

Cross-border Mergers and Acquisitions from Emerging Economy Firms: A New Channel for Technology Augmentation*

February 1, 2024

Eunsuk Hong**

School of Finance and Management
SOAS University of London,
Thornhaugh Street, Russell Square, London WC1H 0XG, UK
Tel. +44 20 7898 4564
Fax +44 28 7898 4089
Email: eh19@soas.ac.uk

Jong Kook Shin***

College of Public Policy
Korea University, Sejong Campus
2511 Sejong-ro, Sejong City, 30019, S KOREA
Tel. +82 44 860 1733
E-mail: jongkookshin@korea.ac.kr

&

Huan Zou

School of Finance and Management
SOAS University of London,
Thornhaugh Street, Russell Square, London WC1H 0XG, UK
Tel. +44 20 7898 4056
Fax +44 28 7898 4759
Email: h.zou@soas.ac.uk

* This work is equally contributed by authors, who are alphabetically ordered.

** Corresponding author

*** Shin acknowledges generous financial supports by the 2023 College of Public Policy Research Funds at Korea University, and the Ministry of Education and the National Research Foundation of the Republic of Korea (NRF-2020S1A3A2A01095237).

Cross-border Mergers and Acquisitions from Emerging Economy Firms: A New Channel for Technology Augmentation

ABSTRACT

Purpose

Extending the springboard perspective with the resource dependence theory, we posit that cross-border mergers and acquisitions (M&As) are a new channel for emerging economy firms (EEFs) to enhance their technology capabilities. We examine the impact of cross-border M&As initiated by EEFs on their technology augmentation vis-à-vis matched domestic M&A cases, and investigate the factors influencing the difference in post-merger innovation capability.

Design/methodology/approach

The paper estimates the post-acquisition innovation capability of acquirers from emerging economies (EEs) that engaged in cross-border M&As. To remove possible selection bias, we leverage a difference-in-difference (DID) style approach in combination with a matched sample constructed by pairing each cross-border M&A case with a similar domestic deal. Our dataset contains 266 cross-border M&As and 266 matched domestic M&As deals between 2003 and 2011, whereby acquirers are based in 6 EEs and targets are in 36 countries consisting of both emerging and advanced economies.

Findings

Our empirical results show that cross-border M&As engaged by EEFs are an important engine for improving EEFs' innovation capability through technology augmentation. The main empirical results are as follows. First, compared with the matched domestic acquirers with similar characteristics, EE cross-border M&As have a positive effect on innovation capability.

Second, the positive effect of the EEFs' cross-border M&As relative to the matched domestic M&As on innovation capability is driven largely by cross-border M&As with targets in advanced economies (AEs). Third, the increase in post-M&A innovation capability of the EE cross-border acquirers comes mainly from the deals where targets are based in countries with relatively superior human capital and innovation capability than those of the acquirers.

Originality

Our paper is the first systematic study of whether cross-border M&As serve as an effective channel of technology augmentation for EE acquirers compared to the matched domestic acquirers with similar characteristics.

Keywords: emerging economies, cross-border M&As, domestic M&As, springboard perspective, resource dependency theory, technology augmentation, innovation capability

INTRODUCTION

Although the role of inward foreign direct investment (FDI) in host countries has remained a subject of controversy over the past few decades (Moran, 2005), policymakers across the globe, especially those in emerging economies have strived to attract inward FDI mainly from developed economies' multinational enterprises (MNEs) in an attempt to create high-quality jobs and stimulate economic growth. Such efforts aim to facilitate the acquisition of intangible assets including the introduction of modern production and management practices, enhancement of innovation capabilities, and fostering institutional development, among other objectives (OECD, 2002).

While inward FDIs to emerging economies (EEs) from advanced economies (AEs) have traditionally been the main channel for acquiring such intangible assets, in recent years, there has been an increasing trend of cross-border M&As, in the form of outbound FDI, initiated by acquirers from EEs for the same purpose (Luo and Tung, 2007, 2018; Li and Wu, 2022). While conventional wisdom suggests that emerging economy firms (EEFs) excel in low-tech industries, leveraging production-cost advantages such as low-cost labor and materials in large-scale manufacturing plants and support from EEF's home-country authorities (Ghemawat and Hout, 2008), EEFs also have been observed to persistently internationalize using outbound FDIs in general, and cross-border M&As for outbound FDI in particular (Luo and Tung, 2007, 2018; Lebedev *et al.*, 2015). As EEFs gain more experience and sophistication through existing their inward FDIs, instead of seeking inward FDIs, they are increasingly showing up as acquirers in international M&A markets, seeking new technology to upgrade their technology and innovation capabilities (Luo and Tung, 2007, 2018; Meyer, 2015), and successively expand globally with stronger capabilities in a recursive way (Luo and Tung, 2018). This often involves acquiring major industry players in an attempt to enhance

their technologies and knowledge through internationalization (e.g., Lenovo's acquisition of IBM's PC business, and Tata Group's acquisition of Jaguar Land Rover from Ford). In line with the springboard perspective (Luo and Tung, 2007, 2018), such an aggressive approach toward obtaining key strategic resources has drawn the attention of scholars of international business and management as well as policymakers both in EEs and AEs. Existing studies suggest that cross-border M&As are value-adding activities, especially for EEFs who are latecomers in the global innovation race, by bridging imperfections in markets for factors, products, and capital (Doukas and Travlos 1988; Doukas, 1995). EEFs tend to target firms in markets that allow for knowledge spillover, enabling them to access a richer pool of knowledge and skills to enhance their innovative capabilities. Cross-border M&As, especially those targeting firms based in AEs, have the potential to improve the innovation capabilities of EE acquirers (Luo and Tung, 2007, 2018).

However, post-deal innovative capabilities of such springboard acquisitions by EEFs remains largely unexplored, as most studies focus on the likelihood of mergers (e.g., Deng and Yang, 2015; Lebedev *et al.*, 2015; Hsu, *et al.*, 2021 among others), the stock price reaction to the cross-border M&A announcements (e.g., Aybar and Ficici, 2009; Chen and Young, 2010; Gubbi *et al.*, 2010; Bhagat *et al.*, 2011; Nicholson and Salaber, 2013; Ning *et al.*, 2014; Aybar and Thanakijombat, 2015; Tao *et al.*, 2017; Ding, *et al.*, 2021, among others) or post-deal financial performance (e.g., Buckley *et al.*, 2014; Zhang *et al.*, 2018 among others). Although some case studies have investigated the impact of cross-border M&As (e.g. Kumaraswamy *et al.*, 2012; Awate *et al.*, 2015; Hansen *et al.*, 2016), there exists limited quantitative empirical evidence regarding the extent to which EE acquiring firms benefit from the knowledge pool and regional ecosystem of target firms. Some studies (e.g., Nair *et al.*, 2016; Amendolagine *et al.*, 2018) quantitatively test the post-acquisition impacts on EMNEs' innovative outputs or knowledge transfer, but their studies are based on a limited scope of EEFs in China and India.

In the literature on international business and strategy, little is known about the effect of advanced intangible assets and skills in the target's country on the post-acquisition innovation capability of acquirers and its determinants (Cassiman *et al.*, 2005). Therefore, we investigate this question from the perspective of EE acquirers who are seeking to upgrade their innovation capabilities and to identify its determinants. We focus on the impact of cross-border M&As on EEFs' R&D capacity, and examine how the institutional environments of the target countries, particularly in terms of technology and human capital factors, affect the technology augmentation process of EEFs engaging in cross-border M&A activities.

To address these research questions, we build our study by extending the springboard perspective with the resource dependence theory (RDT). The springboard perspective (Luo and Tung, 2007, 2018) explains that EEFs systematically and recursively use international expansion to new international markets through springboard activities (i.e., acquiring firms which hold strategic assets) to gain competitive advantage against their global rivals, reduce institutional vulnerability in their home countries, and improved home base to better compete, domestically and globally. The RDT by Pfeffer and Salancik (1978) and Pfeffer (1987) argues that organizations must rely on the environment to secure the resources required for organizational survival, and changes in the exchange relationship between the organization and the resource environment influence the organization's behavior and subsequent performance. By combining the springboard perspective and the RDT, we posit that EEFs' cross-border M&As is a springboard to gain EEFs' competitive advantage over global rivals by managing environmental uncertainty (Davis and Cobb, 2010) and enhancing resource accumulation (Pfeffer, 1987). We propose that compared with domestic M&As within EEFs' home countries, cross-border M&As may create greater innovation capability for EEFs, and such superior innovation capability for EEFs conducting cross-border M&As may depend on the

characteristics of the target firm's home country such as the gap of technological and human capital factors with the target's countries.

To examine the exclusive effects of cross-border M&As as a major channel for EEFs to augment their existing technology level, we employ the matched-sample difference-in-difference (DID) method for our estimation by using a dataset consisting of 262 cross-border M&As and 262 matched domestic M&As whereby acquirers are from 6 emerging countries and targets from 36 countries over 2003-2011. We then examine the post-deal innovation capability of EEFs' cross-border M&As and its major determinants in opposition to their domestic deals. During the first decade of the 21st century, emerging economies like China, India, and Southeast Asia were in the industrializing or catch-up phase, so they have been a significant driver of global growth (Kyobe *et al.*, 2014). Therefore, this research with a particular focus on the period of rapid rising of EEs provides valuable insights into EEFs' cross-border M&As as a crucial springboard channel for enhancing EEFs' innovative capabilities.

Our study contributes to the current discussions of the EEFs' springboard cross-border M&As by providing empirical evidence supporting the role of cross-border M&As engaged by EEFs as a major engine for improving EEFs' innovation capability through technology augmentation. Specifically, cross-border M&As by EEFs with targets in advanced economies (AEs) or countries with relatively superior human capital and innovation capability than those of the acquirers largely account for the positive effect of the EEFs' cross-border M&As on innovation capability.

The rest of this paper is organized as follows. The next section proposes a conceptual framework with hypotheses. Next, we discuss our research design and sample and then present our empirical results. Finally, we conclude with discussions.

THEORETICAL FOUNDATION AND HYPOTHESES DEVELOPMENT

The logic of efficiency and resource dependency for innovation capability enhancement of EEFs through their springboard cross-border M&As

Previous works on post-M&A performance mainly investigate their financial outcomes, based on the assumption that the combined firm after acquisition should operate more efficiently and obtain more returns than any of the separate firms. This efficiency logic is also adopted by scholars to explain M&A and innovation performance. Researchers argue that cross-border M&A serves as a means of diffusing knowledge through different channels, such as across productive units or between firms and markets (Li *et al.*, 2019; Chen *et al.*, 2021; Degbey and Pelto, 2021). Hopkins (1999) argues that cross-border M&A creates efficiency, provides the acquiring firm with complementary resources and products, and capitalizes on its core competences. The complementarity of merging firms' technological assets and knowledge bundles can improve innovation capabilities after the acquisition. The exchange of complementary knowledge leads to a cross-fertilization of ideas and new knowledge combinations, thereby fostering innovation. Compared with other international entry strategies, cross-border M&A provides a speedy way to absorb and internalize external capabilities and resources that were previously possessed by the acquiring firms. Combining different sources of knowledge and R&D investment is expected to achieve a higher level of knowledge spillovers when firms cooperate and integrate. More generally speaking, M&A enables merging firms to reallocate and reorganize their innovative efforts among different research centers and productive units, offering them the opportunity to specialize in their expertise and reshape their market positions.

However, there is also a different line of argument. The direct outcome of M&A in the market is a decrease in the number of market players. With fewer market players in place, there will be a decrease in technology competition which could reduce the incentives for firms to innovate. and increase organizational inertia due to larger bureaucracy costs, incapability of integration and managerial issues (Blonigen and Taylor, 2000; Cassiman *et al.*, 2005).

We can see that there are mitigating conclusions drawn from the efficiency logic regarding the cross-border M&A and innovation performance. The inconclusive picture could also be the case for emerging economy firms. In their springboard perspective, Luo and Tung (2007, 2018) propose that EEFs aggressively seek strategic assets from the outset to compete better both in their home and host markets. They also detail the contextual factors that affect the pathway of EEFs' international strategy. For example, institutional voids in the home market could make it difficult for EEFs to become globally competitive (Jongwanich, 2019). They can also suffer from the liability of emergingness (Zhang, 2022) or liability of stateness (Cuervo-Cazurra and Li, 2021) in operating in host markets which slow down their pace to catch up with local and global counterparts. The potential to achieve the intention to enhance their innovation capability through cross-border M&As could be subject to the conditions of both the home and host countries (Bauer *et al.*, 2018).

From the RDT perspective, the target firm and its environment including the firm's ecosystem and external institutions are a source of scarce resources sought by acquiring firms, and a dependency situation arises when firms rely on crucial resources controlled by the target firm and its environment (Pfeffer, 2005). In the context of EEFs' cross-border M&A activities (Hillman *et al.*, 2009; Davis and Cobb, 2010), this theory is useful for understanding how EEFs engage in cross-border M&As as the critical strategic options to manage environmental uncertainty (Davis and Cobb, 2010) and eventually enhance resource accumulation and enhancement (e.g., technology) (Pfeffer, 1987). Two dimensions of dependencies will affect

the pathway of cross-border M&As by EEFs. The first one is EEFs' home country's environmental conditions. Despite fast economic growth in the big EEs, traditional export-led economic growth is no longer sustained. Extending the dependence logic of cross-border M&As, we contend that facing external home market constraints, an EEF may acquire alternative sources of advanced resources available abroad and develop its innovation capability after acquisitions (Luo and Tung, 2007, 2018). The second one is the host country's environmental conditions. When approaching acquired firms in host markets that could exhibit diverse institutional settings, EEFs' dependence on host countries is determined by the extent to which potentially acquired firms control important resources or markets. Better institutional environments, efficient financial markets, and easy access to resources and assets attract cross-border M&A by EEFs (Wang *et al.*, 2012; Holmes *et al.*, 2013; Gao *et al.*, 2015).

Moreover, although it is expected that cross-border M&As could gain stronger efficiency and higher innovative enhancement as they generate stronger complementarities and create larger multiple and diverse knowledge diffusion channels within and across the firm (Luo and Tung, 2007, 2018), the infant quantitative empirical literature on cross-border M&As still has little to say about cross-border operations and their distinct effects on the post-acquisition innovation capability of acquirers as compared to domestic M&A in the context of emerging economies. To join this conversation, we argue that more is to be explored through a bigger picture - the way EEFs read the radar in their host and home markets are a set of factors peculiar to their acquisition activities and innovation performance (Thanos *et al.*, 2020; Kumar *et al.*, 2023). This perspective complements the existing literature which is conventionally concerned with firm-level issues in analyzing the factors that influence performance.

Hypotheses development

Augmentation of EEFs' innovation capability through their cross-border M&As

IB scholars posit that cross-border M&As by EEFs provide them with ready access to key strategic resources and downstream assets that may not be available in their home market. Gaining access to market-based relational assets and intellectual assets, EEFs can reshape their market reputation (Uhlenbruck *et al.*, 2006; Cuervo-Cazurra *et al.*, 2007) and make a quick change in their status which leads to enhanced capability and value creation. The opportunity to enhance innovative capability for EEFs in overseas markets, in general, could be quite substantial given the different channels of knowledge exchange and diffusion. Moreover, other complementarities beyond technology-related issues such as capital and labor endowment, also shape the firms' innovation capabilities. EEFs could benefit more from the complementarities with their target firms in the host market to achieve synergy and capability upgrades.

Although domestic M&As may be favored for EEFs who emphasize strategic flexibility (Uhlenbruck *et al.*, 2003), managerial ability (Vaara *et al.*, 2013), business relationship (Khanna and Palepu, 2000; Gaur *et al.*, 2013), corporate governance (Cheng, 2017), and institutional embeddedness (Lin *et al.*, 2009) in applying their existing resources to alternative courses of action and coordinating the use of resources, cross-border M&As offer a way for EEFs to acquire cutting-edge knowledge and catch up with developed countries in terms of strategic asset creation. Those assets may be difficult to develop internally within EEFs' home countries as the general home innovation environment, both the institutional environment like property rights protection and infrastructure like a network of innovative companies, still are under a long way to development. Going abroad therefore can help overcome latecomer disadvantages and alleviate domestic institutional constraints (Ang and Michailova, 2008). By integrating and leveraging core competencies abroad, EEFs can explore new opportunities in international markets (Luo & Tung, 2007) and enhance their market control and position

(Shimizu *et al.*, 2004). In addition, EEFs make up for their disadvantage in intangible assets, with their home-country advantage, mainly in terms of support from the home government and the substantial home market base, which help them to overcome latecomer disadvantage (Luo and Tung, 2007, 2018). Based on the above discussion, we propose the following hypothesis:

Hypothesis 1: Firm and deal characteristics being similarly controlled, the post-deal innovation capability of cross-border EE acquiring firms is greater than those conducting domestic M&As.

The destination of cross-border M&As by EEFs and their post-M&A innovation capability: Emerging economies (EEs) vis-à-vis Advanced economies (AEs)

As discussed, we expect that cross-border M&As by EEFs are expected to enhance post-acquisition innovation given their focus on seeking advanced technology and knowledge. Cross-border M&As provide firms with the opportunity to break free from the constraints imposed by the domestic economy, which adds a new dimension to their instance growth (Luo and Tung, 2007, 2018). Such firms rely more heavily on host country firms and institutional actors to organize and manage their knowledge and resources, as they shift away from dependence on the domestic institutional environment (Gaffney *et al.*, 2013). Therefore, EEFs' location choice for their international acquisitions is always an important issue in their international performance. The macroeconomic development of a specific country, such as competitive pressures, technological developments and geographic or institutional conditions (Choi and Jeon, 2011, James *et al.*, 2020; Thanos *et al.*, 2020; Kumar *et al.*, 2023), all contribute to the post-acquisition development of their innovation capability.

EEs in general may not provide valuable intangible assets at the same level as AEs. Furthermore, EEFs acquiring targets in other EEs face similar institutional constraints as they do at home. The lack of a variety of complementarity and knowledge diffusion channels, therefore, is challenging for EEFs to achieve efficiency and deliver enhanced innovation capability.

In contrast, EEFs acquiring targets in AEs, through the purchase and integration of technology, product development, and brands at a fast pace, secure tacit knowledge and valuable resources to build up their ability to compete (Kang, 1993) and achieve the economies of scale necessary for effective global competition (Palepu, 1986; Hopkins, 1999). In their springboard perspective, Luo and Tung (2007, 2018) outline that EEFs investing in AEs can absorb sophisticated technology or advanced tacit knowledge from their acquired firms that possess such proprietary technology. Meanwhile, due to financial exigency or business restructuring, firms located in AEs are willing to sell or share their technology, know-how, or brands which makes it possible to realize the catch-up dream for EEFs. Some scholars have indicated that the cross-border M&As by EEFs with targets based in AEs can be an efficient and fast way to acquire strategic or knowledge-based resources usually not available in their domestic market or other EEs. Moreover, high-value front-end capabilities and resources available in developed markets, combined with the back-end low-cost capabilities from EEFs can create uniquely valuable resource combinations to achieve higher market valuation (Gubbi *et al.*, 2010; Bhagat *et al.*, 2011; Nicholson and Salaber 2013; Hsu, *et al.*, 2021).

Therefore, we contend that cross-border M&As in AEs help firms control some important sources of resources that are not readily available in their home countries, thus not only streamlining operations but also enhancing their bargaining power relative to local firms, thus overcoming their liability of emergingness (Zhang, 2022). Based on the above discussion

and hypothesis 1, we proposed the following hypothesis on the destination of cross-border M&As by EEFs and their innovation capability:

Hypothesis 2: Firm and deal characteristics being similarly controlled, the post-deal innovation capability of cross-border EE acquirers targeting firms located in AEs is greater than that of EE acquirers targeting firms located in other EEs.

Host country-specific determinants of superior post-deal innovation capability driven by EEFs' cross-border M&As

Following the springboard perspective, it is pertinent to note that the post-acquisition performance is impacted not only by the macroeconomic development of a specific country, such as competitive pressures, technological developments and geographic or institutional conditions (Thanos *et al.*, 2020, Choi and Jeon, 2011, Kumar *et al.*, 2023) but also the institutional distance between the home and host market (Liou and Rao-Nicholson, 2017; James *et al.*, 2020). In addition to the largely discussed cultural distance (i.e., Lee *et al.*, 2008; Nicholson and Salaber, 2013; Boateng *et al.*, 2019; Kang *et al.*, 2023, among others) we argue the intellectual distance between home and host markets is of particular importance in EEFs' innovation capability enhancement after acquisitions.

From a macroeconomic perspective, the education level at the country level represents the potential human resource capital that can be employed by foreign investors. The local talent pool is the portal for knowledge access for EEFs, compared with traditional advanced MNEs. Therefore, the more the host market talent pool in comparison with the home market one, the more likely EEFs can benefit from access to advanced knowledge, experience and innovative capabilities. This is also in line with the IMF (2015)'s observation that emerging markets are

still underway to improve their public education and design regulations to develop high-value-added service sectors, where they can make up for these disadvantages by acquiring in host markets.

From the RDT perspective, firms need to adapt to varying institutional settings in their home and host markets, which present both uncertainties and opportunities. Acquirers are more likely to integrate with targets after the acquisition when facing external constraints and demands, particularly in less developed markets where they desire to possess advanced technologies to survive and generate profits (Pfeffer and Salancik, 1978; Wry *et al.*, 2013). They tend to invest in more advanced countries to access and augment strategic resources and create competitive advantages, rather than to exploit their ownership advantages. Thus, EEFs would obtain greater value by targeting more developed countries as these transactions would help them garner strategic resources not readily available at home (Chan *et al.*, 2008, Gubbi *et al.*, 2010). Considering uncertainties, market opportunities, and effective post-acquisition integration with targets, we expect that EEFs are likely to gain more value by acquiring targets in host countries with better technological capabilities than domestic markets (Tsang *et al.*, 2008). Based on the above discussion, we propose the following hypothesis:

Hypothesis 3: Firm and deal characteristics being similarly controlled, an EE cross-border acquirer's post-M&A R&D capability increases with (a) the education gap; and (b) the knowledge production outputs gap between the home countries of the target and acquirer.

RESEARCH DESIGN

Data and sampling: A matched sample approach

The primary data sources used in our empirical analyses compile information on cross-border and domestic M&As originating from EEFs. Our M&A sample comes from Zephyr maintained by the Bureau van Dijk. As described in Panel A of Table I, the data-cleaning process consists of the following steps. First, we retain all completed M&A deals between 2003 and 2011 wherein acquiring firms are based in 6 Asian EEs: China, India, Indonesia, Malaysia, Philippines, and Thailand.¹ This leaves a total of 23,071 deals for our initial file. Second, to ensure comparability between cross-border and domestic M&As, we require firm ID in our database, which we use to match financial and other firm-level information. This process removes about 2/3 of our initial file and leaves 7,458 deals. Third, we focus on a firm that has only one completed M&A, by dropping unsuccessful deals and serial acquirers. This leaves a total of 2,321 successful deals of which 374 deals involve cross-border targets.

Based on the initial dataset, we apply the matched-sample difference-in-difference (DID) approach to investigate and compare the causal effect of the cross-border M&As by EEFs on their post-deal performance vis-à-vis similar domestic M&As. DID can recover the average ‘treatment’ effects (ATEs) using observational data under the “parallel trend” assumption. The matched sample analysis requires that the matched pairs in treatment and control groups have similar characteristics for identification. Proper matching controls for various observable and unobservable compounding effects. Thus, like randomized experiments, it allows researchers to recover the average effect of the research interest, by comparing the average outcomes between the matched pairs, without explicitly including control variables and the proxies in regressions (see e.g., Heckman *et al.*, 1997). By combining DID and matching, we make our estimation *doubly robust*: unbiasedness of the estimator requires only one of two identifications to be correctly specified (see Roth *et al.*, 2022 for a similar application).

Following existing studies in economics, finance, and management (Bris and Cabolis, 2008; Ahern *et al.*, 2015; Lim *et al.*, 2016), to tease out the causal impact of cross-border M&As by EEFs (our treatment group), we use domestic M&A deals conducted by EEFs with similar characteristics (size, industry, time) as our control group. This approach is proven to yield powerful statistical tests (Barber and Lyon, 1996). The following four steps are used for our matching: First, the domestic M&A is completed within ± 1 year of the cross-border M&A. Second, domestic acquiring firms that have also engaged in cross-border M&As are removed from domestic M&A observations. Third, we match the SIC codes of acquirers and targets. Following the steps in Kahle and Walkling (1996), we first check, given a cross-border deal, whether there exists any domestic deal whose acquirer and target have the same 4-digit SIC codes as the cross-border counterparts. If no observation is found within the 4-digit industry codes, we try the 3-digit SIC codes. Sequentially, a matching by a lower-digit industry code is attempted. Finally, both domestic and cross-border acquiring firms should have similar sizes measured by total assets in one accounting year before the M&A. We search for a domestic acquirer whose total asset is between 50% and 200% of the cross-border acquirer within the SIC codes. We retain the best-matched observations and drop all observations unmatched in this process. If we have only one 4-digit SIC match, then the rest is dropped. If there are multiple 4-digit industry matches, we prioritize the cross-border deal which occurred in the same year. For the final tiebreaker, we choose the domestic deal with the smallest relative total asset size difference. This procedure leaves us a total of 266 matched pairs of observations including acquiring firms from 6 emerging countries and target firms from 36 countries (Panel B and Panel C of Table I).² Panel A and Panel B of Table II verify that our matching criterion has not introduced statistically significant bias in the size of comparable firms. In our final sample, the firms engaging in a cross-border M&A are slightly larger in total assets (but statistically insignificant) than the matched domestic firms in the year prior to the M&A.

Moreover, our matching process results in similar sizes between domestic and cross-border samples after the M&As too. The data for the firm-level information is obtained from the Oriana dataset from the Bureau van Dijk.

[Tables I and II about here]

Empirical models

We first investigate the effects of the cross-border M&As relative to similar domestic M&As initiated by EEFs on their post-deal innovation capability. Let s denote the year of the M&A. For each cross-border M&A deal i , one domestic M&A case is matched as the control group over the three-year window (i.e. ± 1 -year) of the M&A based on the procedure described above. The effects of a cross-border M&A relative to a similar domestic M&A on its innovation capability, y_{it} can be estimated by the following model (Hypothesis 1):

$$y_{it} = \alpha + \beta_1 D_{1,it} + \beta_2 D_{2,it} + \gamma D_{1,it} D_{2,it} + \epsilon_{it} \quad \text{Eq. (1)}$$

where $D_1 = 1$ if the observation is cross-border M&A, 0 otherwise, and $D_2 = 1$ if the observation belongs to the post-M&A period, 0 otherwise. The coefficient β_1 reflects the pre-deal average difference in y between cross-border M&A (treatment) vis-à-vis matched domestic M&A (control). The coefficient β_2 captures the average difference between pre- and post-M&A of the control group. Finally, $\gamma = (\bar{y}_{s+1}^C - \bar{y}_{s-1}^C) - (\bar{y}_{s+1}^D - \bar{y}_{s-1}^D)$ indicates the effect of cross-border M&As relative to the domestic mergers at time t where $t = s$ indicates the year of M&As, \bar{y}^C and \bar{y}^D denote the average value of their post-acquisition innovation capability for cross-border and domestic M&As respectively.

We use R&D intensity denoted by RDI as a proxy for innovation capability. It is defined by the ratio of research and development (R&D) expenditures to total assets (in %). RDI captures the effect of M&As on acquiring firms' innovation capabilities, which expand the breadth and depth of their product knowledge and technology.

After identifying the effect of cross-border M&As undertaken by EEFs relative to domestic M&As on R&D intensity, we further compare the net effect of cross-border M&As conducted by EEFs targeting firms located in AEs vis-à-vis other EEs, y_{it} which can be estimated by the following model (Hypothesis 2):

$$y_{it} = \alpha + \beta_1 D_{1,it} + \beta_2 D_{2,it} + \gamma D_{1,it} D_{2,it} + \rho_1 D_{1,it} D_{3,it} + \rho_2 D_{2,it} D_{3,it} + \rho_3 D_{1,it} D_{2,it} D_{3,it} \quad \text{Eq. (2)}$$

where $D_1=1$ if the observation is cross-border M&A, 0 otherwise, $D_2=1$ if the observation belongs to the post-M&A period, 0 otherwise, and $D_3=1$ if the observation belongs to cross-border M&As targeting firms in AEs, 0 if the observations belong to the cross-border M&As targeting firms in other EEs. The coefficients β_1 and $(\beta_1 + \rho_1)$ reflect the pre-deal average difference in y_{it} between cross-border M&As vis-à-vis matched domestic M&As for the targets in EEs and AEs, respectively. The coefficients β_2 and $(\beta_2 + \rho_2)$ capture the average difference in y between pre- and post-M&A for the subsamples of control groups where the corresponding treatment groups' targets are in EEs and AEs, respectively. The coefficients γ and $(\gamma + \rho_3)$ capture the average effects of cross-border M&As vis-à-vis domestic for EE and AE targets, respectively. Therefore, ρ_3 reflects the net effect of cross-border M&As by EEFs targeting firms located in AEs.

The implicit identifying assumption in this research design is that firms with a similar asset size which engaged with similar domestic M&As around a similar time have on average

similar innovation capabilities before the deal. Alternatively, the cross-border and domestic M&A acquirers have a similar pre-trend in innovation capabilities. Although it is probable that the difference in pre-deal innovation capabilities may affect the selection of domestic vs. cross-border M&As and their success, if our matching provides a good control group, the bias arising from this type of endogeneity is effectively corrected. However, this matching may introduce further bias. We provide a robustness check by utilizing standard difference-in-difference with no matching, which relies on the parallel trend assumption only.

After comparing the net effect of cross-border M&As conducted by EEFs targeting firms located in AEs vis-à-vis other EEs, we finally examine the factors which explain the difference in EEFs' post-M&A innovation capabilities between cross-border and domestic M&As by formulating the following model (Hypothesis 3):

$$z_i = x_i' \delta + w_i' \theta + \eta_i \quad \text{Eq. (3)}$$

where $z_i = (RDI_{i,s+1}^C - RDI_{i,s-1}^C) - (RDI_{i,s+1}^D - RDI_{i,s-1}^D)$ is the net effect of cross-border M&A relative to similar domestic M&A on the acquirer's R&D intensity. The vector x_i is the acquirer's and target's country-specific explanatory variables and vector w_i is the control variables. As acquirer and target country-specific explanatory variables, we consider the human capital gap between acquiring and target countries, measured by the gap of the gross tertiary education enrolment ratio between two countries where acquiring and target firms are originated, and denoted as $EDU^{T-A} (= EDU^T - EDU^A)$. EDU^A and EDU^T are measured by the ratio of the number of students enrolled in tertiary education to the population of the age group that officially corresponds to tertiary education in acquiring and target firms' home countries respectively (in %). To capture the regional innovative capability gap between

acquirer and target countries, we include the gap of patent application numbers between two countries (in log), denoted as PAT^{T-A} ($= PAT^T - PAT^A$).

As firm-specific control variables, the acquiring firm's sales turnover is used to control for the income generated by the firm's normal business activities. It is measured as the ratio of a firm's sales to its total assets (in %) and denoted as ST . To capture the overall value of a firm's workforce, we include a wage-to-sales ratio which is measured as the ratio of a firm's wages to its sales (in %) and denoted as WS .

For acquirer and target home country-specific controls, we use the log gross domestic product (GDP) per capita of the acquiring and target firm's countries ($GDPPC^A$ and $GDPPC^T$) as a proxy of national productivity. To take into account the nature of each M&A deal, we include two dummy variables: (i) a deal type dummy variable, $Dummy_{Deal\ Type}$ taking the value of one if the cross-border M&A deal is a public takeover, and zero otherwise, and (ii) an industry-type dummy, $D_{HighTech}$, that takes the value one if the acquiring firm's industry belongs to the high-tech industry, and zero otherwise. The country-level data are obtained from the World Bank. Table III presents the summary statistics and the correlation matrix of the variables employed in our empirical analysis in Eqs. (1)-(3).

[Table III about here]

EMPIRICAL RESULTS

Table IV reports the results of matched-sample DID regressions in Eq. (1) and Eq. (2) to capture the effect of EEF-initiated cross-border M&As relative to similar domestic M&As on R&D intensity with the following samples: (i) full sample, (ii) subsample of cross-border M&As by EEFs targeting firms in AEs, and (iii) subsample of cross-border M&As by EEFs

targeting firms in other EEs. With a full sample, the coefficient for the effect of cross-border M&As on post-M&A R&D intensity of EEFs is significantly positive ($\gamma = 0.212$), indicating that a cross-border M&A is a major channel for EE acquirers to increase the level of their product knowledge and technology through R&D expenditures. This result supports Hypothesis 1.

Next, let us focus on estimations based on subsamples of EEFs' cross-border M&As targeting firms located in AEs and other EEs. As shown in the second and third columns of Table IV, the coefficient for the net effect of EEFs' cross-border M&As targeting firms in AEs on their post-M&A R&D intensity is significantly positive ($\gamma = 0.285$). However, the coefficient for EEFs' cross-border M&As targeting firms in other EEs is statistically insignificant ($\gamma = 0.001$). To see whether this difference is significant between subsamples constructed by the location of targets, column 4 reports estimates of $\rho_1 - \rho_3$ from Eq. (2). The coefficient for the net effect of cross-border M&As by EEFs targeting firms located in AEs (ρ_3 in Eq. (2)) is significantly positive ($\gamma = 0.284$), indicating that the positive effect of the EEFs' cross-border M&As relative to the matched domestic M&As on innovation capability (RDI) is indeed driven entirely by EE acquirers' cross-border M&As with targets in AEs. This result supports Hypothesis 2.

Having established the effect of cross-border M&As on R&D intensity in our entire sample and subsamples formed by the target's location, we investigate the determinants of the effect of cross-border M&As on R&D intensity relative to the matched domestic M&As as described in Eq. (3). Table V reports the results. The coefficients on EDU^{T-A} and PAT^{T-A} are positive and statistically significant across five models. These results indicate that the gaps in gross tertiary education enrolment ratio and patent application numbers between the acquirer and target countries contribute positively to the cross-border EE acquirer's superior post-

acquisition innovation capability compared with those conducting domestic M&As. These results provide robust support for Hypothesis 3(a) and Hypothesis 3(b).

Concerning the firm-specific control variables, all perform well in the regression, having the expected signs for all coefficients and being statistically significant. The positive and statistically significant coefficients of *ST* suggest that a higher sales turnover of an EE acquiring firm involving the cross-border M&A is positively related to the cross-border EE acquirer's superior post-acquisition innovation capability relative to similar domestic M&A. On the contrary, the coefficients of *WS* are negative and statistically significant, indicating that a higher level of the labor cost of an acquiring firm relative to its sales is negatively related to the difference in EEFs' post-M&A innovation capabilities between cross-border and domestic M&As.

[Tables IV and V about here]

ROBUSTNESS CHECK

Our main research design hinges on the assumption that each matching and difference-in-difference addresses the selection into cross-border M&As. To be concrete, it is conceivable that firms with initially superior innovation capabilities may choose to attempt cross-border M&As instead of domestic M&As. The matching is designed so that the acquirer in each matched domestic deal has similar characteristics in terms of size, industry, and deal year, hoping that it also has similar initial research capabilities as its cross-border counterpart. However, this may introduce a bias. To assess this issue, we perform analysis based on the standard difference-in-difference without matching by adopting the two-way fixed effects model as below:

$$y_{it} = \alpha_i + \tau_t + \gamma D_{1,it} D_{2,it} + X_{it} \beta + \epsilon_{it} \quad \text{Eq. (4)}$$

where y_{it} denotes RDI of firm i at time t , and α_i and τ_t are firm and time fixed effects. The variables $D_{1,it}$ and $D_{2,it}$ are the same as Eq. (1), where $D_1=1$ if the observation is cross-border M&A (or cross-border M&A with an AE target), 0 otherwise, and $D_2=1$ if the observation belongs to one year after M&A, 0 otherwise. The vector of covariates is denoted by X_{it} , which we choose the logarithm transformation of total assets and sales. Because we remove all serial acquirers from our sample, the firm-fixed effect α_i also controls for deal-specific information such as industries and home countries of acquirers and targets.

The estimates of γ are reported in Table VI. The odd (even) numbered columns are estimates without (with) covariates, X_{it} . Columns (1) and (2) show that the effect of cross-border M&As is positive but becomes statistically insignificant. This may be due to the increased uncertainty introduced by less suitable control group observations. Columns (3) and (4) show that the cross-border M&As where targets are located in AEs improve the innovative capabilities of acquirers as in our main findings reported in Table IV.

[Table VI about here]

To assess the validity of our robustness check, we plot the average RDIs by M&A type around the M&A window (Figure 1). It shows that the pre-trend in average RDI is comparable across all groups, which adds plausibility to our research design that the pre-trend in RDI is comparable.

DISCUSSION AND CONCLUSION

While inward FDIs to EEs from AEs have traditionally been the main channel for acquiring strategic assets (i.e. innovation capability), there has been an increasing trend of cross-border M&As, in the form of outbound FDI, initiated by acquirers from EEs for the same purpose. Despite the shift of the channel for obtaining innovation capability through cross-border M&As by EEFs, post-deal innovative capabilities of such springboard acquisitions by EEFs remain largely unexplored, as most quantitative empirical studies focus on the likelihood of mergers and the stock price reaction to the EEFs' cross-border M&A announcements or EEFs' post-deal financial performance. By empirically testing the major argument of the springboard perspective, this paper contributes to the emerging literature on the role of cross-border M&As conducted by EEFs as an alternative to inward FDIs in their home countries to enhance their innovation capability.

Our study shows theoretical contributions to the literature on the EEFs' cross-border M&As by extending the springboard perspective with resource dependence theory (RDT), which provides further insights into the factors attributing to the EEFs' innovation capability seeking cross-border M&As. Our theoretical framework posits that the cross-border M&As by EEFs is a springboard to gain competitive advantage against their global rivals, reduce institutional vulnerability in their home countries, and improve their home base to better compete, domestically and globally by restructuring and managing resource dependencies to both home and host market environment. In this context, the strategic response to the environmental uncertainty and constraints implies potential competitive advantage compared with their domestic investment, and how this strategic expansion is value accretive is of critical interest to scholars, policymakers and practitioners both from the host and home market-centric perspectives.

To test this theoretical framework, we have analyzed matched pairs of 266 cross-border and domestic M&As by firms from 6 emerging countries during 2003-2011. We find a significantly positive effect of post-acquisition innovation capability of cross-border M&As by EEFs compared with EEFs' domestic M&As. We find that the positive post-acquisition innovation capability is driven mainly by EEFs' cross-border acquisitions in AEs. We also find that the increase in post-M&A innovation capability of the emerging economy cross-border acquirers comes mainly from the deals where targets are based in countries with relatively superior human capital and innovation capability than those of the acquirers. These results indicate that cross-border M&A can be a springboard for firms from EEs to catch up to develop innovation capability and know-how (Luo and Tung, 2007, 2018; Awate et al., 2015), and particularly, EEFs' cross-border acquisition of firms located in AEs is an effective strategy to acquire and enhance their strategic assets in markets where such assets are abundant. Therefore, the empirical findings in this study support that our extension of the springboard perspective by RDT provides a more feasible conceptual framework for understanding the role of EEFs' cross-border M&As in pursuing their innovation capabilities, and explaining the conditions enhancing such a positive role.

Our study provides practical insights for managers of EEFs. Given increasing political, business, and environmental uncertainties within individual countries or at a global scale, EEFs should prioritize strategic decision-making to respond proactively to these uncertainties and opportunities. Compared with motivations relating to governments' influences or managerial interests, the strategic rationale for acquisition should be highlighted in EEFs' pursuit of international expansion. The ambition to seek strategic assets and increase market development can fall apart if there is a lack of capability and strategic plan for global resource-flow and product-flow systems (Luo and Tung, 2007, 2018). From the view of firms, it is pertinent to note that a firm's ability to deal with post-springboard acquisition challenges is critical as the

post-integration and post-springboard can be costly and uncertain due to institutional differences between host and home market (Liou and Rao-Nicholson, 2017; James et al., 2020). External technology and internal R&D efforts might not be compatible due to firms' ability to appropriate innovation and knowledge flows, their size and their R&D orientation, etc. (Veugelers and Cassiman, 1999; Bertrand and Zuniga, 2006; Cassiman and Veugelers, 2006; Xiao et al., 2020). To mitigate these challenges, the continuous commitment to create effective corporate structure and governance as well as the endeavor to produce an innovative culture and environment to streamline intra-corporate sharing and support for innovation is pertinent for EFFs (Xiao et al., 2020). Second, it is critical to invest in markets where access to advanced innovative capabilities is easier. This enables EFFs to maximize their strategic asset-seeking and augmentation through international acquisitions. Third, continuous R&D investments to build up innovative capabilities consolidates in turn enhance emerging economies' innovation capability at the national level. Relying on the original management and continuing their pre-acquisition operations in managing their targets may create new products and find novel solutions in the short term. However, in the long term, EFFs and their home countries will benefit more from transferring and absorbing knowledge acquired in target firms. EFFs should proactively bring advanced knowledge back home and share best practices across subsidiaries on a global scale.

Our study provides insights for policymakers, especially those in EEs. Given that the cross-border M&As, in particular those targeted in AEs, can be a crucial engine for enhancing their local firms' innovation capabilities, domestic policymakers in EEs should provide their EFFs with a set of institutional conditions favorable for locally utilizing advanced innovation capabilities obtained from their cross-border M&As. By doing so, EEs can establish a systematic and advanced national innovation system. At the same time, given that domestic deals overall underperform in their post-acquisition innovation capability in comparison to

cross-border M&As in our results, domestic policymakers in EEs should consider how to provide a better institutional and business environment to regulate, promote and monitor domestic M&As. This can help attract investment from firms in AEs and other EEs as an alternative channel of technology transfer. For managers and policymakers in AEs, understanding the organizational and institutional context of EEFs is crucial in working with them as they depend on acquirers for complementary resources and capability building.

This study is not without its limitations. First, one of the main drawbacks of our dataset is the limited available information on acquisition partners and their R&D activities. This prevents us from exploring the different dimensions of technologies and drawing a more distinct line between technology and market-related acquisitions. Second, another drawback of our dataset is the limited quantitative measures for EEFs' innovation capabilities, and the only available measure in this study is R&D intensity. This study could be complemented by future studies that are built on detailed firm-level patent information to investigate further in-depth mechanisms of EEF's innovation enhancement through their cross-border M&As. Third, previous empirical findings show that technological relatedness is an important criterion for post-acquisition innovation capability, given the potential to maximize EEF's absorptive capability. Distinguishing between the importance of technological relatedness for EEFs will provide implications for managing their strategic decisions and operations.

ENDNOTES

1. Based on the World Bank's income level classification which utilizes the gross national income (GNI), we treated their "high-income economies" as our "advanced economies". Others were labelled as our "emerging economies". Our data requirements finally left us with the following 6 Asian EEs: China, India, Indonesia, Malaysia, Philippines, and Thailand after undertaking the matching process between domestic and cross-border M&As.

2. 36 countries include Argentina, Australia, Belgium, Brazil, Bulgaria, Canada, China, Colombia, Czech Republic, Denmark, Egypt, Finland, France, Germany, Hong Kong, Indonesia, Ireland, Italy, Japan, Malaysia, Mauritius, Mexico, Netherlands, Philippines, Portugal, Singapore, Sweden, South Africa, Spain, Switzerland, Taiwan, Thailand, United Arab Emirates, United Kingdom, United States, and Viet Nam.

REFERENCES

- Ahern, K. R., Daminelli, D. and Fracassi, C. (2015), "Lost in translation? The effect of cultural values on mergers around the world", *Journal of Financial Economics*, Vol. 117 No. 1, pp.165-189.
- Amendolagine, V., Giuliani, E., Martinelli, A. and Rabelotti, R. (2018), "Chinese and Indian MNEs' shopping spree in advanced countries. How good is it for their innovative output?", *Journal of Economic Geography*, Vol. 18 No. 5, pp.1149-1176.
- Ang, S. H. and Michailova, S. (2008), "Institutional Explanations of Cross-border Alliance Modes: The Case of Emerging Economies Firms", *Management International Review*, Vol. 48, No. 5, pp.551-576.
- Awate, S., Larsen, M. M. and Mudambi, R. (2015), "Accessing vs sourcing knowledge: A comparative study of R&D internationalization between emerging and advanced economy firms", *Journal of International Business Studies*, Vol. 46 No. 1, pp.63-86.
- Aybar, B. and Ficici, A. (2009), "Cross-Border Acquisitions and Firm Value: An Analysis of Emerging-Market Multinationals", *Journal of International Business Studies*, Vol. 40 No. 8, pp.1317-1338.
- Aybar, B. and Thanakijsonbat, T. (2015), "Financing decisions and gains from cross-border acquisitions by emerging-market acquirers", *Emerging Markets Review*, Vol. 24 No. C, pp.69-80.
- Barber, B. M. and Lyon, J. D. (1996), "Detecting abnormal operating performance: the empirical power and specification of test statistics", *Journal of Financial Economics*, Vol. 41 No. 3, pp.359-399.
- Bauer, F., Schriber, S., Degischer, D. and King, D. R. (2018), "Contextualizing Speed and Cross-Border Acquisition Performance: Labor Market Flexibility and Efficiency Effects", *Journal of World Business*, Vol. 53 No. 2, pp.290-301.
- Bertrand, O. and Zuniga, P. (2006), "R&D and M&A: Are cross-border M&A different? An investigation on OECD countries", *International Journal of Industrial Organization*, Vol. 24 No. 2, pp.401-423.
- Bhagat, S., Malhotra, S. and Zhu, P. C. (2011), "Emerging country cross-border acquisitions: Characteristics, acquirer returns and cross-sectional determinants", *Emerging Markets Review*, Vol. 12 No. 3, pp.250-271.
- Blonigen, B., Taylor, C. (2000), "R&D activity and acquisitions in high technology industries: evidence from the US electronics industry", *Journal of Industrial Economics*, Vol. 47 No. 1, pp.47-71.

- Boateng, A., Du, M., Bi, X. G. and George, L. (2019), “Cultural distance and value creation of cross-border M&A: The moderating role of acquirer characteristics”, *International Review of Financial Analysis*, Vol. 63 No. C, pp.285-295.
- Bris, A. and Cabolis, C. (2008), “The Value of Investor Protection: Firm Evidence from Cross-Border Mergers”, *Review of Financial Studies*, Vol. 21 No. 2, pp.605-648.
- Buckley, P. J., Elia, S. and Kafouros, M. (2014), “Acquisitions by emerging market multinationals: Implications for firm performance”, *Journal of World Business*, Vol. 49 No. 4, pp.611-632
- Cassiman, B., Colombo, M. G., Garrone, P. and Veugelers, R. (2005), “The Impact of M&A on the R&D process. An Empirical Analysis of the Role of Technological and Market Relatedness”, *Research Policy*, Vol. 34 No. 2, pp.195-220.
- Cassiman, B. and Veugelers, R. (2006), “In Search of Complementarity in Innovation Strategy: Internal R&D and External Knowledge Acquisition”, *Management Science*, Vol. 52 No. 1, pp.68-82.
- Chan, C. M., Isobe, T. and Makino, S. (2008), “Which Country Matters? Institutional Development and Foreign Affiliate Performance”, *Strategic Management Journal*, Vol. 29 No. 11, pp.1179-1205.
- Chen, F., Liu, H. and Ge, Y. (2021), “How Does Integration Affect Industrial Innovation through Networks in Technology-Sourcing Overseas M&A? A Comparison between China and the US”, *Journal of Business Research*, Vol. 122 No. C, pp.281-92.
- Chen, Y. Y. and Young, M. N. (2010), “Cross-border mergers and acquisitions by Chinese listed companies: a principal-principal perspective”, *Asia Pacific Journal of Management*, Vol. 27 No. 3, pp.523-539.
- Cheng, Y. (2017), “Bidder Returns and Corporate Governance: Evidence from China’s domestic Acquisitions and Mergers”, *Journal of Accounting and Finance*, Vol. 17 No. 7, pp.104-139.
- Choi, S. H. and Jeon, B. N. (2011), “The impact of the macroeconomic environment on merger activity : evidence from US time-series data”, *Applied financial economics*, Vol. 21 No. 4/6, pp.233-249.
- Cuervo-Cazurra, A. Maloney, M. M. and Manrakhan, S. (2007), “Causes of the difficulties in internationalization”, *Journal of International Business Studies*, Vol. 38 No. 5, pp.709-725.
- Cuervo-Cazurra, A. and Li, C. (2021), “State ownership and internationalization: The advantage and disadvantage of stateness”, *Journal of World Business*, Vol. 56 No. 1, pp.101112.

- Davis, G. F. and Cobb, J. A. (2010), "Resource dependence theory: Past and future", Schoonhoven, C. B. and Dobbin, F. (Eds.), *Stanford's Organization Theory Renaissance, 1970–2000* (Research in the Sociology of Organizations, Volume 28), Emerald Group Publishing Limited, Bingley, pp.21-42.
- Degbey, W. Y. and Pelto, E. (2021), "Customer Knowledge Sharing in Cross-Border Mergers and Acquisitions: The Role of Customer Motivation and Promise Management", *Journal of International Management*, Vol. 27 No. 4, pp.100858.
- Deng, P. and Yang, M. (2015), "Cross-border mergers and acquisitions by emerging market firms: A comparative investigation", *International Business Review*, Vol. 24 No. 1, pp. 157-172.
- Ding, Y., Zhang, X. and Liu, Z. (2021), "Differences in returns to cross-border M&A in the short and long run: Evidence from Chinese listed firms", *Journal of Asian Economics*, Vol. 74, pp.101299.
- Doukas, J. and Travlos, N. G. (1988), "The Effect of Corporate Multinationalism on Shareholders' Wealth: Evidence from International Acquisitions", *Journal of Finance*, Vol. 43 No. 5, pp.1161-1175.
- Doukas, J. (1995), "Overinvestment, Tobin's q and gains from foreign acquisitions", *Journal of Banking & Finance*, Vol. 19 No. 7, pp.1285–1303.
- Gaffney, N., Kedia, B. and Clampit, J. (2013), "A resource dependence perspective of EMNE FDI strategy", *International Business Review*, Vol. 22 No. 6, pp.1092-1100.
- Gaur, A., Kumar, V. and Singh, D. A. (2013), "Institutions, Resources, and Internationalization of Emerging Economy Firms", *Journal of World Business*, Vol. 49 No. 1, pp.12-20.
- Gao, L., Liu, X. and Lioliou, E. (2015), "A double-edged sword: the impact of institutions and political relations on the international market expansion of Chinese state-owned enterprises", *Journal of Chinese Economic and Business Studies*, Vol. 13 No. 2, pp.105-125.
- Ghemawat, P. and Hout, T. (2008), "Tomorrow's global giants? Not the usual suspects", *Harvard Business Review*, Vol. 86 No. 11, pp.80-88.
- Gubbi, S. R., Aulakh, P. S., Ray, S., Sarkar, M. B. and Chittoor, R. (2010), "Do international acquisitions by emerging-economy firms create shareholder value? The case of Indian firms", *Journal of International Business Studies*, Vol. 41 No. 3, pp.397-418.
- Hansen, U. E., Fold, N. and Hansen, T. (2016), "Upgrading to lead firm position via international acquisition: learning from the global biomass power plant industry", *Journal of Economic Geography*, Vol. 16 No. 1, pp.131-153.

Heckman, J. J., Ichimura, H. and Todd, P. E. (1997), "Matching as an econometric evaluation estimator: Evidence from evaluating a job training programme", *The review of economic studies*, Vol. 64 No. 4, pp.605-654.

Hillman, A. J., Withers, M. C. and Collins, B. J. (2009), "Resource dependence theory: A review", *Journal of Management*, Vol. 35 No. 6, pp.1404-1427.

Holmes, R. M. Jr., Miller, T., Hitt, M. A. and Salmador, M. P. (2013), "The Interrelationships Among Informal Institutions, Formal Institutions, and Inward Foreign Direct Investment", *Journal of Management*, Vol. 39 No. 2, pp. 531-566.

Hopkins, H. D. (1999), "Cross-border mergers and acquisitions: Global and regional perspectives", *Journal of International Management*, Vol. 5 No. 3, pp.207-239.

Hsu, P.-H., Huang, P., Humphery-Jenner, M. and Powell, R. (2021), "Cross-border mergers and acquisitions for innovation", *Journal of International Money and Finance*, Vol. 112, pp. 102320.

International Monetary Fund (2015). *IMF Annual Report 2015: Tackle Challenges Together*, Washington, DC.

James, B. E., Sawant, R. J. and Bendickson, J. S. (2020), "Emerging Market Multinationals' Firm-Specific Advantages, Institutional Distance, and Foreign Acquisition Location Choice", *International Business Review*, Vol. 29 No. 5, pp.101702.

Jongwanich, J. (2019), "Capital controls in emerging east Asia: How do they affect investment flows", *Journal of Asian Economics*, Vol. 62 No. 2, pp.17-38.

Kahle, K. M. and Walkling, R. A. (1996), "The Impact of Industry Classifications on Financial Research", *Journal of Financial and Quantitative Analysis*, Vol. 31 No. 3, pp.309-335.

Kang, J.-K. (1993), "The International Market for Corporate Control: Mergers and Acquisitions of U.S. Firms by Japanese Firms", *Journal of Financial Economics*, Vol. 34 No. 3, pp.345-371.

Kang, L., Peng, F. and Anwar, S. (2023), "Cultural heterogeneity, acquisition experience and the performance of Chinese cross-border acquisitions", *Journal of the Asia Pacific Economy*, Vol. 28 No. 2, pp.738-765.

Khanna, T. and Palepu, K. G. (2000), "Is Group Affiliation Profitable in Emerging Markets? An Analysis of Diversified Indian Business Groups", *Journal of Finance*, Vol. 55 No. 2, pp.867-891.

Kumar, D., Sengupta, K. and Bhattacharya, M. (2023), "Macroeconomic Influences on M&A Deal Outcomes: An Analysis of Domestic and Cross-Border M&As in Developed and Emerging Economies", *Journal of Business Research*, Vol. 161 No. C, pp.113831.

Kumaraswamy, A., Mudambi, R., Saranga, H. and Tripathy, A. (2012), “Catch-up strategies in the Indian auto components industry: Domestic firms’ responses to market liberalization Additional contact information”, *Journal of International Business Studies*, Vol. 43 No. 4, pp.368-395.

Kyobe, A., Oner, C., Perrelli, R., Sanya, S., Tsounta, E. and Zhang, Z. (2014), “Emerging Markets in transition: Growth Prospects and Challenges”, *IMF Staff Discussion Notes*.

Lebedev, S., Peng, M. W. Xie, E. and Stevens, C. E. (2015), “Mergers and acquisitions in and out of emerging economies”, *Journal of World Business*, Vol. 50 No. 4, pp.651-662.

Lee, S.-H., Oded, S. and Li, J. (2008), “Cultural Distance, Investment Flow, and Control in Cross-Border Cooperation”, *Strategic Management Journal*, Vol. 29 No. 10, pp.1117-1125.

Li, F., Chen, Y. and Liu, Y. (2019), “Integration Modes, Global Networks, and Knowledge Diffusion in Overseas M&As by Emerging Market Firms”, *Journal of Knowledge Management*, Vol. 23 No. 7, pp.1289-1313.

Li, J. and Wu, X. (2022), “Technology-Driven Cross-Border M&A, CSR, and Enterprise Innovation Performance - Evidence from China”, *Sustainability*, Vol. 14 No. 7, pp.1-32.

Lim, J., Makhija, A. K. and Shenkar, O. (2016), “The asymmetric relationship between national cultural distance and target premiums in cross-border M&A”, *Journal of Corporate Finance*, Vol. 41, pp.542-571.

Lin, Z. (John), Peng, M. W., Yang, H. and Li, S. S. (2009), “How do networks and learning drive M&As? An institutional comparison between China and the United States”, *Strategic Management Journal*, Vol. 30 No. 10, pp.1113-1132.

Liou, R.-S., and Rao-Nicholson, R. (2017), “Out of Africa: The role of institutional distance and host-home colonial tie in South African Firms’ post-acquisition performance in developed economies”, *International Business Review*, Vol. 26 No. 6, pp.1184-1195.

Luo, Y. and Tung, R. L. (2007), “International expansion of emerging market enterprises: A springboard perspective”, *Journal of International Business Studies*, Vol. 38 No. 4, pp.481-498.

Luo, Y. and Tung, R. L. (2018), “A general theory of springboard MNEs”, *Journal of International Business Studies*, Vol. 49 No. 2, pp.129-152.

Meyer, K. E. (2015), “What is strategic asset seeking FDI?”, *Multinational Business Review*, Vol. 23 No. 1, pp.57-66.

Moran, T. H. (2005), “How does FDI affect host country development? Using industry case studies to make reliable generalization”, Moran, T. H. (ed.), *Does foreign direct investment promote development?*, Institute for International Economics, Washington DC.

Nair, S. R., Demirbag, M. and Mellahi, K. (2016), "Reverse knowledge transfer in emerging market multinationals: The Indian context", *International Business Review*, Vol. 25 No. 1, pp.152-164.

Nicholson, R. R. and Salaber, J. (2013), "The motives and performance of cross-border acquirers from emerging economies: Comparison between Chinese and Indian firms", *International Business Review*, Vol. 22 No. 6, pp.963-980.

Ning, L., Kuo, J.-M., Strange, R. and Wang, B. (2014), "International investors' reactions to cross-border acquisitions by emerging market multinationals", *International Business Review*, Vol. 23 No. 4, pp.811-823.

OECD (2002), *Foreign Direct Investment for Development: Maximising benefits, minimising costs*, OECD Publishing, Paris.

Palepu, K. G. (1986), "Predicting Takeover Targets: A Methodological and Empirical Analysis", *Journal of Accounting and Economics*, Vol. 8 No. 1, pp. 3-35.

Pfeffer, J. (1987), "A resource dependence perspective on interorganizational relations", Mizruchi, M. S. and Schwartz, M. (Eds.), *Intercorporate Relations: The Structural Analysis of Business*, Cambridge University Press, Cambridge, pp.25-55.

Pfeffer, J. (2005), "Developing resource dependence theory: how theory is affected by its environment", Smith, K. G. and Hitt, M. A. (Eds.), *Great Minds in Management: The Process of Theory Development*, Oxford University Press, New York.

Pfeffer, J. and Salancik, G. R. (1978), *The External Control of Organizations: A Resource Dependence Perspective*, Harper & Row, New York.

Roth, J., Sant'Anna, P.H., Bilinski, A. and Poe, J., (2022), "What's trending in difference-in-differences? A synthesis of the recent econometrics literature", Papers 2201.01194, arXiv.org, available at: <https://arxiv.org/pdf/2201.01194.pdf>

Shimizu, k., Hitt, M. A., Vaidyanath, D. and Pisano, V. (2004), "Theoretical foundations of cross-border mergers and acquisitions: A review of current research and recommendations for the future", *Journal of International Management*, Vol. 10 No. 3, pp.307-353.

Tao, F., Liu, X., Gao, L. and Xia, E. (2017), "Do cross-border mergers and acquisitions increase short-term market performance? the case of Chinese firms", *International Business Review*, Vol. 26 No. 1, pp.189-202.

Thanos, I. C., Papadakis, V. M. and Angwin, D. N. (2020), "Does changing contexts affect linkages throughout the mergers and acquisition process? A multiphasic investigation of motives, pre-and post acquisition and performance", *Strategic Change*, Vol. 29 No. 2, pp.149-164.

Tsang, E. W., Yip, P. S. and Toh, M. H. (2008), “The impact of R&D on value added for domestic and foreign firms in a newly industrialized economy”, *International Business Review*, Vol. 17 No. 4, pp.423-441.

Uhlenbruck, K., Meyer, K. E. and Hitt, M. A. (2003), “Organizational Transformation in Transition Economies: Resource-based and Organizational Learning Perspectives”, *Journal of Management Studies*, Vol. 40 No. 2, pp.257-282.

Uhlenbruck, K., Hitt, M. A. and Semadeni, M. (2006), “Market value effects of acquisitions involving internet firms: A resource-based analysis”, *Strategic Management Journal*, Vol. 27 No. 10, pp.899-913.

Vaara, E., Junni, P., Sarala, R.M., Ehrnrooth, M. and Koveshnikov, A. (2013), “Attributional tendencies in cultural explanations of M&A performance”, *Strategic Management Journal*, Vol. 35 No. 9, pp.1302-1317.

Veugelers, R. and Cassiman, B. (1999), “Make and buy in innovation strategies: evidence from Belgian manufacturing firms”, *Research Policy*, Vol. 28 No. 1, pp.63-80.

Wang, C., Hong, J., Kafouros, M. and Wright, M. (2012), “Exploring the role of government involvement in outward FDI from emerging economies”, *Journal of International Business Studies*, Vol. 43 No. 7, pp.655-676.

Wry, T., Cobb, A. and Aldrich, H. E. (2013), “More than a metaphor: Assessing the historical legacy of resource dependence and its contemporary promise a theory of environmental complexity”, *Academy of Management Annals*, Vol. 7 No. 1, pp.439-486.

Xiao, S. S., Lew, Y. K. and Park, B. I. (2020), “International Network Searching, Learning, and Explorative Capability: Small and Medium-sized Enterprises from China”, *Management International Review*, Vol. 60 No. 4, pp.597-621.

Zhang, W., Wang, K., Li, L., Chen, Y. and Wang, X. (2018), “The impact of firms’ mergers and acquisitions on their performance in emerging economies”, *Technological Forecasting and Social Change*, Vol. 135 No. C, pp.208-216.

Zhang, J. (2022). “Liability of emergingness and EMNEs’ cross-border acquisition completion: A legitimacy perspective”, *International Business Review*, Vol. 31 No. 2, pp.101951.

Figure 1. The average R&D Intensity (RDI) of EE Acquirers by M&A type around the event window

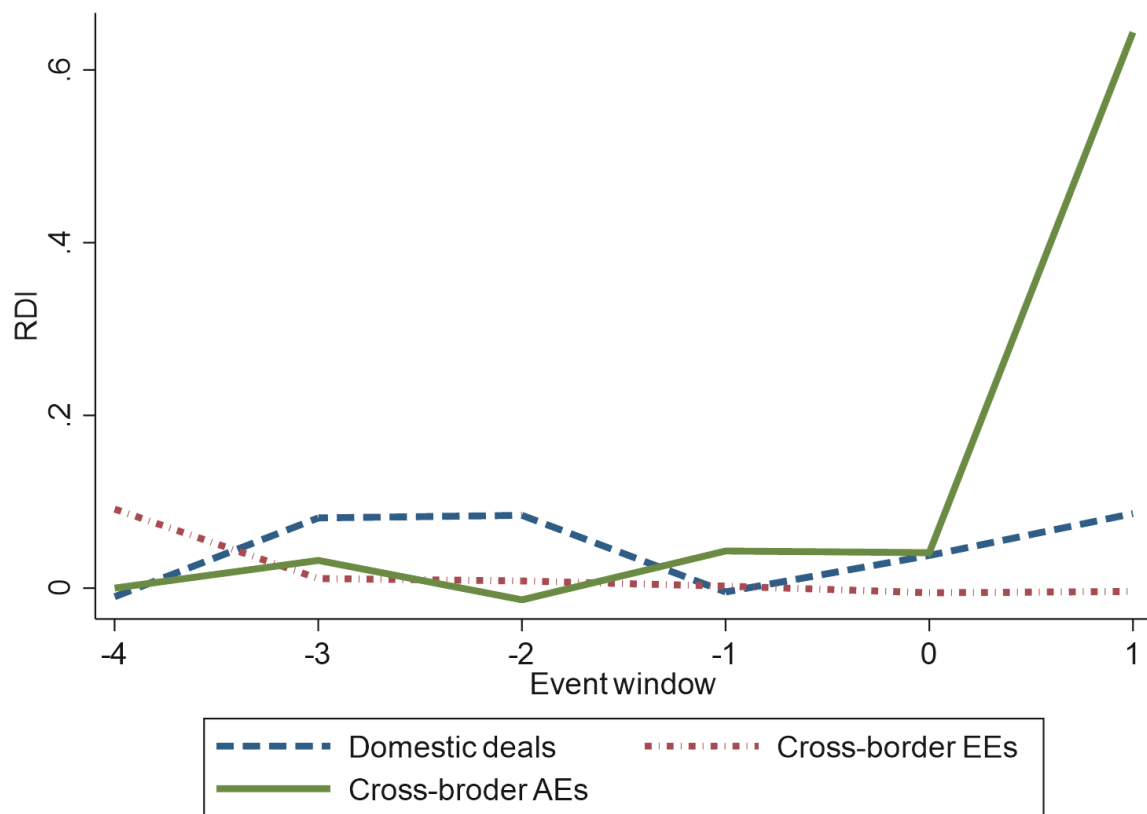


Table I. Overview of cross-border M&As in the matched sample

<i>Panel A. The number of observations over the data cleaning process</i>						
Home country	Initial file	Firm ID available	Complete M&As	Single M&A firms	Cross-border M&As	Data requirement & Matching
China	11120	2360	1084	669	68	18
Indonesia	565	252	150	83	12	1
India	5013	1980	1111	558	175	153
Malaysia	5061	2268	1655	800	89	87
Philippines	512	216	132	78	11	1
Thailand	800	382	215	133	19	6
Total	23071	7458	4347	2321	374	266

<i>Panel B. The number of cross-border M&As in the matched sample by acquirer country and year of M&A</i>									
	2004	2005	2006	2007	2008	2009	2010	2011	Total
China	0	0	0	5	7	4	2	0	18
Indonesia	0	0	0	0	0	0	0	1	1
India	0	0	34	38	38	12	30	1	153
Malaysia	1	1	2	10	14	25	33	1	87
Philippines	0	0	0	0	1	0	0	0	1
Thailand	0	0	0	0	1	1	4	0	6
Total	1	1	36	53	61	42	69	3	266

<i>Panel C. The number of cross-border M&As in the matched sample by acquirer and target country</i>																																					
Acquirer	Target																												Total								
	AE	AR	AU	BE	BG	BR	CA	CH	CN	CO	CZ	DE	DK	EG	ES	FI	FR	GB	HK	ID	IE	IT	JP	MU	MX	MY	NL	PH		PT	SE	SG	TH	TW	US	VN	ZA
CN	0	0	3	0	0	0	3	0	0	0	0	2	0	0	0	0	1	0	6	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	18
ID	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
IN	4	2	0	1	2	2	9	2	1	1	2	6	1	1	4	2	10	19	1	1	2	11	1	3	1	2	5	0	1	1	2	1	0	47	0	5	153
MY	2	0	1	0	0	3	0	1	36	0	0	2	0	1	0	0	0	0	13	0	0	1	1	0	0	0	0	0	0	0	21	2	1	1	1	0	87
PH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
TH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	3	0	0	0	0	0	6
Total	6	2	5	1	2	5	12	3	37	1	2	10	1	2	4	2	11	19	20	1	2	12	3	3	1	4	6	1	1	1	27	3	1	49	1	5	266

Notes: AE: United Arab Emirates, AR: Argentina, AU: Australia, BE: Belgium, BG: Bulgaria, BR: Brazil, CA: Canada, CH: Switzerland, CN: China, CO: Colombia, CZ: Czech Republic, DE: Germany, DK: Denmark, EG: Egypt, ES: Spain, FI: Finland, FR: France, GB: United Kingdom, HK: Hong Kong, ID: Indonesia, IE: Ireland, IN: India, IT: Italy, JP: Japan, MU: Mauritius, MX: Mexico, MY: Malaysia, NL: Netherlands, PH: Philippines, PT: Portugal, SE: Sweden, SG: Singapore, TH: Thailand, TW: Taiwan, US: United States, VN: Viet Nam, and ZA: South Africa.

Table II. The overview of initial and matched sample used in this study

<i>Panel A. The average total asset size of acquiring firms: pre- and post- M&A (in USD millions): Initial Sample</i>			
	Domestic (1)	Cross-border (2)	Diff [(2) – (1)]
Pre M&A	1253.2	1373.8	120.6 (0.56)
Post M&A	1931.7	2115.0	183.3 (0.56)
(Post M&A – Pre M&A)	678.5	741.2	62.7 (0.54)
N	2195	464	2659
<i>Panel B. The average total asset size of acquiring firms: pre- and post- M&A (in USD millions): Matched Sample</i>			
	Domestic (1)	Cross-border (2)	Diff [(2) – (1)]
Pre M&A	813.2	771.1	42.0 (0.21)
Post M&A	1267.7	1212.3	55.4 (0.19)
(Post M&A – Pre M&A)	454.5	441.2	13.4 (0.04)
N	266	266	

Notes: The numbers in parentheses in Panel A and Panel B are robust t-statistics; Data source for the average total asset size of acquiring firms: the Oriana dataset from the Bureau van Dijk.

Table III. Descriptive statistics for variables used in Eq. (1) – Eq. (3) and correlation matrix for variables used in Eq. (3)

<i>Panel A. Descriptive Statistics</i>						
	Count	Mean	S.D.	Min.	Max.	Remarks
<i>RDI</i>	266	0.60	3.80	0	51.1	R&D Intensity= R&D expenditure / Total assets * 100
ΔRDI^{C-D}	266	0.21	3.17	-2.15	51.1	$(RDI_{s+1}^C - RDI_{s-1}^C) - (RDI_{s+1}^D - RDI_{s-1}^D)$
EDU^{T-A}	199	34.63	30.27	-18.9	79.6	Gross tertiary education enrolment gap between acquirer and target countries
PAT^{T-A}	252	1.14	5.18	-15.3	11.2	Total patent application number gap between acquirer and target countries
$GDPPC^A$	266	7.47	0.91	6.61	8.75	Acquirer country's GDP per capita (USD) in log
$GDPPC^T$	265	9.87	1.12	6.71	10.9	Target country's GDP per capita (USD) in log
<i>ST</i>	266	85.25	48.11	1.73	364.4	Acquiring firm's sales turnover = sales/total assets * 100
<i>WS</i>	237	15.75	15.16	1.06	78.3	Acquiring firm's wage to sales ratio = wages/sales * 100
$D_{DealType}$	266	0.03	0.18	0	1	Dummy=1 if the cross-border M&A is public takeover
$D_{HighTech}$	266	0.18	0.39	0	1	Dummy=1 if the acquirer is in high tech industry

<i>Panel B. Correlation matrix</i>										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
(1) ΔRDI^{C-D}	1									
(2) EDU^{T-A}	0.080	1								
(3) PAT^{T-A}	0.057	-0.18**	1							
(4) $GDPPC^A$	-0.053	-0.83***	0.31***	1						
(5) $GDPPC^T$	0.049	0.84***	-0.28***	-0.48***	1					
(6) <i>ST</i>	0.085	0.055	-0.011	-0.085	0.042	1				
(7) <i>WS</i>	-0.045	0.32***	0.093	-0.19***	0.32***	0.045	1			
(8) $D_{DealType}$	-0.013	0.16**	0.061	0.019	0.11*	0.13**	0.10	1		
(9) $D_{HighTech}$	-0.017	0.11	-0.18***	-0.0063	0.15**	-0.049	-0.060	0.074	1	

Significance levels: * p<0.10, ** p<0.05 and *** p<0.01; Explanatory variables are as of t=s-1 where s denotes the year of M&A to avoid spurious causality; Data sources: (i) Oriana dataset from the Bureau van Dijk for *RDI*, *ST*, and *WS*, (ii) Zephyr dataset from the Bureau van Dijk for $D_{DealType}$, and $D_{HighTech}$, and (iii) World Bank for *EDU*, *PAT* and *GDPPC*.

Table IV. The net effect of cross-border M&As relative to domestic M&As on post-M&A innovation capability of EEFs

	RDI			
	Full sample (1)	Targets in AEs (2)	Targets in other EEs (3)	Net effect of CB M&As with AE targets: ρ 's (4)
Pre-deal difference	0.191** (2.44)	0.270*** (3.45)	-0.037*** (-5.45)	0.307*** (2.97)
Changes in control group (matched domestic M&A)	0.014 (0.20)	0.019 (0.21)	-0.001 (-0.06)	0.019 (0.21)
The effect of cross-border M&As	0.212** (1.98)	0.285** (2.12)	0.001 (0.06)	0.284** (2.05)
No of Matched Deals	266	198	68	266

Note: Robust t-statistics in parenthesis. Significance levels: * p<0.10, ** p<0.05 and *** p<0.01

Table V. What explains changes in R&D intensity? (DV = ΔRDI^{C-D})

	Model 1	Model 2	Model 3	Model 4	Model 5
EDU^{T-A}	0.035** (6.09)		0.035** (6.48)		0.020** (2.50)
PAT^{T-A}		0.098** (3.31)		0.098** (3.22)	0.079** (2.17)
ST	0.011** (2.1)	0.008 (1.59)	0.010** (2.09)	0.008 (1.57)	0.010** (2.16)
WS	-0.016** (-3.59)	-0.014** (-2.00)	-0.017** (-3.38)	-0.014** (-2.02)	-0.021** (-4.10)
$D_{DealType}$			-0.546** (-2.75)	-0.176 (-0.81)	-0.512** (-2.27)
$D_{HighTech}$			0.37 (1.48)	0.077 (0.69)	0.254 (1.05)
$GDPPC^A$	0.003 (0.02)	-0.635** (-2.99)	0.059 (0.44)	-0.623** (-2.90)	-0.331 (-0.76)
$GDPPC^T$	0.096 (0.74)	0.361** (2.53)	0.106 (0.77)	0.363** (2.55)	0.275 (1.32)
N	162	208	162	208	152
Time fixed effect	Yes	Yes	Yes	Yes	Yes

Notes: Robust t statistics in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Constants are suppressed.

Table VI. The effect of cross-border M&As - robustness check

	(1)	(2)	(3)	(4)
	All Cross-border	All Cross-border	Cross-border AEs	Cross-border AEs
The effect of CB M&As	0.026 (0.357)	0.022 (0.297)	0.196** (2.208)	0.185** (2.075)
<i>N</i>	1638	1619	1638	1619
Firm & time fixed effects	Yes	Yes	Yes	Yes
Firm-level controls	No	Yes	No	Yes

Notes: Robust *t* statistics in parentheses, * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Firm-level controls include logarithm transformation of total assets and sales.