

How Overseas R&D Centre to Maximize the Benefits after cross-board M&A: Case of CEVT of Geely Group

Jin, Jun (1); McKelvey, Maureen (2)

1: Zhejiang University, China, People's Republic of; 2: University of Gothenburg, Sweden

ABSTRACT

With the global market development, more and more Chinese companies conduct overseas M&A and set up their R&D centres in advanced countries in order to access the latest technology, to develop products for local market demand, transfer technologies to China, and improve their innovation capabilities and competitiveness. However, it is still a critical and urgent problem faced by those Chinese companies to achieve and maximize their benefits after M&A and from the overseas R&D centres. The development of China Euro Vehicle Technology Company (CEVT), a wholly technical subsidiary of Geely Auto after the M&A of Geely Group and Volvo Cars, is taken as a case to explore how an overseas R&D centre play roles and contribute to the benefits of company after cross-board M&A. The fast growth of CEVT and Geely Auto and Volvo Cars illustrates that CEVT is as the broker, the promoter, and the creator among them after M&A. The paper reveals that the overseas research centre can provide benefits to Chinese MNEs at the strategy and governance, the new product development, the market diffusion, and the revenues. The paper suggests that the activities for the new brand and the development of new platform technology work as two channels of the technology transfer and cooperation among players after M&As in the mature industries. The paper will provide ideas to the theories and practices of international R&D centres, and the global R&D management, especially for companies in mature industries.

Keywords: Globalization, R&D centre, CEVT, M&A

1. INTRODUCTION

Globalization and cross-board M&A offers new innovative opportunities for companies. This paper focuses upon the links between global innovation and cross-board M&A of Chinese companies. With the encourage of policy on “going abroad”, in order to acquire the high quality assets and improve the competitiveness, more and more Chinese companies set up their overseas research centres and merge or acquire companies in Europe, US, and other countries. For instance, several Chinese companies, such as Huawei, China Mobile, Baidu, Suning, and Midea have established their R&D centres at the Silicon Valley in US. In addition, in 2016, around 920 M&A cases (141% increasing from that in 2015) were conducted by Chinese companies in the total value of 212.5 billion USD, which was 3.5 times of M&A values in 2015¹.

The increasing global R&D and M&As of Chinese firms have attracted the interest of a considerable number of scholars, and knowledge about this issue is substantially growing. The fate of merged firm after M&A has kept eyes from industries, researchers, and officers, for instance the M&A performance of Lenovo and IBM PC. Scholars explore the motives, challenges, impediments, strategies, and policy initiatives that compel firms from emerging countries, like China to go abroad for knowledge sourcing (Chen, 2003; von Zedtwitz, 2005). Although it is thought that the global R&D will contribute to the global development of companies, it is not still under research if and how the global R&D, especially the overseas R&D centres, contributes to the success of M&As.

Thus, the paper is going to pursue the questions that how overseas R&D centre of companies from developing countries could contribute to the development of companies after their M&As. The strategic position and roles of China Euro Vehicle Technology AB (CEVT)

¹ Information was available at: http://www.cfen.com.cn/dzb/dzb/page_3/201704/t20170427_2588897.html

operated by Geely Auto and Volvo Cars in Geely Group in the Chinese automaker industry are taken as a case to answer the above research question.

The case in automaker industry is selected is because of the notable increasing of M&A cases and importance of global R&D in this industry. With the accumulation of local technology capability and reverse engineering (Cheung and Lin, 2004), the globalization of auto industry gradually focus on innovation globalization, which helps China go out of the domestic market by providing opportunities for Chinese enterprises to get the international markets (Gan, 2003; Richet and Ruet, 2008; Balcet and Ruet, 2011; Balcet et al., 2012) and to realize the goal of catch-up or Leapfrogging through innovation (Balcet et al., 2012; Wang and Kimble, 2013). Since Geely Group purchased Volvo Cars from Ford in 2010, Chinese automaker has gradually tried mergers and acquisitions of foreign auto companies (Zhang & Sheng, 2015; Deloitte China, 2016) in order to access external technology and patents and ascend to the high-end of global auto market. However, research on globalization of innovation in the auto industry, especially the management and strategies after the merge and overseas R&D centers is limited comparing with other sectors. With the increasing M&As and outward investment of companies in Chinese auto industry, it is necessary to explore their operation and performance, factors and influence mechanism of their operation and performance after M&A. Considering the overseas R&D centres set by Chinese automakers, how to leverage the role of overseas R&D on the development after M&A is an interesting and critical issues to companies who have M&A as well as overseas R&D. Thus, this paper develops a case study of how co-development between Geely Auto and Volvo Cars through CEVT occurs and allows the company/companies to develop new forms of innovation and global strategies. Our focus is on the most recent developments after the merge and acquisition of Geely Group and Volvo Cars. The illustration of strategic roles of CEVT in

Geely will contribute to theories and practices of global R&D in manufacturing industries from emerging countries.

The paper is organised in 6 sections. Section 2 reviews literatures on R&D globalisation and technical M&A. Section 3 explains the research method used in the paper and research framework. After the introduction of CEVT and Geely Group in Section 4, the paper analyses the channels of CEVT to play roles and contribute to the development of Geely Auto and Volvo Cars after M&A in Section 5. Conclusions and implementations are discussed in the Section 6.

2. LITERATURE REVIEW

Globalization – also called internationalization – describes cross-national flows of products, services, and some important production factors, such as labour and capital (Dunning and Lundan, 2009). In the context of innovation and R&D activities, the globalization of innovation is used to describe the phenomenon of 'globalization' experienced by the world of invention and innovation (Archibugi and Michie, 1995). They are activities by multinational enterprises across different countries, resulting in cross-border flows of R&D-related resources such as knowledge, R&D personnel, R&D investments, and new technologies (Cantwell, 1999).

The research about R&D globalization have mainly focus on several certain specific aspects of: locational factor (Howells, 1990; Le Bas and Sierra, 2002; Demirbag and Glaister, 2010), driven factors of going abroad (Khurana, 2006; Faeth, 2009), types of foreign R&D labs (Casson, 1991; Florida, 1997), offshore R&D in emerging countries, such as China (Zhou et al., 2001; Chen, 2004; Gassmann and Han, 2004), and so on.

Moreover, from the company perspective, the globalization of innovation is driven in larger measure by technology factor and the “globalization of R&D is one of the key strategic

decisions that almost every company has to make” (Khurana, 2006). In addition, companies conduct R&D overseas in order to access to (1) technology and know-how through partnership with local universities, private labs, and so on, and (2) customers and markets (Chen, 2003; Khurana, 2006).

In recent years, with an explosion in domestic market growth rates, and a burgeoning pool of well-educated but low-cost labour in some leading developing countries, such as Brazil, Russia, India, and China (BRIC), have increasingly attracted new research and development (R&D) sites of MNEs from advanced economies (UNCTAD, 2005; Karabag et al., 2011). Additionally, an increasing number of multinational enterprises from emerging countries are quickly expanding their innovation activities into advanced countries by means of technology-oriented mergers and acquisitions (M&As), greenfield R&D investments, offshore R&D, and cross-border innovation cooperation in effort to be the global exploitation of technology, global technological collaboration and global sourcing of technology (von Zedtwitz, 2005; Jin et al., 2014). USA and countries in Europe, like Britain, Germany, are main locations of overseas R&D activities of MNEs from emerging countries (Economist Intelligence Unit, 2004).

The emerging industries and high technology industry seem to be the key industries in adopting the strategy of global innovation because it is simultaneously globalized and knowledge-based (Gertle et al., 2000), and because globalization of innovation is driven in large measure by technology factors (Florida, 1997). For instance, technology transfer, foreign direct investment (FDI), capability transfer (Sutton, 2007; Dunning and Lundan, 2009) and other forms of cross-border value-adding activity have already influenced some Chinese industries, such as software (Plechero and Chaminade, 2010), ICT (Bruche, 2009; Wei et al., 2011), pharmaceuticals(Wei et al., 2011; Wadhwa et al., 2008).

Research on the technology M&As focuses on the impact of cross-board M&As on R&D (e.g. Bertrand and Zuniga, 2006; Kallunki et al., 2009) and market value (e.g. Kallunki et al., 2009; Gomes et al., 2013), factors (such as characteristics of knowledge) of the outcomes of technology M&A (Makri et al., 2010) and selection of M&A targets (Yang et al., 2014). However, the impact of global R&D on the outcomes of cross-board M&A is ignored. Is there influence of global R&D, especially the overseas R&D centres on the performance after the cross-board M&A? If yes, what and how do overseas R&D centres play roles to the performance /benefits after M&A? All of these are under research.

3. RESEARCH METHODOLOGY

Case study is widely recognized as a method for an explorative research (Yin, 2009). The methodology can help answer the research question of our study, based on the principles of engagement with practice (Voss, 2009; Yin, 2009). Through case studies, we can enlighten and explain real-life phenomena that are too complex for tightly structured designs or pre-specified data sets (Voss et al., 2002; Yin, 2009). In addition, the case studies are suitable for unravelling concepts (Yin, 2009) and building theories (Eisenhardt, 1989). This paper adopts case method to analyse the mechanism and channels of an overseas R&D centre CEVT of a Chinese auto manufacturer, Geely Group, to contribute to the development of Geely Group including Geely Auto and Volvo Cars after the merge of Geely Group and Volvo Cars, which is an ignored area in R&D globalisation of mature industry and performance of technical M&A of companies from developing countries.

The case of CEVT as well as the merge of Geely Group and Volvo Cars is selected based on the following reasons. At first, the auto companies have become main actors in the increasing M&As conducted by Chinese companies. Thus the case in the auto industry could provide general findings to other industries. Secondly, the case of CEVT for Geely Group

meets the research purpose, which has an overseas R&D after the M&A of Geely Group and Volvo Cars as well as the significant improvement of Geely Auto and Volvo Cars after the establishment of CEVT, especially comparing with the development of SAAB after its merged by a Chinese company at the same city. Acquisition of world leading transmission producer DSI in 2009 to reach the goal of internalization the entire series of AT technology and acquisition of world famous car brand Volvo by Geely in 2010 are good examples of M&As (Balcet et al., 2012; Gifford et al., 2015).

The case description presented below is based on in-depth interviews as well as a series of written material in English, Swedish and Chinese. One informal interview and 6 formal interviews at CEVT were done with senior managers of CEVT in 2016. In addition, an informal interview was done in 2017 to update the development of CEVT. Each interview lasted 1 to 1.5 hours. Public information from websites and companies' introduction documents were also used as background information and to triangulate the data. Visiting of the Geely headquarter and meeting with vice president of Geely Group in 2015 and 2017 provided additional data to the case.

In order to analyse the channels and roles of overseas R&D to the development of companies after M&A, the paper proposes a simple framework, as shown in Figure 1. The data will be analysed according to this research framework.

In this research, the overseas R&D refers to CEVT, while the development of companies in this research means the change of performance of Geely Auto and Volvo Cars in the case of success of new products based on the basic technology from CEVT and the market diffusion.

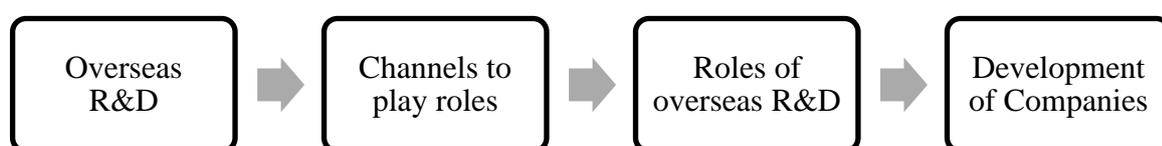


Figure 1 Research Framework: channels of overseas R&D to the development after M&A

4. INFORMATION OF CEVT²

Geely Group was founded in 1986 in Taizhou, China. Geely Group began to specialize in the automobile industry in 1997, and the Geely Auto was founded. Geely Group acquired Volvo Cars in 2010. Since then, Geely Group has produced passenger cars with two groups of brands, Geely Auto and Volvo Cars, and taxi with brand of London Taxi³. In order to integrate the advantage resources of Geely Auto and Volvo Cars, and meet the future demands of Geely Auto and Volvo Cars, China Euro Vehicle Technology AB, a development centre for future cars of the Geely Group, was set up in September of 2013 by Geely Group. Although it is a R&D centre of Geely Auto in law and wholly invested by Geely Group, CEVT is jointly operated by Geely Auto and Volvo Cars. In short, the position of CEVT in the Geely Group could be seen as a sub-company of Geely Auto, as shown in Figure 2. In order to make it simple, the subsidiaries of Geely Group which do not produce passenger cars do not be covered in Figure 2.

² Some information is available from CEVT official website: <http://www.cevt.se/>

³ In 2006, Geely and MB Holding (UK) established a joint venture to produce iconic London Taxi in Shanghai. In 2013, Geely acquired all core business and assets of MB Holding (UK) and 48% of shares of joint venture with MB Holding. Since 2013, London Taxi Company became one part of Geely Holding.

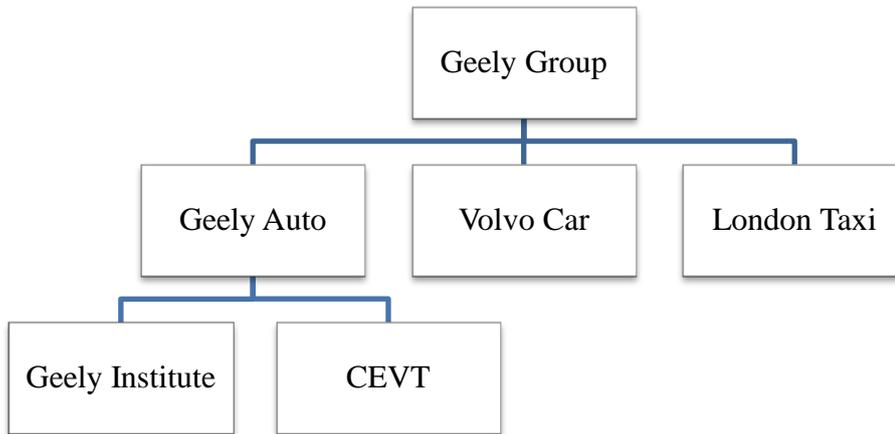


Figure 2 CEVT Position in Geely Holding Group Organisation Structure

From 10 persons in 2013, the CEVT has grown to be a R&D company with around 2000 persons from 22 countries and regions mainly located in Gothenburg (Sweden)⁴. The employees working at CEVT include CEVT employees, and contracted employees from Volvo Cars and other companies. In addition, CEVT has established clearly decision process following modern corporate management. Although CEVT is a R&D company invested by a Chinese company, large percentage of middle and high level managers in CEVT are not Chinese. Only one Chinese is a member of the top management team as a deputy vice president. Two of five board members of CEVT are Chinese. The board of CEVT includes CEO of Geely Auto, CEO of Volvo Cars, CEO of CEVT, CFO of Geely Group, and an Advisor of Chairman LI Shufu of Geely Group.

In nearly 4 years, CEVT has developed a new, modular architecture for world-class cars – Compact Modular Architecture (CMA) platform following a modular technology approach, which is the main target of CEVT. On the basis of CMA platform, CEVT can conduct research on all aspects of passenger car development – from the total architecture, powertrain and drive line components, shared component development, to top hat engineering as well as

⁴ Before 2017, there was a sub-CEVT in Hangzhou. Now the CEVT Hangzhou was merged into the Geely Institute.

the vehicles' exterior design. In addition, CEVT provides services to Geely Auto and Volvo Cars for their development of new models of cars based on these CMA platforms. Of course, Geely Auto and Volvo Cars can use CMA platforms to develop new models of autos for themselves too. These new models of cars have become the new profit points of Geely Auto and Volvo Cars. Most of important, new models of car developed by CEVT are going to be introduced into markets in a new brand, LYNK & CO soon.

5. ANALYSES AND DISCUSSION

The following analyses focus on development of passenger cars. Since the products branded as London Taxi is not for the passenger cars, the analyses in this paper excludes the innovation and products of London Taxi although it is one of important parts of Geely Group.

5.1 Channels and Roles of CEVT based on CMA Platform

In the automaker industry, the company who owns the modular architecture technology will have the strong competitiveness and technological capabilities because the modular architecture technology is the base of new product development and new product technical tests. As mentioned online, based on the modular architecture technology, CEVT could develop all aspects of a vehicle. As discussed above, the information from the interviews and public information on the website indicates that CEVT focuses on the development of the CMA platform, new product development based on the CMA platform, and the service on new product development based on the CMA platform for Geely Auto and Volvo Cars. The CMA platform at CEVT is not only used for the new models car developed for Geely Auto, but also for the new models car development by Volvo Cars. It is platform open to CEVT, Geely Auto and Volvo Cars. Thus, we assume that the CMA platform work as a channel to play roles in the Geely Group including Geely Auto and Volvo Cars.

As mentioned above, the interviews reveal that employees of CEVT include contracted engineers from Volvo Cars and exchange engineers from Geely Institute as well as others from consulting companies. Engineers from Geely Auto and Volvo Cars work at CEVT in order to develop the new CMA platform technology and the new product development based on CMA platforms. Engineers from Geely Institute and Volvo Cars go back to their own companies after their short-term work at CEVT on CMA platforms. Thus, there is mobility among them, as shown in Figure 3. When they work on this platform, technology transfer at least technology spill over happens. Since engineers from CEVT, Geely Auto and Volvo Cars work together for CMA platforms, all these three companies have right to use and share technologies based on these platforms.



Figure 3 Mobility based on CMA platform

In addition, it is possible for Geely Group to purchase the standardized modular components together for Geely Auto and Volvo Cars based on the architecture platform, which updates the previous supply chain system of Geely Auto. Thus, we propose that the CMA platform are worked as channels to play roles of CEVT in the aspects of new product development, technology transfer (including technology spill over), and the supply chain system, as shown in Figure 4.

Since one of missions of CEVT is to define and develop world class products with outstanding quality and performance at competitive price levels, the CMA platform

technology at CEVT is open to the new product development of Volvo Cars and Geely Auto. The CMA platform is the basis of future Volvo Cars models similar to their smaller SUV XC60 and other models much closer to the Chinese market and lower cost than before. Considering the development capabilities of Geely Auto, CEVT provides service to help Geely Auto to develop and test new models of cars, such as NL-3 model. In short, Geely Group hopes to attach ‘tech-savy and urban customers’ based on the CMA platform. Most of important, as introduced in the public reports and its website as well as confirmed several times by interviewers, the new models developed by CEVT based on CMA platform technology will be sold in a new brand LYNK & CO. As a new car concept, the LYNK & CO cars are going to close the market gap between Volvo and Geely cars. Thus, we assume that the CMA platform as the channel helps CEVT to work as the pillar of new product development.

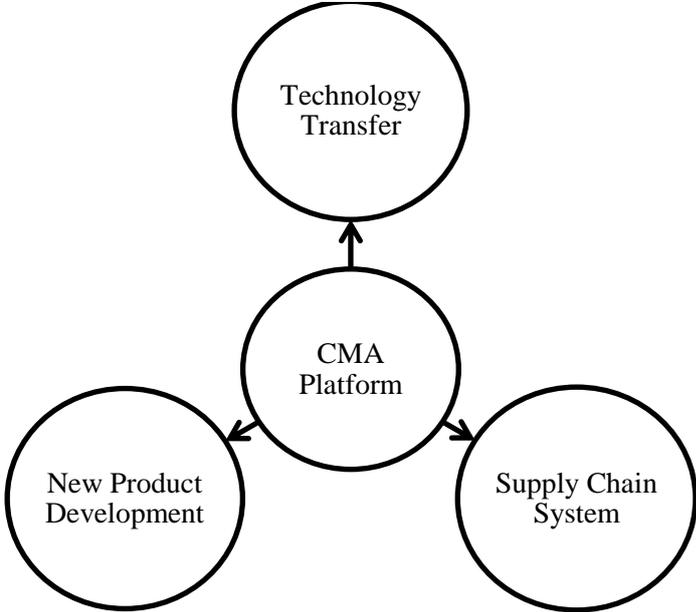


Figure 4 Roles of CEVT based on CMA Platform

In addition, CEVT works as a broker among Geely Auto, Volvo Cars and other subsidiaries of Geely Group. The mobility of employees between CEVT Gothenburg and CEVT Hangzhou before 2017 (as shown in Figure 3) formed a knowledge transfer between these two facilities. Because CEVT Hangzhou shares offices with Geely Research Institute in Hangzhou, sometimes there are technology spill over between Geely Research Institute and CEVT Hangzhou too. For example, CEVT provides technical support to KC product development of Geely Auto in Hangzhou. Therefore, CEVT is a node to connect the technology and production between Volvo Cars and Geely Auto. According to the future strategic plan, the CEVT will provide technical support to London Taxi too. Thus, we assume that CEVT is a broker in Geely Group (as shown in Figure 5). The technology transfer among Geely Auto, Volvo Cars, and CEVT will be analysed in detail in future.

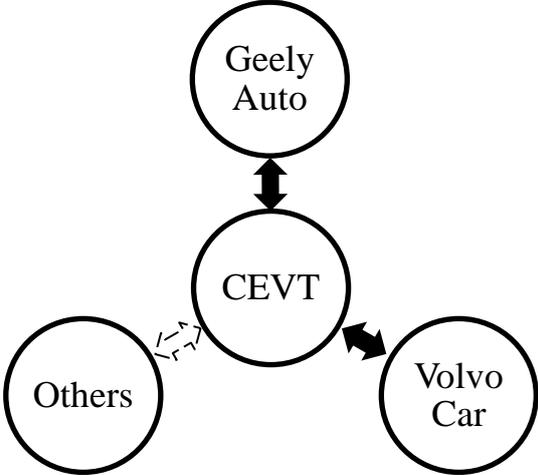


Figure 5 Broker Role of CEVT in Geely Group

We argue that one reason for the need for an intermediary organization is the need to develop certain types of technologies, for a car more like a smart phone than a large physical investment. Another reason may be found in agreements between Ford – the previous owner of Volvo Cars – and Geely Group, to keep certain intellectual property rights and related

automobile platform systems separate between Volvo Cars and Geely Group for a number of years.

Moreover, CEVT could be recognised as a trigger of the new supply chain system. For instance, although CEVT is a company for product development, the quality team are in charge of the quality, the governance system and the centralized purchasing of new plants at Gent (Belgium, for Volvo Cars), Zhangjiakou (China, for LYNK & CO cars) and Luqiao (China, for Geely Auto and LYNK & CO cars) to produce new models developed based on CMA platform technology. According to the strategy of Geely, the new models of cars developed by CEVT was introduced into the global market in a new brand, LYNK & CO, not sold as Volvo cars or Geely cars. In order to ensure the product quality of new brand and distinguish them from Volvo cars and Geely cars, new plants at Zhejiakou and Luqiao in China are built. These plants only produce new brands of cars developed by CEVT. In these new plants, new governance systems are implemented, such as the centralized purchasing system of components, which is different from the original purchasing system at Geely's plants. With the running of new plants, the new governance system in new plants will be gradually infiltrated into management system of Geely Group.

The vision of CEVT and interviews indicates that CEVT plays a critical role in the process of Geely Group to be a global company. As the Vice President of CEVT, Mr. Wei said, to be a global company, Geely needs global employees, global technology, and global market. CEVT works as a platform to make contributions to Geely Group to formulating and improving the globalisation of products, talents, and R&D system. Since product development for the global market based on the CMA platform is priority at CEVT, the global strategy could be seen as a product-oriented global strategy. In this CEVT platform, Geely Group can develop products with the advantages of Volvo quality and Geely low cost.

Through the mobility and frequently communication of employees between CEVT Gothenburg and CEVT China, as well as those between CEVT and Geely Auto, the management system and thoughts of global company diffuse outside of CEVT and potentially influence the management system in Geely Auto.

5.2 Increasing Benefits of Geely Auto and Volvo Cars Based on CEVT

In sum, as an overseas R&D centre, CEVT not only takes the responsibilities to accessing the latest technology and develop new technology and new products (Chen, 2003; Khurana, 2006), but also takes the roles to access markets in advanced countries, attract global talents, and driving the diffusion of new governance system. In short, CEVT is working not only for the new global technology, but also for the new global market, new governance system, and new global brand. It provides evidence to enrich theories of global innovation (UNCTAD, 2005), that the purpose of overseas R&D centre can be expanded from a technology or R&D place to a carrier to maximize the benefits after M&A in terms of the new product development as well as the supply chain system.

The new models of cars developed based on CMA platform or under the support of CEVT by Geely Auto and Volvo Cars all achieved good market profits. The reputation of Geely Auto in China is better than before. Geely Group has become one of the most valuable 500 brands in the world in 2017 (Brandirectory, 2017).

As discussed above, the LYNK&CO brand cars are developed by CEVT based on the CMA platform. The LYNK & CO models of cars will be launched in the Chinese market at the end of 2017 and the European and American market in 2018. This brand of cars is going to close the market gap between the Volvo brand of cars and Geely brand of cars, as shown in Figure 6.

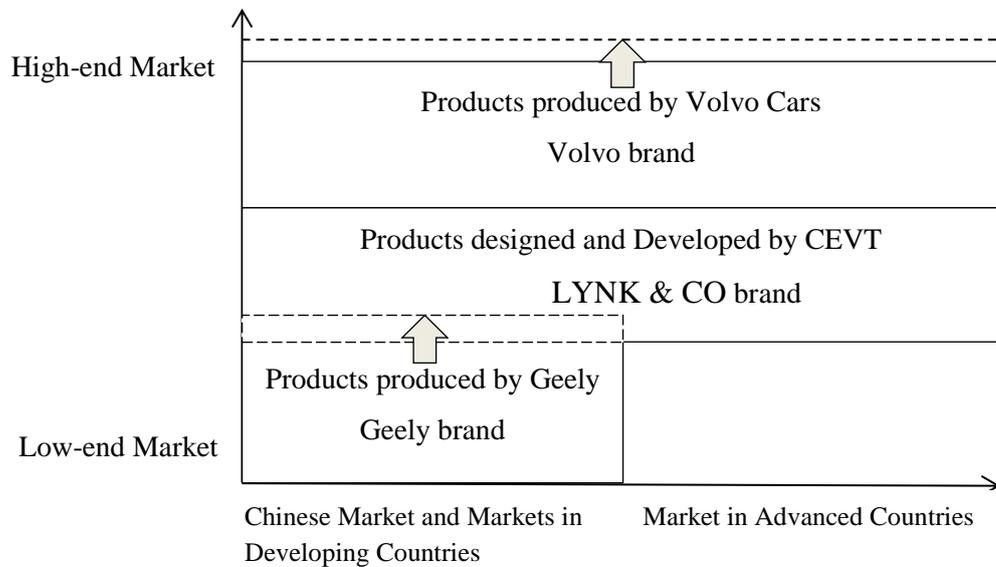


Figure 6 Strategic market positions of passenger cars' portfolios of Geely Group

As shown in Figure 6, the automobile market is divided into the high-end market and the low-end market based on the prices of autos. In addition, the automobile market can be divided into the Chinese market and global market outside of China. The global market here refers to the market in advanced countries. Geely cars mainly concentrate on the low-end of Chinese market. Volvo cars are for Chinese market and global market outside of China including advanced countries. There was a market gap between brands of Volvo and Geely when they merged in 2010. After the merger, in recent years, the market of Geely brand is growing up, and more and more close to the high-end market, while the market of Volvo brand is growing too. The LYNK&CO cars are for the Chinese market and global market including the advanced countries. With the LYNK & CO Brand, Volvo brand, and Geely brand, Geely Group can provide cars to most of markets. Most of important, the LYNK & CO cars eliminate the doubt in people that if Volvo cars will reduce their qualities after the merger and the high quality image of Volvo cars will be damaged after the merge. The LYNK & CO cars are vehicles with Swedish safety, German ride and handling, and Silicon Valley

technology and connectivity⁵. Furthermore, with the continuous and sustainable growth of CEVT, LYNK & CO Company was established jointly by the cooperation CEVT, Geely Auto and Volvo Cars for the further development and production of LYNK&CO. The differences between Geely Group and other multinational auto companies from advanced countries on the product portfolio (brand strategy) are the direction of market expansion, which is for the middle level market in Geely Group.

Therefore, based on the CMA platform technology, CEVT contributes to the development of Geely Auto, Volvo Cars and Geely Group.

5.3 Summary

Thus, according to the analyses of channels and roles of CEVT in the Section 5.1 and Section 5.2, we assume that with the technological platform of overseas R&D centre, the overseas R&D centre could be played as a catalyser to maximize the benefits after M&A.

Why does the platform could be worked as the channel to maximize the benefits after M&A? From the interviews, we suggest it is because the CMA platform is a cooperative platform with mutual benefits to Geely Auto and Volvo Cars who are users of the CMA platform too. As discussed above, the new models of cars developed by Geely Auto and Volvo Cars based on CMA platform technology are all successful in the market. Geely Auto and Volvo Cars use the technology from CEVT according to their regulation on technology transfer. In addition, the finance of CEVT is from Geely Group, neither Geely Auto nor Volvo Cars. So, Geely Auto and Volvo Cars are internal market of CEVT technology. They own the same rights and obligates. It needs further research on this mechanism in the future.

⁵ <http://www.motortrend.com/news/geelys-new-automotive-brand-lynk-co-reveals-01-suv/>

6. CONCLUSIONS

This paper illustrates how CEVT contributes to the co-development of Geely Auto and Volvo Cars after their M&A. In addition, CEVT plays roles to bring Geely Group to be global. The research reveals that cooperation platform is the channel to play the role of overseas R&D to maximize the benefits of companies after M&A. Through the channels (cooperation platform or the platform technology) like the CMA platforms in this case, the overseas R&D can play the roles of promoter of global strategy and governance system, brokers in the organization, as well as the intermediate of internal technology transfer through the employees' mobility. The research suggests it is critical to set up an eco-system where partners possibly achieve mutual benefits based on mutual advantages and cooperation with a clear internal trade and financial system on technologies at the cooperation technology platform, in which.

Additionally, the case of CEVT of Geely Group provides the profusion of information to the global strategy and the role of R&D centre in the globalisation of a company. The overseas R&D centre can be a carrier to support the mother company from emerging countries to be a really global company from aspects of global persons, global market, global technology and global management system. By linking the Chinese and Swedish national innovation systems, the CEVT organization and its global innovation process is designed to help renew how market and technological opportunities are taken care of after M&A.

The implicit of this case in the globalisation is an understanding that a company from emerging countries can improve their benefits after M&A directly and indirectly. In addition, the broker role of CEVT between Geely Auto and Volvo Cars perhaps can be recognized as a method to reduce the influence of conflicts between two companies after M&A. It provides a new aspect for us to consider strategies after M&A.

From the aspect of organization management, we assume that there are some characteristics of ambidextrous in CEVT. Perhaps we could adopt theories of ambidextrous

organization to review the relationship among CEVT, Geely Auto and Volvo Cars and to analyse the strategic roles of CEVT in Geely Group in the future research.

With the development of CEVT, the CEVT as well as Geely Auto undergoes changes in their management and strategies. It is possible a co-evolutionary process and process of technology synergy. Thus the co-evolutionary and synergy development of CEVT, Geely Auto and Volvo Cars could be studied in the future. In addition, the system of internal technology market system and internal technology transfer and technology spill over, as well as its functions and factors in the Geely Group should be further studied. Moreover, the new brand strategy of CEVT suggests that based on the technology and new products, auto companies from emerging countries can set up a new portfolio operated in a brand strategy to fill up the market gap.

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REFERENCES

- Archibugi, D, and Michie, J., 1995. The globalisation of technology: a new taxonomy. *Cambridge Journal of Economics*, 19: 121-140.
- Balcet, G. and Ruet, J., 2011. From joint ventures to national champions or global players? Alliances and technological catching-up in Chinese and Indian automotive industries, *European Review of Industrial Economics and Policy*, 3: 1-24.
- Balcet, G., Wang, H., and Richet, X., 2012. Geely: a trajectory of catching up and asset-seeking multinational growth, *International Journal of Automotive Technology and Management*, 12(4): 360-375.

- 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*, 24(2): 401-423.
- Bruche, G., 2009. The emergence of China and India as new Competitors in MNCs' innovation networks. *Competition and Change*, 13(3): 267–288.
- Cantwell, J. 1999. From the early internationalization of corporate technology to global technology sourcing. *Transnational Corporations*, 8(2): 81-92.
- Casson, M., 1991. *Global Research Strategy and International Competitiveness*. Cambridge, MA: Basil Blackwell.
- Chen, J., 2003. *Global Innovation* (in Chinese). Beijing: Economic Science Press.
- Chen S., 2004. Taiwanese IT firms' offshore R&D in China and the connection with the global innovation network. *Research Policy*, 33(2): 337-349.
- Cheung, K. Y., and Lin, P., 2004. Spillover effects of FDI on innovation in China: evidence from the provincial data, *China Economic Review*, 15: 25–44.
- Deloitte China, 2016. *The Report on Outward Foreign Investment of Chinese Auto Firms in 2016* (in Chinese). Available at: <https://www2.deloitte.com/content/dam/Deloitte/cn/Documents/manufacturing/deloitte-cn-mfg-china-automotive-industry-outbound-investment-report-2016-zh-160606.pdf>. 2016-08-10
- Demirbag, M., and Glaister, K W., 2010. Factors determining offshore location choice for R&D projects: a comparative study of developed and emerging regions. *Journal of Management Studies*, 47(8): 1534-1560.
- Dunning, J. H., and Lundan, S., 2009. The internationalization of corporate R&D: a review of the evidence and some policy implications for home countries. *Review of Policy Research*, 26(1/2): 13-33.
- Duysters, G., Jacob, J., Lemmens, C., & Yu, J., 2009. Internationalization and technological catching up of emerging multinationals: a comparative case study of China's Haier group. *Industrial and Corporate Change*, 18(2): 325-349
- Economist Intelligence Unit, 2004, *Scattering the Seeds of Invention: The Globalization of Research and Development*. Available at http://graphics.eiu.com/files/ad_pdfs/RnD_GLOBILISATION_WHITEPAPER.pdf
- Eisenhardt K M., 1989. Building theories from case study research. *Academy of Management Review*, 14(4): 532-550.
- Faeth, I., 2009. Determinants of foreign direct investment--- a tale of nine theoretical models. *Journal of Economic Surveys*, 23(1): 165-196.
- Fagerberg, J., 2005. *The Oxford Handbook of Innovation*. Oxford, UK: Oxford University Press

- Florida, R., 1997. The globalization of R&D: results of a survey of foreign-affiliated R&D laboratories in the USA, *Research Policy*, 26: 85-103.
- Gan, L., 2003. Globalization of the automobile industry in China: dynamics and barriers in the greening of road transportation, *Energy Policy*, 31(6): 537–551.
- Gassmann O, and Han Z., 2004. Motivations and barriers of foreign R&D activities in China. *R&D Management*, 34(4): 423-437.
- Gertler, M, S., Wolfe, D, A., and Garkut, D., 2000. No place like home? The embeddedness of innovation in a regional economy, *Review of International Political Economy*, 7(4): 688-718.
- Gifford, E., Holgersson, M., McKelvey, M., and Bagchi-Sen, S., 2015. Tapping into western technologies by Chinese multinationals: Geely’s purchase of Volvo Cars and Huawei’s hiring of Ericsson employees in Sweden. In McKelvey M. and Bagchi-Sen, S. (eds.): *Innovation Spaces in Asia: Entrepreneurs, Multinational Enterprises and Policy*. Edward Elgar Publishing, 231.
- Gomes, E., Angwin, D. N., Weber, Y., & Yedidia Tarba, S., 2013. Critical success factors through the mergers and acquisitions process: revealing pre-and post-M&A connections for improved performance. *Thunderbird International Business Review*, 55(1), 13-35.
- Howells J., 1990. The location and organisation of research and development: new horizons. *Research Policy*, 19(2): 133-146.
- Jin, J., Wang, Y., and Vanhaverbeke, W., 2014. Patterns of R&D internationalization in developing countries: China as a case. *International Journal of Technology Management*, 64(2-4): 276-302.
- Kallunki, J. P., Pyykkö, E., and Laamanen, T. 2009. Stock market valuation, profitability and R&D spending of the firm: the effect of technology mergers and acquisitions. *Journal of Business Finance and Accounting*, 36(7-8): 838-862.
- Karabag, S. F., Tuncay-Celikel, A., and Berggren, C. 2011. The limits of R&D internationalization and the importance of local initiatives: Turkey as a critical case. *World Development*, 39(8): 1347-1357.
- Khurana A., 2006. Strategies for global R&D. *Research-Technology Management*, 49(2): 48-57.
- Le Bas, C. and Sierra C., 2002. Location versus home country advantages’ in R&D activities: some further results on multinationals’ locational strategies. *Research Policy*, 31(4): 589-609.
- Makri, M., Hitt, M. A., & Lane, P. J. 2010. Complementary technologies, knowledge relatedness, and invention outcomes in high technology mergers and acquisitions. *Strategic Management Journal*, 31(6), 602-628.
- Plecherro, M. and Chaminade, C., 2010. Different competences, different modes in the globalization of innovation? A comparative study of the Pune and Beijing regions. *Circle Working Paper*, Paper no. 2010/03

- Richet, X. and Ruet, J., 2008. The Chinese and Indian automobile industry in perspective: technology appropriation, catching-up and development, *Transition Studies Review*, 15 (3): 447-465.
- Sutton, J., 2007. Quality, trade and the moving window: the globalization process, *The Economic Journal*, 117: 469–498.
- UNCTAD. 2005. *Globalization of R&D and Developing Countries*. Geneva and New York: United Nations.
- Verganti, R., 2013. Design Driven Innovation: Changing the Rules of Competition by Radically Innovating What Things Mean. Boston, MA: Harvard Business Press.
- von Zedtwitz, M., 2005. International R&D strategies in companies from developing countries – the case of China. In UNCTAD, *Globalization of R&D and Developing Countries*. Geneva and New York: United Nations.
- Voss, C., Tsikriktsis, N., and Frohlich, M., 2002. Case research in operations management, *International Journal of Operations and Production Management*, 22(2): 195-219.
- Voss C., 2009. Case research in operations management. In C. Karlsson (ed.), *Researching Operations Management*, 162-196. New York: Routledge.
- Wadhwa V, Rissing B A, Gereffi G, Trumbour, J., and Engardio, P., 2008. *The Globalization of Innovation: Pharmaceuticals: Can India and China Cure the Global Pharmaceutical Market*. Available at SSRN 1143472.
- Wang, H., and Kimble, C., 2013. Innovation and leapfrogging in the Chinese automobile industry: examples from Geely, BYD, and Shifeng, *Global Business and Organization Excellence*, 32(6): 6-17.
- Wei, Y., Liefner, I., and Miao, C., 2011. Network configurations and R&D activities of the ICT industry in Suzhou municipality, China. *Geoforum*, 42: 484–495.
- Yang, C. S., Wei, C. P., & Chiang, Y. H., 2014. Exploiting technological indicators for effective technology merger and acquisition (M&A) predictions. *Decision Sciences*, 45(1), 147-174.
- Yin, R., 2009. *Case Study Research - Design and Methods*. Thousand Oaks: Sage.
- Zhao, X, Q., 2013. Indigenous Innovation in China’s Automobile Industry: Institutional Causes for the Failure of the Strategy of “Trading Market for Technology”, *Journal of Zhejiang University (Humanities and Social Sciences)* (in Chinese), 43(3): 164-176.
- Zhou C, Delios A, and Yang J., 2002. Locational determinants of Japanese foreign direct investment in China. *Asia Pacific Journal of Management*, 19(1): 63-86.
- Zhu, G, Y., 2010. A Study on the strategic transferring of Chery auto marketing from Sole-brand to Multi-band (in Chinese), *East China Economic Management*, 24(6): 140-142.