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Chapter

Competitive Advantages of Cross-Border M&As to Non-Location-Bound Chinese ICT Firms

Yan Chen, Fei Li, Jaime Ortiz and Wenbo Guo

Abstract

Cross-border mergers and acquisitions (M&As) undertaken by emerging market firms have been associated with competitive advantage. However, little research has focused on the transferability of this enhanced competitive advantage. Even less is known about the role played by state-owned enterprises. This paper investigates whether Chinese information and communications technology firms that undertake cross-border M&As can improve their non-location bound competitive advantage. We used cross-border data between 2010 and 2017 and propensity-score matching and differences-in-differences approaches. We found that cross-border M&As significantly improve the home-country-bound competitive advantage. However, the effect on non-location bound competitive advantage is not significant. From the perspective of impact mechanism, this is due to a crowding-out effect of cross-border M&As on research and development (R&D) investment which inhibits non-location bound advantages. It also results from state-owned enterprises which are generally considered to have institutional advantages, not effectively using cross-border M&As to enhance their competitive advantages. This research distinguishes and quantifies home-country-bound competitive advantage and non-location bound competitive advantage and establishes a framework for how cross-border M&As enhance enterprise competitive advantage. It provides an explanation for the extant research on whether state-owned enterprises can enhance their competitive advantage through cross-border M&As, and what kind of advantage they attain.

Keywords: China, non-location-bound competitive advantage, home-country-bound competitive advantage, cross-border M&As, state-owned enterprises

1. Introduction

Competitive advantage is a major determinant of firm survival and sustained profitability and perhaps the most decisive factor that enables emerging market multinational enterprises (EMNEs) to catch up with MNEs from developed countries. In the existing research which delved into competitive advantage in emerging market countries, foreign direct investment (FDI) is considered the most important way to enhance EMNE competitive advantage and technological catch-up [1–3]. Luo and Tung [4] pointed out that, due to weaker innovation capabilities and

knowledge of resource reserves found in their home countries, EMNEs use FDI as a 'springboard' by adding strategic assets to establish a competitive advantage and achieve corporate growth. M&As undertaken by EMNEs have increased significantly over time, especially China's cross-border ones. According to Thomson Reuters and Price Water House Coopers, in 2016 Chinese firms undertook as many as 923 cross-border M&A transactions (excluding M&As in Hong Kong SAR and Macao) representing a 142% increase from 2015.

One of the most active fields of innovation, and also one of the fiercest areas of technological competition globally, is represented by the new generation of information and communications technology (ICT) firms which focus on cloud computing, big data, and artificial intelligence. The ICT industry has incurred substantial FDI especially across emerging economies [5, 6]. The ICT industry is also characterised by significant technological dynamism as a high proportion of firms engage in internationalisation to obtain strategic assets outside of the firm boundaries [7]. The Deloitte's 2017 China TMT Industry Overseas M&A Report shows that between 2012 and 2016, the growth rate of cross-border M&A transactions in the Chinese technology, media, and telecom (TMT) industry reached 20%. In contrast, their worldwide growth rate reached 8% in the same period. China has become the most active M&A initiator in the TMT industry. As one of the ten key areas of China's manufacturing, the new generation of information technology plays a pivotal role in China's implementation of innovation-driven development strategies and high-quality foreign cooperation. However, since 2017, cross-border M&As of China's ICT industry has faced more stringent scrutiny by the United States and EU countries. The U.S. government identifies ICT as a critical technology industry, especially in the 5G and semiconductor arena. Foreign direct investment in these industries has been subject to strict security scrutiny. For example, in February 2017, the Chinese state-owned enterprise (SOE) named National Integrated Circuit -Industry Investment -Fund Co., Ltd. acquired Xcerra, an American semiconductor testing equipment manufacturer. This acquisition was quickly objected to by the Committee on Foreign Investment in the United States (CFIUS), on national security grounds. Xcerra and the Chinese acquirer signed the termination agreement on the same day. Therefore, in the current international investment environment, it is necessary to reconsider whether cross-border M&As are the best way for Chinese ICT enterprises to enhance their core competitiveness. A case in point is whether or not the background of state-owned enterprises enhances or hinder the enterprises' use of external strategic resources to enhance their competitive advantage.

Recent studies have focused on the adaptation of internalisation theory for EMNEs [3, 8]. Such theory states that foreign investments undertaken by EMNEs in the absence of firm-specific-advantages (FSAs) are made to acquire FSAs and the intangibles of foreign firms [9]. Therefore, the goal of foreign investment is not to exploit FSAs but to acquire them [10]. However, little empirical research has been conducted to examine the actual effect and impact path of cross-border M&As on FSAs of EMNEs. In that context, internalisation theory proposes that FSAs can either be transferable (non-location-bound) such as technological knowledge, or specific to a local context (location-bound) such as local market knowledge and access to local networks [11, 12]. Some studies believe that firms from emerging economies such as China, adopt cross-border M&As to gain strategic resources and then redeploy and integrate them to establish a competitive advantage which can be transferred in the global market [2, 4]. Other scholars pointed out that EMNEs undertake cross-border M&As in order to strengthen their strategic assets in their home countries and seek local—rather than global—expansion by leveraging cheap labour, natural resources, and institutional advantages of their home countries [13].

Benefiting from the rapid economic growth of their home countries, EMNEs can expand into local markets and gain considerable economic returns through cross-border M&As [14]. However, many EMNEs have fallen into a pattern of continuous integration and strengthening of external and regional bundling assets, giving them leverage in their home markets [15]. For example, upon acquiring Volvo, Geely Automobile achieved a rapid revenue growth at the expense of Volvo's strong R&D capabilities and China's huge auto market, low labour costs, and policy support. However, Geely's overseas sales' share has been declining, with a 2016 domestic sales ratio of 97.2%. Strategic assets acquired through CBAs can only establish an EMNE's competitive advantage if they are attached to home market supports such as natural resource endowments, labour force, market scale, and local culture [16].

Although the existing literature favours the impact of cross-border M&As, mixed results have been found concerning the impact on different types of competitive advantage. To examine the inconsistency of current views, this paper distinguishes and defines two types of competitive advantage of EMNEs according to their boundedness to its home country. On the one hand, home-country-bound competitive advantages are defined as a location-bound FSA which is highly dependent on the home market and cannot transferred to other locations and therefore limits the capability of EMNEs to become global firms, e.g. home market scale [14], political connection [17]. On the other hand, non-location-bound competitive advantages are defined as those that can be transferred within the enterprise itself and can increase leverage in the global market without the boundness of location, e.g., global brand, and technology knowledge [18]. As opposed to home-country-bound competitive advantages, non-location-bound competitive advantages can reduce the liability of foreignness, and are associated with a greater capacity to penetrate geographically distant markets and achieve a global geographic scope [7]. They are therefore the rationale for measuring the internationalisation ability of enterprises [19, 20], and act as the criterion to test whether cross-border M&A can constitute the "springboard" of internationalisation [20, 21].

State ownership has also been a topic of research in cross-border M&As of EMNEs [22]. Compared to non-SOEs, characteristics of SOEs such as non-economic motivations, long-term orientation, and different risk preferences influence the foreign entry strategies of SOEs [23]. Some literature suggests that the state can provide state-owned enterprises (SOEs) with monopolist advantages at home by creating and enforcing rules that shape market entry and transactions, and by providing preferential access to financial resources [24]. SOEs have better access to resources in their home countries than non-SOEs, and thus are less concerned about the high operating costs associated with larger geographic distances [25]. On the other hand, the state's economic and social objectives can inhibit the SOEs' ability to develop FSAs [26]. However, the existing literature focuses on whether SOEs can enhance their competitive advantage through cross-border M&As and what kind of advantage they can attain and remains quite controversial.

We studied the effect of cross-border M&As on enterprise competitive advantage by distinguishing between home-country-bound competitive advantage and non-location bound competitive advantage in Chinese ICT firms' contexts. We addressed the following research questions:

1. Can cross-border M&As improve the non-location-bound competitive advantages of Chinese ICT firms?

2. Does state ownership enhance the competitive advantage of Chinese ICT firms through cross-border M&As?

This research enriches the understanding of FSAs and internalisation theory by building on insights from home country dependency and by taking into account the particular heterogeneity of EMNEs such as internationalisation experience and state ownership. We examined cross-border M&As data from Chinese firms in the information and communication technology industry for the period of 2010–2017. Using the propensity-score matching and differences-in-differences approaches, we compared variations in the competitive advantages of Chinese firm that have undertaken CBAs and those that have not, to observe the net effect of CBAs on competitive advantage. We compared the short-term and long-term effects and examined the impact mechanism of CBAs on competitive advantage.

This study contributes to the existing literature in the following ways. First, based on the transferability of competitive advantage, it distinguishes and quantifies home-country-bound competitive advantage and non-location bound competitive advantage, and establishes a framework for how cross-border M&As enhance enterprise competitive advantage. Second, it empirically analyses the effects and impacts of cross-border M&As on competitive advantage, deepening the internal logic of M&As and competitive advantage. Third, this paper focuses on the moderating effects of firm heterogeneity and internationalisation experience and enterprise ownership to find out the differences between different types of ICT enterprises in obtaining competitive advantage through cross-border M&A. It provides an explanation for the extant research on whether SOEs can enhance their competitive advantage through cross-border M&As, and what kind of advantage they attain. The empirical results have distinct implications for the Chinese government in redirecting the FDI endeavours of Chinese enterprises.

This chapter is structured as follows. We first outline the theoretical foundations, develop our hypotheses, and describe the research design and methodology. Then, we present and discuss the results. We conclude by discussing theoretical and managerial implications, recognising limitations, and suggesting future research possibilities.

2. Theoretical background

2.1 Cross-border M&As and competitive advantage enhancement

Essentially, to compete successfully in any given environment, firms need to cross certain asset thresholds. Different types of complementary assets determine specific asset thresholds, which must be bundled together. The asset threshold attained by this 'bundling' determines an enterprise's competitive advantage. Furthermore, having acquired external strategic assets through cross-border M&As, enterprises also need to integrate and bundle them with their own internal ones. Some enterprise assets are not firm-specific but are associated with those particular locations in which an enterprise only has 'special access rights. 'Bundling' external strategic assets and assets with different attributes determines alternative asset thresholds—i.e., cross-border M&As will have contrasting impacts on regional competitive advantages (linked to specific locations) and non-regional competitive ones (that are not location-specific).

First, enterprises 'bundle' external strategic assets with firm-specific-ones to create a non-regional competitive advantage, which we define as a non-location-bound competitive advantage. After the completion of cross-border M&As, firms integrate external strategic assets with their own tangible specific ones in order to develop a competitive advantage that can be transferred within the enterprise itself. On the other hand, cross-border M&As also help connect with suppliers and new customers, broadening the scope of access to external complementary strategic

assets and best innovation practices [27], enhancing technology and management levels, and transferring and deploying technology and management experience in the global market [2]. Once a merger is complete, the focus is on enhancing the EMNE's weak absorption of external strategic assets. Second, an enterprise 'bundles' external strategic assets with non-firm-specific ones to which the enterprise only has 'special access rights', such as industry franchise rights granted by the home country government and actual knowledge of the home market in order to create a regional competitive advantage that we define as 'home-country-bound'. Although the rapid growth of emerging economies has increased domestic market demand, indigenous technology applicability is generally low [28]. In order to establish economies of scale in their home countries and seize market opportunities, enterprises acquire strategic resources through cross-border M&As and introduce these resources directly into their domestic markets [13], using low manpower and resource costs, and the institutional preferential policies of their home countries to expand their scale of production. In addition, firms also promote integration into overseas business networks, enhance professional levels, and achieve geographical matching of product development, production, and sales [29]. That is to say that, when faced a huge domestic market demand, enterprises further enhance their scale efficiency advantage through cross-border M&As. Based on the above arguments, we established a theoretical framework for how cross-border M&As enhance competitive advantage (**Figure 1**), and hypothesised that:

Hypothesis 1. Cross-border M&As effectively promote the improvement of home-country-bound and non-location-bound competitive advantages.

Besides providing an important channel for firms to obtain strategic resources, cross-border M&As also increase the complexity of operations as firms need to coordinate resources located in different geographical locations [2], and corporate heterogeneity and transaction uncertainty diversify corporate strategy and performance [30, 31]. At the same time, research has been conducted in the context of a large-scale 'going out' of Chinese enterprises into cross-border M&As conducted by firms with government support. Thus, we chose internationalisation experience and state ownership as variables to analyse the adjustment mechanism of cross-border M&As and competitive advantage. First, empirical knowledge is an important resource component of an enterprise, as it plays a key role in international business and strategic management and constitutes a core element of the Uppsala internationalisation model [32]. Second, state ownership is the most important institutional factor affecting firms in emerging economies [22]. Different ownership systems have several home country institutional resources, such as low-interest financing and tax reduction [33], and each system's strategic goals of internationalisation are also significantly different. Enterprises with state ownership can access more institutional resources in their home countries, such as low-interest financing and tax relief [33]. Hence, their internationalisation goals are usually different from those of private enterprises.
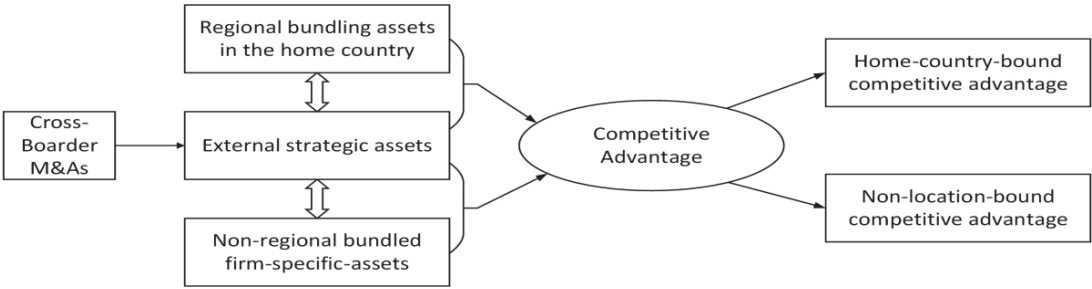

Figure 1.
Theoretical framework.

2.2 Internationalisation experience and M&A competitive advantage effect

EMNEs face the challenges posed by their 'liability of emergingness' and are often the first generation of firms venturing abroad from their home countries, depending significantly on home country market scale [34]. An important challenge that firms face when they seek to enter foreign markets relates to their being outsiders in local networks and to their lack of knowledge of local business opportunities. However, it can be argued that firms with region-specific experience are less likely to suffer from such liability, as participation in regional networks in the internationalisation process provides them with better access to local resources and institutional contacts [35].

Organisational learning theory [36] suggests that firm experiences result in the creation of knowledge that significantly influences firm strategies and related outcomes. Firms are viewed as routine-based systems wherein prior experiences are coded into routines that guide future behaviours. In the context of cross-border M&As, internationalisation experience has also been closely linked to the ability of the acquiring firm to absorb new information related to potential targets, something that can be valuable in the improvement of competitive advantage. However, when acquiring firms are lacking in prior experience, their ability to absorb and assess acquisition-related information is generally limited [35].

In addition, the promotion of cross-border M&As for competitive advantage needs to be realised through resource integration and resource restructuring, which requires firms to have a rich international experience to deal with the integration challenges they face in the aftermath of M&As [33]. Transfer of capabilities between acquiring and target firm as one of the main pillars of integration process, which in turn is argued to have direct and indirect effects on other aspects of post-acquisition performance. However, due to its tacit and socially complex nature, transfer of knowledge across organisational boundaries is not an easy task [37]. Johanson and Vahlne [38] pointed out that such rich international experience helps firms to identify opportunities and risks, strengthen their ability to integrate global resources, and enables them to effectively build business units in overseas markets. Technology acquisition M&As allow firms integrate suppliers and customers in the value chain, leading to horizontal or vertical expansion and to the extension of technological knowledge. By the same token, a lack of international experience hinders the identification and application of technological knowledge [34], which may cause the emergence of technological reverse spillover effects [39]. In addition, EMNEs that lack an ownership advantage face more serious disadvantages and need greater resources and capabilities to cope with the adverse effects of institutional differences. International experience is an important knowledge resource for firms to cope with institutional conflicts in host countries and overcome the competitive disadvantages engendered by institutional uncertainty [40], creating a good external environment for the use of strategic resources. Based on the above arguments, we hypothesise that:

Hypothesis 2. Internationalisation experience moderates the effect of cross-border M&As on home-country-bound and non-location-bound competitive advantages, as these positive gains will be positively correlated to the richness of a firm's internationalisation experience.

2.3 State ownership and M&A competitive advantage effect

Particularly in global M&As, actors outside the merging organisations, such as government, unions, and investors, can become involved in merging process [41]. State-owned enterprises (SOEs) may face more prominent liabilities of emergingness due to the close relations maintained with home-country governments, the threat of financial protectionism, reduced MNE transparency with state

ownership [42], loss of key national strategic assets, and whether home-based management practices can be transferred to advanced economies [34]. Although the political connections linked to government ownership help in building legitimacy and prestige in domestic markets, these firms still participate in global competition and struggle to gain legitimacy in foreign ones [43, 44].

Our analysis of state owned EMNEs focussed on the influence of home governments on the internationalisation strategies of domestic enterprises. As agents of their home governments, SOEs garner more policy support and have stronger institutional advantages [24], including 'special access' to key resources [10, 45]. However, the internationalisation of SOEs ultimately discloses the will of the government and the need to strike a balance between economic and political goals [46]. Specifically, state ownership affects a company's resource input and internationalisation strategies and goals [47]. Both state-owned and non-SOEs face pressure from formal or informal institutions in their home countries, and their responses to these pressures are influenced by their dependency on resources. If they are highly resource-dependent, enterprises will choose to comply with institutional pressures to avoid negative consequences [48]. As SOEs are highly dependent on the government for their resource input, they are more likely to abide by political goals over economic ones. As non-state-owned firms are more focussed on profit and efficiency goals, their motivation to seek and utilise overseas strategic resources is stronger and more efficient [47]. Based on the above arguments, we hypothesise that:

Hypothesis 3. State ownership moderates the effect of cross-border M&As on home-country dependent and non-location-bound competitive advantage. The positive effects will be smaller if a company is a state-owned enterprise.

3. Methods

We tested the hypotheses by relying on China's listed information and communications technology (computers, communications, and other electronic equipment) manufacturing firms. The selection of ICT firms was based on the following three considerations. Firstly, the new generation of ICT technology, representing cloud computing, big data and artificial intelligence, has become one of the most active fields of innovation, and one of the fiercest areas of technological competition among major countries. Besides, the ICT industry had substantial FDI around the world and, especially across emerging markets [5]. Secondly, a large number of ICT manufacturing enterprises have implemented cross-border M&As. Deloitte's '2017 China TMT Industry Overseas M&A Report' shows that, between 2012 and 2016, the annual compound growth rate of overseas M&A transactions in China's TMT industry reached 20%. Thirdly, The ICT industry is also characterised by significant technological dynamism and a high number of firms engaging in internationalisation to obtain strategic assets outside the firm boundary. The new generation of the information technology industry plays a pivotal role in China's implementation of innovation-driven development strategies and improving the country's competitiveness. Under these conditions, can Chinese ICT manufacturing enterprises improve their competitive advantage through cross-border M&As? The answer to this core issue has fundamental practical significance.

We collected M&A data and financial data from two datasets, one of which was derived from the BVD (Zephyr) database, which is a well-known international M&As database and widely used in cross-border M&A research [49, 50]. However, distorted data points remained. Thus, it was necessary to clean the original data and removed outliers before further analysis could be conducted by using the following filtering criteria: first, we only retained M&A transactions with a 'completed' or

'completed assumed' status, and confirmed the completed M&A transactions through the company's website, annual reports, and financial news. Regarding multiple cross-border M&As of a company within a year, there were multiple transactions recorded around the target firm for tax minimization purposes [51].

The measurement of the cross-border M&As experience advanced by Jiang [52] suggests the approval time of multinational enterprises occurs well after the time of the M&A, which may render an inaccurate recording of the subsequent M&As' experiences that take place within the same year. Thus, we only retained the first data recorded, when the same company had implemented multiple M&As with different targets in a year. Third, we removed any samples missing M&A information and the sample of capital increase for foreign subsidiaries [53, 54]. These excluded samples were not significantly different from retained cases as far as characteristics such as the percentage of shares acquired, ownership structure of the acquiring firm, or the acquirer's acquisition experience in a target's country. The second dataset used was taken from the CSMAR database, and included three major accounting statements—the balance sheet, cash flow statement, and income statement, which provide detailed financial information for the company. The authors obtained an effective sample data of 98 cross-border M&As undertaken from 2010 to 2017. The sample description is shown in **Table 1**.

3.1 Empirical model

Distinguishing the correlation and causality between cross-border M&As and the growth of competitive advantage effect brings some challenges. This is particularly evident when enterprises with strong competitive advantage conduct cross-border M&As and the change of competitive advantage may be endogenous and self-selected. Therefore, performing an OLS estimation would be invalid. Following extant literature [47], we used the propensity score matching to assess the causal effect of cross-border M&As on the competitive advantage change of Chinese ICT firms.

First, we used the nearest-neighbour matching method to divide the ICT industry firms into two groups: one with those firms that had implemented cross-border M&As (denoted as treatment group), and the other with those that had not (denoted as control group), where the construction enterprise was a virtual variable

Ownership		Province of acquirer		Equity of acquirer (%)		Related M&A (If the first two SIC codes are the same)		Deal value (Million Euros)		Host country	
SOE	31	Guangdong	34	<50	29	Related M&A	83	<10	52	U.S.	25
Non-SOE	67	Jiangsu	16	50–100	21	Non-related M&A	15	10–100	29	Germany	9
		Beijing	14	100	48			>100	17	Canada	8
		Zhejiang	14							U.K	5
		Shandong	7							Japan	5
		Hebei	5							Italy	4
		Shanghai	3							Malaysia	4
		Sichuan	3							Australia	3
		Fujian	1							Israel	3
		Gansu	1							Others	32

Table 1.
Sample description.

y of cross-border M&As. All samples and data of ICT firms that do not conduct M&A (control group) were collected from the CSMAR database.

We constructed the dummy variable *CBA* where 'CBA = 1' for a company that had implemented cross-border M&As, and 'CBA = 0' for a company that had not. Then we used the logit method to estimate the model:

$$P_{i\ t} = Pr\{CBA_{it} = 1\} = \Phi\{X_{i\ t-1}\} \tag{1}$$

where i denotes the firms in treatment group, j denotes the samples in control group, t represents time, P_{it} denotes the probability prediction value or propensity score to be estimated, X_{it-1} denotes the matching variable, Φ refers to the logistic function. After estimating Eq. (1), we were able to obtain the probability prediction values $\hat{P}_{it}$ and $\hat{P}_{jt}$ of the treatment and control groups, respectively. The results of optimal matching Ω_{it} can be expressed as:

$$\Omega_{it} = \ min \left\| \hat{P}_{it} - \hat{P}_{jt} \right\|, j \in (CBA = 0) \tag{2}$$

Following Jiang [52], we selected overall total factor productivity (*TFP*), enterprise size (*Size*), capital density (*Capital*), and total return on assets (*ROA*) indicators as matching variables. The lack of data on intermediate input and added value indicators made impossible to use the OP [55] and LP [56] methods to calculate TFP across enterprises. Thus, this paper follows Jiang's [52] approach to calculate TFP by using a panel data with a fixed effect. Compared with the OLS method, panel data can control the intra group differences to the greatest extent to obtain more consistent and robust capital and labour coefficients. The natural logarithm of the total number of employees is used to measure the enterprise size. The data matching was performed using a ratio of 1:3. Thus, 131 ICT firms are matched as samples in the control group. **Table 2** shows the differences in overall TFP before and after matching The matching results showed that the difference in overall TFP between the treatment and control group is significant before matching, and there is a 'self-selection effect' in cross-border M&As. After matching, the means of the overall TFP values of the treatment and control groups were highly similar, indicating that the 'self-selection effect' of cross-border M&As was effectively controlled.

On the basis of the data matching results, we used the differences-in-differences method to analyse the impact of cross-border M&As on home-country dependent and non-location-bound competitive advantage, constructing the respective dummy variables CBA = {0, 1} and CT = {0, 1} to indicate whether a company had implemented cross-border M&As and the completion time of M&A deal. The HCB_{it} and NLB_{it} variables represent the home-country-bound and non-location-bound competitive advantage, respectively, and ΔHCB_i and ΔNLB_i represent the changes of the two types of competitive advantage. In terms of the home-country-bound competitive advantage (the non-location-bound competitive advantage is calculated in a similar way), whether the cross-period changes in cross-border M&As are ΔHCB_i^1 and ΔNLB_i^0 respectively. Thus, the actual impact of cross-border M&As on home-country-bound competitive advantage is δ:

$$\delta = E(\delta_i | CBA_i = 1) = E(\Delta HCB_i^1 | CBA_i = 1) - E(\Delta HCB_i^0 | CBA_i = 1) \tag{3}$$

As the $E(\Delta HCB_i^0 | CBA_i = 1)$ in Eq. (3) is unobservable, according to the treatment and matched control groups, it was possible to fit the changes of the treatment group's HCB_{it} with the matched control group's HCB_{it} and indirectly identify the actual impact of cross-border M&As.

	Before matching (TFP)			After matching (TFP)			Treatment group	Control group	Matching results
	Treatment group	Control group	t value	Treatment group	Control group	t value			
2010	0.315	0.412	−1.832*	0.315	0.332	−0.890	3	93	6
2011	0.282	0.337	−0.954	0.282	0.308	−0.271	9	115	20
2012	0.367	0.750	−4.831***	0.367	0.323	0.600	7	137	15
2013	0.425	0.794	−8.152***	0.425	0.458	−0.321	8	146	13
2014	0.603	0.745	−3.440***	0.603	0.663	−0.412	13	144	13
2015	0.607	0.780	−2.551**	0.607	0.633	−0.370	21	163	22
2016	0.661	0.631	0.774	0.661	0.683	−1.000	24	202	28
2017	0.793	0.626	4.900***	0.793	0.746	0.100	13	223	14

In order to save space, the above table does not report the matching results of Scale, Capital and ROA. As the duplicate matching samples are excluded, the matching results are not presented 1:3. We performed the test of robustness matching according to the ratio of 1:1 and 1:2, and obtain similar results without affecting the conclusion of this paper.

Note: *, **, *** indicate significance level at 10%, 5% and 1%, respectively.

Table 2.
PSM matching results.

Then, we converted Eq. (3) into an econometric model that could be empirically tested as follows:

$$HCB_{it} = \alpha_0 + \alpha_1 \bullet CBA + \alpha_2 \bullet CT + \beta \bullet CBA \times CT + \xi_{it} \qquad (4)$$

where the β coefficient of the interaction term $CBA \times CT$ is the actual influence of cross-border M&As. $\beta > 0$ indicates that cross-border M&As systematically enhance the home-country-bound competitive advantage or the non-location-bound competitive one.

4. Measures

4.1 Dependent variables

Our dependent variables were home-country-bound competitive advantage and non-location-bound competitive advantage. Accordingly, home-country-bound competitive advantage refers to competitive advantage with location-bound attributes gained by 'bundling' external strategic assets with the resources, markets, and institutional environments of the home country. Non-location-bound competitive advantage refers to competitive advantage with non-location-bound attributes gained by 'bundling' external strategic assets with the acquirer's firm-specific assets, such as knowledge and technology, which can be transferred between enterprises.

Within large and fast-growing emerging market economies that correspondingly have large and growing domestic demand bases, economies of scale are an important competitive advantage. EMNEs have non-traditional FSAs that enable them to better exploit scale economies of home countries [45], which is the home-country dependency advantage as defined in this paper. While all firms in home markets potentially have access to economies of scale, some can leverage it better. The home-country-bound competitive advantage between EMNEs is different as the heterogeneity exists in the ability of EMNEs to leverage scale economies [10]. The change in economies of scale decomposed from the TFP index measures how firm-level production diverges from a constant return to scale [57]. Thus, we measured the home-country-bound competitive advantage by scale efficiency following Bhaumik et al. [21]. The increase in scale efficiency reflected the use of external strategic assets to develop home country resources and markets, which constitutes the basis for competition between EMNEs and developed economy MNEs (DMNEs) in the home market.

We measured non-location-bound competitive advantage through pure technical efficiency [21]. Improvements of technical efficiency reflect the extent to which enterprises embed external strategic assets and develop their own firm-specific-ones, reflecting the strategic goal of EMNEs to use cross-border M&As as a 'springboard' to catch up with DMNEs [58].

We used the stochastic frontier model to measure the overall efficiency level (*TE*) of each individual and the Malmquist decomposition method suggested by Coelli et al. [57] to decompose it into scale efficiency (*SC*), technological progress (*EC*), and pure technical efficiency (*TC*). *SC* and *TC* are the measured home-country-bound competitive advantage (*HCB*) or the non-location-bound competitive advantage (*NLB*). The modified equation for the stochastic frontier estimation is as follows:

$$LnY_{i\,t} = (\beta_0 + w_i) + \sum_{n=1}^{N}\beta_n LnX_{nit} + \frac{1}{2}\sum_{n=1}^{N}\sum_{j=1}^{N}\beta_{nj}LnX_{nit}LnX_{nit}$$
$$+ \sum_{n=1}^{N}\beta_{tn}tLnX_{nit} + \beta_t t + \frac{1}{2}\beta_t t^2 + v_{it} + \mu_{it} \qquad (5)$$

where Y_{it} is the output variable of the enterprise, expressed in terms of sales revenue. X_{nit} is an input variable, including labour input and capital investment. Labour input is expressed by the number of employees, and capital investment is expressed by net fixed assets. Sales revenue and fixed assets were deflated by the price index and the fixed asset price index, respectively. In addition, v_{it} is the error term, μ_{it} is the inefficient term, and w_i is the individual random effect. We assumed that v_{it}, μ_{it} and w_i retained the following distributions:

$$v_{it} \sim N[0, \sigma_v^2], \; \mu_{it} \sim N^+[0, \sigma_\mu^2], \; w_{it} \sim N[0, \sigma_w^2]$$

where $N^+[0, \sigma_\mu^2]$ is a truncated normal distribution with mean 0 and variance σ_μ^2. Once the production function had been estimated, the inefficiency parameter μ_{it} could be estimated as follows:

$$\hat{E}[\mu_{it}|\epsilon_{it}] = \frac{\sigma_\epsilon}{1 + \lambda^2}\left[\frac{\phi(z_{it})}{1 - \Phi(z_{it})} - z_{it}\right] \tag{6}$$

where $\epsilon_{it} = \nu_{it} - \mu_{it}$, $\sigma_\epsilon = \sqrt{\left(\sigma_v^2 + \sigma_\mu^2\right)}$, $\lambda = \frac{\sigma_\mu}{\sigma_\nu}$, $z_{it} = \frac{\epsilon_{it}\lambda}{\sigma_\epsilon}$, $\Phi(\bullet)$ and $\phi(\bullet)$ denote the density and CDF function evaluated at z_{it}. Given the translog specification in Eq. (7) the efficiency level (*TE*) could be calculated as:

$$TE_{it} = exp\left(-\hat{E}[\mu_{it}|\epsilon_{it}]\right) \tag{7}$$

while the overall efficiency level (*TE*) was decomposed into three factors: scale efficiency *(SC)*, technological progress (*EC*), and pure technical efficiency (*TC*).

$$EC_{it} = \frac{TE_{it}}{TE_{is}} \tag{8}$$

$$TC_{it} = exp\left\{\frac{1}{2}\left[\frac{\partial LnY_{is}}{\partial s} + \frac{\partial LnY_{it}}{\partial t}\right]\right\} \tag{9}$$

$$SC_{it} = exp\left\{\frac{1}{2}\sum_{n=1}^{N}[e_{nis}SF_{is} + e_{nit}SF_{it}]Ln\left(\frac{X_{nit}}{X_{nis}}\right)\right\} \tag{10}$$

where $SF_{is} = \frac{e_{nis}-1}{e_{nis}}$, $e_{nis} = (\partial LnY_{is})/(\partial X_{nis})$, $e_{is} = \sum_{n=1}^{N}e_{nis}$. Scale efficiency (*SC*) and pure technical efficiency (*TC*) represent the home-country-bound competitive advantage (*HCB*) and the non-location-bound competitive advantage (*NLB*).

4.2 Independent variable

Our independent variable was the interaction term $CBA \times CT$ or the product of the dummy variables $CBA = \{0, 1\}$ and $CT = \{0, 1\}$, indicating the net effect on competitive advantage of implementing cross-border M&As.

4.3 Moderators

Internationalisation experience (*experience*). Following Jiang & Jiang [59], internationalisation experience was calculated by the difference between the overseas investment approval time of China's Ministry of Commerce's 'Investment List

of Overseas Investment Enterprises' and the sample observation period. If the approval time of the sample company lags behind the observation period or the difference was less than zero, a value of 0 was assigned to internationalisation experience. If the difference was greater than zero, a value of 1 was assigned to internationalisation experience.

State ownership (*ownership*): ownership was a dummy variable. The value assigned to SOEs (including SOEs and state-owned holding firms) was 1, and the value assigned to non-SOEs was 0.

4.4 Control variables

We controlled for firm heterogeneity, time effects, and regional fixed effects. Firm heterogeneity was controlled through capital density (*Capital*), enterprise size (*Size*), R&D investment (*R&D*), and marketing expenditures (*Market*) where *Capital* was expressed as the natural logarithm of the ratio of net fixed assets to the

Variables label	Variables definitions	Variables calculation	Data source
HCB	Home-country-bound competitive advantage	Stochastic frontier model and the Malmquist decomposition method	CSMAR database
NLB	Non-location-bound competitive advantage		
CBA × CT	Cross-border M&As Implement	Dummy variables CBA and CT indicate whether a company had implemented cross-border M&As and the completion time	Bvd-zephyr database.
Experience	Internationalisation experience	Calculated by the difference between the overseas investment approval time and the sample observation period.	China's Ministry of Commerce's 'Investment List of Overseas Investment Enterprises'; Bvd-zephyr database.
Ownership	State ownership	Dummy variable, non-SOEs was 0 and SOEs was 1.	CSMAR database
Capital	Capital density	Expressed as the natural logarithm of the ratio of net fixed assets to the number of employees	CSMAR database
Size	Enterprise size	Measured by the natural logarithm of the number of employees;	CSMAR database
R&D	R&D investment	Expressed as the percentage of R&D investment in operating income	CSMAR database
Market	Marketing expenditures	Expressed as the percentage of sales revenue in operating income	CSMAR database
Time	Time effect	Dummy variable reflects year of samples	CSMAR database
Region	Region effect (dummy variable)	Dummy variable reflects province of the acquirers	CSMAR database

Table 3.
Variables definitions and sources.

number of employees; *Scale* was measured by the natural logarithm of the number of employees; *R&D* was expressed as the percentage of R&D investment in operating income; and *Market* was expressed as the percentage of sales revenue in operating income. Time and regional effects were controlled by incorporating time and region dummies. **Table 3** presents the definitions, calculations, and data sources of all variables.

5. Results

5.1 Instantaneous competitive advantage effect of cross-border M&As

Table 4 san shows the estimation results of the M&As' instantaneous competitive advantage effect. Models (1) through (4) examine the impact of cross-border M&As on the home-country-bound competitive advantage. Models (5) through (8) examine the impact of cross-border M&As on the non-location-bound competitive advantage. The results of model (1) show that the coefficient of the interaction term $CBA \times CT$ is significantly positive at the level of 5%, indicating that cross-border M&As improve home-country-bound competitive advantage. Models (2) through (4) gradually add control variables, time, and regional fixed effects. Although the coefficients of the interaction term $CBA \times CT$ varied, they were all significantly positive. The results of model (5) show that the coefficient of the interaction term $CBA \times CT$ is positive, but not significant. After adding control variables, time, and regional fixed effects, the significance of the coefficients did not change significantly, indicating that cross-border M&As had not improved non-location-bound competitive advantage. Thus, hypothesis 1 was partially supported. The reason may be that firms invest more resources in developing their own markets, and 'realise' them more quickly than long-term strategic investments such as research and development. Although firms face competition from DMNEs—which have technological advantages in their home markets— EMNEs, due to the low technical applicability of the home markets [28], can be further consolidated by leveraging the unique advantages of their home countries, and strengthen their competitive advantage therein [10, 45].

5.2 Long-run competitive advantage effect of cross-border M&As

It takes time to bundle external strategic assets with regional ones in the home country or non-regional bundled firm-specific assets. The effect of cross-border M&As on competitive advantage may be affected by a lag. Therefore, we examined the changes in the home-country-bound competitive advantage and the non-location-bound competitive advantage five years after cross-border M&As. These results are shown in **Table 5**. The coefficient of the interaction term $CBA \times CT$ indicates that cross-border M&As only have a positive impact on home-country-bound competitive advantage in the first and second year after the merger, and their effect gradually weakens thereafter. There is no continuous impact on non-location-bound competitive advantage. A plausible explanation is that China lacks international management experience and capabilities, which leads to serious challenges in post-M&A integration [33]. Birkinshaw *et al.* [60] pointed out that Chinese firms adopt the M&A mode to carry out FDI and grant their target enterprises full post-M&A autonomy, retaining senior management teams and expecting cross-border M&As to become a 'highway' to catch up with developed countries. This reflects the fact that Chinese firms lack international management experience.

	Dependent variable: HCB					Dependent variable: NLB		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CBA	−0.054***	−0.063***	−0.048***	−0.050***	−0.034	−0.043*	−0.034*	−0.041**
	(0.017)	(0.017)	(0.014)	(0.025)	(0.025)	(0.025)	(0.020)	(0.021)
CT	−0.104***	−0.109***	−0.044***	−0.028**	−0.036*	−0.050**	−0.066***	−0.056***
	(0.014)	(0.014)	(0.011)	(0.011)	(0.022)	(0.022)	(0.019)	(0.019)
CBA*CT	0.044**	0.047**	0.033**	0.029*	0.033	0.036	0.033	0.033
	(0.019)	(0.019)	(0.016)	(0.016)	(0.033)	(0.033)	(0.025)	(0.025)
Capital		0.141***	0.138**	0.104***		0.001*	0.002	0.002
		(0.020)	(0.068)	(0.018)		(0.001)	(0.001)	(0.001)
Size		0.156***	0.133***	0.135**		0.001*	0.004	0.003
		(0.037)	(0.034)	(0.064)		(0.001)	(0.002)	(0.002)
R&D		0.047***	0.028***	0.031***		0.083***	0.102***	0.096***
		(0.011)	(0.007)	(0.008)		(0.009)	(0.009)	(0.009)
Market		0.026**	0.016*	0.012*		−0.001	−0.008	−0.012
		(0.013)	(0.009)	(0.006)		(0.002)	(0.009)	(0.021)
_Cons	0.206***	0.018	0.016	0.168	0.655***	0.272	0.543***	0.952***
	(0.013)	(0.139)	(0.141)	(0.152)	(0.016)	(0.200)	(0.190)	(0.205)
Year	no	no	yes	yes	no	no	yes	yes
Region	no	no	no	yes	no	no	no	yes
N	1343	1343	1343	1343	1343	1343	1343	1343
R^2	0.071	0.141	0.376	0.432	0.003	0.310	0.482	0.514

*, **, *** indicate significance level at 10%, 5% and 1%, respectively. Standard errors are in parenthesis. The samples from the above test included the lag phase samples of the treatment group and the control group, and the subsequent tables were the same.

Table 4.
Instantaneous competitive advantage effect of cross-border M&As.

	Dependent variable: HCB					Dependent variable: NLB				
	(1) Year 1	**(2)** Year 2	**(3)** Year 3	**(4)** Year 4	**(5)** Year 5	**(6)** Year 1	**(7)** Year 2	**(8)** Year 3	**(9)** Year 4	**(10)** Year 5
CBA	−0.041***	−0.028**	−0.011	−0.014	−0.014	−0.038*	−0.043**	−0.056***	−0.044**	−0.029*
	(0.014)	(0.012)	(0.010)	(0.010)	(0.013)	(0.020)	(0.020)	(0.019)	(0.018)	(0.017)
CT	−0.038***	−0.027***	−0.031***	−0.029**	−0.020	−0.033*	−0.035*	−0.042**	−0.037*	−0.024
	(0.012)	(0.010)	(0.010)	(0.012)	(0.015)	(0.019)	(0.019)	(0.020)	(0.021)	(0.025)
*CBA*CT*	0.022**	0.009*	−0.008	−0.004	−0.018	0.019	0.032	0.046	0.035	0.028
	(0.010)	(0.005)	(0.011)	(0.014)	(0.019)	(0.025)	(0.027)	(0.029)	(0.031)	(0.039)
_cons	0.013	0.193	−0.012	−0.025	−0.075	0.960***	1.603***	1.535***	1.875***	2.535***
	(0.147)	(0.137)	(0.090)	(0.103)	(0.109)	(0.226)	(0.248)	(0.260)	(0.243)	(0.244)
Control	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Region	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	1140	945	769	607	458	1140	945	769	607	458
R^2	0.402	0.395	0.251	0.266	0.273	0.679	0.732	0.610	0.552	0.590

*Note: *, **, *** indicate significance level at 10%, 5% and 1%, respectively.*

Table 5.
Long-run competitive advantage effect of cross-border M&As.

5.3 Path analysis of the M&A competitive advantage effect

The above results show that the improvement of competitive advantage is manifested in the dependency on regional resources of the home country. In order to further confirm and clarify the path of improvement, we analysed the impact mechanism of cross-border M&As by examining various post-merger business practices that affect competitive advantage based on the process perspective. Specifically, we used the interaction term $CBA \times CT$ to regress with capital density (*Capital*), enterprise size (*Size*), R&D investment (*R&D*), and marketing expenses (*Market*). The results are shown in **Table 6**.

The results show that cross-border M&As play a significant role in promoting corporate capital density, enterprise size, and marketing expenses; while their impact on R&D investment is not significant, as the coefficient value is negative. The instantaneous test results in **Table 4** show that capital density, enterprise size, and marketing expenses have a positive effect on home-country-bound competitive advantage, while R&D investment has a significant positive impact on non-location-bound competitive advantage. **Tables 4** and **6** confirm that in the wake of implementing cross-border M&As, enterprises strengthen their investment in fixed assets, expand their size, and increase their proportion of marketing expenditures, but overreach on R&D investment. Rugman [16] pointed out that, for emerging economies such as China, where the market is growing rapidly, the period of transformation into a leading competitive advantage through technology integration is long, and the cycle of establishing economies of scale is quite short. Due to their low technical applicability [28], these firms are more likely to take advantage of the economies of scale of their home countries by acquiring overseas strategic resources and directly feeding them back into the huge local market demand [13].

5.4 Internationalisation experience and M&A competitive advantage effect

Hypothesis 2 was tested by splitting the sample into two groups based on internationalisation experience and by checking whether there was a difference between firms with different degrees of international experience. The estimation results are presented in **Table 7**. The results show that, for the home-country-bound

	Capital	Size	R&D	Market
CBA	0.035***	0.026***	−0.018**	0.014
	(0.003)	(0.003)	(0.007)	(0.011)
CT	0.022***	0.020	0.016	0.014***
	(0.005)	(0.016)	(0.016)	(0.003)
*CBA*CT*	0.026***	0.020***	−0.016	0.008**
	(0.005)	(0.005)	(0.011)	(3.733)
_cons	−0.314***	−0.214***	0.212***	0.114***
	(0.026)	(0.018)	(0.024)	(0.007)
Year	yes	yes	yes	yes
Region	yes	yes	yes	yes
N	1343	1343	1343	1343
R²	0.316	0.422	0.295	0.384

*Note: *, **, *** indicate significance level at 10%, 5% and 1%, respectively.*

Table 6.
Path analysis of the M&A competitive advantage effect.

	experience = 1		experience = 0	
	(1) Dependent variable: HCB	(2) Dependent variable: NLB	(3) Dependent variable: HCB	(4) Dependent variable: NLB
CBA	0.037 (0.038)	0.015** (0.008)	−0.013 (0.009)	−0.019 (0.028)
CT	0.102** (0.045)	−0.008 (0.008)	0.009 (0.006)	0.029 (0.026)
CBA*CT	0.107** (0.053)	0.001** (0.000)	0.006** (0.003)	0.003 (0.035)
_cons	−0.191 (0.217)	0.829*** (0.044)	−0.111** (0.053)	0.526*** (0.159)
control	yes	yes	yes	yes
Year	yes	yes	yes	yes
Region	yes	yes	yes	yes
N	382	382	961	961
R^2	0.351	0.398	0.418	0.360

Note: *, **, *** indicate significance level at 10%, 5% and 1%, respectively.

Table 7.
Moderating effect of international experience.

competitive advantage, the coefficient of interaction $CBA * CT$ is significantly positive—i.e., cross-border M&As can improve home-country-bound competitive advantage—but the promotion effect differs between enterprises with different international experience. The coefficient values $CBA * CT$ show that internationally experienced firms are more able to benefit from cross-border M&As.[1] It is important to note that the interaction coefficient $du * dt$ of experienced enterprises is significantly positive for non-location-bound competitive advantage. Although the coefficient's value is small, it shows that internationally experienced enterprises promote their non-location-bound competitive advantage through cross-border M&As. These empirical results are consistent with Buckley et al. [34], who found that internationalised experience knowledge has become one of the key factors affecting the effectiveness of cross-border M&As. The combination of an enterprise's internationalisation experience and its internal resources can give rise to an interface competency for global resources, thereby enhancing a company's knowledge management capabilities and promoting a better use of its internal and external network resources. In the end, this will create and strengthen competitive advantage and push a strategic upgrade of a company's internationalisation [34]. Therefore, hypothesis 2 is also supported.

5.5 State ownership and the M&A competitive advantage effect

In order to test whether state ownership matters, we split the sample into two groups. **Table 8** illustrates the corresponding estimation results. In relation to non-SOEs, cross-border M&As have positive effects on home-country-bound competitive advantage; however, the impact on SOEs is not significant—i.e., non-SOEs are

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[1] The result of T-test shows that the coefficients of CBA*CT across the two groups (experience = 1, experience = 0) are significantly different (p < 0.01).

	Ownership = 1		Ownership = 0	
	(1) Dependent variable: HCB	(2) Dependent variable: NLB	(3) Dependent variable: HCB	(4) Dependent variable: NLB
CBA	0.015 (0.059)	−0.032 (0.050)	−0.052*** (0.013)	−0.004 (0.021)
CT	0.002 (0.027)	−0.079** (0.040)	−0.037*** (0.012)	−0.024 (0.020)
CBA*CT	0.005 (0.056)	−0.009 (0.061)	0.034** (0.015)	−0.002 (0.027)
_cons	0.436 (0.364)	1.751*** (0.403)	0.258 (0.183)	0.855*** (0.257)
Control	yes	yes	yes	yes
Year	yes	yes	yes	yes
Region	yes	yes	yes	yes
N	354	354	989	989
R^2	0.506	0.528	0.433	0.568

Note: *, **, *** indicate significance level at 10%, 5% and 1%, respectively.

Table 8.
Moderating effect of the nature of ownership.

	Dependent variable: HCB_{it}			Dependent variable: NLB_{it}		
	HCB_{it-1}	HCB_{it-2}	HCB_{it-3}	NLB_{it-1}	NLB_{it-2}	NLB_{it-3}
CBA	−0.058*** (0.012)	−0.044*** (0.012)	−0.046*** (0.013)	−0.040* (0.023)	−0.032 (0.024)	−0.038 (0.032)
CT-i	−0.093 (0.085)	−0.038 (0.047)	−0.024 (0.025)	−0.042*** (0.007)	−0.056*** (0.010)	−0.047*** (0.016)
CBA*CT-i	0.004 (0.003)	0.003 (0.003)	0.002 (0.002)	0.003 (0.002)	0.003 (0.002)	0.003 (0.003)
Capital	0.171*** (0.031)	0.167*** (0.027)	0.125*** (0.022)	0.002* (0.001)	0.003** (0.001)	0.002*** (0.001)
Size	0.207*** (0.025)	0.177*** (0.022)	0.180*** (0.023)	0.002 (0.002)	0.005 (0.005)	0.004* (0.002)
R&D	0.043** (0.020)	0.025* (0.015)	0.029* (0.017)	0.076*** (0.008)	0.093*** (0.011)	0.089*** (0.014)
Market	0.025*** (0.008)	0.015*** (0.005)	0.011*** (0.004)	−0.001 (0.023)	0.007 (0.006)	0.011* (0.007)
_cons	0.031 (0.099)	0.026 (0.097)	0.285 (0.331)	0.462*** (0.086)	0.924*** (0.192)	1.618*** (0.320)
Year	yes	yes	yes	yes	yes	yes
Region	yes	yes	yes	yes	yes	yes
N	1225	1186	1030	1225	1186	1030
R^2	0.385	0.335	0.125	0.468	0.438	0.282

Note: *, **, *** indicate significance level at 10%, 5% and 1%, respectively.

Table 9.
Results of the robustness test.

more dependent on home country resources and markets. In addition, when both state-owned and non-SOEs are considered, cross-border M&As do not significantly promote non-location-bound competitive advantage. A possible explanation for this result is that, on the one hand, both state-owned and non-SOEs lack international management experience. Chinese enterprises often fail to integrate the strategic assets they acquire through M&As [33]. On the other hand, SOEs and their host governments may have conflicting interests. In addition to being an independent market entity, a state-owned enterprise may, in relation to certain aspects, implement the strategies of their home country governments, resulting in insensitivity to market competition [47]. The transfer of strategic assets to SOEs faces more restrictions and scrutiny [20] than those linked to the profit-seeking nature of non-SOEs, driving them to use the home market and institutions to carry out 'short-quick' cross-border M&As and obtain short term profit returns [13]. Thus, hypothesis 3 is partially supported.

5.6 Robustness test

Following Fan and Tian [61], we conducted a placebo test on the relationship between cross-border M&As and competitive advantage by constructing false cross-border M&A implementation times. Specifically, we advanced the cross-border M&A times by one, two, and three years and examined the impact of the interaction terms $CBA * CT$ on the competitive advantages. If the $CBA * CT$ coefficient were found to be not significant, it would indicate that there had been no systematic error in the control and treatment group samples before the implementation of cross-border M&As, and the empirical result would be stable. The results of the placebo test showed that the influence of the $CBA * CT$ interaction terms on home-country-bound competitive advantage was no longer significant, indicating that the competitive advantage improvement was indeed caused by cross-border M&As, and that the empirical findings on the effect cross-border M&As on competitive advantage are stable (**Table 9**).

6. Discussion and conclusions

This paper has studied the effect of cross-border M&As on enterprise competitive advantage by distinguishing it between home-country-bound competitive advantage and non-location bound competitive advantage in the context of Chinese ICT firms. We have examined two highly relevant research questions: *Can cross-border M&As improve non-location-bound competitive advantages of Chinese ICT firms?* and *Does state ownership enhance the competitive advantage of Chinese ICT firms through cross-border M&As?*

Based on the framework of the influence mechanism of cross-border M&As on the competitive advantages of enterprises, we used the propensity score matching and the differences-in-differences methods to empirically analyse the relationship between cross-border M&As and corporate competitive advantages, the path of improvement, the moderating effect of international experience, and the nature of ownership. We found strong evidence that cross-border M&As significantly improved home-country-bound competitive advantage rather than non-location bound competitive advantage. The results of the mechanism tests suggest that this is due to a crowding-out effect of cross-border M&As on R&D investment, which inhibits the development of non-location bound advantages. It also results from state-owned enterprises, which are considered to have institutional advantages not always effective in using cross-border M&As to enhance their competitive

advantages. These findings enrich the understanding of FSAs in internalisation theory by building on insights from the home country dependency and considering the unique heterogeneity of EMNEs such as internationalisation experience and state ownership.

6.1 Theoretical implications

Although recent studies have paid attention to the adaptation of internalisation theory to EMNEs [3, 8], whether EMNEs can acquire FSA through CBAs remains controversial. Some researchers believe that EMNEs that conducted cross-border M&As can redeploy and integrate foreign strategic assets to establish a competitive advantage [2, 4]. However, others point out that the competitive advantage obtained can be used solely in the home country and cannot be transferred into the global market [13, 14]. Benefiting from the rapid economic growth of their home countries, EMNEs can expand into local markets and gain considerable economic returns through cross-border M&As [14]. We have provided a clearer perspective on this controversial issue by distinguishing and defining two types of competitive advantage of EMNEs according to their boundedness to their home country, and their home-country-bound competitive advantages versus their non-location-bound competitive advantages. In addition, we have found empirical evidence consistent with the views of Ramamurti and Hillemann [14], that cross-border M&As significantly improve home-country-bound competitive advantage rather than the non-location bound competitive advantage of EMNEs in the Chinese ICT industry. We have explained the reason through mechanism analysis, and therefore we have supplemented this research area. The results coming from the mechanism test suggests the presence of a crowding-out effect of cross-border M&As on R&D investment of ICT firms themselves which inhibits the expansion of independent R&D and innovation motivation.

Another key concept in internalisation theory that follows Rugman is country-specific advantages (CSAs). CSAs cover a wide range of external factors at country-level that affect firm performance, such as labour, technology levels, natural resources, or the institutional environment [23]. FSAs and CSAs are interlinked as MNEs tap into CSAs to utilise or develop their FSAs [7]. Although existing research suggests that CSA is available to all firms in the same country, while all firms in home markets potentially have access to CSAs, Bhaumik et al. [21] found that some firms leverage CSA better than others. We defined the home-country-bound competitive advantage in this paper, which is of great value for exploring the heterogeneity of EMNEs' ability to utilise CSA to develop FSA. That is, EMNEs that can better exploit CSAs in their home country have stronger home-country-bound competitive advantage. From the perspective of enterprise heterogeneity, we found that internationally experienced companies can more effectively use CBAs to enhance their home-country-bound competitive advantage. When compared with state-owned enterprises, non-state-owned companies can enhance more their home-country-bound competitive advantage through CBAs. This research has therefore enriched the understanding of FSAs in internalisation theory by building on insights from home country dependency and taking into account the particular heterogeneity of EMNEs such as internationalisation experience, and state ownership.

6.2 Management implications

The new generation of ICT technology has become one of the fiercest areas of technological competition among countries around the world. In the current global

investment environment, it is necessary to reconsider whether cross-border M&As are the best way for Chinese ICT enterprises to enhance their core competitiveness. Our findings have important practical implications for cross-border M&As of Chinese ICT firms. At the firm level, enterprises should rationally implement cross-border M&As. Cross-border M&As have not improved the non-location-bound competitive advantage of Chinese ICT firms currently. After cross-border M&As, the development of enterprises depends more on the rapid growth of the home market scale than on improving internal technical efficiency. Enterprises may invest more resources in developing the domestic market to obtain short-term benefits rather than long-term strategic goals such as technology research and development [28]. Improvements in the home-country-bound and non-location-bound competitive advantages cannot be achieved automatically, and the heterogeneity between enterprises will lead to differences in M&As. Therefore, enterprises should not blindly follow the trend but combine their own conditions and actively 'go out' while accumulating international experience, laying the foundation for a leap forward to advanced internationalisation. At the government level, even though state ownership can secure financial resources for enterprises, government intervention may have a negative impact on corporate FDI. Home governments can encourage firms to 'go out' by providing market and online information, rather than excessive institutional and financial support. Governments should also strengthen the supervision model of FDI, and encourage enterprises with the ability and international experience to conduct foreign investment. Governments should caution those enterprises that do not satisfy the conditions needed to invest overseas and to conduct the 'arbitrage-type' M&As that rely on the resources, markets, and institutional advantages of their home country to tread carefully.

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