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Knowledge and innovation in emerging market multinationals: The expansion paradox[☆]

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ABSTRACT

This article examines the innovation and knowledge strategies that allow emerging-market companies to become major international players. By adopting a qualitative approach, this study identifies a significant paradox between the desire of some leading Chinese car companies to expand internationally and the current relationship of such companies with leading global car companies, which significantly inhibits Chinese international expansion. This study unpacks that paradox using innovation theory and the resource-based view, and develops a matrix of strategic options that can assist emerging market multinational companies to expand internationally.

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1. Introduction

The internationalization strategies of companies from developing countries attracts increasing attention from researchers (Gammeltoft, Filatotchev, & Hobdari, 2012; Tsai, 2014). Most of the research, however, focuses on two aspects of global expansion for companies from such countries: The motivation and the internationalization processes (Cuervo-Cazurra, 2008). Research seldom addresses how innovation content and processes in potential multinational companies from emerging markets (EM MNEs) enable these companies to compete with their international rivals (usually from developed markets), the DM MNEs. Buckley and Hashai (2014) identify a significant gap in research regarding the extent to which EM MNEs are able to compete effectively with DM MNEs.

To address this research gap, this study explores the effective strategic options for EM MNEs aiming to expand in mature world markets against the backdrop of the positions of the existing DM MNEs, which presents a particular challenge for new entrants (Banerjee, Prabhu, & Chandy, 2015). This research explores the role of technical and non-technical innovation at EM MNEs as part of this process. Specifically, this study seeks to develop an approach to solve a significant strategic puzzle: Why do some EM MNEs with global ambitions have little success so far? How can these

companies solve this problem? This research adopts a qualitative approach focusing on the car industry and the strategies of car companies from China that seek internationalization.

This article contributes to the literature by presenting new insights into the contribution and processes of innovation at EM MNEs as they develop their international strategies, especially in the areas of knowledge and learning in the context of mature world markets. Second, the article provides a potential pathway to internationalization. Third, by looking at the international process of EM MNEs from both ambidextrous innovation and resource-based perspectives, this study provides further insights into the processes necessary for the effective internationalization strategies of EM MNEs.

2. Literature review

This study draws on innovation theory and the resource-based view. In addition, the study also employs the concept of strategic fit to explore the options available to EM MNEs to reduce the gap with their DM MNE rivals.

The importance of research into innovation hardly needs any justification (Damanpour, Walker, & Avellaneda, 2009). Globalization makes innovation even more important (Berry, 2014). Two issues regarding the importance of innovation for EM MNEs deserve special attention. First, EM MNEs may not have the innovative capability to exploit disruptive new technologies in comparison to their DM MNE rivals (Fleury, Fleury, & Borini, 2013). Second, a significant gap in innovation capability exists between EM MNEs and their established rivals, especially in high-tech

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industries. DM MNEs have far more experience in and orient more toward innovation (Christensen, Chang-Chieh, Kah-Hin, & Subramanian, 2010).

From a resource-based perspective, EM MNEs may also be at a disadvantage in comparison with their developed-country competitors in management, finance, and technical knowledge (Fagerberg & Godinho, 2006; Kumar, Mudambi, & Gray, 2013). Therefore, to investigate process differentiation in terms of the resources, learning, knowledge development, and the acquisition of new knowledge between the EM MNEs and the DM MNEs is important (Zhong, Peng, & Liu, 2013). Zhu, Lynch, and Jin (2011) argue that the catch-up process requires EM MNEs to develop innovative strategies by focusing on overcoming their weaknesses and improving their competitiveness. This process involves the acquisition of new knowledge and the further development of existing knowledge within the firm. Such knowledge may come from outside the company as well as inside (Leonard-Barton, 1999). This research therefore proposes that:

P1. In a mature industry, innovation is an essential strategy component for EM MNEs that wish to close the gap with their global rivals through the strategic processes of learning, knowledge development, and the acquisition of new knowledge.

This research focuses on two large categories of innovation: technical (technological) innovation and non-technical innovation (see Damanpour, Szabat, & Evan, 1989 for definitions).

In a mature industry, EM MNEs are initially at a competitive disadvantage with their established rivals. Li (2010) argues that MNE late-comers may employ an accelerated trajectory of cross-border learning in which co-exploitation and co-exploration take place during the internationalization process. These changes come from non-technical innovations such as cross-border alliances and joint ventures, rather than from technical innovations (Li, 2010) and from organizational transformation (Dixon, Meyer, & Day, 2010). However, the changes apply if, and only if, the implementation process runs smoothly and the EM MNE is capable of learning (Zhu et al., 2011). Hence, EM MNEs maintain clear resource-based benefits in non-technical innovations if these companies are capable of implementing such a learning process.

P2. In a mature industry, EM MNEs are more likely to close the gap with their established rivals through the development and exploitation of non-technical innovative resources and capabilities rather than through the development and exploitation of technical innovations. This process involves learning, new knowledge, and investment in new resources that relate to innovation.

Turning to technical innovation, the acquisition of a firm from a developed country by an EM MNE to produce new technical innovations may take longer and even yield negative output (Ahuja & Katila, 2001). In addition, in a mature industry, the established players rather than new EM MNEs are most likely to possess technological knowledge such as pools of patents. Due to the nature of technology diffusion in a mature industry, EM MNEs can build their technical innovative resources and capabilities by learning from their established rivals through approaches such as licensing, OEM, and joint ventures (Choung & Hwang, 2000). However, the implementation of these approaches takes time and may require the building of intangible assets drawing on the technology transfer of intellectual capital, which is particularly difficult for the aspiring EM MNE (Tsai, 2014; Zhu et al., 2011).

P3. In a mature industry, EM MNEs are more likely to close the gap with their established rivals through incremental technology advances rather than a major technology breakthrough.

3. Research method

This research adopts a qualitative approach (Rouse & Daellenbach, 2002) following a replication logic with multi-source data collection,

as Eisenhardt (1989) and Woodside and Baxter (2013) suggest. The study focuses on the global passenger car industry rather than the broader markets for automotive parts, buses, trucks, and other commercial vehicles. The target population of this research is the passenger car companies operating in China over the last 30 years. The unit of analysis includes both the DM MNEs that have set up joint ventures with Chinese companies and the Chinese EM MNE car companies that either expand internationally or plan to undertake this route over time. The study employs both secondary data and primary data. For the secondary data stage, the data analysis method is content analysis in three steps. First, the study uses global car industry statistics to identify the leading world companies and Chinese car companies. Second, this study analyzes the innovation input and output of these companies in terms of patent applications, R&D investment, and the development of new products and services (Muller, Välikangas, & Merlyn, 2005; Tseng & Wu, 2007). Third, the study analyzes the strategic intent regarding international and global expansion of the major Chinese companies from their published statements, independent stockbrokers', and consultants' reports.

For the primary data collection stage, this study adopts a two-stage process using in-depth interviews with a predetermined protocol. The protocol design process draws on Yin (1994) and follows the OECD Oslo Manual on the collection and interpretation of innovation data (OECD, 2005) and Fagerberg and Godinho (2006) on the innovation activities of MNEs. The selection of interviewees employs the following criteria: extensive work experience in the Chinese car industry, employment either directly for a major Chinese car company or for a supplier, and sufficient managerial seniority to provide informed judgments.

Four Chinese middle managers participated in the first stage's in-depth interviews in 2012 via personal contact. The second stage interview followed a year later with a similar protocol: one group interview and five in-depth interviews. Table 1 lists the profile of the study sample and major points the interviews covered.

4. Research results

4.1. Strategic context: EM MNEs vs. DM MNEs on technical innovation

Table 2 lists the leading world companies in the car industry in order of turnover. The list also offers their expenditure on research and development in the years 2007–2010, and data from the leading Chinese companies. In general, the R&D expenditure among international leading car companies (all of which are DM MNEs) remains remarkably steady over the four years that this study observes.

Table 2 shows that ten of the DM MNE car companies together spent over US\$50.2 billion in the year 2007 alone on research and development. The average expenditure in relation to turnover is 4.5%. Following the downturn in the world car industry, this ratio decreased to 4.2% in 2009. Few, if any, of the Chinese car EM MNEs invest at such levels. The high level of technical R&D innovation at the EM MNEs results from two external causes: High fuel prices and governmental pressure to find alternative fuels because of environmental issues.

4.2. Strategic context: The development of the Chinese car industry since 1978

In 1978, the Chinese Government began its “open door” policy regarding the entry of foreign companies into the Chinese domestic market. The four largest Chinese domestic car companies, FAW, Dongfeng, Guangzhou, and SAIC, then set up joint ventures with various European, Japanese, and U.S. car companies in which the local Chinese companies were the majority shareholders. The result was that the foreign joint ventures now dominate the Chinese market (see Table 3).

The prime focus of the four leading Chinese joint ventures is on the rapidly expanding Chinese domestic market. These leading companies have not attempted, so far, to expand internationally. However, some

Table 1
Qualitative interviews with middle and senior managers of Chinese car and car supply companies.

Manager ID	Company	Role of manager	Comment on knowledge and learning
<i>Field work 2012</i>			
A	Major Chinese joint venture car company with foreign MNE	Senior production manager	In-depth knowledge of one company
B	Major Chinese joint venture company with foreign MNE	Middle rank marketing manager	In-depth knowledge of one company
C	Tier 1 foreign MNE supplier to several Chinese car and Chinese car joint venture companies	Senior sales manager working across a region of China	Able to give a wider perspective across Chinese car manufacturing and also some knowledge of MNE's control of its R&D
D	Tier 1 foreign MNE supplier to several Chinese car and Chinese car joint venture companies	Senior engineering consultant working with a number of Chinese car production companies	Able to give a wider perspective across Chinese car manufacturing and also some knowledge of MNE's control of its R&D
<i>Field work 2013</i>			
E	Major Chinese joint venture car company with foreign MNE	Four middle managers from the same company as A and B above in sales, marketing, human resources, production	Interviewed as a group
F	Major Chinese joint venture car company with foreign MNE	Research and development manager—another joint venture company different from A and B above	Different strategic issues to the A and B company in 2012 on model development and j.v. relationships
G	Major Chinese joint venture car company with foreign MNE	Senior sales manager—another joint venture company different from A, B, and F above	Different strategic issues to the A and B company in 2012 on model development and j.v. relationships
H	Major Chinese car company—not part of a joint venture	Senior production manager	Company keen to develop global sales strategy
I	Tier 2 foreign MNE supplier to several Chinese car and Chinese car joint venture companies	Middle rank sales manager	Able to give a wider perspective across Chinese car manufacturing and also some knowledge of MNE's control of its R&D
J	Tier 2 foreign MNE supplier to several Chinese car and Chinese car joint venture companies	Senior director with responsibility across a region of China	Able to give a wider perspective across Chinese car manufacturing and also some knowledge of MNE's control of its R&D

smaller Chinese car companies engage in international activities: Seeking overseas expansion through exports, seeking overseas production, and seeking co-operation with companies in other developing countries.

Table 3 also shows that much of the branding investment in the Chinese domestic market is in the name of the DM MNE car companies rather than in name of the local Chinese EM MNE companies. This

situation makes it difficult for the development of a distinctive national brand that could expand internationally.

4.3. Strategic options of EM MNEs: the evidence from primary data analysis

All the executives agreed in the interviews that Chinese car companies aim to move beyond the domestic market over time. Manager H, for

Table 2
R&D expenditure of selected car companies (ranked by decreasing sales in US\$).

Company	Country	Total turnover 2007 (US\$ Bn)	Total annual R&D expenditure 2007 (US\$ Bn)	Annual R&D expenditure as % turnover			
				2007	2008	2009	2010
Toyota Cars	Japan	187.4	7.6	4.1%	3.5%	4.0%	3.9%
General Motors	USA	181.1	8.1	4.4%	5.4%	2.9%	5.1%
Volkswagen	Germany	160.1	7.8	4.8%	2.6%	2.9%	2.4%
Ford	USA	154.4	7.5	4.8%	5.6%	4.5%	3.9%
Daimler Mercedes	Germany	133.3	4.6	3.4%	4.5%	5.1%	4.9%
Nissan	Japan	92.5	n/a	n/a	5.4%	5.1%	4.9%
Fiat	Italy	86.0	2.3	2.7%	n/a	3.0%	2.8%
BMW Cars	Germany	79.1	4.6	5.8%	2.8%	2.6%	3.1%
Honda Motors	Japan	76.0	4.1	5.4%	4.4%	5.8%	5.6%
PSA	France	73.6	3.0	4.0%	4.4%	4.7%	4.2%
Renault	France	55.5	3.6	6.5%	4.9%	5.5%	4.9%
Mazda	Japan	36.6	n/a	n/a	3.3%	3.8%	3.9%
Hyundai	South Korea	32.3	n/a	n/a	n/a	n/a	n/a
Suzuki	Japan	21.2	n/a	n/a	n/a	n/a	n/a
<i>Selected Chinese companies</i>							
FAW	China	24.6	0.38	1.5%	1.5%E	1.0%	1.1%
SAIC	China	20.7	0.41	2.0%	2.0%E	1.0%	1.6%
Guangzhou Auto	China	14.7	n/a	n/a	n/a	n/a	n/a
Chang'An Auto	China	7.9	0.05	0.6%	1.0%E	1.0%	1.0%E
Dongfeng Auto	China	7.8	0.01	1.3%	1.3%E	2.3%	1%
Geely	China	5.6	n/a	n/a	n/a	n/a	n/a
JAC	China	4.7	n/a	n/a	n/a	n/a	n/a
Chery	China	2.1	n/a	n/a	n/a	1.0%	n/a

Note: By 2010, the total sales of both SAIC and Dongfeng Auto were greater than FAW Auto. Source: authors' compilation from company accounts. The FAW R&D data comes from Xinhuanet (29 April 2009). R&D expenditure includes development for commercial vehicles as well as cars in some companies. However, the majority of the funds go to cars, according to the text commentary in the company annual reports. See comment on definition of R&D expenditure in text.

E = estimated.

Table 3
China market shares of leading car brands (2011)

Chinese Domestic Market		
Brand	Local joint venture partner(s)	China market share %
Volkswagen	First Auto Works (Beijing), SAIC	16
Toyota	FAW, Guangzhou Auto	12
GM	SAIC, Liuzhou Wuling	12
Honda	Guangzhou Auto, Dongfeng Auto	9
Nissan	Dongfeng Auto	7
Chery		5
Hyundai	Beijing Auto	5
BYD		4
Geely		4

Note: Source for Chinese share data: authors' compilation based on DataMonitor, *Market Watch Automotive* (December 2011).
Source for local Chinese partners: Company reports.

example, says that their company is “world-oriented and moving aggressively to becoming internationalized.” Manager A explains that “after China has entered into the WTO [World Trade Organization], local automobile companies have opportunities to compete with the global automobile giants in global markets.”

The first proposition argues that in a mature industry, innovation is an essential component strategy for EM MNEs that wish to close the gap with their global rivals with learning being an essential element. Manager A explains that little opportunity for innovation exists:

[The Chinese car company] performs well on manufacture, but not so well on innovation. In fact, it only holds some techniques with less importance. Almost all the core techs are held in [the Chinese company's DM MNE joint venture] partners.

However, the Chinese companies learn from their DM MNE joint venture partners through training, new equipment from the DM company, and from the secondment of personnel to the DM company's developed markets. Manager C says that he “will be leaving in September for at least three months at our head office in a [European city].”

The second proposition suggests that in a mature industry, EM MNEs are more likely to close the gap with their established rivals through the development and exploitation of non-technical innovative resources and capabilities. The evidence from the interviews and from the secondary research shows that Chinese car companies somewhat succeed in non-technical innovations in the last few years.

The Chinese managers explain that DM MNE partners perform the main technical activities and that foreign partners control those activities very tightly.

“We simply make to specification. We do not know any details or have any sharing of technology” (Manager F).

One Chinese manager complains that, for two years, the DM MNE partner did not share its new models with the Chinese car company.

“[The DM MNE] gave the new models to a rival [Chinese] joint venture company. As a consequence, our sales have shown little growth over the period” (Manager G).

Despite this problem, the Chinese joint venture company receives training for its managers from the DM MNE. Furthermore, DM MNEs provide a flow of non-technical innovation in the form of help with building car service centers, supplier networks, and other support activities.

Proposition 3 argues that in a mature industry, EM MNEs are more likely to close the gap with their established rivals through incremental technology advances rather than a major technology breakthrough. The evidence provides support for this proposition.

The Chinese joint ventures (including some patents according to the websites of the companies) conduct some R&D activities. However, the

interviewees only mention these activities occasionally. The interviewees explain that the EM MNE joint venture uses the R&D center to make incremental technical adjustments to models from the parent DM MNE company “to satisfy the habits and tastes of Chinese customers” (Manager A).

The company does not use the center to develop basic designs for the cars. Part of the reason for this was that

R&D centers need plenty of experience and their own powerful technical strength based on R&D talent with such innovation taking a long period to become mature... [This] lack of an R&D talent pool and being too dependent on the [parent company's] product platform was a significant barrier for the long-term growth strategy of the Chinese subsidiary. (Manager A).

5. Discussion and conclusions

This study provides support for all three propositions. The difficulty for Chinese car EM MNEs to move internationally relates to the levels of knowledge and innovation that the Chinese car companies currently possess. A constant theme, particularly during the qualitative interviews, is an awareness of the reliance of the EM MNE on the knowledge and innovation databases of their DM MNEs partners. The knowledge and innovation flow in the Chinese car industry up to 2013 comes largely from the global DM MNEs to their Chinese joint venture partners, with the DM MNEs being reluctant to lose control of this strategic resource. Hence, despite the strategic intent to expand internationally, the Chinese car companies are effectively locked in to the knowledge and innovation strategies that their joint venture DM MNE partners provide. The Chinese car companies are aware of the problem but do not appear to have the solution. Therein rests the paradox— not only for Chinese car companies but also for all EM MNEs. This study calls this situation the “locked-in paradox” of EM MNEs.

This research suggests that the answer to this paradox lies in two main areas: the innovation and the knowledge base of the EM MNEs. EM MNEs are unlikely to develop radical innovations. However, many Chinese EM car companies are developing various forms of incremental technology innovation, partly by recruiting new R&D staff members and partly through contacts with other local research institutions, including university engineering departments. Chinese EM MNE car companies should be searching much more widely across national borders to acquire technology to beat the paradox. The research shows that a key ingredient in responding to the considerable resources of the DM MNEs lies in the area of the knowledge base of the EM MNE—not just about

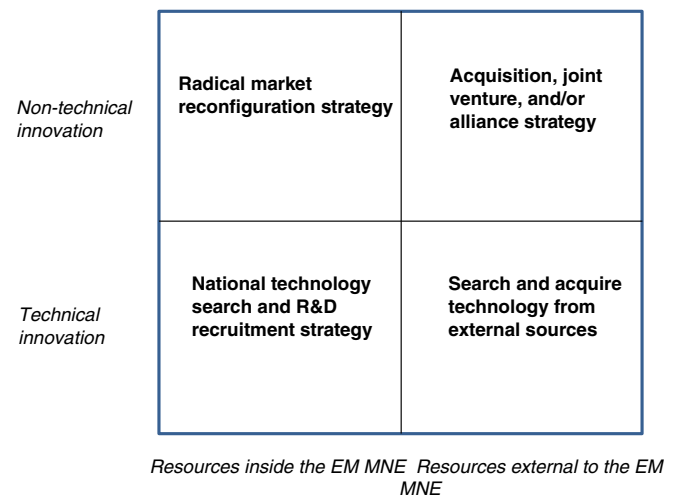


Fig. 1. Effective international strategy options for EM MNEs in mature world markets.

the knowledge of technology but about markets, opportunities, and the implementation process. The EM MNEs need to distinguish between what they already possess internally and what they can acquire externally.

Combining both technical and non-technical innovation with the actual and potential competitive resources of the EM MNE, this study develops a matrix (see Fig. 1) to show the effective international strategy expansion options for EM MNEs.

By illustrating the role of technical and non-technical innovation together with resource-based knowledge in the process of catching-up for EM MNEs in a mature industry, this research contributes to the literature from the following perspectives:

First, the study illustrates the challenge that EM MNEs face when they try to catch up with their established rivals in a mature industry in which latecomers do not possess the technological knowledge, which constitutes the locked-in paradox. The findings are consistent with existing literature regarding the difficulty of such catch-up process (e.g. Nolan et al., 2008), regarding contingency factors of catching up (Gammeltoft et al., 2012), and regarding institutional barriers of innovation from emerging economies (McCarthy, Puffer, Graham, & Satinsky, 2014).

Second, the expansion matrix this study proposes provides a potential pathway for those EM MNEs aiming to make inroads into the international market. The expansion matrix involves a comprehensive roadmap that combines technical and non-technical innovations together with learning- and knowledge-acquisition processes. The expansion matrix complements Mathews' (2006) and Contractor's (2007) iterative learning models for EM MNEs.

Innovation and knowledge resource development are not the only routes for EM MNEs to expand internationally. By looking at the international process of EM MNEs from both ambidextrous-innovation and resource-based perspectives, this study provides further insights into which processes are necessary for the effective internationalization of EM MNEs. Thus, the study provides an extension for Zhu et al.'s (2011) catch-up framework and Zhong et al.'s (2013) findings regarding knowledge integration of EM MNEs. This research focuses on only one industry and one country. Future research should replicate this study with other mature industries such as the food industry and EM MNEs in other countries and continents in order to validate the findings and conclusions of this study.

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