 'had little left to learn in its home country' (Schaefer, 2020: 1501). Huawei's success, moreover, is now in large part seen as related to 'hiring non-locals who are culturally and professionally embedded in the international industry networks' (Schaefer, 2020: 1501).

The Chinese MNEs Huawei and ZTE stand out as significant cases in point. They rely extensively upon foreign hires in international R&D centres in institutionally advanced developed markets (Schaefer & Liefner, 2017). By 2018, Huawei (116) and ZTE (28) (China's largest MNE investors in greenfield R&D by some way) had established over 144 greenfield SAS related R&D research centres. Most of Huawei's highest cited patents, moreover, do not originate from China, but rather from the dozens of foreign R&D outposts (Schaefer, 2020), pointing towards the great strategic importance of these offshore R&D hubs for successful EMNEs. EMNEs can benefit from foreign personnel and institutional environments conducive to innovation. The aforementioned arguments suggest a strong rationale for EMNEs to engage in greenfield (GF) R&D related FDI, as it allows them to tap into key resources and institutional environments required to support innovation. Moreover, organic and efficient mechanisms for the intra-MNE diffusion of knowledge can be built organically from the ground up as the GF R&D network evolves (Wu et al., 2023). Compared with domestic Chinese firms that do not use greenfield R&D FDI, we expect those that do to outperform in terms of generation of intangible assets.

> **Hypothesis 1:** Greenfield strategic asset seeking R&D related FDI facilitates higher levels of intangible asset expansion in CMNE parent firms when compared to similar Chinese firms that have not undertaken FDI.

Much enthusiasm has surrounded the emergence of CMNEs as active international acquisition deal-makers for knowledge accessing intangible asset creation related to SAS (Mathews, 2006; Deng, 2010; Luo and Tung, 2007). The evidence on whether they can actually absorb and productively utilize acquired strategic assets for the purposes of firm-level catch-up, however, is surprisingly limited (Zhu et al., 2019). The research on CMNE acquisitions now points overwhelmingly towards the myriad of difficulties CMNEs face in successfully integrating and undertaking reverse knowledge transfer from developed market targets (Ai & Tan, 2018; Agnihotri & Bhattacharya, 2018; Muralidharan, et al., 2017: Peng et al., 2017). As such, the catalytic impact for firm-level catch-up from international SAS deal-making for the CMNE parent may be considerably less than those implied by springboard theory. Recent case study evidence, for example, shows that CMNEs often struggle to successfully integrate acquisitions (Ai & Tan, 2018; Agnihotri & Bhattacharya, 2018; Zhu et al., 2019). Their absorptive capacity is often low, owing to their infant status as MNEs (Ai & Tan, 2018; Meyer et al., 2011; Meyer, 2015). Chinese acquirers often have limited experience with Western research and development and innovation practices. If, for example, a CMNE purchases a technologically superior firm and deploys its technology, production techniques, or brand in its domestic market it may possibly be rewarded with increased domestic market share due to first mover advantages. This, however, may not lead to future production innovations, as the acquiring Chinese firm may not be able to master the underlying driving forces behind that technology or innovation (Ai & Tan, 2018).

Acquisitions may, therefore, provide an apparently quick solution to firm-level generation of intangible strategic assets (Luo and Tung, 2007; Deng, 2009). Foreign targets may possess relevant intangible assets with high net worth in the Chinese market. They are, moreover, already strongly embedded in their home markets

(Mudambi, Piscitello & Rabbiosi, 2014; Blomkvist, Kappen & Zander, 2014). Such local embeddedness allows for the exploitation of country specific assets in the local milieu, central to intangible asset creation in competence creating subsidiaries (Meyer et al., 2011; Narula, 2014). MNE subsidiaries are located in key centres/clusters of innovation and research (for example, Silicon Valley). At the same time, however, knowledge and competence creating opportunities from acquired target businesses can only be diffused via *intra-MNE* knowledge flows. Narula (2014) has highlighted the crucial role of intra-MNE diffusion capabilities and the growing challenges MNEs face in managing their diverse portfolio of international businesses: the so-called 'paradox of competence-creating subsidiaries' (p. 4). This is the dual embeddedness problem, whereby trade-offs exist between intra-MNE embeddedness and that in the foreign market (Meyer et al., 2011). Given the considerable differences between CMNE acquirers and DMNE targets, intra-MNE pathway and bandwidth constraints may potentially act as a bottleneck to knowledge diffusion. It is true that the challenges of creating local embeddedness may well be greater for greenfield projects when compared to acquisitions, which have existing networks (Mudambi et al., 2014; Blomkvist et al., 2014). However, the scale of greenfield investments when compared to acquisitions tend to be more modest. A slower and more balanced stages approach to learning about the foreign market may therefore be practised when undertaking greenfield FDI (Johanson & Vahlne, 2009). Unlike acquisitions, the scale of the challenge may be manageable, particularly if a long-term approach by CMNEs is taken to the challenge of successfully embedding greenfield projects.

Greenfield investments, for example, will have more managers socialized in the CMNE's corporate network (Hertenstein et al., 2017). Acquisitions, by contrast, will have more executives and managers socialized in the network of the newly acquired

target firm. Acquisitions largely inherit their knowledge integration mechanisms from previous experience of operating as an independent corporate unit (i.e. prior to acquisition). Mudambi et al. (2014) note that 'the presence of similar and shared cognitive schema, integration mechanisms and routines has been found to positively influence knowledge flows' (Mudambi et al., 2014: 51). From this, they argue greenfield subsidiaries are superior in sharing knowledge with their parents than acquired units, as the 'latter need more resources to integrate into the MNE internal network as well as to overcome the negative effect of incompatibilities based on their history' (Mudambi et al., 2014: 51). In greenfield subsidiaries, therefore, the internal culture and routines are compatible with the MNE parent, as it has been involved in establishing them (Blomkvist et al., 2014). Links between top management will necessarily be stronger. These relationships are important, as 'firms are more likely to engage in wide bandwidth relationships with existing partners' (Narula, 2014: 12). Stronger intra-MNE embeddedness is a likely feature of greenfield FDI.

CMNEs need to know more than the technology of the final product that they acquire. This includes fundamental knowledge related to the overall technology and architectural innovation necessary to facilitate future innovations (Awate et al., 2012). EMNEs, moreover, while engaging in knowledge accessing strategies do so from a position of a knowledge deficit relative to acquired foreign affiliates (Awate et al., 2014). This deficit puts them at a disadvantage relative to their acquired subsidiaries. Orchestrating reverse knowledge flows involves complex negotiations if knowledge accessing is to be successful. Large psychic distances, liabilities of foreignness, and differences in corporate and business cultures, however, exacerbate difficulties in communication between CMNEs and their foreign acquisitions. Indeed, Liang et al. (2022) argue 'There is still limited and mixed evidence on whether [SAS] acquisitions

lead to increased innovation performance' (p. 8). They go on to discuss boundary conditions which increase the likelihood of a successful Chinese SAS M&A at both the firm and regional level, such as 'similarity and complementarity in technological resources [being] contingent on the technological gaps between the acquirers and targets' (p. 8). Regulatory, normative, and cognitive institutional differences affect acquisition integration, usually in a negative manner (Muralidharan, et al., 2017; Ai and Tan, 2017; Zhu et al., 2019).

The home country status, it is found, may also influence acquisition success. This is referred to as 'liability of country of origin' (Muralidharan, et al. 2017: 504). It may be easier, for example, to transfer home practices from a DMNE to an emerging market than vice versa, owing to the well-established reputation of DMNE businesses *vis a vis* EMNEs (Muralidharan, et al., 2017). Additionally, case study evidence shows CMNE headquarters and their foreign acquisitions may often lack such basic requirements as a shared common working language (Liu & Woywode, 2013; Peng et al., 2017), a vital medium required for international business to take place (Cuypers, Ertug & Hennart, 2015). As a result, CMNEs may be poor at identifying the correct targets in the first instance (Liu & Woywode, 2013). Furthermore, undertaking due diligence and working with international accounting, legal, and financial firms required to put together complex deals may be a challenge (Deng, 2010). They may have limited knowledge of the foreign target and its domestic business environment, including basic human resource management related legal affairs, corporate social responsibility, and environmental standards (Liu & Woywode, 2013). This may hinder reverse knowledge flows.

In sum, while greenfield projects may initially lack domestic local embeddedness compared to acquisitions, they have the benefit of considerably stronger intra-MNE

connections. CMNEs' capabilities to orchestrate intra-MNE knowledge flows are therefore likely to be higher in the case of greenfield investments. Such subsidiaries have an organic link with the parent firm, which imposes its own practices and culture from initiation of the project. Greenfield subsidiaries thus have more and higher intra-MNE bandwidth pathways. This crucial bottleneck is thus overcome (Narula, 2014). Achieving domestic embeddedness, moreover, may be manageable given the smaller scale of such projects and the long-term commitments given by EMNEs to such projects (Contractor, Yang & Gaur, 2016). In contrast to acquisitions, we therefore hypothesise CMNE parents are able to benefit from greenfield FDI and will see greater intangible asset growth *vis a vis* similar CMNEs that use springboard type SAS related M&As as their strategy for firm-level catch-up.

Hypothesis 2: Greenfield R&D related (strategic asset seeking) FDI facilitates higher levels of intangible asset growth in CMNE parent firms than in similar CMNEs undertaking cross-border strategic asset seeking related M&As.

2. Data and methodology

DiD/PSM methodology is well suited for addressing the inherent endogeneity challenges associated with causality issues that undermine conventional econometric approaches. Firms predisposed towards better performance/growth, for example, may be better equipped for GF SAS FDI. PSM approaches attempt to better make "like-for-like" comparisons (Chang et al., 2013; Godsell et al., 2023; Schweizer et al., 2019; Yang & Driffield, 2022). Following Yang & Driffield (2022), moreover, we use a number of matching procedures, including kernel matching, which is considered highly suitable as it

places additional weight to control observations and reduces bias when calculating the average effect of treatment on the treated group, or ATT.

We look to ascertain: (1) the impact of Chinese R&D related greenfield FDI on parent firms' intangible assets *vis* a *vis* similar types of matched domestic Chinese firms (identified via PSM) that had not undertaken FDI; and (2) to compare parent firm outcomes between the two different FDI establishment modes, namely greenfield R&D FDI and cross-border SAS M&As between similarly matched firms (again, using PSM/DiD approaches). The second step of our DiD/PSM methodology thus extends our initial matching approach employed by further restricting the comparator sample to firms that have undertaken cross-border SAS M&As.

2.1. Data sources

To run our DiD/PSM panel modelling we compiled a comprehensive dataset using the fDi Markets, Zephyr and Orbis databases. The fDi Market database records some 250,000 plus greenfield investments worldwide. It draws on press releases, newspaper reports, information from local and national investment agencies, and information provided by investing firms) to collect all greenfield FDI projects undertaken by CMNEs between 2005 and 2018. It thus provides a comprehensive overview of the greenfield investments made during this period, including the name of the parent company, foreign subsidiaries, location of the investment (city and country), value of capital investment and number of jobs created. Most importantly, it records the industry activity of the project, including whether it is: R&D, design and testing; logistics, distribution and transportation; education & training; sales, marketing & support; customer contact centre; electricity; construction;

manufacturing; extraction; technical support, maintenance & servicing; and recycling; business services; headquarters; ICT & Internet infrastructure related.

Initially, we used it to note the CMNEs that had undertaken research and development and design, development, or testing activities. These FDI projects are strategic asset seeking in nature (De Beule et al. 2014) and have been employed previously (Castellani & Lavoratori, 2020; Guimón et al., 2018).

Next, we matched the MNE global ultimate owner (i.e. parent MNE) from the fDi Markets database to Orbis. Orbis provided additional time series firm-level financial data, including that on intangible assets, used for our dependent variable. To create a matched sample of non-transnational comparator firms (for PSM purposes), we found additional similar Chinese firms in the Orbis database. In line with recommendations from past studies, these had ultimate owners (>50.01%) located in China (Sutherland & Anderson, 2015; Sutherland et al. 2019; Anderson et al., 2021). In addition, moreover, we focused on firms that were listed in the Orbis database as being engaged in Research and Development or Design, Development & Testing' activities (i.e., that were focused on producing intangible assets and thus more high-tech in nature). Using a kernel matching approach, focusing on a number of variables (total assets, return on assets, gross profit, sales, industry SIC and destination countries) we matched our CMNE sample with the non-CMNE (domestic) sample. This allowed us to test H1, to see if CMNEs adopting greenfield FDI only (i.e. we excluded those that had also done cross-border M&As) outperformed similar domestic firms.

For H2, we further refined our matching sample by using the Zephyr database to also identify and gather data on Chinese ultimately owned MNE parent firms that had orchestrated cross-border M&As (again, between 2005 and 2018). We looked at deals that involved a strategic asset rich target firm (i.e., target firms that (a) either owned intangible assets on their balance sheets or (b) owned patents/trademarks, or (c) was described as having a technology seeking motive in the text description Zephyr provides). Zephyr is compatible and consistent with the Orbis database (via common firm identification codes). We thus used our Zephyr sample firm to extract additional firm-level times series data from Orbis. We again focused on CMNE parent firms that had engaged in R&D and/or design, development and testing activities, further emphasising the commitment to innovation and technological progress and which targeted strategic asset transactions involving intangible assets. Again, we retained only those CMNEs with a single M&A transaction (and no greenfield FDI), thereby reducing the potential for confounding effects due to multiple deals/SAS activities involving the same parent firm over time. Finally, we considered only firms that had available observations on key variables used in our PSM sampling (i.e., total assets, return on assets, gross profit, sales, industry SIC and destination countries).

Following the elimination of observations with incomplete or missing information, our final dataset includes 178 strategic asset-seeking greenfield investments, 108 strategic asset-seeking cross-border M&As, and 1,863 strategic asset-seeking non-OFDI investments (appendix A provides a list of deals by years of our sample).

2.2 Key Variables

Dependent variable:

Our dependent variable is intangible fixed assets (abbreviated IFA) in 100 million dollars. This represents the absolute value of intangible fixed assets for firm i in a given year t. The

IFAs within the Orbis database are defined as non-physical assets, including: patents, trademarks, copyrights, technologies, and brands that are generated during a company's operations and significantly impact its development. IFAs have become a widely utilized metric for assessing strategic assets (Contractor et al., 2016; Delgado et al., 2023; Yang & Driffield, 2022).

Independent variables:

As explained, we employed two DiD models based on our hypotheses (Table 3). The first involved using the greenfield R&D FDI as a treatment group (dummy value of 1, zero otherwise) *vis* a *vis* domestic Chinese parents that had not undertaken FDI (i.e. SAS GF vs. non-SAS FDI); the second adjusted the comparator group to those that had also undertaken cross-border SAS M&As (SAS GF vs. SAS M&A) (Table 3). Specifically, firms that involved research and development and design, development, and testing (DDT) activities for their greenfield investment were classified as the treatment group (i.e. dummy set to one). For non-SAS FDI, the value was set to zero.

Detailed descriptions of the variables can be found in Table 1, which provides an overview of the variables used in our analysis.

TABLE 1 HERE

2.3 Propensity Score Matching and Difference in Differences

A key prerequisite for the use of DiD approaches is the assumption of parallel trends. Figure 1 displays the trend comparison between SAS GF investment and non-OFDI, indicating a positive upward trend in the intangible asset value for SAS R&D-related transactions in the

long run after the investment occurrence. Our parallel trends tests demonstrate that there was no significant difference in the trend in intangible asset value between the two groups before the SAS GF investment occurrence, meeting the common trend requirement for DiD estimation.

FIGURES 1 & 2 HERE

In addition, Figure 2 also passes the common trend test, revealing no significant difference between the treatment and control groups (strategic asset-seeking greenfield investment versus strategic asset-seeking cross-border mergers and acquisitions (M&As) investment) from T-0 to T-5. These findings support the validity of our DiD analyses. The results indicate a significant increase in the intangible value of the parent company, particularly in the fourth and fifth years after the occurrence of the transaction, thus supporting our hypotheses.

TABLE 2 HERE

Finally, we examine parallel trends by drawing a common support check graph, based on the recommendations of Du & Zhao (2023). This suggests that both the treatment and control groups would exhibit similar outcomes in the absence of treatment.

3. Results

In our models we address potential heteroscedasticity and serial correlation issues by using robust standard errors. Table 2 presents the descriptive statistics and correlation matrix for

our sample. The results confirm our hypotheses, with DiD estimates being positive and statistically significant, indicating a positive impact of strategic asset-seeking greenfield FDI on parent firms' intangible assets. Moreover, the control variables, including firm size, sales, and profitability, display a positive correlation with intangible assets, consistent with prior research in the field.

TABLE 3 HERE

Table 3 summarizes the DiD results, presenting a sample of PSM and non-PSM approaches, as well as models with multidimensional fixed effects and those without. Specifically, models 4 and 8, based on the PSM sample, incorporate four fixed effects (year, firm, industry, and destination country). Based on the results of the DiD analysis in Model 4 (Table 2), the ATT of 1.792*** indicates a statistically significant positive effect of the treatment (strategic asset-seeking greenfield FDI) on the outcome (intangible fixed asset value) at the 1% level. This implies that on average, CMNEs' strategic asset-seeking greenfield FDI projects led to an increase in their parent companies' intangible fixed assets by $179.2 million USD when compared to domestic firms. In addition, our analysis of the dynamic effects (Table 4) reveals that the ATT of CMNE's SAS R&D-related deals increases significantly from the second to the fifth year. Specifically, the ATT rises from 1.459 (10% significance level) to 3.055 (1% significance level). These findings support H1, that Chinese parent companies investing in greenfield projects for long-term SAS purposes are more likely to have higher intangible assets compared to those not engaging in FDI.

TABLE 4 HERE

Model 8 indicates that the treatment had a statistically significant positive effect on the results (5% significance level). This suggests that CMNE's SAS R&D greenfield investment yields an average increase of $632.5 million USD in its parent company's intangible fixed assets compared to parents engaged in springboard type cross border SAS related M&As. Table 4 shows that CMNE's SAS R&D greenfield investment had a significant positive impact from year 1 to year 5 post investment. Specifically, the ATT increases from 10.931 to 12.604 (10% significance level) in the fourth year after the investment. In the long-term, SAS related R&D greenfield investment increased the value of intangible assets for the Chinese parent company more than for similar CMNEs that undertook cross-border SAS related M&As. These results support H2.

4. Discussion

4.1 Theoretical contributions

Are new theories are required to explain EMNE activity? This is a fundamental question raised in the International Business literature today and the increased propensity towards SAS, has been strongly highlighted within EMNE theorising (Hernandez & Guillén, 2018; Kumar, Singh, Purkayastha, Popli, & Gaur, 2020; Liu & Giroud, 2016; Luo & Tung, 2018). It is often argued that it is: 'the role of M&As as knowledge-seeking strategies' that are one of the 'unique characteristics of EMNEs' (Liu & Giroud, 2016: 125). The literature on SAS and firm-level catch-up, embodied most vividly in springboard theory, has therefore focused primarily on the importance of international SAS via M&As, not GF FDI (Schaefer, 2020; Schaefer & Liefner, 2017). Luo and Tung's (2018) theory strongly emphasises acquisitions as the preferred establishment mode for SAS, owing to its emphasis on the increased speed of catch-up pursued by EMNEs. The word "acquisition/s" is mentioned 31 times, "speed" 5 times, "accelerate/d" 6 times, "rapid" 7 times and "fast" or "faster" 5 times in Luo and Tung's (2018) elucidation of

springboard theory (Wu et al, 2022). By contrast, the word "greenfield", is mentioned only *once* in this article (in the section entitled: 'future research and suggested agenda' on the penultimate page) (Luo & Tung, 2018: 147). Luo and Tung (2018) acknowledge here that: 'most research has looked at SMNEs (springboard MNEs) through the lens of M&As, while little attention has been paid to other important investment modes' (p.147), whereupon they mention "greenfield investments" as an area for future investigation.

Our findings suggest the stream of literature, inspired by the springboard theory, arguing that CMNEs can most successfully engage in springboard type FDI for the purpose of reverse intangible asset transfer via cross-border M&As, has overlooked alternative establishment modes. We have found that CMNEs that engage in greenfield SAS related FDI (i.e., R&D) actually outperform those using acquisition FDI in terms of intangible asset growth. Is this a surprising result? Recent research, based primarily around case studies of Chinese foreign acquisitions, illustrates the severe challenges involved in integrating foreign targets (Zhu et al., 2019; Muralidharan et al., 2017; Ai & Tan, 2018; Liu & Woywode, 2013). Many Chinese firms investing in developed markets report disappointing post-acquisition results and sometimes outright failure (Deng, 2009; Muralidharan et al., 2017). Such deals, it is shown, often also fail for developed market acquirers (Ahuja & Katila, 2001; Cassiman, Colombo, Garrone, & Veugelers, 2005). Indeed, Kenny (2020) reports 'according to most studies, between 70 and 90 percent of acquisitions fail. Most explanations for the depressing number emphasize problems with integrating the two parties involved' (pp. 1). We should not be surprised, therefore, that CMNEs also struggle with M&As when compared to CMNEs undertaking greenfield FDI. Identifying, transferring, and integrating such M&A is clearly more challenging than the springboard theory would admit. While intangible assets can potentially be transferred back to the domestic market for further exploitation there (Dhanaraj, Lyles, Steensma, & Tihanyi, 2004) this requires the MNEs' capabilities to orchestrate intra-MNE knowledge flows to be

high (Meyer et al., 2011). Compared to DMNEs, however, CMNEs often lack experience in post-acquisition integration and have comparatively weaker firm-specific ownership advantages for the absorption and harnessing of foreign acquisitions (Surdu & Narula, 2021). This probably explains why "light-touch" integration strategies are often practised by CMNEs (Liu & Woywode, 2013; Agnihotri & Bhattarcharya, 2018). The problem with this approach, of course, is that it severely retards intra-MNE knowledge flows, including reverse diffusion. Under these conditions it is hard to close the knowledge deficit that exists between EMNE parent firms and their acquired foreign affiliates (Awate et al., 2014). Narula (2014), commenting generally on MNE growth, notes that the 'information sharing systems and intra-MNE control mechanisms that act as arteries between the dispersed constituent establishments of the MNE, have not expanded at a pace to handle the ever-greater information flows between these dispersed activities' (p. 12). This so-called "bandwidth paradox" would seem particularly germane to CMNEs undertaking ambitious acquisitions in foreign developed market contexts.

4.2 Why does Greenfield R&D Related FDI Work better than M&A?

Why may greenfield FDI be a more effective way of asset seeking and building technological capabilities for CMNEs? As research on establishment mode and competence creating subsidiaries has pointed out, greenfield projects are directly tied to the parent MNE: intra-MNE linkages are organic and strong (Mudambi et al., 2014; Blomkvist et al., 2014). While developing local embeddedness may take time, the more gradual investments usually involved in greenfield projects may give time for learning and efficient scaling up of operations. More importantly, intra-MNE pathways and bandwidth for reverse knowledge transfer exist. CMNE greenfield investment in developed markets may, therefore, provide a sustainable and significant stream of intangible strategic assets.

Indeed, there is now a growing body of evidence that greenfield R&D related FDI has had positive outcomes for CMNEs' innovation performance. Zhong et al. (2021), focusing on CMNEs and incorporating greenfield activity, show that 'R&D internationalization stimulates EMNEs' organizational learning and acquisition of knowledge spill-overs from host countries, thereby improving their innovation efficiency' (Zhong, Song, & Chen, 2021: 191). Tang et al. (2019), moreover, find 'there are significant correlations between R&D internationalization and international performance' (Tang, Tang, & Su, 2019: 530).[1] Si et al. (2021), looking at Chinese MNEs, also find 'R&D internationalization exerts significant positive effects on enterprises' innovation performance' (pp. 14), and that in particular human resources are key: 'returnees fully mediate the relationship between R&D internationalization and enterprises' innovation performance, and foreign professionals partially mediate this relationship' (Si, Zhang, & Teng, 2021: 2208). Schaefer and Liefner (2017), focusing in detail on the high-profile case of Huawei, by far China's largest GF R&D investor, compare the performance of domestic and offshore R&D activities. They find that there is a higher quality of patents originating from its foreign R&D locations, despite the additional liabilities of foreignness it faced in operating overseas (Schaefer & Liefner, 2017: 1349). Moreover, they illustrate the extensive efforts CMNEs like Huawei have gone to integrate and manage these foreign R&D subsidiaries within their intra-MNE networks (i.e. weekly online meetings to discuss research progress between headquarters in China and foreign research labs). Thus, to date, literature on GF SAS types of FDI is generally more supportive of the idea that CMNEs can benefit, in terms of building innovation capabilities, via GF FDI in R&D and science and technology related greenfield subsidiaries. Our results support this evidence and point towards a need for

[1] They look at China and India together.

a revision of springboard theory and its assumption that M&As are the key means of firm-level catch-up for CMNEs.

There is growing interest in competence creating subsidiaries owing to the recognition that the firm specific advantages of MNEs can and do originate from subsidiaries (Mudambi et al., 2014). In this case, subsidiary specific advantages may be diffused within the MNE corporate network (Driffield et al., 2016; Narula, 2014). The notion of the MNE as a top down hierarchy has been replaced with that of a differentiated network, one where value is created via intra-MNE coordination and the leveraging of strengths in different units, such as learning from centres of excellence (Meyer et al., 2011). Indeed, as competitive advantage becomes increasingly based around intangible assets, the ability to tap the great benefits of heterogeneous localities in different international locations becomes a preeminent driver of MNE competitiveness. MNE subsidiaries, therefore, can be important sources of firm-specific advantage for the entire MNE. In the case of CMNEs, those created using greenfield establishment modes appear more effective, contradicting mainstream IB theory, such as springboard theory.

4.2 Practical Implications

Chinese firms have long understood the value of engaging in SAS FDI for the purposes of intangible asset repatriation – especially for non-location bounded assets such as patents (Sutherland et al., 2020). Under the conditions of a protected home market experiencing explosive growth, acquiring strategic assets abroad for rapid exploitation at home was a winning strategic approach (Sutherland et al., 2018). Indeed, the exploitation of these acquired strategic assets resulted in large rents in many cases (Sutherland et al., 2020). They did not, however, necessarily result in capability building in the parent company. A major impediment to ambidextrously generating high rents from acquired strategic assets and capturing long-term

innovation capabilities at the parent firm have been stymied by the dual embeddedness problem (Narula, 2014). Further exasperating the prospects of long-term SAS generating investments through M&As is the increasingly limited availability of said strategic assets in developed markets (where strategic assets are most widely available) due to geopolitical headwinds for CMNEs (Sutherland et al., 2020). Taken together, new strategic approaches are necessary to support firm-level ambitions for continuous creation and dissemination of intangible strategic assets. Greenfield SAS FDI hold tremendous promise in this regard.

While greenfield investments are argued to lack the speed of access to strategic assets compared to M&A, our findings suggest greenfield SAS FDI results in higher levels of strategic asset generation in the long-term. This finding suggests CMNEs are not only able to generate significant amounts of strategic assets in the parent company through greenfield FDI, but they also facilitate competence building and sustained, long-term rent generation. This is all complemented by the welcoming nature of greenfield FDI – even in otherwise geopolitically hostile host countries (Anderson & Sutherland, 2015a). Many host countries actively encourage - and in many cases incentivise – the building of new businesses in their local economies. These can take many forms, but the most common in places like the US are "tax increment financing" (or TIF), which basically provide a tax relief for a period of time with the expectation of job creation and future (higher) tax revenues. Most local jurisdictions in places such as many US states do not have foreign ownership restrictions and are largely welcoming of the multiple benefits foreign investment funds (including Chinese) bring to the local economy. This relationship where Chinese parent firms do not have to worry about the dual embeddedness problem and are able to cultivate the ability to generate intangible strategic assets through competence creating foreign subsidiaries in developed market and local economies not only welcoming investment, but actively incentivizing it is symbiotic. The

future of CMNE SAS FDI lies in positive engagement in greenfield investments in developed markets.

4.3 *Research limitations and future research*

There are, of course, boundary conditions for the promise of greenfield FDI in intangible strategic asset generation. First, CMNEs need to enter developed markets in locations which actively welcome or otherwise incentivize FDI *and* have access to a workforce and local environment (i.e. developed research clusters) which will enable the creation of world-leading technology. While these places certainly exist, blanket statements about the availability of such locations at the national or state/province level are not necessarily useful.

5. Conclusion

This paper contributes to our understanding of the mainstream IB theory, particularly the influential springboard theory, by looking at the impact of establishment mode on reverse knowledge flows from competence creating subsidiaries in MNEs from China. We have shown that different types of FDI establishment modes (greenfield versus acquisition) are associated with different impacts on intangible asset creation in CMNE parent firms. We have argued that CMNEs may struggle to fully harness the potential of their foreign acquisitions in terms of reverse knowledge transfer and intangible asset creation in the parent. In fact, contrary to the predictions of the springboard theory, we find that greenfield FDI (*vis a vis* similar domestic peers) leads to higher long-term intangible asset creation for CMNE parents when compared to those following the springboard M&A approach. We attribute these results to the difficulties CMNEs encounter in managing dual embeddedness. Specifically, intra-MNE reverse knowledge diffusion is highly challenging for CMNEs, whereas managing local embeddedness in greenfield subsidiaries, while not unproblematic, can be overcome.

Our findings are therefore in line with the competence creating subsidiaries and multiple embeddedness literature sets. This, perhaps more realistically, stresses the difficulty of managing the dual bandwidth paradox (Narula, 2014). Specifically, it highlights that intra-MNE pathways for knowledge diffusion are likely to be weak in the case of CMNEs targeting firms via acquisitions. Acquiring foreign developed market MNE targets replete in intangible strategic assets poses serious questions about how channels for sufficient knowledge accessing can be generated. Greenfield investments, by contrast, while more modest, most likely facilitate parent intangible asset creation via better developed parent subsidiary co-ordination. This points to the importance of intra-MNE knowledge flows as a constraint on successful firm-level competitive strategies in CMNEs based around FDI outside of China. Some of the EMNE literature has argued acquisitions provide a quick route for firm-level generation of intangible strategic assets for CMNEs. Our results, however, suggest it is harder to achieve successful integration of acquired strategic assets than this view admits. Managers of CMNEs therefore need to guard against over optimistic forecasts for reverse knowledge transfer when undertaking acquisitions in developed markets.

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Tables and figures

Table 1. Variables description

Abbreviation	Full name	Sources
IFAs	Intangible fixed assets (100 Million USD)	Orbis database
DiD	DiD=1 if after greenfield investment; SAS=0, others.	fDi market; Zephyr database
lnSale	Log of Sale	Orbis database
lnPM	Log of Profit margin (%)	Orbis database
lnGP	Log of Gross profit	Orbis database
ROA	Return on assets	Orbis database
lnTOA	Log of Total assets	Orbis database
ISO2	2-digit ISO destination country code	Orbis database
SIC4	4-digits SIC code	Orbis database

Figure 1. Common Trend Checks of DiD (SAS GF vs. Non-OFDI)

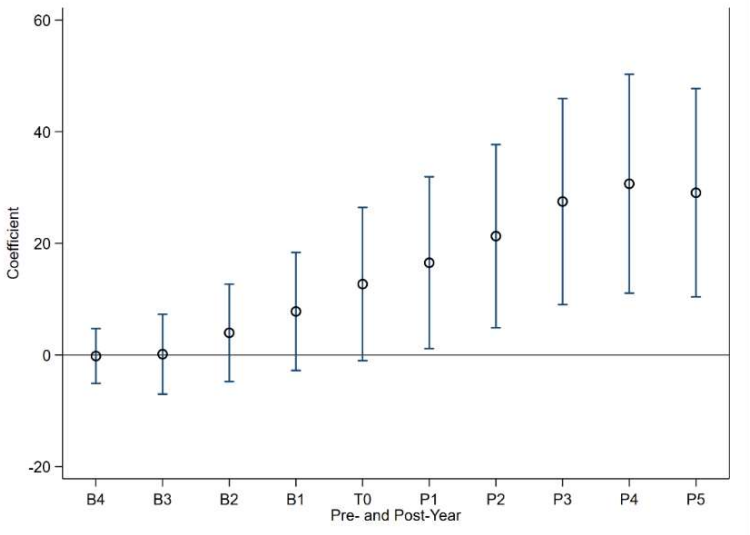

Figure 2. Common Trend Checks of DiD (SAS GF vs. SAS CBM&A)

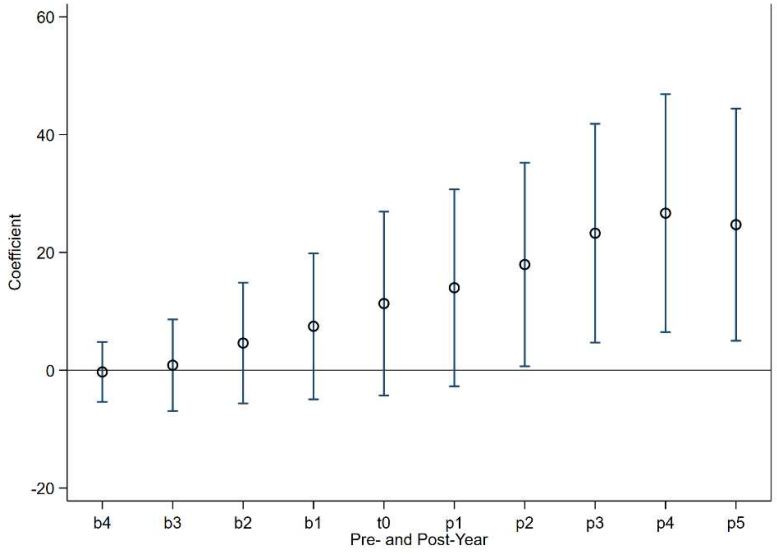

Table 2. Descriptive Statistics and correlation matrix

		Obs	Mean	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	IFA	14872	2.15	19.75	1									
(2)	DiDGF_MA	3232	0.28	0.45	0.199***	1								
(3)	DiDGF_NON FDI	13480	0.07	0.25	0.265***	1.000	1							
(4)	lnTOA	14872	11.98	2.14	0.282***	0.377***	0.436***	1						
(5)	lnPM	14872	2.33	0.93	0.025***	-0.148***	-0.058***	0.004	1					
(6)	ROA	14872	7.41	7.00	-0.019**	-0.148***	-0.069***	-0.196***	0.617***	1				
(7)	lnGP	14872	10.44	2.06	0.286***	0.361***	0.447***	0.946***	0.076***	-0.022***	1			
(8)	lnSale	14872	11.52	2.11	0.277***	0.358***	0.440***	0.951***	-0.084***	-0.110***	0.956***	1		
(9)	SIC4	14872	4083.84	1707.78	0.080***	0.210***	0.058***	-0.098***	0.049***	0.044***	-0.096***	-0.119***	1	
(10)	Year	14872	2014.86	4.30	0.074***	0.461***	0.123***	0.100***	-0.047***	-0.084***	0.089***	0.072***	0.079***	1

*** *p*<.01, ** *p*<.05, * *p*<.1

Table 3: Intangible Asset Growth in Chinese Parent Companies as a result of SAS R&D-Related Greenfield Investment.

Panels	A. SAS GF vs SAS Non OFDI				B. SAS GF vs SAS CBMA			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
IFA	H1				H2			
DiD	17.969***	2.155***	18.755***	1.792***	13.878***	6.398**	14.827***	6.325**
	(4.74)	(.518)	(5.729)	(.532)	(5.345)	(2.545)	(5.61)	(2.612)
lnTOA			1.229***	.501***			5.345***	6.34***
			(.412)	(.124)			(1.933)	(1.875)
lnPM			.034	-.05			-.129	.479
			(.145)	(.045)			(.7)	(.482)
ROA			-.059**	.016***			-.073	.14
			(.028)	(.006)			(.102)	(.101)
lnGP_			-1.426*	.133			-10.174**	-5.63**
			(.768)	(.12)			(4.997)	(2.617)
lnSale			3.723**	.544			13.177**	4.532**
			(1.446)	(.337)			(6.157)	(2.136)
_cons	.931**	.44***	-41.208***	-13.342***	5.055***	5.005***	-120.542***	-76.864***
	(.366)	(.031)	(13.268)	(3.563)	(1.476)	(.705)	(44.15)	(21.275)
Year	Yes	Yes	Yes	**Yes**	Yes	Yes	Yes	**Yes**
Firm	Yes	Yes	Yes	**Yes**	Yes	Yes	Yes	**Yes**
4 digits SIC	No	No	Yes	**Yes**	No	No	Yes	**Yes**
ISO2	No	No	No	**Yes**	No	No	Yes	**Yes**
PSM sample	No	Yes	No	**Yes**	No	Yes	No	**Yes**
Observations	17242	11248	13283	10728	3222	2957	3222	2824
R-squared	.658	.606	.631	.628	.625	.59	.643	.593

Robust Standard errors are in parentheses
**** p<.01, ** p<.05, * p<.1*

Table 4. Dynamic Effects of Post-Treatment Periods on ATT after Propensity Score Matching.

Year	ATT	Std. err.	t	ATT	Std. err.	t
	CMNEs SAS GF vs. Non-SAS OFDI			CMNEs SAS GF vs. SAS CBMA		
IFA differences (100 million dollars)						
T0	0.623	0.614	1.01	4.886	3.674	1.33
T+1	0.819	0.614	1.33	7.564*	4.572	1.65
T+2	1.459*	0.754	1.93	10.939*	6.273	1.74
T+3	1.749**	0.789	2.22	6.152*	3.61	1.7
T+4	1.797**	0.719	2.5	10.931*	6.267	1.74
T+5	3.055***	1.043	2.93	12.604*	7.086	1.78

Robust Standard errors are in parentheses.

*** p<.01, ** p<.05, * p<.1

Appendix A. Year-wise distribution of strategic asset-seeking greenfield investments.

Event Year	Freq.	Percent	Cum.
2005	4	2.25	2.25
2006	2	1.12	3.37
2007	4	2.25	5.62
2008	5	2.81	8.43
2009	6	3.37	11.8
2010	9	5.06	16.85
2011	14	7.87	24.72
2012	7	3.93	28.65
2013	11	6.18	34.83
2014	17	9.55	44.38
2015	20	11.24	55.62
2016	21	11.8	67.42
2017	27	15.17	82.58
2018	31	17.42	100
Total	178	100	

Exploring the Impact of Establishment Mode on Intangible Strategic Asset Creation in Chinese MNEs: Springboard Cross-border Strategic Asset Seeking M&As Versus Greenfield R&D Related FDI Projects

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ABSTRACT

How does greenfield versus M&A FDI establishment mode influence intangible asset creation in the parent companies of Chinese MNEs undertaking overseas knowledge sourcing/strategic-asset-seeking types of FDI? We hypothesise that while springboard type cross-border acquisitions provide opportunities for the rapid addition of locally embedded competence creating foreign subsidiaries, challenges in developing intra-MNE knowledge diffusion channels may frustrate integration and thus retard subsequent growth of parent firms' intangible assets. Greenfield R&D FDI, by contrast, may initially lack local embeddedness but holds out the potential for superior intra-MNE linkages and thus reverse knowledge diffusion to the MNE parent. Our results, based upon propensity score matching and difference in difference models comparing CMNE parent outcomes for FDI projects over the 2003-2018 period, support this argument. We discuss implications for mainstream international business theorising, including springboard theory, which largely overlooks greenfield establishment mode as a means of rapid firm-level catch-up for emerging market MNEs.

Keywords: Chinese outward foreign direct investment, establishment mode, innovation, difference in difference modelling, strategic asset seeking

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Dear Editors,

Sorry for delay in revising this script. It has taken us some time as we have comprehensively revised our approach, particularly following the advice of referee1, by using more detailed/sophisticated difference in difference (DiD) and propensity score matching (PSM) modelling approaches. We believe this has improved the rigour of our approach and thus confidence in our findings.

Please find beneath our more detailed responses to the referees' comments.

All the best,

Dylan Sutherland, John Anderson, and Ludan Wu

Comments to the author (if any):
Reviewer #1: Referee Report on "Does Chinese FDI into Europe facilitate intangible strategic asset creation in the Chinese parent company? The role of entry mode"

Summary and Contribution
Many thanks for the opportunity to review this paper. This paper uses Chinese MNEs data to investigates the impacts of FDI entry mode (greenfield versus M&A) on intangible asset creation in parent companies. I find this topic interesting, but there are some major concerns that need to be addressed. I hope following comments may help improve the paper.

1. Theoretical background and hypotheses
The paper needs more discussion on theoretical framework and provides more justifications for main hypotheses.

We have framed the paper more clearly within the framework of 'springboard theory'. This theory has received a lot of attention in the EMNE literature. However, a drawback is that it does not address alternative establishment modes. We show here that this is a drawback of the theory.

1) To discuss the mechanism, the authors should clarify the sources of "intangible asset creation in parent companies": from innovation activities of parent company or intra-firm knowledge transfer (spillover). The authors should also distinguish different motives of OFDI. For example, does this paper only focus on strategic asset seeking OFDI? Is all Chinese FDI into Europe strategic asset seeking or knowledge sourcing? If some Chinese OFDI in Europe is market seeking, should we expect significant correlation between entry mode and intangible asset growth?

We focus only on knowledge sourcing FDI (this is clarified in the methods section). We have completely revamped our methodological approach as well, now employing DiD/PSM methodologies.

2) Hypothesis 1 is inconsistent with previous study. According to springboard perspective (Luo & Tung, 2007), M&A is the main mean of accessing foreign intangible assets for emerging markets MNEs. Recent studies also consider the important role of greenfield investments (e.g., Luo and Tung, 2018, Kumar, et al. 2020). The author could argue that greenfield FDI plays an important role in intra-firm knowledge transfer (Hypothesis 2), but there is no good reason why M&A does not matter (Hypothesis 1).

Our baseline hypothesis now focus on greenfield FDI – so as noted, the paper has been completely revamped/refocused. We are exploring the outcomes of the two different establishment modes. We are not saying M&A does not matter, but rather what the impacts on parent intangible asset creation are in both cases.

3) The study on learning has already extended to global value chains (GVC). MNEs work with and integrate their geographically dispersed strategic partners, specialized suppliers, and customer in complex network structures. There are intensive intra-firm and inter-firm knowledge diffusion and transfer in this network. Traditional focus on MNEs strategies (such as entry mode) will shift to more complex GVC governance and strategies.

There is no doubt GVC governance and control structure are complex and can have impacts on knowledge diffusion and learning. In this case, however, our focus is relatively clear: comparing GF and M&A establishment modes. Our reasoning relates to 'springboard theory' and its call for more research on greenfield knowledge seeking FDI.

2. Empirical analysis

1) Data: the authors need to clarify the data sources. Do these Chinese MNEs come from publicly listed firm database or Chinese industrial enterprises survey? How to select 13,783 domestic comparator companies?

2) Variables: it looks like there is only one variable in this study - intangible assets (Table 1). How about other firm attributes such as size, ownership? The authors need to describe the definition of variable and summary statistics.

3) Analysis method is too simple: the evidence based on event study is only suggestive. At least the author should provide a simple OLS estimation which controls the effects of other firm characteristics on intangible asset growth.

4) Identification: there is no discussion on the identification strategy in this paper. Oversea investment is not a random choice. Entry mode is not a random choice. To compare Chinese MNEs and their domestic counterparts, matching approach could be applied in the study

We agree our original approach was limited. We now incorporate a range of control variables and also undertake DID/PSM approaches in order to deal with the potential endogeneity issues common in these cases.

Reference
Luo, Y., & Tung, R. L. 2018. A general theory of springboard MNEs. Journal of International Business Studies, 49(2): 129-152.
Kumar, Vikas, Deeksha Singh, Anish Purkayastha, Manish Popli and Ajai Gaur, 2020, Springboard internationalization by emerging market firms: Speed of first cross-border acquisition, Journal of International Business Studies (2020) 51, 172-193.

Reviewer #2: 1. Suggest to create an appendix for all the abbreviations in this paper. Although I have noticed that you have some of them explained in the text such as "strategic assest seeking" for SAS, you don't have all of them explained. The appendix could look like "MNE -- Multinational Enterprises"

Thanks, we have now clarified each abbreviation (and limited our use).

2. Please insert some footnotes for important terms that occur in this paper and this is to make sure people who are not spcialised in this topic to have have a better understanding. For example, you could insert a foot note for the term of intra-MNE to breifly explain what is intra-MNE.

3. There are spaces at the begining of each paragraph and this is not a proper English article format, hence please remove all the spaces.

We have reformatted the paper.

4. There are a few typos in the text for example physically V.S. "psychically" in the first paragraph, large physical distances V.S. large "psychic" distances in the second paragraph. "Vis-a-vis" should be wriiten as vis-à-vis. Hence please proof reading again and throughly check for English grammar mistakes and spelling mistakes.

5. Please add reference for the link-leverage-learn model and "springboard" perspective you mentioned in the 4th paragraph.

6. What is the reason you youse[D] for DMNE in line of 32 page 4?

We have clarified all abbreviations.

7. Is there a word missing in the sub title of 2.2? "...CMNE parent?" Should be CMNE parent

companies intead?

8. The structure for two hypothesises in page 8 and page 9 should be reorgnaised for a better logical order.

We have rewritten our hypotheses.

9. the last sentance in page 13 seems not incomplete as it is not a full sentance. Please check

10. Table 6 could change the layout and put Greenfield CAAI results before Acquisition CAAI to make the difference become positive to have a better illustration for the grrenfiled CAAI.

11. I have noticed that for robustness check you used a footnote indicating that contact authors for a copy of results, however, I believe it is a part of resluts and very important. Hence it is better to show the results in a table and anaysis this table as part of the results.

We have redone our results.

12. The first paragraph in Section 5 is somehow repetitive with the section of introduction and background, please consider to rewrite this section and make it more concise.

Thanks, we have rewritten.

13. Reference style: if there are more than 3 authors please use the style of xxx et al. (year) instead of naming all the authors in the text, there are mix using of either the style mentioned earlier or the style of naming all authors in the paper. For example, page 1, line 32: "Chen, Li, & Shapiro, 2012" is this one the same with "Chen et al., 2012" in page 1, line 55? In page 19, line 57: "Cassiman, Colomo, Garrone, & Veugelers, 2005", page 20, line 9 and so on.

We have redone our references/style etc.

14. Please give some anaysis and explaination for Table 1.

15. The titile of Table 2 (by count) do you mean by country? if yes you should put a dot after count like (by count.)

This table has been changed.

16. What is the estimation models that you used for the results in Table 4 and Table 5?

17. Which software is used for carrying out the regression results?

18. In the reference list, page 15, the 11th reference, why 2018b? There is no 2018a found.

We have rewritten our bibliography.

19. Page 26, the frist reference, the year shows 2016 in page 10, line 24 but here shows 2013, please check.

This has been changed.

20. Can find full reference in the referecne list for (Peng et al., 2017) in page 8, line 4.

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