



IUL School of Business

Learning how to learn: reverse knowledge transfer mechanism in
Chinese manufacturing MNEs – in the context of outbound direct
investment with aim at knowledge acquisition

Lan Li

Thesis specially presented for the fulfillment of the degree of
Doctor in Management

Supervisor:

PhD Nelson Santos António, Professor Catedrático,
ISCTE Business School

Co-supervisor:

PhD Virginia Trigo, Professor Emeritus,
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March, 2017

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Abstract

Knowledge transfer, specifically reverse knowledge transfer (RKT) from invested European company to company from emerging markets, has become well-taken strategy for enhancing company's competitive advantage and become an important topic for academic research. Since 2010, a trend is confirmed that Chinese multinational enterprises (MNEs) employ outbound direct investment (ODI) as a strategy to acquire knowledge and realize industrial upgrading. Tacit knowledge is found out as most valuable asset to company, thus it is also the most difficult in transferring. This research is carried out with specific focus on tacit knowledge transfer to Chinese investor companies. The result of RKT does not always meet investor-company's expectation. Built on "knowledge sender-receiver" model and the theory of *ba*, I try to explore a mechanism for better RKT performance after Chinese MNEs invested in Europe. A combination of qualitative and quantitative methodology is applied in this research. In the end, 10 interviews and 101 questionnaires are collected among employees who work at Chinese MNEs or invested European companies that have actively involved in ODI for knowledge transfer. RKT performance is impacted by complex factors. As an explorative research, we have found that firms' absorptive capacity, under the environment of high-employee-committed organizational climate, trust in leadership and other RKT participants, well-established formal knowledge transmission channel and similar organizational structure in both Chinese MNEs and invested European companies have major impact on reverse knowledge transfer performance.

Key words:

Reverse knowledge transfer, Chinese MNEs, Outbound direct investment, Knowledge transfer mechanism

JEL classification: F23, L16

Resumo

A transferência de conhecimento, nomeadamente a Transferência Inversa de Conhecimento (TIC) de empresas europeias adquiridas para empresas de economias emergentes, tornou-se numa estratégia adotada para melhorar a vantagem competitiva e é também um tópico importante de pesquisa académica. Desde 2010 que as empresas multinacionais chinesas utilizam o investimento no exterior como uma estratégia de aquisição de conhecimento para efetuar a atualização industrial. O conhecimento tácito é considerado não somente como o ativo mais importante de uma empresa como também o mais difícil de transferir. Esta investigação focaliza-se na transferência do conhecimento tácito das empresas europeias para as empresas chinesas que nelas investiram. O resultado da transferência nem sempre satisfaz as expectativas das empresas investidoras. Baseando-me no modelo “emissor-recebedor de conhecimento” e na teoria do *ba*, tentei explorar um mecanismo para uma melhor Transferência Inversa de Conhecimento para as multinacionais chinesas que investiram na Europa. Nesta investigação utilizamos uma combinação de métodos qualitativos e quantitativos. Para além de 10 entrevistas recolhemos também 101 questionários de colaboradores de empresas multinacionais que investiram na Europa e que estão envolvidos na transferência inversa de conhecimento. A transferência inversa de conhecimento está sujeita a fatores muito complexos. Nesta investigação exploratória, concluímos que a capacidade de absorção, num ambiente de elevado empenhamento, confiança na liderança e nos outros participantes na TIC, canais de transmissão bem organizados e estruturas organizacionais semelhantes têm um grande impacto da transferência inversa de conhecimento.

Palavras-Chave:

Transferência Inversa de Conhecimento; Multinacionais Chinesas; Investimento Direto no Estrangeiro; Mecanismos de Transferência de Conhecimento

Classificação JEL: F23; L16

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List of Abbreviations

EM-MNEs: Emerging Markets Multinational Enterprises

FDI: Foreign Direct Investment

KBV: Knowledge based view

KT: Knowledge transfer

MNEs: Multinational Enterprises

MOFCOM: Ministry of commerce of the People's Republic of China

ODI: Outbound direct investment

RKT: Reverse knowledge transfer

SECI Model: Socialization, Externalization, Combination and Internalization

SOEs: State-owned enterprises

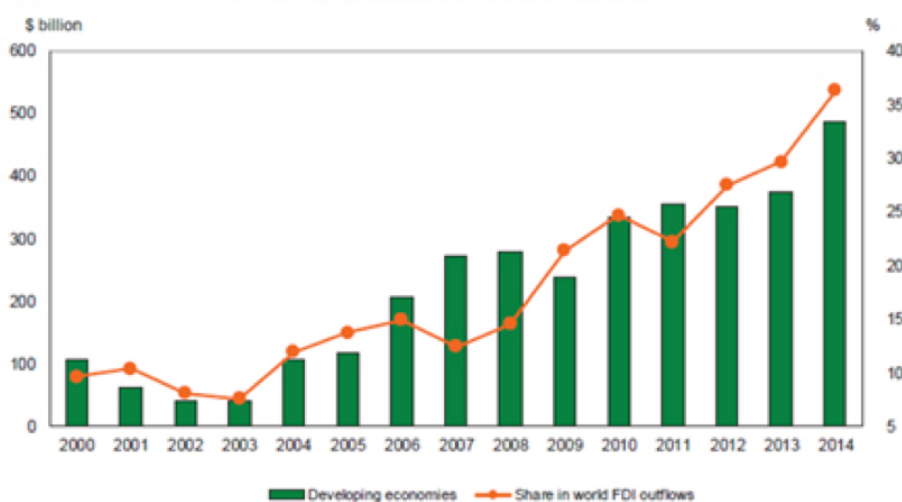
UNCTAD: United Nations Conference on Trade and Development

Chapter 1. Research background

1.1 FDI outflows from developing economies and China's specific case

According to the 2015 World Investment Report, published by the United Nations Conference on Trade and Development (UNCTAD), expansion abroad by multinationals from developing economies rose to its highest levels ever in 2014, at almost half a trillion dollars. Of the twenty largest investor countries, nine were developing or transition economies (Chile, China, Hong Kong (China), Taiwan Province of China, Kuwait, Malaysia, the Republic of Korea, the Russian Federation and Singapore). In 2014, developing economies accounted for a record 35% of global Foreign Direct Investment (FDI) outflows, compared to around only 13% in 2007. A review of FDI outflows from emerging economies during the past decade reveals an almost continuous upward trend, with the exception of a short-lived setback in 2009.

Figure 1: Developing economies: FDI outflows and their share in total world outflows, 2000-2014 (billion USD and per cent)



Source: UNCTAD Global Investment Trends Monitor, No.19. 18 May 2015

The fact is that developing economies continue to be the largest recipients of inbound FDI. In 2014, developing economies, as a group, attracted 681 billion USD worth of inbound FDI and remain the leading region by share of global investment inflows. However, not as interesting as the strong growth of FDI outflows from this region, it is important to note that the year to year FDI inflow figures are comparatively stable. In 2015, the FDI inflows to developing economies received a 9% year to year leap, reaching a new high of 765 billion USD, remaining the largest inbound FDI recipient region in the world. However, two years earlier in 2013, FDI

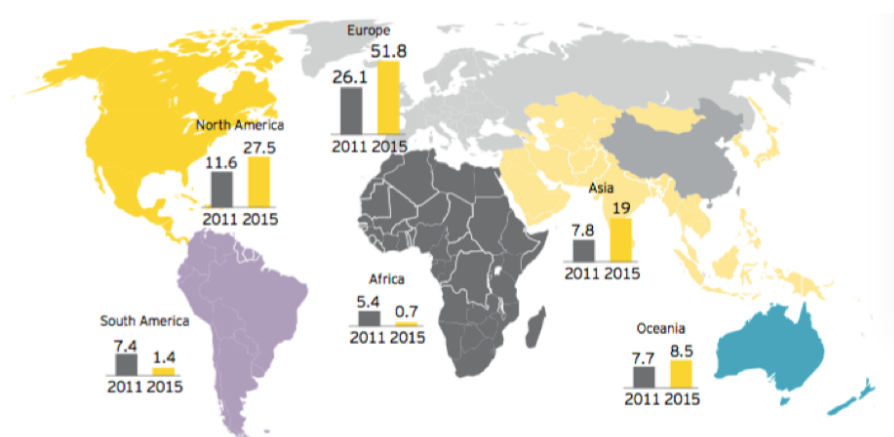
inflows to developing economies were already 778 billion USD, accounting for 54% of global inflows.

The 2016 World Investment Report (UNCTAD) indicates that FDI outflows declined in most developing and transition regions in 2015. The results of which are driven by the combined effect of various factors, most prominently, declining commodity prices, depreciating national currencies and geopolitical risks. However, general downward trends in FDI outflows from developing and transition economies did not influence the continued growth of China's Outbound Direct Investment (ODI). In fact, in 2015, China's ODI exceeded inbound FDI for the first time in history, which also marked China's 13th consecutive year of ODI growth (KPMG, 2016 Sep). In 2015, China surpassed Japan as the country with the second largest ODI flow (KPMG, 2016 Sep). The Financial Times observed that despite international apprehension that the slowing economy could weaken China's ODI outflows, the earliest signs from 2016 indicated that China's corporate sector would remain strong on overseas expansion (FT, 2016 June).

1.2 China's ODI and drivers of investment in the EU

In the case of China, the trend of soaring ODI by Chinese enterprises is generating much intrigue and excitement across international economic and political spheres (Verbeke et.al, 2014). From 2013 to 2014, China's Total Net ODI increased from 107 billion to 123 billion USD (National Bureau of Statistics of China, 2013/2014). Total Net ODI in 2015 increased 18% to USD 145.7 billion (KPMG, 2016 Sep).

Figure 2: Chinese enterprises' overseas M&A distribution, 2015 vs 2011 (USD billion)



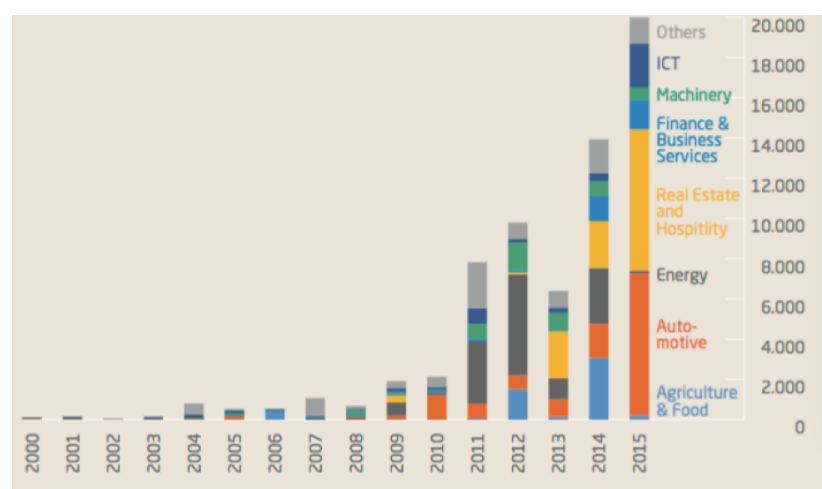
Source: Going out – the global dream of a manufacturing power (EY, 2016 March)

Figure 2 indicates that Europe was already the region received highest Chinese enterprises' overseas investment through M&A back in 2011 and continued with highest portion in 2015. The majority of Chinese companies seek access to the European market to sell goods and services. However, a smaller but increasing number are looking to acquire technologies, expertise and brands through M&A with European companies in order to improve their capability to compete both at home and abroad (European Union Chamber of Commerce in China, 2013 Jan).

China is indeed becoming an important player in Europe (Meunier, 2014). Chinese investment into Europe has surged spectacularly in recent years, both through greenfield investment and through M&A. This surge of Chinese ODI into the EU occurred contemporaneously with the explosion of sovereign debt crises in Europe and general economic downturns in many European countries.

From year 2008 on, China's ODI stock in Europe increase significantly year over year. In 2015, China's ODI stock in Europe reached an all-time high at 83.7 billion USD according to National Bureau of Statistic of China (NBS, data from 2008 to 2015). Looking closely at these notable figures, we usually find one or more big international acquisitions behind them (Mercator Institute for China Studies, 2016). In 2015, much of the increase can be attributed to ChemChina's 7 billion EUR acquisition of the Italian tire producer Pirelli, which constitutes the largest Chinese takeover in the EU to date (Mercator Institute for China Studies, 2016).

Figure 3: Distribution of Chinese ODI in the EU-28 by industry 2000-2015 (EUR million)



Source: A New Record Year for Chinese Outbound Investment in Europe (Mercator Institute for China Studies, 2016)

For years, the Chinese government considered energy and resource M&A opportunities primarily to support the economy. Yet today there is a new focus on gaining market share and core capabilities. Chinese outbound M&A deals now work to acquire technology, consumer goods, finance, media and telecommunication organizations, in order to include more diversified industries. The result is, that in the past five years, roughly 75% of China's outbound M&A deals were aimed at accessing technology, brands, and market share (Boston Consulting Group, 2015 Sep).

The industry distribution of Chinese ODI in Europe in 2015 confirms that the changing economic realities in China are driving these investments. Chinese investors are targeting an increasingly diverse range of sectors in Europe. In 2015, Chinese interest further shifted towards a more diverse mix of assets including technology, advanced services, brands, and consumer-related assets (Mercator Institute for China Studies, 2016).

State-owned investors continue to account for the majority of China's ODI to Europe. Meanwhile, private sector companies have become an increasingly important contributor to China's global ODI in recent years. In 2015, private Chinese firms invested 6 billion EUR, reaching the highest level on record (Mercator Institute for China Studies, 2016).

Chinese investment has increasingly been extending beyond the "Big Three" markets (Germany, the UK and France) to other parts of Europe. In 2015, South European economies accounted for almost half of all Chinese EU investment for the first time, supported by big deals such as ChemChina's acquisition of Pirelli, Wanda's investment in Atletico Madrid, and Haitong's acquisition of Banco Espirito Santo's investment bank business (Mercator Institute for China Studies, 2016).

1.3 Chinese enterprises' dilemma and demand for industry upgrading

According to China's 13th Five-year plan, which focuses on innovation and all-round opening up of development, Chinese enterprises are expected to "Go Global", upgrade their technology and develop capacity for international cooperation (EY, 2016). A new feature for Chinese investment nowadays is that Chinese enterprises have diverted their investment into acquiring high value-added factors such as advanced technology and marketing networks (EY, 2016). They now focus on bringing overseas technology, brands and talent into China in order to improve their competitiveness (EY, 2016). These motivations are specifically addressed in the

infrastructure and manufacturing industry by the new “One Belt One Road” strategy and “Made in China 2025”.

China’s manufacturing industry is expected to have improved overall quality, innovation ability and labor productivity by 2025. The industry will build a group of competitive multinational enterprises and industries and upgrade their positions in the global industrial workflow and value chain (EY, 2016).

Over the past three decades, the manufacturing industry has contributed to 40% of China’s economic growth. However, most Chinese manufacturing enterprises occupy mid/low-end positions in the global industry chain where cheap labor is their main advantage (EY, 2016). In recent years, China’s labor costs have increased and many companies have decided to relocate low-end manufacturing to other developing countries where costs are lower, forcing Chinese manufacturers to reconsider their position in the global value chain. At the same time, China’s economic slowdown, overcapacity and encroaching have limited the profitability of its manufacturing industry (EY, 2016). Furthermore, the information technology revolution led by the Internet of Things (IoT), cloud computing and “big data” are challenging the traditional manufacturing business models. China's Purchasing Manager's Index (PMI) scored consistently under 50 for eight consecutive months, from July 2015 to February 2016, evidencing the challenges faced by the manufacturing industry and the need for high-end transformation (EY, 2016).

This fact corresponds to the sharp increases in China's ODI over the past 5 years. As illustrated in figure 2, China’s ODI in Europe and the USA have more than doubled in the period 2011 to 2015, in comparison with decreases in Africa and South America. Industrial upgrading guides FDI outflows from Chinese enterprises to technology-advanced markets/regions. As expected, China’s ODI is going to remain strong for the next ten years.

“Made in China 2025” highlights 10 focus areas (new information technology; numerical control tools and robotics; aerospace equipment; ocean-engineering equipment and hi-tech ships; railway equipment; energy-saving and new-energy vehicles; power equipment; new materials; biological medicine and medical devices; agricultural machinery) for the construction of a high-end manufacturing sector. In accordance with “Made in China 2025”, I employ the same focus areas (industry category) for research target company screening.

1.4 Chinese manufacturing enterprises' insufficient capacity in learning from abroad

The standard explanation for FDI, before MNEs from developing economies had started investing in developed markets, was that the superior technological and managerial resources possessed by the MNEs enabled them to enter new markets (Peng et al., 2012). However, when FDI flows in the reverse direction, enterprises from developing economies lack, “superior technological and managerial resources”. Enterprises in developing economies typically do not own better technology and their management capability is usually not at a world-class level (Gammeltoft et al., 2010).

Under these circumstances, Emerging Markets Multinational Enterprises (EM-MNEs) will need to apply different approaches in the process of internationalization, compared to MNEs from developed markets. The popular approach taken by EM-MNEs follows the “Uppsala model”. In accordance with the Uppsala model, MNEs intensify their internationalization activities from culturally related or geographically close markets to culturally or geographically more distanced markets in a staged process. For instance, the Chinese telecommunication firm Huawei's ODI activities are best described by the Uppsala model. In the initial stages of ODI, Huawei chose to enter countries in Asia, Africa and Latin America. Only after accumulating successful experience in these markets did Huawei decide to enter developed markets, such as Europe and America (Xu, 2008). Staged overseas expansion has resulted in the success of Huawei in the global market (Xu, 2008). In contrast to the approach described by the Uppsala model, a great number of Chinese enterprises initiated first ODI directly in enterprises in Europe or America, without overseas investment experiences.

There is a common understanding that knowledge is one of the key organizational assets for MNEs to strengthen and maintain competitive advantages (Rowley, Chae et.al, 2013). Therefore, MNEs often attempt to develop and improve their organizational competitiveness by integrating various sources of knowledge generated internally within MNC networks (Lane, Salk, and Lyles, 2001).

On one hand, Chinese enterprises need to learn knowledge about local business environments, including the roles played by various stakeholders, business partners and competitors, in order to compete in foreign markets. On the other, it is equally important to transfer obtained knowledge from foreign markets to Chinese companies. In this process, MNEs often set up

subsidiaries in the invested markets to absorb locally resident information and reversely transfer it back to China.

As stated before, both a lack of technological and managerial resources and weak overseas investment experience increase the degree of difficulty faced by Chinese enterprises in knowledge learning from abroad after overseas investment. Dealing with various components of knowledge learning can be tricky as invested-in markets may present institutional environments that may be ambiguous and uncertain for Chinese MNEs. In this regard Europe is not considered an easy market to operate in and is reported as posing specific difficulties caused by bureaucratic barriers and high costs. The main obstacles for Chinese MNEs after ODI include difficulties in understanding overseas local business environments, inefficient communication with regulatory bodies and local stakeholders, insufficient planning of integration processes, unclear governance structures, talent shortages affecting functional departments responsible for integration processes, and a lack of tools to address cultural differences (Boston consulting group, 2015).

1.5 Research questions and relevance

The practical question addressed by this research is whether a noticeable gap exists between the knowledge learning capacity of the Chinese MNEs after ODI and the Chinese manufacturing industry's goal of upgrading. In fact, whilst living in Europe during the past five years, I have witnessed a successive number of Chinese enterprises, both state-owned and from the private sector, actively acquire bankrupted European enterprises or directly make greenfield investments. At the same time, understanding of both the importance and difficulties posed by knowledge transfer from acquired companies to Chinese enterprises was obtained from experience contacting employees from European manufacturing companies invested by Chinese enterprises.

Knowledge transfer is never easy. During the entire process, multivariate attributes, such as company culture, organizational structure, knowledge transfer systems, the participants' willingness and capacity, are all vital in determining knowledge transfer performance. From an academic perspective, knowledge transfer, as a branch of knowledge management, proved to be more complex when applied to cross-border knowledge transfer. The research focus of knowledge transfer differs depending on whether ODI comes from developed markets or from

developing markets. Along with EM enterprises increasing ODI into developed markets, more and more scholars, especially from developing markets but living in Europe and America, have begun research into reverse knowledge transfer (RKT) to their origin country. In 2012, a sizeable amount of publications on reverse knowledge transfer related to ODI from India and China can be found. However, a specific research focus on the ODI activities of Chinese enterprises in Europe, with a view to understanding the aim of reverse knowledge transfer and to contribute to a better performance of RKT, is still lacking.

I believe that my research, by identifying the major factors determining RKT performance, will contribute to Chinese enterprises who employ ODI as strategy for knowledge learning. I hope that the findings will benefit Chinese enterprises who plan to invest in developed markets in order to gain competitive advantage. At the same time, I hope to contribute to Chinese MNEs in the post-ODI stage with reverse knowledge transfer experience, by further facilitating their RKT activities. In this research I mainly address two questions: What key factors facilitate tacit knowledge reverse transfer to Chinese manufacturer MNEs? What RKT mechanism promises the best performance in order to improve Chinese manufacturer MNEs innovative ability?

1.6 Thesis framework

The thesis constitutes five chapters. Chapter 1 introduces the research background. Sub-chapters 1.1 to 1.5, review the economic phenomenon: the significant increase of emerging markets' ODI to developed markets in recent years, and discussion on China's position as the strongest force among the emerging economies, with sustained growth in ODI. I examine the understanding that industrial upgrading is the driver behind learning as well as the difficulties encountered by Chinese enterprises. Thus, I have clearly stated the objectives of the thesis.

In chapter 2, I develop a thorough literature review to understand the major areas covered in my research: knowledge, *ba* and knowledge transfer. In 2.1, in order to answer the question "what is knowledge", I recall classical theories about knowledge from different academic disciplines and identify salient points from the long-standing debate between the "scientific view" and "humanistic view" of knowledge. In the end, Nonaka's division on tacit and explicit knowledge is employed. From 2.2 to 2.5, in order to answer the research questions raised in chapter one, I progress down the earlier research spiral, following the order from "knowledge in organization", "*Ba* and knowledge conversion", "knowledge transfer" to "reverse knowledge

transfer”. In 2.6, I present the research design, inclusive research focus, variable exploration and analytic model.

In chapter 3 the empirical base and research method are described. I explain in detail how the research group was selected and the trajectory of how the researcher explored and built up her research network. A combination of interview and questionnaire collections are employed, therefore, joint analysis on both qualitative and quantitative data is carried out in chapter 4.

Chapter 4 contains analysis and research results from both qualitative and quantitative data, presenting the timetable and order of data collection. In 4.1, the background of three archetype companies that discussed in the research is introduced, together with six archetype RKT participants case studies. In qualitative analysis, I employ content analysis methods and interpret qualitative results by variable. In 4.2, quantitative data is processed by frequency analysis, reliability and validity checks, principle component analysis, multicollinearity check and correlation checks. After testing, the data was processed in a five-stage hierarchical multiple regression model. By doing this, I was able to test the hypotheses and measure the impact of key factors on RKT performance. In 4.3, I summarize major findings from both qualitative and quantitative data, in order to provide an overall analysis to answer the research question.

In Chapter 5, I summarize conclusion and findings, research limitations and future research possibilities.

Chapter 2. Literature Review

2.1 What is knowledge

Philosophers have been debating and discussing the concept knowledge for centuries. And even though the question “What is Knowledge?” has changed very little, a definitive and unequivocal answer has yet to be formulated. In the meantime, knowledge has received a considerable amount of attention from a wide variety of academic disciplines.

2.1.1 Knowledge in Economics theories

Although classical economists treated knowledge as a “disturbance” category in their model specifications, neoclassical economic theorists began to assert the importance of knowledge in economic affairs (Nonaka & Takeuchi, 1995). Alfred Marshall (1890) was the first to articulate the important role knowledge had in economics, he stated in his book *Principles of Economics* that “Knowledge is our most powerful engine of production; it enables us to subdue Nature and force her to satisfy our wants. Organization aids knowledge” (Marshall, 1890).

Mainstream neoclassical economic theories were concerned with the utilization of existing knowledge, represented by price information. Under the market mechanism, every firm possesses the same fixed knowledge that enables profit maximization (Nonaka & Takeuchi, 1995). This statement is associated with one of the major assumptions in neoclassical economics. Perfect information implies that all consumers and producers possess perfect information about the price, utility, quality and production methods of all products. Perfect information is the foundation of perfect competition.

In fact, neoclassical economists did not pay much attention to the notion of knowledge, focusing instead on information (Arena et al., 2012). The argument for focusing on information, instead of knowledge, was that information could be coded and measured whereas knowledge could not. Information theory (Shannon, 1948) emphasizes that information can and must be codified in order to be transmitted through a digital system, while knowledge cannot be measured (Arena et al., 2012). Another reason why information was preferred over the notion of knowledge is related to Walrasian economic theory: in this theoretical context, information was considered objective and symmetric, that is, the same for all economic agents (Arena et al., 2012). However,

neo-classical economists soon found that the quantitative definition provided by information theory was probably of only limited value for economic analysis (Arrow, 1974).

Nonaka & Takeuchi (1995) also explored the limitations of knowledge theory as applied to neoclassical economics: they identified the primary limitation of the neoclassical economists as their failure to acknowledge the considerable amount of both tacit and explicit knowledge held by economic subjects that is not represented in the form of quantitative information. A second limitation refers to the fact that neoclassical economic theory neglected knowledge creation and the company's role in knowledge creation.

Frederich von Hayek and Joseph A. Schumpeter first argued that knowledge is subjective and cannot be treated as fixed. In contrast to neoclassical economists, they described the dynamics of economic change by focusing on the unique knowledge held by each economic subject rather than on the knowledge commonly shared by economic subjects (Nonaka & Takeuchi, 1995). Hayek (1945) initially discussed the importance of implicit, context-specific knowledge. He categorized knowledge as scientific knowledge and knowledge of the particular circumstances of time and place. The definition of the second category of knowledge defines dynamics as a feature of knowledge, that is to say, that circumstances continually redefine the relative advantage held by different individuals. Hayek's theory was a seminal moment in the evolution of knowledge theory, as it established the "subjective", "individual owned" and "dynamics" as features of knowledge.

Following Hayek and Schumpeter's theory that knowledge is actually individually owned instead of commonly shared, Penrose (1959) further developed a theory on the growth of firms and the resource-based perspective. According to Penrose (1959), a firm is a repository of knowledge. Penrose (1959) asked how a firm's repository of knowledge influences firm growth and competitiveness. She introduced the concept of "services" in her theory, stating that the exercise of knowledge and experience (resources accumulated in the firm) functions in lieu of the resources themselves. The central determinant to the "function of the exercises" is the "planning process" lead by "corporate planners". In her theory, "corporate planners" merge corporate strategy with the company's accumulated knowledge and experience.

Additionally, Penrose (1959) discussed several scenarios demonstrating the difficulty of handling knowledge. According to Penrose's theory, knowledge in the form of experience is not just tacit and hard to transmit; it can simply not be known in advance, both because of

uncertainty and because knowledge is created in the context of an evolutionary process, through the very purposeful actions of economic agents, not least firms. Sometimes, knowledge is not really scarce in the conventional sense. Its use by someone need not exclude another individual from using it, thus the exchange of knowledge can actually be useful. Nonaka & Takeuchi (1995) commented that even though Penrose had a clear cut-stand on the importance of knowledge for the growth of a firm, she did not explain the processes through which members can accumulate knowledge.

2.1.2 Knowledge in Management theories

In contrast with the economists' primary concern of building abstract models, management researchers are interested in management practices (Nonaka & Takeuchi, 1995). Management literature in general is divided into two camps: the "scientific" camp, with a focus on the "scientification of strategy", and the "humanistic" camp, which focuses on "organizational culture".

Taylor (1911) founded the school of scientific management theory. The aim of scientific management was to produce knowledge in order to improve production efficiency. Using this approach, Taylor attempted to formalize the worker's experience and tacit skills into objective and scientific knowledge, with the ultimate goal of standardizing best practices and transferring knowledge between workers, as well as from workers into tools, processes and documentation. Taylor's theoretical proposals laid solid foundations for knowledge management theory. However, Nonaka & Takeuchi (1995) noted that Taylor failed to consider how workers' experience and judgment affect the creation of new knowledge. Thus, when applying his theory, only managers were involved in creating new work methods, or making up instructions and formulae to guide the workers' daily work.

Between 1920 and 1930, "human relations theory" posited that human factors played a significant role in raising productivity through the continuous improvement of the practical knowledge held by workers (Mayo, 1933). Complementing Taylor's pure scientific methods, Mayo's theory paid closer attention to the complexities of reality. Mayo (1933) contended that managers should develop "social human skills" to facilitate interpersonal communication within both formal and informal groups of work organization.

Barnard (1938) tried to integrate both scientific theory and human relations theory at the organizational level. Even though knowledge was not Barnard's central issue, his view that knowledge consists of logical, behavioral, linguistic and non-linguistic formats, is summarized here. Both logical and behavioral knowledge are equally important for leaders to create value. Beliefs are created in order to maintain the soundness of a given knowledge system within an organization. Barnard's discussion on knowledge and leaders' role in supporting knowledge systems provided vital input to the development of knowledge theory. However, Barnard barely scratches the surface without engaging in a deep discussion of the subject.

2.1.3 Knowledge in Organization theories

Barnard's attempt to synthesize the scientific and humanistic views of management laid the foundations for organizational theory (Nonaka & Takeuchi, 1995). Herbert Simon (1947) further developed Barnard's discussion on executive roles in organizations. He understood the essential function of executives as decision making. Simon developed a view of organizations as "information processing machines". In Simon's model, human thought is processed as a form of information processing; human beings act as information processing systems. He also suggested that human beings possess only a limited ability to process information over a short period of time (Simon, 1957). Thus, Simon (1973) concluded that an organization facing a complex environment should minimize the need for information distribution among its units in order to reduce the information load on them. According to Simon's theory, effective information processing is only possible when complex problems are simplified and organizational structures specialized. Additionally, he posited that business organizations are only able to react to their environments by adjusting their information processing structures. The major criticisms of Simon's theory are that he overestimated the logical aspect of human reasoning and at the same time underestimated the pro-activeness of humans and organizations in coping with complex environments.

Simon's theory was expanded on by Cohen, March and Olsen. Similarly to Simon, they declared the organization as a system of perception which assigns meaning to what has happened retrospectively, rather than a system of planning (Cohen, et al., 1972) Initially omitting the activeness of organizations, March and Olsen (1976) later asserted that the knowledge learner would produce knowledge about a limited range of activity and the resulting knowledge would only be relevant to those who produced it. They reasoned that organizations

are unable to create new knowledge due to the difficulty of establishing links among the individual knowledge producers. Therefore, even though March et al. (1976) contributed to the development of the theory, a systemic scope in understanding organizational learning processes is still missing.

Weick viewed the organization in terms of cycles of structured behaviors (Weick, 1969). In Weick's theory of organizational sense-making, shared information and meaning become structured in organizations as well as in behaviors. Through the development of shared meaning, cycles of structured behaviors become meaningful. Weick (1969) also emphasized the importance of organizations reacting to their environments. However, Nonaka and Takeuchi (1995) considered that Weick's theory still lacked a proactive view towards organizational capability in knowledge creation.

2.1.4 Knowledge in Strategic Management theories

Continuing the debate between Simon's scientific approach and Weick's humanistic view of organization theories, discussion on the same topic extended to the domain of strategic management. Management scholars highlighted the role of knowledge and its contribution to business strategy (Masuda, 1980, Nonaka, 1991, Stewart, 1991). Since the mid-1980s, three strands of strategic management theories: knowledge society, organizational learning and the resource-based view, have continued to synthesize the scientific and humanistic approaches (Nonaka & Takeuchi, 1995). By 1997, knowledge management was launched as a discipline to address the following issues in organizations: innovation, business transformation, learning organization, intellectual assets, information management and knowledge-based systems (Skyrme & Amidon, 1997).

Peter Drucker (1993) is one of earliest thinkers to have explored the signs of great societal transformation. Manufacturing-based industrial societies evolved increasingly into service societies, then information societies and finally, knowledge societies (Drucker, 1993). Quinn (1992) observed that the U.S. economy had been fundamentally restructured by the service industry and that up to 95% of employees in manufacturing firms were engaged in service activities. After this transformation, "the basic economic resource" changed from capital, natural resources, or labor, to "knowledge". Hence, the major mission for both organizations and managers in developed countries is to increase knowledge productivity and service workers.

Referring to our analysis in chapter one, the business environment transformation in China echoes Drucker's observations about developed markets from the 1990's. Undoubtedly, China now faces the same dilemma that developed countries have experienced. Nonaka & Takeuchi (1995) asserted that the position that knowledge has in determining a company's competitive performance is going to dominate the management agenda for the next several decades.

The need for organizations to change continuously has been the central concern of organizational learning. It is widely agreed that organizational learning consists of two kinds of activities: learning know-how in order to solve specific problems, and learning to establish new values to override existing ones.

Senge (1990) is the theorist that first proposed the "learning organization" model. He recognized that many organizations suffer from "learning disabilities". However, a "real learning organization" should have the capacity in both generative (active) learning and adaptive (passive) learning. Organizations that deal with uncertain environments cannot achieve success merely through passive learning, but through active integration. Yet, many existing views of organizations are as passive entities. Based on this, he also proposed five disciplines: adopt system thinking; encourage personal mastery of their own lives; bring prevailing mental models to the surface and challenge them; build shared vision and facilitate team learning (Senge, 1990).

Rooted in Penrose's (1959) theory, a resource-based approach emerged during the 1990s to help companies compete more effectively in ever-changing environments (Nonaka & Takeuchi, 1995). This resource-based approach considers competencies, capabilities, skills or strategic assets as the source of sustainable competitive advantage for the company.

2.1.5 The definition of Knowledge

In our previous discussion about neoclassical economic theory, knowledge as a notion was not as well promoted as item information. Neoclassical economists identified the major difference between knowledge and information as its codifiability. Nonaka & Takeuchi (1995) presented three observations about knowledge and information. First, knowledge, unlike information, is about "beliefs and commitment". Traditional Western epistemology emphasizes the absolute, static and nonhuman nature of knowledge, thereby defining knowledge as "justified true belief". In Nonaka's definition, knowledge is a dynamic human process of justifying personal belief

towards the truth. Secondly, knowledge, unlike information, is about “action”. Information is a “flow of messages”, while knowledge is created by flows of information, anchored in the beliefs and commitments of its holder. Despite these differences, information and knowledge share commonalities, as both information and knowledge are context-specific and relational, are dependent on the situation and are created dynamically through social interaction. This remained the dominant approach until the emergence of the “new economics of science” in the 1990s, which combined mainstream micro-economic analysis with contributions from new institutionalism, which identified information as codified knowledge and therefore considered it a commodity of knowledge (Arena et al., 2012).

Explicit or codified knowledge refers to knowledge that is transmittable in formal, systematic language. On the other hand, Polanyi began his research on tacit knowledge and published *The Tacit Dimension*, which raised the discussion of tacit knowledge in academic circles. Polanyi (1958) intuitively defined tacit knowledge as the “knowledge that cannot be articulated”, “however it occupies the human knowledge”. Polanyi’s description unveils an unfeigned idea: “We know more than we can tell”. The carriers of tacit knowledge are often unaware that they are carrying tacit knowledge: “skillful performance is achieved by observance of a set of rules which are not known as such to the person following them” (Polanyi, 1967). Polanyi also described several other features of tacit knowledge: tacit knowledge relies on a specific environment; tacit knowledge is often carried by individuals; tacit knowledge comes from long-time involved experience; tacit knowledge is difficult to codify and store; and tacit knowledge cannot be transferred through normal formats (Polanyi, 1958).

Nonaka & Konno (1998) suggest that there are two kinds of knowledge: explicit and tacit. Explicit knowledge can be expressed in words, numbers and shared in the form of data, scientific formulae, specifications and manuals. This kind of knowledge can be readily transmitted between individuals, formally and systematically. On the other hand, tacit knowledge is highly personal and hard to formulate, making it difficult to communicate or share with others. Subjective insights, intuitions and hunches fall under this category. Tacit knowledge is deeply rooted in an individual’s actions and experience as well as in the ideas, values, or emotions a person embraces (Nonaka & Konno, 1998). Nonaka further illustrated that tacit knowledge can be considered along two dimensions: technical and cognitive. The technical dimension encompasses informal personal skills or crafts often referred as “know-

how”. The cognitive dimension consists of beliefs, ideas and values which are deeply ingrained in people and shapes the way we perceive the world.

2.2 Knowledge in organization

2.2.1 Embodiments of Knowledge in organizations

Winter (1987) identified four dimensions of knowledge in firms: “tacit/articulable”, “observable/not observable in use”, “complex/simple” and “dependent/independent of a system”. Based on these four dimensions, Winter (1987) further developed “codifiability”, “teachability”, “complexity”, “system dependence” and “product observability” as the five central constructs to characterize a firm’s knowledge. “Codifiability” captures the degree to which knowledge can be encoded. For instance, the software that controls machinery is a good example, as it can be used even if the individual operator does not have the capacity to understand how it is programmed. “Teachability” captures the extent to which workers can be trained in schools or on the job; it reflects the training of individual skills. “Complexity” picks up the inherent variations in combining different kinds of competencies, where knowledge, no matter the education of the worker, is simply more complex when it draws upon distinct and multiple kinds of competencies. “System dependence” captures the degree to which a capability is dependent on many different groups of experienced people for its production. “Product observability” captures the degree to which capable competitors can copy the manufacturing capability.

Based on the grounded division of tacit and explicit knowledge, Nonaka et al. (2000) introduced “knowledge assets”. He defined knowledge assets to be “firm-specific resources that are indispensable to create values for the firm”.

Table 1: Four categories of knowledge assets

<p style="text-align: center;">Experiential knowledge assets</p> <p>Tacit knowledge shared through common experiences</p> <ul style="list-style-type: none"> • Skills and know-how of individuals • Care, love, trust and security • Energy, passion and tension 	<p style="text-align: center;">Conceptual knowledge assets</p> <p>Explicit knowledge articulated through images, symbols and language</p> <ul style="list-style-type: none"> • Product concepts • Design • Brand equity
<p style="text-align: center;">Routine knowledge assets</p> <p>Tacit knowledge routinized and embedded in actions and practices</p> <ul style="list-style-type: none"> • Know-how in daily operations • Organizational routines • Organizational culture 	<p style="text-align: center;">Systemic knowledge assets</p> <p>Systemized and packaged explicit knowledge</p> <ul style="list-style-type: none"> • Documents, specifications, manuals • Databases • Patents and licenses

Source: Nonaka et.al (2000)

Experiential knowledge assets consist of the shared tacit knowledge that is built through shared hands-on experiences amongst multiple stakeholders of the organization, so to say, members of the organization, customers, suppliers and affiliated firms. For instance, experiential knowledge comprises skills and know-how that is acquired and accumulated by individuals through experiences at work or emotional knowledge. Due its tacit nature, experiential knowledge is difficult to grasp, evaluate or trade. Firms have to build their own knowledge assets through their own experiences. However, even though it is “difficult-to-imitate” and “firm-specific”, experiential knowledge is the sustainable competitive advantage of the firm (Nonaka et.al, 2000). In the quadrant to the upper-right, “conceptual knowledge assets” constitute explicit knowledge articulated through images, symbols and language. It is based on the concepts held by customers and members of the organization. Since it has tangible forms, conceptual knowledge is easier to grasp. The difficulty lies in the need to “translate” or “grasp” what the organizational member or customers perceive. Systemic knowledge consists of systematized and packaged explicit knowledge, such as explicitly stated technologies, product specifications, manuals and information. Patents and licenses are also in this category. Hence the ordinary discussion about knowledge management focuses primarily on managing systemic knowledge (Nonaka et.al, 2000). The last quadrant to the lower-left holds routine knowledge that is practical. The tacit knowledge at this stage is embedded in the day-to-day business of organizations and the employee’s actions. Thus, tacit knowledge exists in both “experience knowledge assets” and “routine knowledge assets”.

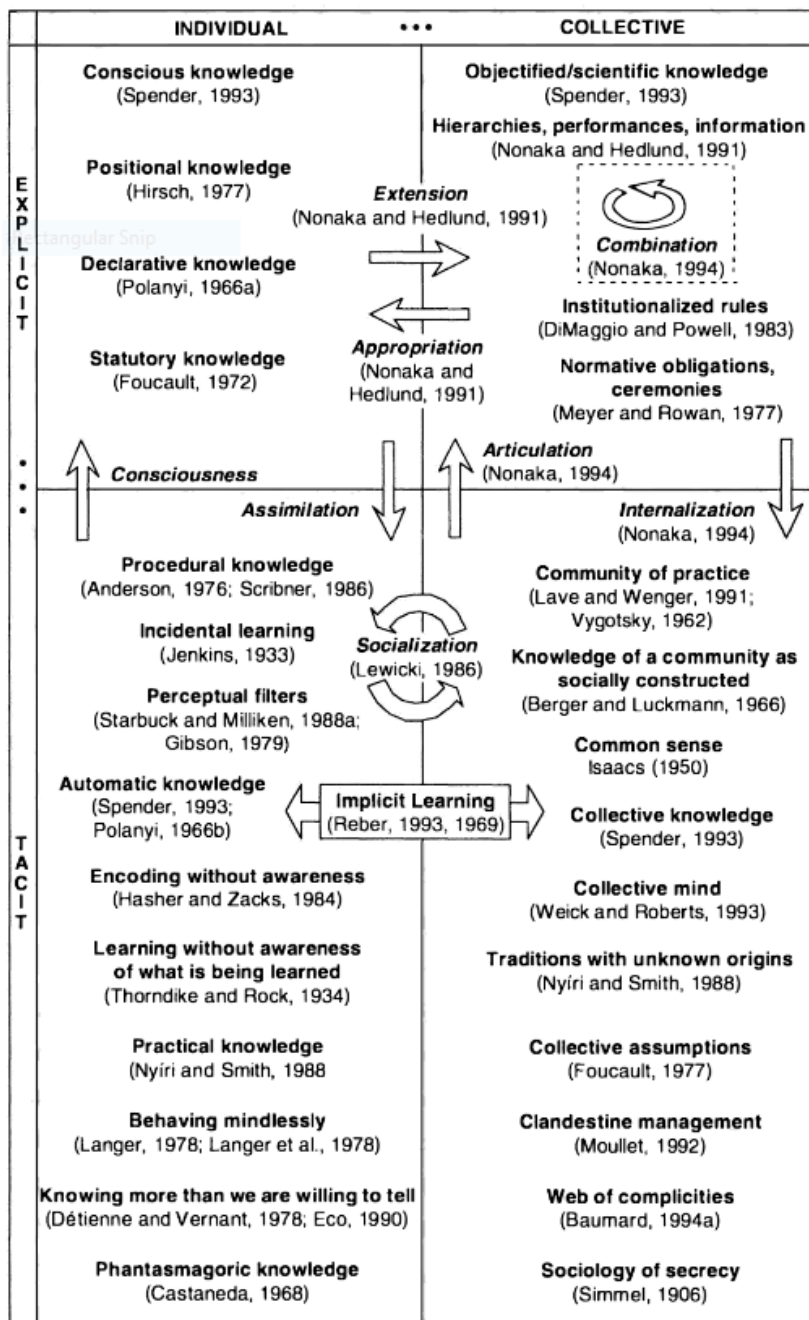
Nonaka and Takeuchi (1995) determined that organizational knowledge is created through the synthesis of thinking and actions of individuals who interact with each other within and beyond

the organizational boundaries. It not only exists in the codes and routines that guide organizational action (Argyris and Schon, 1996), but also in and between individuals within the firm (tacit knowledge) (Lindsay et al., 2003). Tsoukas and Vladimirou (2001) also defined organizational knowledge as the capability that members of an organization have developed. It refers to their capabilities to make their organization stand out in the process of carrying out their work, in particular, concrete contexts by enacting sets of generalizations evolved from collective understandings and experiences.

2.2.2 Tacit knowledge embodiments in organization

Baumard (1999) initially categorized both “tacit knowledge” and “explicit knowledge” using “individual” and “collective” dimensions. Employing these two dimensions, Baumard (1999) was able to put forward his four-quadrant diagram showing the diversity of knowledge embodiments in organizations.

Figure 4: The diversity of tacit and explicit knowledge embodiments in organizations



Source: Baumard (1999)

Lubit (2001) claimed that there are four different types of tacit knowledge in organizations: technical know-how; mental know-how, or the attitude one employee has towards other colleagues and environment; approaches to problems; and organizational routines, which reflects the company’s studying model and predicable organizational behavior. Collins (2010) published *Tacit and Explicit Knowledge*, where he categorized “tacit knowledge” to be “rational tacit knowledge”, “somatic tacit knowledge” and “collective tacit knowledge”. “Rational tacit knowledge” is knowledge that is explicable, even if for some reason or another it is not

explicitated; “Somatic tacit knowledge” is the “bodily skill”, for instance “how to ride a bicycle”; “collective tacit knowledge” is one’s understanding of society that enables the interpretation of what is happening and how to deal with it. However, according to Collins (2010), all tacit knowledge in his four categories is explicable through “strings” involved in explicit knowledge. In Collins’ theory, strings refer to the realm in which human interpretation is necessary (Collins, 2010).

Tacit knowledge can be defined as skills, ideas and experiences that people have in their minds and is therefore difficult to access because it is often not codified and may not necessarily be easily expressed (Chugh, 2013). With tacit knowledge, people are often unaware of the knowledge they possess or how it can be valuable to others. Effective transfer of tacit knowledge generally requires extensive personal contact, regular interaction, and trust (Goffin & Koners, 2011). Tacit knowledge can only be revealed through practice in a particular context and is transmitted through social networks (Schmidt & Hunter, 1993).

The concept of tacit knowledge refers only to knowledge possessed by an individual and which is difficult to communicate via words and symbols. Therefore, an individual may acquire tacit knowledge without language, instead learning through observation, imitation and practice. The key to acquiring tacit knowledge is experience. Without some form of shared experience, it is extremely difficult for people to share each other’s thinking processes (Lam, 2000).

Tacit knowledge is hidden in organizations. Mascitelli (2000) writes that tacit knowledge acquisition, transfer and effective integration are major sources of competition. Tacit knowledge is considered as a source of competitive advantage for enterprises (Xie & Liang, 2013). The three most important characteristics that affect organizational behavior for knowledge transfer are tacitness, difficulty and the importance of the knowledge (Kang, et al., 2010).

2.3 *Ba* and Knowledge Conversion

2.3.1 The concept of *Ba*

We have explored “tacit knowledge” and understood the importance that it has for a company. However, research on tacit knowledge reveals it to be hidden, uncodifiable, hard to transfer,

and that individuals who possess tacit knowledge might not be able to be aware of it. In this case, we must identify where tacit knowledge resides in an organization. To answer this question, we will have to introduce the concept of *Ba*.

Ba is a Japanese word that was originally proposed by the Japanese philosopher Nishida (1921), in his theory called *Basho*. Nishida identified fields of reflexive awareness, or *Basho*, that through sustained meditation, ultimately return us from our everyday encounters with popular representations of this aboriginal grounding of pure experience. There is the everyday *Basho* of Being. In this *Basho*, ordinary empirical judgments are made unreflectively. A statement seems to express pure objectivity because the observer making this judgment has been so neutralized in the statement that he/she is not even aware of his/her presence entering into the judgment itself (Chia, 2003).

However, Nishida also pointed out that the role of observer cannot be ignored. In *Basho*, common-sense empirical judgments are made; *Basho* stands implicitly within a wider field of judgment about the significance and role of the self (Nishida, 1921). This “relative nothingness”, in which the act of exclusion of self-involvement is progressively raised captured the interest of researchers. Nishida thought that acting intuition is never objectifiable or representable because it is always in the background of consciousness. Therefore, the idealistic *Basho* of relative nothingness is encompassed by the *Basho* of absolute nothingness or pure experience. This is the base on which all judgments are grounded.

According to Nishida’s description, *Basho* is not so much a physical space but rather a field that inspires intervention, consciousness and understanding. It is an “open field” of pure living experience where facts are encountered (Cooper, 1976).

Basho is the Japanese philosophical foundation for *Ba*, and *Basho* is the “greater *Ba*” (Nonaka & Konno, 1998). Nonaka and Konno claim that *Ba* exists on many levels and that these levels may be connected to form a greater *Ba*. For instance, examining the encompassing relationship between “self”, “team”, “organization” and “market environment”, each component represents a progressive level of *Ba* to the previous component. Furthermore, all of these *Ba* conjoin to form a *Basho*.

Ba is a shared space for emerging relationships. It can be a physical, virtual or mental space. *Ba* is defined as a shared context in motion, in which knowledge is shared, created and utilized.

The essence of *Ba* is located in the contexts and meanings that are shared and created through interactions which occur at specific times and spaces, rather than the space itself. *Ba* also connotes the relationships of those who are present at the specific time and in the specific space. Participants in *Ba* bring their own contexts to share and create new meaning through interactions. One important feature of *Ba* is that it is constantly moving, through interactions with others and the environment. *Ba*, as a shared context, means that subjective views are understood and shared in the relationship with others.

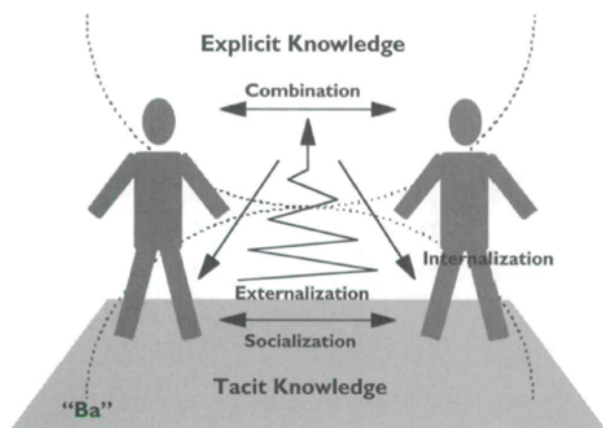
Nonaka further explained that knowledge is embedded in *Ba*, where it is then acquired through one's own experience or reflections on the experiences of others. Can this description apply to all types of knowledge? Does each "knowledge flow" need to reside in *Ba*? Nonaka also claims that if knowledge is separated from *Ba*, it turns into information, which can be communicated independently from *Ba*. Information is tangible, in the same way that like information stays in media or networks. In contrast, the knowledge which resides in *Ba* is intangible, boundary-less, and dynamic, and if it is not used at a specific time, and in a specific place, it is of no value (Nonaka, 1998).

The most important aspect of *Ba* is "interaction". Knowledge is not only created by individuals but through interactions between individuals and with the environment. The knowledge-creation process is also the process of creating *Ba*, which means to create a boundary of new interaction. The nature of a *Ba* will condition the social relationships among these social units and thus have a determining influence on the scale and scope of knowledge creation (Nonaka & Nishiguchi, 2001).

2.3.2 Knowledge conversion in *Ba*

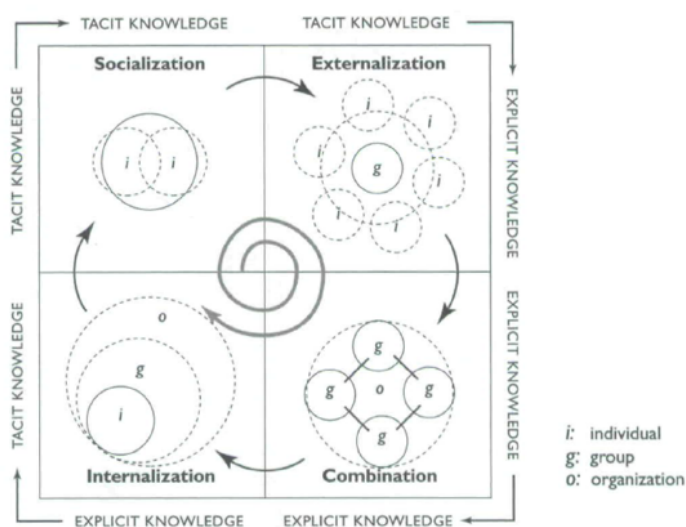
One of the greatest contributions that Nonaka's theory has made is to discuss the solution for transferring "tacitness". This approach contrasts with Polanyi's definition of tacit knowledge, which states that tacit knowledge cannot be codified. However, transforming tacit knowledge into explicit knowledge requires codification. According to Nonaka, the efforts we make to obtain both tacit knowledge and explicit knowledge will lead to dynamic action between units, and ultimately to the creation of new knowledge. Upholding this idea, Nonaka builds up the "SECI" knowledge creation model, which presents the abbreviation of four conversion patterns: socialization, externalization, combination and internalization.

Figure 5: Ba and knowledge conversion



Source: Nonaka (1998)

Figure 6: Spiral Evolution of Knowledge Conversion and Self-Transcending Process



Source: Nonaka (1998)

The “socialization” mode involves the action of tacit knowledge sharing between individuals. In Nonaka’s model, tacit knowledge is exchanged through joint activities – such as being together, spending time, and living in the same environment. The same environment shared, is exactly *Ba*. However, according to Nonaka’s description, the sharing of tacit knowledge requires individuals to have been through similar situations or experiences with the original tacit knowledge bodies. The participation in similar situations or experiences with knowledge bodies will be analyzed as a part of the “apprenticeship” variable, which will be explained later, as the apprenticeship is a consistent learning process where knowledge receivers follow, observe and experience what the knowledge carrier does.

If individuals are only able to “understand” or “acknowledge” transferred knowledge, the experience is not regarded as successful tacit knowledge sharing. Tacit knowledge sharing is more about individuals participating in the same or similar environment to acquire their own experience. In this sense, the possession of well-developed self-transcendence abilities is a prerequisite for participating individuals. In the following chapter, we will need to develop this prerequisite as a factor of “absorptive capability”.

According to Nonaka’s model, the second mode involves the transferal process of tacit knowledge to explicit knowledge. Externalization requires the expression and translation of the tacit knowledge into forms that can be understood by others. In this stage, the individual has to transcend the inner and outer-boundaries of the self and contribute their “translation” of the knowledge to the group’s “mental world”. The degree of trickiness depends on the participants’ capabilities in reasoning, structuring and technique in expression.

Compared to the high demands placed on the individual participant’s capabilities in the first two modes, the combination mode is a stage where explicit knowledge is generated on a bigger scale and in a more systemic manner. However, it is not enough to simply sum up and structure the newly gained explicit knowledge; people have to link the result to exterior knowledge, like local policy or data. In this stage, well-structured explicit knowledge is already able to be easily understood and disseminated in presentations or meetings.

In regards to the last mode, we can assume that the new explicit knowledge is not only learned by individuals in the company, but also embodied in their actions and practices. The internalization process converts the explicit knowledge into an organization’s tacit knowledge through each individual’s action of practicing the explicit knowledge. However, the increment of organizational tacit knowledge is progressively accumulated through the “group” layer. Nonaka also identified four modes of *Ba*, that progress from socialization to internalization processes, there are “originating *Ba*”, “interacting *Ba*”, “exercising *Ba*” and “cyber *Ba*” in sequence.

The SECI knowledge creation model is one of the fundamental theories of my research. Chinese MNEs interested in learning tacit knowledge from European companies will face challenges at all four stages. However, as my research focus will be on tacit knowledge transfer, the potential format is to directly transfer tacit knowledge, or transfer tacit knowledge after it is translated into explicit knowledge. In other words, borrowing from the SECI model, we will concentrate

on the socialization and externalization modes. This choice is also closely related to the Chinese MNEs' knowledge learning stage after ODI in Europe.

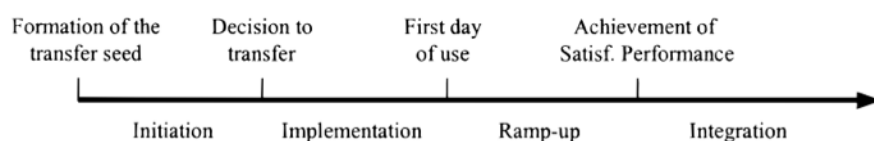
2.4 Knowledge transfer

Other scholars used the term “organizational practice” when examining the transfer process in their studies (Nelson and Winter, 1982; Szulanski, 1996; Kostova, 1999). Organizational practices refer to the particular ways of conducting organizational functions that have evolved over time under the influence of an organization’s history, people, interests, and actions that have become institutionalized in the organization (Kostova, 1999). Organizational practices are multifaceted in that they consist of different elements, including a set of written or unwritten rules of organizational functions as well as values and beliefs that underly the rules of a practice. Therefore, organizational practices tend to be more complex and broad in scope, and more “people” rather than “technology” focused. In a broad sense, organizational knowledge involves both technical and social contents.

Knowledge management covers different aspects in business practice and academic discussion: namely knowledge creation, knowledge transfer and knowledge communities (Wilkesmann & Fischer, 2009). In alignment with Argote & Ingram (2000) and Inkpen & Tsang (2005), knowledge transfer is defined as the processes through which units are affected by the experience of another unit. As regards the boundary of knowledge carriers and receivers, one camp of discussion about knowledge transfer is developed in three levels: individual, intra-organizational and inter-organizational (Wilkesmann & Fischer, 2009).

The basic elements of knowledge transfer are: source, channel, message, recipient and context (Szulanski, 2000). Szulanski suggested four stages in a transfer: initiation, implementation, ramp-up and integration.

Figure 7: The process of knowledge transfer



Source: Szulanski (2000)

The first widely accepted knowledge transfer model was the “Sender-Receiver” model (Gupta & Govindarajan, 1991, 2000). This model concentrates on the following core factors: the characteristic of the sender, characteristic of the receiver, the relationship between sender and receiver and how the features of transferred knowledge impacts transfer performance. The “Sender-Receiver” model is widely accepted by researchers and has attracted a group of followers (Minbaeva, et al., 2003). On the other hand, some scholars have criticized the “Sender-Receiver” model for treating knowledge like flowing water, and suspect that, under certain circumstances, knowledge flows from the knowledge-rich units to others that are lacking in knowledge (Wu et al., 2014). The “Sender-Receiver model” also suggests that transfer performance is determined by the “stickiness of the knowledge”, the “knowledge transfer channel”, and the “features of storage units”. In fact, the important factor that is not considered here is the “social features” of knowledge.

This criticism has encouraged the development of the “social learning perspective”. This model advocates that knowledge creation is formulated through the dialogue between people and their interactions (Kogut & Zander, 1996). The biggest difference between the “social learning perspective” and the “sender-receiver model” is that the former model does not regard knowledge as an object, so it cannot be carried from one place to the other. Instead, it is built on cooperation with common targets and the communication and interaction between different ideas. This model indicates that the knowledge transfer among units in MNEs can only be achieved by social interaction between employees from different units.

The “Social Learning perspective” cares about the scenarios or environments where knowledge exists and learning activity takes place. In other words, knowledge and practice are closely connected (Fox, 2000), which is the basic characteristic of “community of practice”. “Community of practice” tightly links different individuals to accomplish shared goals. For the “member of community” co-involvement and sharing are regarded as key in order to facilitate the transfer of tacit knowledge (Noorderhaven & Harzing, 2009).

2.4.1 Stickiness in knowledge transfer

The discussions about factors that influence knowledge transfer also appear in the literature on organizational management. In their analysis, Wilkesmann et al. (2009) concluded that the crucial factors emphasized are: knowledge characteristics (knowledge ambiguity, Szulanski et

al., 2004; stickiness, von Hippel, 1994); organizational characteristics (organizational culture, Zarraga & Bonache, 2005; personnel movement, Almeida & Kogut, 1999; absorptive capacity, Cohen & Levinthal, 1990); network characteristics (number of relations, Gupta & Govindarajan, 2000; pattern of relations, Cook et al., 1993; trust, Szulanski et al., 2004).

However, according to Szulanski's research, stickiness exists in each element of the transfer process. The effectiveness and efficiency of knowledge transfer depend on the "intimacy" between source and recipient – the ease of communication; the "dispositions and abilities" of the source and recipient (the motivation and reliability of the source; likewise, the motivation and capacity of the recipient). The recipient may be more or less motivated to seek or accept knowledge from the outside. Recipients may also vary in their ability to exploit outside sources of knowledge. According to Cohen & Levinthal (1990), this reflects the "absorptive capacity" of the recipient. Last but not least, the recipient is also required to dare to "abandon old ways in order to sustain new ones". However, all the above discussions are grounded in organizational contexts, such as norm and value setting, or use of incentives which can facilitate the transfer. In contrast, it can be also a barrier to knowledge transfer.

During the initiation stage, stickiness is the difficulty to recognize opportunities for transfer and to act upon them. The prerequisite for initiating knowledge transfer is the existence of a "knowledge gap" in the organization. As soon as a "gap and knowledge to address the gap" is found, "the transfer seed" is formatted. At the same time, participants have to analyze "how difficult it is to find an opportunity to transfer and decide whether or not to pursue it" (Cohen & Levinthal, 1990).

Citing from Szulanski's (2004) research on the process of knowledge transfer, the results of the implementation stage depend on how challenging it is to bridge the communications gap between the source and the recipient and to fill the recipient's gap. Bridging communication gaps requires us to solve problems caused by incompatibilities of language, coding schemes and cultural conventions. Furthermore, when the recipient unit is large, transfer-related information may not reach all parts of all recipients. Difficulties may also result from poor coordination between the source and the recipient, especially when the source or the recipient of knowledge deviates from agreed responsibilities. The true motivations of the source and recipients are likely to be revealed at this stage. The recipient may increase the difficulty of the transfer by ignoring the source's recommendations because of a misunderstanding, resentment,

or to preserve pride of ownership and status (Rice & Rogers, 1980). The extent to which implementation activities can be planned depends on the depth of understanding of the practice.

Knowledge transfer enters the ramp-up stage once the recipient begins to apply acquired knowledge, the main concern then becomes identifying and resolving unexpected problems that keep the recipient from matching or exceeding a priori expectations of post-transfer performance (Szulanski, 2000). The ramp-up stage offers a relatively brief window of opportunity to rectify unexpected problems, where the recipient is likely to begin using new knowledge ineffectively towards a satisfactory level of performance. The result of this stage depends on the number and seriousness of unexpected problems encountered and the effort required to solve them.

The integration stage is started once satisfactory results are initially obtained, and the use of new knowledge gradually becomes routinized. The results of the integration stage depend on the effort required to remove obstacles and to deal with challenges to the routinization of the new practice.

Furthermore, Szulanski asserts that companies with different experiences and capabilities may accomplish the knowledge transfer process at different stages. For example, Chinese MNEs are expected to give uneven performances in knowledge transfers that are influenced by knowledge learning experiences at both organizational and employee levels. Szulanski's research on knowledge transfer provides another fundamental theory for this research, and has particularly contributed to the variables of our model.

Table 2: Knowledge Transfer Measurement Model

Construct	Description
Stickiness – Initiation	Difficulties experienced prior to the decision to transfer
Stickiness – Implementation	Difficulties experienced between the decision to transfer and start of actual use
Stickiness – Ramp-up	Unexpected problems from the start of actual use until satisfactory performance obtains
Stickiness - Integration	Difficulties experienced after satisfactory performance is achieved
Causal Ambiguity	Depth of knowledge
Unproven knowledge	Degree of conjecture on the utility of the transferred knowledge
Source lacks motivation	Motivation of the source unit to support the transfer
Source not perceived as reliable	Degree to which the donor of the best practice is perceived as reliable
Recipient lacks motivation	Motivation of the recipient unit to support the transfer
Recipient lacks absorptive capacity	Ability of the recipient unit identify, value and apply new knowledge
Recipient lacks retentive capacity	Ability of the recipient unit to support the routine use of new knowledge
Barren organizational context	Degree to which the organizational context supports the development of transfers
Arduous relationship	Ease of communication and intimacy of the relationship

Source: Szulanski (2000)

2.4.2 Tacit knowledge transfer

Szulanski (1996) pointed out the ways that organizations should transfer tacit knowledge through informal and unplanned processes. Tacit knowledge can be transferred by interpersonal collaboration only (Lahti & Beyerlein, 2000). Due to the fact that tacit knowledge is generally embedded in people, it does not necessarily spill over, especially when interpersonal communication is missing (Qian, 2013). As a consequence of the characteristics of tacitness, interactions that involve the exchange of tacit knowledge via markets favor acquisition or joint venture over greenfield investment (Peng et al., 2009). Subsidiaries with high degrees of autonomy are more likely to deal with tacit knowledge (Cantwell & Mudambi, 2005). In practice, managers also face difficulties in transferring context-specific and tacit knowledge across countries through electronic-based coordination mechanisms (Pedersen et al., 2003).

Tacit knowledge is a popular management concept but one that is poorly understood (Goffin and Koners, 2011). One of the difficulties for tacit knowledge research is concept operationalization. Goffin & Koners (2011) understand that the tacit knowledge that people have learned is hard to document and communicate. They found that metaphors and stories are frequently used as proxy measures for tacit knowledge. The results of their study indicate that stories can be used to support tacit knowledge generation and dissemination. Documenting and sharing stories of new project development successes and failures offers opportunities for R&D managers to simulate tacit knowledge in their organizations. At the same time, team members with shared experience still need a positive team culture to facilitate tacit knowledge sharing.

Tacit knowledge does not exist in all project contexts. In Goffin and Koners' research, activities such as dealing with project budgets, problem solving and changing product specifications appear to be closely linked to tacit knowledge. This means that, less experienced personnel can only learn and deal effectively with these issues through mentoring and coaching.

Ivarsson and Valhne (2002) pointed out that time is especially crucial in tacit knowledge sharing, which is also due to the fact that tacit knowledge can only be partially codified and standardized. For instance, foreign affiliates of Swedish MNEs gradually and successfully learn from their business environments. As a result, researchers are confident to assume that the age of affiliates can strengthen the result of interactive learning processes. Tacit knowledge needs to be communicated on the basis of mutual trust, through face-to-face methods. Thus, the exploitation of localized technological capacities is only possible for firms with a local presence within the region (Storper, 1995).

Xie & Liang (2013) concentrated on the aspect of knowledge carriers instead of the characteristics of knowledge itself. They pointed out that, because tacit knowledge is important for a company's competitive advantage, its personnel's experience, skills and expertise will enhance the company's reputation. Thus, when teaching the young employees, knowledge carriers often reserve some knowledge for themselves. Under these circumstances, incentives are required to promote tacit knowledge transfer. Moreover, Xie & Liang (2013) tested whether the provision of suitable and appropriate incentives enhances the ability of knowledge bodies to transfer tacit knowledge. It may also strengthen the ability of knowledge recipients to absorb tacit knowledge. Therefore, more tacit knowledge is transferred and more value is produced. Relating it to the capacity of knowledge recipients, Subramaniam & Venkatraman (2001) found

that team members who have prior overseas experience or team members who frequently communicate with overseas managers have greater capabilities at acquiring tacit knowledge from different countries.

2.5 Reverse Knowledge Transfer

Cited in the earlier research of knowledge management, cross-border acquisition is an important method in obtaining new knowledge (Zander & Kogut, 1995). In the meantime, scholars also discussed the significance that knowledge transfer has for value creation. Bresman & Birkinshaw (1999) initiated research on determinants that influence tacit and explicit knowledge transfer. They found that tacit knowledge transfer positively correlated to factors such as employee exchange, visits and other communication activities. As stated before, most researchers have discussed knowledge transfer between parent company and subsidiaries, however, research with a special focus on reverse knowledge transfer in cross-border acquisition is rather scarce (Rabbiosi, 2011) and research about RKT from emerging markets to developed markets is especially lacking (Lin et al. 2009). However, this gap has been increasingly noticed and discussed by scholars with backgrounds from emerging markets.

Wu et al. (2014) re-emphasized that Chinese MNEs are comparatively weaker in innovation capacity and knowledge stock. Even though firms from developed countries also use cross-border acquisition as a method to obtain knowledge, the difficulties that Chinese MNEs encounter in RKT processes differ from those arising from knowledge transfer activities led by firms in developed markets. In the latter case, knowledge transfer is bilateral. It contains both knowledge flows from the acquired company to investor company, and vice-versa from investor company to acquired company. Meanwhile, the investor company is richer in knowledge storage and takes the lead in the knowledge transfer process. But in RKT processes from emerging markets, knowledge presumably only flows “one-way”, that is from the acquired company to the investor company.

2.5.1 Carriers in Reverse Knowledge Transfer

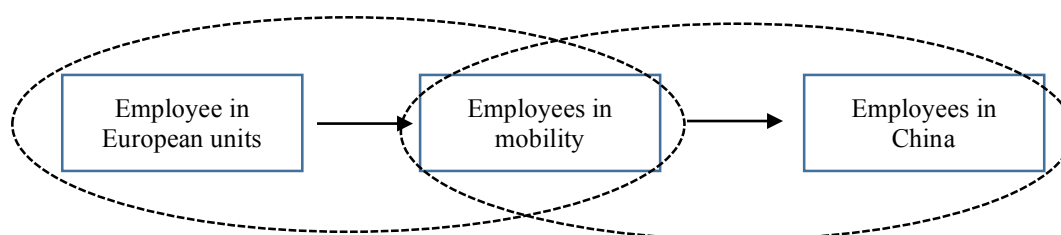
In the knowledge carrier model developed by Khosrowpour (1999), a knowledge carrier is a person that is able to explicitly store his or her knowledge in a storage medium, obtain knowledge from a storage medium, transfer knowledge through communication, and acquire

knowledge through communication. As with knowledge transfer activity, knowledge carriers are active participants in the process. In his theory, if a knowledge carrier has only completed a part of the entire process, for instance, only storing the knowledge in medium, the knowledge carrier is regarded as passive.

To be more precise, knowledge carriers have a different role in reverse knowledge transfer. Divided by the amount of knowledge that one carrier obtains, there are rich knowledge carriers and their poorer counterparts. Normally, the knowledge flows from the rich carrier to the other.

Employees in European companies are normally considered as knowledge senders with rich stock due the experience they have acquired in the European company. Employees from Chinese companies, assigned with the task of obtaining knowledge, are weaker in knowledge stock, and are usually considered as knowledge receivers. After cross-border investment, most MNEs have noticed the importance that employee mobility has in contributing to the degree and efficiency of knowledge transfer. Employees in mobility, whether they are sent from a Chinese company to its European counterpart for a short-term visit, or from a European company to visit or work in China, are designated expatriates. Expatriates are the intermediaries between organizations, and they are normally regarded as both knowledge receivers and knowledge senders.

Figure 8: Participants in Reverse Knowledge Transfer



2.5.2 Reverse knowledge transfer in MNEs from emerging economies

The focus on knowledge transfer environments may also be applied to *Ba*. The difference is that *Ba* specifically facilitates our discussion on tacit knowledge. It is possible to discern a clear process of knowledge conversion in *Ba*. Recent research conducted by Indian scholars Nair, Demirbag & Mellahi (2015) discussed RKT in Indian multinational companies, examining variables such as perceived subsidiary capability, parent absorptive capacity and the

relevance of target knowledge impact on RKT performance. Their results indicate that all mentioned variables positively influence reverse knowledge transfer. “Knowledge relevance” is raised as a significant moderator of RKT performance. The relevance of knowledge could potentially have different implications for EM-MNEs when it comes to different knowledge flows, such as technological, marketing and general management know-how. The degree of relevance may vary among these three categories, thus marketing know-how is by nature relatively more location dependent and context-specific than technological know-how.

Variables tested by Nair et al. (2015) can also be used in this research. However, all variables are scarcely discussed in the context of RKT. Chinese scholars have also recently focused on RKT. Wu et.al (2014) tried to combine variables from both the “Sender-Receiver” model (Gupta & Govindarajan, 1991, 2000) and the “social learning perspective” (Kogut & Zander, 1996) to examine RKT performance. In Wu’s research he reviewed several variables. The “knowledge-based view” (KBV), which combines the main ideas from the two models, formed the basis of the theory used by Wu (2014) in his research on Chinese MNEs’ RKT. What is more, KBV can better illustrate the scenario where EM-MNEs seek knowledge from developed markets. In the model presented by Wu et al. (2014), absorptive capability, employee interaction, cultural integration, and the role of subsidiaries are independent variables. All independent variables are tested with a joint mediation with knowledge characteristics. Meanwhile, the process is manipulated by three other control variables: size of acquired company, time after acquisition and cultural distance.

2.6 Research Design

2.6.1 Research focus

Even though the discussion about RKT in EM-MNEs has received increased attention in academic circles during the past two years, research focuses are scattered amongst emerging countries, industry and knowledge relevance. In this research, I paid special attention to Chinese manufacturing MNEs seeking tacit knowledge from invested European companies in order to realize industrial upgrading. Based on the fact that RKT models in EM-MNEs are rarely discussed, my specific focus on tacit knowledge within the manufacturing industry promises a more interesting contribution to the academic community. My analysis of tacit knowledge transfer, with a specific focus on the Chinese manufacturing industry, differentiates this work

from existing research. This specific focus will enable us to pioneer the research on tacit knowledge transfer in the context of EM-MNEs knowledge acquisition.

Considering different entry modes, especially greenfield ODI, the “capacity of subsidiary” is moderated by the “length of time” and “maturity of subsidiary”. “The way that the parent company perceives the capability of the subsidiary has an impact on RKT in Indian MNEs. When the parent company perceives the subsidiary to be highly capable, they are more likely to engage in RKT with that subsidiary” (Nair et al, 2015). In our case, the European companies that Chinese MNEs invested in are rich in knowledge stock. It is important to note that they have been evaluated as capable of filling the knowledge gaps in Chinese MNEs. In these cases, the role of the invested European company is clear. The factor of “subsidiary role”, which is often selected as a factor that impacts knowledge transfer results (Wu, 2014), does not apply to this research.

Wu et al. (2014) observed that in RKT processes, knowledge only flows from the invested European company to the Chinese company. We are going to borrow the same assumption, so that in this research, the European company is the knowledge sender, while the Chinese company is considered as the knowledge receiver, especially during the early phases of RKT.

The discussion on *Ba* is exceptionally important to this research. As, according to Nonaka (1998), the creation and transfer of tacit knowledge all take place in *Ba*. We discuss how knowledge senders “share” while knowledge receivers “create” knowledge by experiencing the same work situation, through face-to-face contact in “originating *Ba*”, “interacting *Ba*”, “combination *Ba*” and “internalization *Ba*”. *Ba* is not often discussed in knowledge transfer models with the exception of Nonaka and several of his followers. My research will follow Nonaka’s SECI model by looking into tacit knowledge “transfer” and “creation” processes between invested European companies and Chinese companies.

Knowledge transfer has long been discussed as a key branch of knowledge management. Even though knowledge transfer is often discussed in MNEs between parent company and affiliated firms, a focus on RKT from emerging markets to developed markets has rarely been studied.

As previously mentioned, in the last two years, some researchers from India and China have started to pay attention to RKT in EM-MNEs. Their research is either descriptive, case study based or only qualitative research, despite concerns about potential differences between

industries. My research will employ qualitative analysis to better explain the hidden facts and supplement the findings from the quantitative analysis results. A combination of both quantitative and qualitative methods will be employed in this research, with the purpose of providing complete scope.

2.6.2 Variable exploration and definition

Before drawing up our analytic model, we will further define the variables and operate measurement items for each variable, based on earlier research in concrete contexts. To clarify, my research aims to explore relevant variables that influence RKT performance and construct a mechanism for best RKT performance.

2.6.2.1 Dependent variable: Reverse knowledge transfer performance

Involvement of the parent company significantly improves reverse knowledge transfer performance (Ciabuschi et al., 2011; Dellestrand, 2010). Successful RKT performance is not demonstrated by the acquisition of core knowledge about a specific technology by a firm; instead it should refer to an overall enhancement in their capacity to cope with the diverse requirements of the markets (Lee & Lim, 2001). Transferred knowledge can facilitate innovation ability, shorten innovation time periods, induce multiple innovation activities and achieve many innovation results within a company (Chen et al., 2014). Absorptive capacity exists at individual and organizational levels, which jointly determine the degree of knowledge transfer (Zahra & George, 2002). RKT performance, as a dependent result of absorptive capacity and other factors, is operated at both organizational and individual levels. Thus, we design the operational measures of dependent variables to be:

Table 3: Operational items of dependent variable knowledge transfer performance

Variable	Items
RKT Performance	<ol style="list-style-type: none"> 1. The transferred tacit knowledge can enhance the independent innovation ability of Chinese company. 2. The transferred tacit knowledge can strengthen the innovation ability of employees in Chinese company. 3. The transferred tacit knowledge can shorten the innovation time period for the product in Chinese company. 4. The transferred tacit knowledge can induce many innovation activities in Chinese company. 5. The transferred tacit knowledge can achieve many innovation results of Chinese company.

2.6.2.2 Independent variable: Sender & Receiver

2.6.2.2.1 Sender ability

Research on knowledge senders' behavior in relation to knowledge transfer has been largely theoretical and case-based (Szulanski, 1996; Gupta & Govindarajan, 2000). Szulanski mentioned that the effectiveness and efficiency of knowledge transfer depend on the "motivation of the source" (2000). Szulanski (1996) developed a complex measure of 13 items to capture the source's lack of motivation in sharing knowledge, which constitutes one part of knowledge transfer stickiness. Simonin (1999) measured the extent to which knowledge providers protect their competencies using two items: (1) whether the partner has intentional procedures, routines, and policies to restrict the sharing of relevant information; (2) whether the partner is very protective of its own skills and know-how.

Szulanski (2000) initially called researchers' attention to the "reliability of the source". A source can be categorized as a "first-hand source" or "second-hand source". The difference between the two categories lies in whether "the reader or listener" is the "witness of original data or event". According to Nonaka (1998), in order for tacit knowledge to be transferred, the knowledge receiver has to experience a "similar situation" to the knowledge sender. In this sense, all tacit knowledge receivers experience the "first-hand source". The other possibility for tacit knowledge transfer relies on the effort that the knowledge sender makes to translate the tacit knowledge into an explicit format. From a cognitive point of view, knowledge senders should have the ability to employ artefacts using mental imagery and for the receiver to build a compatible mental image that transforms his internal model (Mougin et al., 2015).

Effective knowledge outflows actually require the knowledge sender to assume a teaching role (Minbaeva, 2007; Simonin, 1999). The sender develops knowledge dissemination abilities by taking stock of their knowledge, as well as by preparing and codifying the knowledge so as to facilitate its transfer to other units (Lai et al., 2015). In fact, the process of turning tacit knowledge into an explicit format constitutes an exercise in self-transcendence, which in turn helps the knowledge sender better understand and use the knowledge for innovation (Lai et al., 2015).

Mainly according to Szulanski's two behavioral factors, the construct for sender ability is re-operationalized as knowledge sender willingness and knowledge sender reliability.

Table 4: Operational items of independent variable sender ability

Variable	Items
Sender ability	<ol style="list-style-type: none">1. I have big motivation in transferring my knowledge to Chinese company.2. I have great confidence in "profession" and "reliability" of the knowledge that I send.3. I always have capacity in identifying the right tacit knowledge for transferring to Chinese company.4. I always have technique in translating the tacit knowledge into explicit format, like manual and work notes.

Hypothesis 1.1: In Chinese MNEs' knowledge learning ODI, knowledge sender ability has positive impact on reverse knowledge transfer performance.

2.6.2.2.2 Receiver ability

Cohen and Levinthal (1990) mentioned that an organization's absorptive capacity will depend on the absorptive capacities of its individual members. In a strict sense, knowledge is created only by individuals (Nonaka & Takeuchi, 1995). The organization supports creative individuals or provides contexts for them to create knowledge. Organizational knowledge creation should therefore be understood as a process in which the organization amplifies the knowledge created by individuals and crystallizes it as a part of the knowledge network of the organization. To this extent, the development of an organization's absorptive capacity will build on prioritizing investment in the development of individual's capacities. However, an organization's absorptive capacity does not reside in any individual participant but depends on the links between individual capabilities (Winter & Nelson, 1982). Absorptive capacity, both at

individual and organizational levels, determines the degree of knowledge transfer (Zahra & George, 2002).

Much has been written discussing absorptive capacity and its vital role in company capability development. According to Cohen and Levinthal (1990), absorptive capacity is the ability of the recipient firm to recognize the value of new information, assimilate it and apply it to commercial ends. From a human resources perspective, absorptive capacity is a combination of employee ability and motivation (Minbaeva, 2007). Absorptive capacity was operationalized in terms of the ability to adopt new techniques and the availability of adequate resources to implement new ideas, based on Pak and Park (2004). Firms are also able to maximize their benefits from knowledge flows by improving their employees' absorptive capacity (Liao et al. 2012). Cohen and Levinthal (1990) pointed out that the issue of absorptive capacity of recipient units becomes less crucial for knowledge flows when both parties involved are almost equally rich in knowledge stock. However, as discussed earlier, EM-MNEs often lack the capabilities and competencies to compete in international markets (Luo & Tung, 2007).

Considering the efforts made by Chinese companies towards reducing the knowledge gap with European companies, the absorptive capacity of employees from Chinese companies are likely to play a decisive role in the result of knowledge acquisition. The more they develop their absorptive capacity, the more likely they will be able to increase the potential of utilizing the European companies' knowledge to increase their own innovative capacity. Thus, we assume that the absorptive capacity of employees from the Chinese company is strongly associated with RKT.

Table 5: Dimensions of absorptive capacity: A Reconceptualization of Components and Corresponding Roles

Dimensions/Capabilities	Components	Role and Importance
Acquisition (Cohen & Levinthal, 1990; Mowery, Oxley, & Silverman, 1996)	<ul style="list-style-type: none"> • Prior investments • Prior knowledge • Intensity • Speed • Direction 	<ul style="list-style-type: none"> • Scope of search • Perceptual schema • New connections • Speed of learning • Quality of learning
Assimilation (Szulanski, 1996)	<ul style="list-style-type: none"> • Understanding 	<ul style="list-style-type: none"> • Interpretation • Comprehension • Learning
Transformation (Kim, 2001)	<ul style="list-style-type: none"> • Internalization • Conversion 	<ul style="list-style-type: none"> • Synergy • Recodification • Dissociation
Exploitation (Cohen & Levinthal, 1990; Lane & Lubatkin, 1998)	<ul style="list-style-type: none"> • Use • Implementation 	<ul style="list-style-type: none"> • Core competencies • Harvesting resources

Source: George & Zahra, 2002

The absorptive capacity required by knowledge receivers is expected to increase as knowledge tacitness levels climb. Nonaka (1998) pointed out that the experience cannot be regarded as successful tacit knowledge transfer if individuals are only able to “understand” or “acknowledge”. Individuals need to have good self-transcendence ability. The individuals have to transcend the inner and outer boundaries of the self, be able to express and translate the tacit knowledge into forms that can be understood by others and later contribute their translation to be a part of the group’s “mental world”. Individual participants have to master skills such as reasoning, structuring and expression techniques (Nonaka, 1998).

Table 6: Operational items of independent variable receiver ability

Variable	Items
Receiver ability	<ol style="list-style-type: none"> 1. I have big motivation in transferring the knowledge to Chinese company. 2. I always have capacity in identifying the right tacit knowledge to transfer to Chinese company. 3. I always have capacity in creating possibility to learn tacit knowledge. 4. I always have capacity in fast absorbing the tacit knowledge. 5. I always have capacity in absorbing tacit knowledge with good quality. 6. I always have technique in translating the tacit knowledge into explicit format, like manual and work notes. 7. I can always integrate what I learn into practice.

Hypothesis 1.2: In Chinese MNEs’ knowledge learning ODI, knowledge receiver absorptive ability has positive impact on reverse knowledge transfer performance.

2.6.2.3 Independent variable: *Ba*

The ability of the knowledge sender and knowledge receiver are posited to correlate with RKT performance. However, the interaction between knowledge sender and receiver, and both participants’ interaction with the system, regulation, culture and other humanistic factors, are going to be discussed in this section of *Ba*.

Nonaka (1998) theorizes that *Ba* is not only a physical arena; it is an “open field” of pure living experience where facts are encountered. It is also the relation between “self”, “teams”, “organization” and “market environment”. We have already discussed the “individual aspect” in the “sender-receiver” model. When examining the organizational aspects, we focus on the “dialogue and interaction of participants in knowledge transfer” and the “infrastructure and construction” that Chinese companies have made for tacit knowledge transfer. Our understanding of Nonaka’s theory determines that *Ba* is an “environment” which fosters tacit knowledge transfer and creation. *Ba* includes both the “space” and “relationship”. In the organizational aspects, we discuss organizational climate, incentive, socialization, apprenticeship, trust, organizational structure similarity and transmission channels. The seven variables are expected to generate an “organizational environment” for tacit knowledge to transfer.

2.6.2.3.1 Organizational Climate

Peter and Waterman (1982) observed that “excellent companies” had made a variety of efforts to promote the sharing of values among employees. Each excellent company has created its own unique “corporate culture” that determines how a company thinks and behaves. Organizational culture affects knowledge management since it is based on internal shared beliefs and values, which in turn shape employees’ behavior (Arthur Andersen Business Consulting, 1999). Knowledge sharing is highly relevant to organizational culture (Ruppel & Harrington, 2001).

Organizational climates reflect employees’ perceptions towards their organizational values and enforce ethically correct behavior (Stewart et al., 2011). From an ethical perspective, Victor and Cullen (1988) argue that organizational climate primarily refers to ethical criteria. Ethical criteria are the theories or guidelines for ethical decision-making in an organization, and include separated egoism, benevolence, and principle. Organizational climate is a part of the organizational culture (Victor & Cullen, 1988).

Different types of organizational climate affect knowledge transfer through various types of trust and commitment (Luo & Lee, 2014). When organizations have a culture that emphasizes trust and cooperation, employees are more willing to share their knowledge (McDermott & O’Dell, 2001).

An organizational climate can learn, change itself and evolve over time through the social interaction of its members and between itself and the environment (Nonaka & Takeuchi, 1995). Pfeffer (1981) advocated for the need for the involvement of critical administrative activity in constructing and maintaining belief systems which ensure commitment and have positive effect on participants.

Borrowing measurements on organizational climate from Luo & Lee (2014), we develop the operation items as below:

Table 7: Operational items of independent variable organizational climate

Variable	Items
Organizational Climate	<ol style="list-style-type: none"> 1. People here are open and positive towards transferring knowledge to Chinese company. 2. People here are connected with company' interests. 3. The most important concern is the good of all the people in the company as a whole. 4. It is very important to follow the company's culture, rules and procedures here.

Hypothesis 1.3: In Chinese MNEs' knowledge learning ODI, organizational climate has positive impact on reverse knowledge transfer performance.

2.6.2.3.2 Incentive

While discussing the stickiness of knowledge transfer, Szulanski (2000) mentioned that the motivation of participants can be encouraged by incentives for both “source” and “recipient” to compete or collaborate with each other. Incentives are suggested as drivers of knowledge transfer (Persson, 2006). In Persson's research, both organization socialization and incentives positively influence knowledge transfer. However, the effect of incentives is considerably stronger than that of organization socialization. Gupta and Govindarajan (2000) also suggest that varied incentive systems motivate the acceleration of knowledge transfer.

In their research, Xie and Liang (2013) identify three kinds of incentive which improve the effect of tacit knowledge transfer: self-incentives, recipient dominant incentives and enterprise dominant incentives.

Self-incentive requires that individual participants maintain a positive attitude. At the same time, managers should realize that the initiative, enthusiasm and creativity of the employees are the survival elements of enterprises.

Xie and Liang (2013) posit that the “recipient dominant incentives” in knowledge transfer require recipients to possess specific knowledge and a suitable knowledge structure, so that they are able to receive the transferred tacit knowledge. In most cases, knowledge receivers are expected to motivate themselves to learn more basic knowledge and improve their existing knowledge structure. In addition, knowledge receivers should try their best to maintain good relationships with employees who have rich tacit knowledge. It necessitates simplified

interpersonal relationships and a harmonious atmosphere among individuals. Comparing the concept of “recipient dominant incentive” with “self-incentive” which applies both to knowledge sources and recipients, Xie and Liang (2013) think that high activeness of knowledge recipients leads to better results of knowledge transfer.

The last is organizational incentive: enterprise dominant incentives are the strongest factors that influence knowledge transfer. Enterprise dominant incentives include job rotation, rewards, mentoring, training program and salary.

Job rotation is carried out among a number of different employees and managers. During the rotation process, the enterprise allows employees to receive and transfer tacit knowledge in various departments within the company. Rewards mean that the RKT participants who are able to achieve goals and/or accomplish the tasks set by the enterprise will receive incentives to encourage them to continue participating in the tacit knowledge transfer. Learning incentives, such as mentoring and training programs, project debriefing and other forms of learning-oriented conversation are postulated to have a direct effect on KT results. Cohen and Levinthal (1990) suggest that learning incentives will mediate the effect of other determinants, such as technological opportunity, depending on the firm's or rivals' assimilation of knowledge and absorptive capacity. Cohen and Levinthal (1990) also mentioned that the bigger the quantity of knowledge is, the greater the incentive should be. The type of the incentive should also correspond to the difficulty of the knowledge, where incentives shall be greater when the knowledge is more difficult to transfer.

Price and Bourgois (2012) reveal that while salary and benefits still play an important role for Chinese workers, other values, such as public reputation, management style, a good work-life balance, training system and promotion opportunities are becoming more and more attractive. Overall, promotional opportunities and increased responsibilities within a company have proven to be primary incentives for retaining employees.

Our previous discussion of the definition of the knowledge sender and receiver's abilities considered the self-incentive (motivation) of RKT participants. Our discussion about incentive in *ba* here refers to enterprise dominant incentive.

Table 8: Operational items of independent variable incentive

Variable	Items
Incentive	<ol style="list-style-type: none"> 1. Incentives, such as promotion, salary increase, awards, rotation and training can maintain employees in positive attitude in transferring knowledge to Chinese company. 2. Incentives, such as promotion, salary increase, awards, rotation and training can motivate employees to fulfill their knowledge structure by active learning. 3. Incentives, such as promotion, salary increase, award, rotation and training can encourage employees to keep close relationship with the resourceful knowledge carriers.

Hypothesis 1.4: In Chinese MNEs’ knowledge learning ODI, organizational incentive has positive impact on reverse knowledge transfer performance.

2.6.2.3.3 Socialization

Nonaka explained that socialization occurs in an “originating *Ba*”, in which people meet to share feelings, ideas and experiences, in order for tacit knowledge to be shared and created. Socialization happens between knowledge transfer participants.

Corporate socialization mechanisms, which build interpersonal familiarity and personal affinity between members of different companies, increases communication flows between companies and ease knowledge transfer. This can be done by sending managers of one company to another (Gupta & Govindarajan, 2000).

Socialization mechanisms are systematic instruments, which increase intimacy and trust among participants and encourage interactions among companies within MNE networks (Gupta & Govindarajan, 2000). Thus, it contributes to the creation of linkages between invested European companies and Chinese companies, motivates the sharing of invaluable tacit knowledge and, logically, facilitates RKT from the acquired company to parent company (Bartlett & Ghoshal, 1988).

Socialization articulates tacit knowledge exchange through joint activities, such as being together, spending time and living in the same environment, rather than through written or verbal instructions. In practice, socialization involves capturing knowledge through physical proximity. The process of acquiring knowledge is largely supported through direct interaction

with knowledge sources and recipients. Capturing tacit knowledge by walking around inside the company is another process of acquiring knowledge (Nonaka, 1998).

Rowley et al. (2013) socialization mechanism, used in their research on RKT from subsidiary to headquarters, is tested using five items which have been adapted from research carried out by Govindarajan (2000), Björkman et al. (2004) and Noorderhaven & Harzing (2009). The items used are provision of training program, participation of expatriates in daily routines, frequent face-to-face communications between employees, frequent invitation of experts and frequent communication between MNEs and the subsidiary's top management.

Table 9: Operational items of independent variable socialization

Variable	Items
Socialization	<ol style="list-style-type: none"> 1. Training program can facilitate knowledge transfer to Chinese company. 2. Expatriates participate in daily work in European units can facilitate knowledge transfer to Chinese company. 3. Frequent face-to-face communication between employees can facilitate knowledge transfer to Chinese company. 4. Frequent visit experts to China can facilitate knowledge transfer to Chinese company. 5. Frequent communication between European company' and Chinese MNEs' top managers can facilitate knowledge transfer to Chinese company.

Hypothesis 1.5: In Chinese MNEs' knowledge learning ODI, the level of socialization has positive impact on reverse knowledge transfer performance.

2.6.2.3.4 Apprenticeship

Apprenticeship is widely used in the handcraft industry, where masters instruct their apprentices, allowing them to do the simplest tasks first. Apprentices must make every effort to follow instructions and examples set for them. A master craftsman can normally cope with only a limited number of apprentices at a time. Moreover, his teachings are dispensed mostly through example rather than written materials – the intangible elements of his skill are very hard to put into words. What is also important is that, the examples a master craftsman offers will be initially confusing and ambiguous, so apprentices have to learn through extensive and time-consuming repetition. Only through this method can an apprentice gradually get a “feel” for the techniques. Apprentices learn their craft not by spoken words or written textbooks but by

observing, imitating, and practicing the works of their masters. Long years of apprenticeship allow newcomers to understand other ways of thinking and feeling (Nonaka & Konno, 1998).

The concept of “master” and “apprentice” is a common method for tacit knowledge transfer where the quality of communication required is very high. In the majority of cases, personal relationships exist between the master and apprentice.

Göthensten and Persson (2014) explain that assigning apprentices to expatriates is likely to be a very efficient method of knowledge transfer. The most efficient way for an expatriate to transfer knowledge is possibly to have an apprentice working alongside them. However, we understand that Göthensten and Persson’s discussion is based on the case of knowledge transfer from developed markets to developing markets. In the majority of EM-MNEs RKT cases, expatriates from Chinese MNEs take the role as “apprentices”. It is up to the European company to decide whether to assign a “master” to the expatriate or not. This expatriate can be coached by a local employee as an apprentice. Tacit knowledge can be transferred through regular interaction and the sharing of experience by team members (Chen, 2005). We should not ignore the other scenario, when expatriates are sent by European companies to China. From the literature review, we understand that apprenticeship will mostly impact the accuracy of knowledge and speed of knowledge transfer.

Table 10: Operational items of independent variable apprenticeship

Variable	Items
Apprenticeship	<ol style="list-style-type: none">1. Apprenticeship can ensure the correct understanding between knowledge sender & receiver when transferring tacit knowledge.2. Apprenticeship can guarantee an efficient transmission for tacit knowledge transferring from knowledge sender to receiver.

Hypothesis 1.6: In Chinese MNEs’ knowledge learning ODI, adoption of apprenticeship system has positive impact on reverse knowledge transfer performance.

2.6.2.3.5 Trust

Organizational climate and trust are both social factors that are important for knowledge management activities (Verkasalo & Lappalainen, 1998). When organizations encourage a culture that places an emphasis on trust and cooperation, employees will be more willing to

share their knowledge (McDermott & O'Dell, 2001). Trust has a critical role in knowledge diffusion and implementation of knowledge sharing (Nonaka, 1994).

Trust has been found to be correlated with knowledge acquisition (Politis, 2003). Xie and Liang (2013) also mentioned that when good relationships exist between knowledge receivers and senders' mutual trust will promote the transfer from sender to receiver. Another finding is that long-term relationships can create stronger levels of trust (Gounaris & Venetis, 2002).

Trust is categorized and measured as affective and cognitive trust (McAllister, 1995) and leadership trust (Schoorman et al., 2007). The degree of affective trust influences the interaction between managers and colleagues, and higher cognitive trust will result in affective trust that reduces defensive behavior and control monitoring from managers (McAllister, 1995). Whether employees trust in the leadership or not affects business performance (turnover, profit, and staff turnover) and organizational competence (Schoorman et al., 2007).

It is also possible to find discussion on notices of trust between companies, namely between parent company and subsidiary from an organizational perspective (Najafi-Tavani et al., 2015). Embedded relationships between headquarters and subsidiaries ease tensions through the creation of mutual trust (Saliola & Zanfei, 2009), consequently headquarters are more likely to believe in the subsidiary's behaviors and intentions. Trust was additionally found to positively predict knowledge sharing within and between work units (Cabrera, 2003).

Based on the literature review, we develop a concept of trust that includes 3 aspects: trust towards leadership, trust between individuals and trust between companies.

Table 11: Operational items of independent variable trust

Variable	Items
Trust	<ol style="list-style-type: none">1. From perspectives of "professional ability" and "commitment", I trust in the leadership in facilitating successful knowledge transfer.2. I trust in other knowledge transfer participants "professional ability" and "commitment" in the RKT process.3. I agree that Chinese company and invested European companies have mutual trust in each other's behavior and intention in the process of RKT.

Hypothesis 1.7: In Chinese MNEs' knowledge learning ODI, trust level has positive impact on reverse knowledge transfer performance.

2.6.2.3.6 Organizational structure similarity

Lane and Lubatkin (1998) argued that the ability of a firm to learn from another firm is jointly determined by the relative characteristics of the student firm and the teacher firm. Namely, the similarity between the student's and teacher's firms' compensation practices and organizational structures and the student firm's familiarity with the teacher firm's set of organizational problems.

Entirely correspondent organizational structure settings are expected to facilitate RKT between Chinese companies and European companies. Parallel organizational settings can ensure the transfer of tacit knowledge between clear sender and receiver units. However, duplicating the complete structure of an acquired European company may be too costly. Thus, more Chinese companies apply similar organizational structure settings to their subsidiaries in Europe compared to acquired European companies.

Transferring tacit knowledge to a Chinese company is difficult. It must be acknowledged that, restricted by the tacitness of tacit knowledge and the knowledge gaps between Chinese and European companies, employees from Chinese firms need more time to learn. The time that it takes for tacit knowledge to be "stored" by the "knowledge receiver" and converted into explicit knowledge or transmitted to other knowledge receivers, is expectably long. We develop the variable of "organizational structure similarity" as below.

Table 12: Operational items of independent variable organizational structure similarity

Variable	Items
Organizational structure similarity	<ol style="list-style-type: none">1. Not-matched organizational structures of Chinese company and European company have negatively impact on knowledge transfer to Chinese company.2. Undermanning of Chinese company's functionality have negatively impact on knowledge transfer to Chinese company.

Hypothesis 1.8: In Chinese MNEs' knowledge learning ODI, organizational structure dissimilarity between Chinese company and invested European company has negative impact on reverse knowledge transfer performance.

2.6.2.3.7 Transmission channel

Transmission channels have been identified as key to knowledge transfer in MNEs (Ambos & Ambos, 2009; Gupta & Govindarajan, 2000; Jasimuddin, Li, & Perdikis, 2012; Moreno-Luzon & Lloria, 2008). Ghoshal and Bartlett (1988) state that knowledge flows in MNEs cannot occur without the existence of transmission channels. Beyond their mere existence, we would expect other properties of transmission channels to also affect the extent of knowledge flows. The most notable would be the richness/bandwidth of communication links, as captured in aspects such as informality, openness, and density of communications (Daft & Lengel, 1986; Gupta & Govindarajan, 1991; Jablin, 1979; Tushman, 1977). Gupta & Govindarajan (2000) exceptionally remark that the knowledge flows from knowledge sender and inflows to knowledge receiver are positively associated with the richness of the transmission channels.

Hypothesis 1.9: In Chinese MNEs' knowledge learning ODI, richness of knowledge transmission channels between Chinese company and invested European company has positive impact on reverse knowledge transfer performance.

Communications theory tells us that transmission channels can be both formal and informal (Daft & Lengel, 1986). Moreno-Luzon and Lloria (2008) further comment that formal mechanisms are established in a more conscious, intentional manner, while informal mechanisms coordinate individuals in a spontaneous way. In this context, Sammarra and Biggiero (2008) suggest that different mechanisms are available to support both formal and informal interactions between individuals and groups in the organizations, for the successful acquisition of multiple types of knowledge.

Galbraith (1973) and Nadler & Tushman (1987) identified liaison positions, task forces, and permanent committees as some of the key formal structural mechanisms for integrating multiple units of an organization. It is easy to see that the greater the extent to which a unit is linked to the rest of the global network through such integrative mechanisms, the greater the density of communication interface between units (Daft & Lengel, 1986).

Hypothesis 1.10: In Chinese MNEs' knowledge learning ODI, the greater reliance on formal transmission channels between Chinese company and invested European company the better performance on reverse knowledge transfer.

At the same time, Davenport & Prusak (1998), Gupta & Govindarajan (2000), Moreno-Luzon & Lloria (2008), Pan et al. (2007) and Sammarra & Biggiero (2008) argued that informal mechanisms are often used as knowledge acquisition channels. Informal mechanisms are employed in order to acquire knowledge in a spontaneous way. Unscheduled meetings, informal gatherings, and coffee break conversations are the classic examples of informal approaches to knowledge acquisition. Informal mechanisms are organized voluntarily by those who have the same feelings or common interest (Guan, 2005). Davenport and Prusak (1998) provide a list of informal mechanisms which facilitate knowledge acquisition such as people talking while using water coolers, or in common rooms, and at picnics. Gupta and Govindarajan (2000) also identify stories, the informal observation of the performance of experts, and feedback sessions as other informal mechanisms.

Hypothesis 1.11: In Chinese MNEs' knowledge learning ODI, the greater reliance on informal transmission channels between Chinese company and invested European company the better performance on reverse knowledge transfer.

Based on the listed scenarios of both formal and informal mechanisms we have developed the measurement of knowledge transmission channel as below.

Table 13: Operational items of independent variable transmission channel

Variable	Items
Transmission channel	<ol style="list-style-type: none"> 1. Richness of transmission channels linking a European company to Chinese company will positively associated with the outflows of knowledge from the European company. 2. Richness of transmission channels linking a European company to Chinese company will positively associated with the inflows of knowledge to Chinese company. 3. The greater the reliance on formal mechanisms to integrate a European company with the Chinese company, the greater will be the knowledge out flows from that European company to Chinese company. 4. The greater the reliance on formal mechanisms to integrate a European company with the Chinese company, the greater will be the knowledge inflows from European company to Chinese company. 5. A European company's motivation to send knowledge is positively related to informal knowledge transmission channel between employees. 6. A Chinese company's absorptive capacity is positively related to informal knowledge transmission channel between employees.

2.6.2.4 Mediator: Length of time of participating in RKT

The importance that “length of time” plays in RKT has been addressed multiple times in the discussion of tacit knowledge transfer. Nonaka & Konno (1998) also mention that only long years of apprenticeship allow newcomers to understand other ways of thinking and feeling. Lundvall (1988) suggested that time seems to be especially crucial in the case of technological development, which is often based upon tacit knowledge that can only be partly codified and standardized.

Hypothesis 2.1: In Chinese MNEs’ knowledge learning ODI, length of time of knowledge sender participation in RKT mediates sender ability’s impact on RKT performance, that means, the longer time knowledge sender participated in RKT, the impact from sender ability to RKT performance is higher.

Hypothesis 2.2: In Chinese MNEs’ knowledge learning ODI, length of time of knowledge receiver participation in RKT mediates receiver ability’s impact on RKT performance, that means, the longer time knowledge receiver participated in RKT, the impact from receiver ability to RKT performance is higher.

2.6.2.5 Control variables

2.6.2.5.1 Length of time after Chinese company investment

Earlier studies have shown that the level of coordination and integration in manufacturing MNEs is generally affected by the length of time the acquired affiliate has been part of the parent corporation (White & Poynter, 1984). It appears that the process of corporate coordination and integration tends to expand over time, with business linkage becoming stronger as an effect of the gradual processes of organizational adjustment (Ivarsson & Valhne, 2002). Ivarsson and Valhne (2002) also found in surveys of Swedish MNEs that foreign affiliates gradually and successfully learn from their business environment.

As the length of time since the acquisition increase, the stress and bad feeling among employees in acquired companies will decrease; employees who are not interested in working longer in the acquired company will choose to leave, new employees will be hired. New employee will not compare the current situation with its counterpart before acquisition. Thus, a sense of

belonging to the “new company” will facilitate organizational integration (Buono & Bowditch, 1989). Very et al. (1997) demonstrated that length of time after acquisition can impact the result of acquisition. Bresman (1999) determined that length of time after acquisition also has a positive impact on knowledge transfer.

At the same time, however, other studies of Swedish MNEs show that older acquired affiliates do not necessarily need to be technologically integrated with the other MNEs' units. For example, even after a considerable time, acquired affiliates are only marginally involved in intra-firm trade in the intermediate input goods with their parent firms in Sweden (Ivarsson & Valhne, 2002).

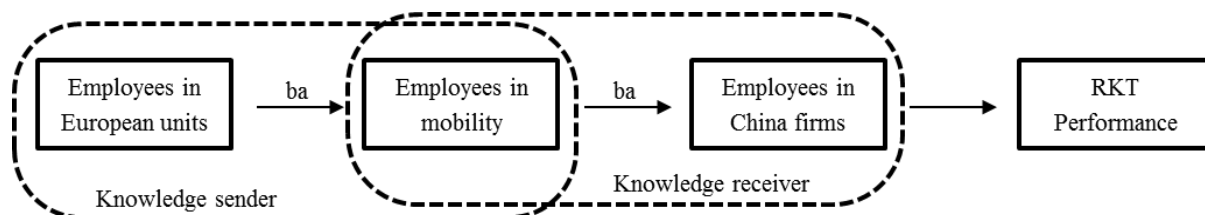
In my research, length of time after Chinese company investment is measured as the time from the date of acquisition/investment to the date when the questionnaire was answered.

2.6.2.5.2 Company size of European company

Scholars have not yet reached a consensus on the impact that the size of the invested European company has on knowledge transfer performance. Cohen and Levinthal (1989) claim that company size positively influences the research and development capabilities of a company. Big firms normally contain more resources and as a result, it is also easier for these firms to obtain more core competitive resources. Therefore, company size has a positive impact on innovation (Gooding and Wagner, 1985). Other scholars who hold opposite opinions claim that big firms often pay less attention to incentives that can evoke their employees' innovative abilities. In this aspect, big firms may encounter problems such as low efficiency and possess weaker innovative capacity (Phene & Almeida, 2008). Small firms, especially in high-tech industries, sometimes present higher productivity in patents and innovation, which is due to concentrated investment in R&D and the lower operational costs of the company (Griliches, 1990). In this research, I measure the company size by item of total employee number.

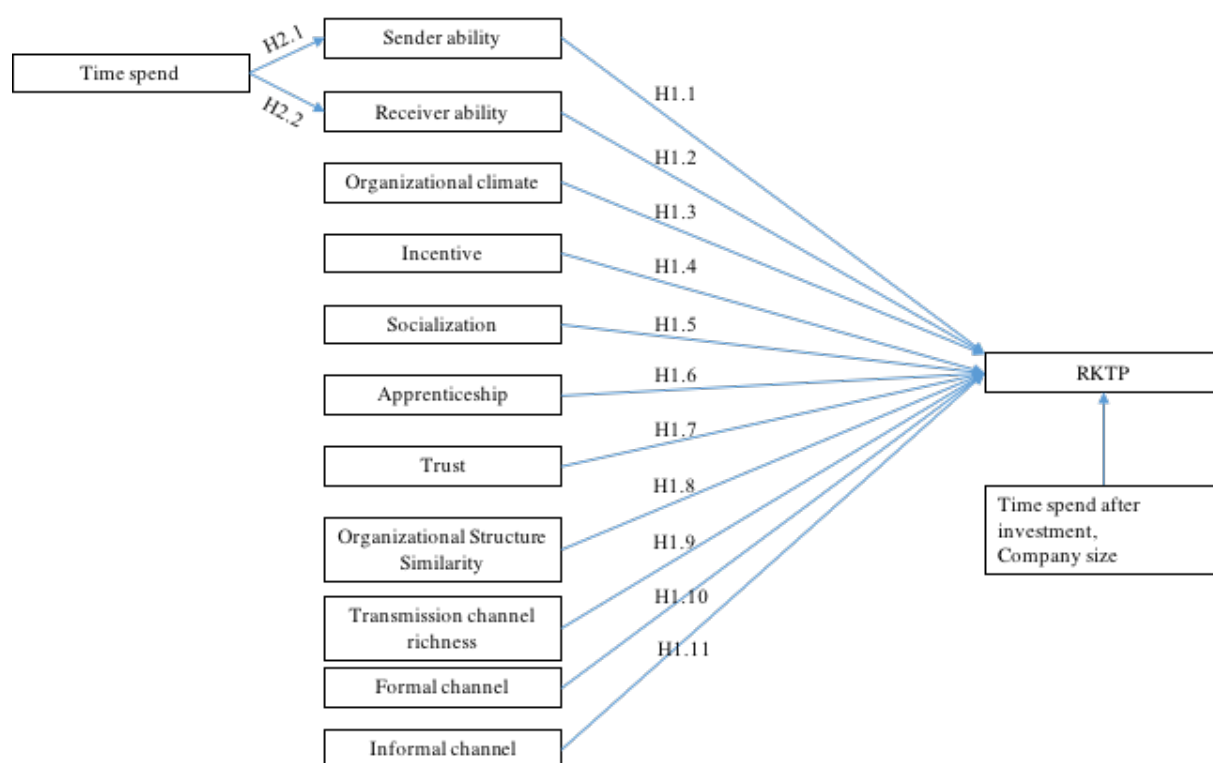
2.6.3 Analytic model

Figure 9: RKT participants and roles in companies



An “employee in mobility” could be used to designate employees from either Chinese or European companies. The reason that there is no direct flow from “Employee in European units” to “Employee in China companies” is because tacit knowledge is only possible to be transferred when a “face-to-face” occasion is constructed.

Figure 10: Structure of hypothesis



Chapter 3. Methodology

My research focuses on reverse knowledge transfer from invested European company to Chinese company, with research interest in foreign direct investment and reverse knowledge transfer. Since RKT in Chinese MNEs is rarely discussed, this is an explorative research.

The explorative essence of this research calls the genuine voice from focus group, where I employ interview to get qualitative information. I also apply quantitative methodology to guarantee the replicability of the research result. I hope the combination of both methods can ensure a deep understanding of the topic and also support more Chinese manufacturing companies that use ODI to acquire knowledge.

3.1 Focus group screening

ODI from China to Europe has been noticed for many years. However, combining the purpose of knowledge learning in aim of industry upgrading is the new phenomenon in recent years. This concrete focus helps me to select the right Chinese MNEs for this research. Overviewing the Chinese investment in Europe since 2011, the investment purpose on knowledge learning is accompanied with the strengthened demand on industrial upgrading in China. In the beginning, the new trend is led by State-owned enterprises (SOEs), and then followed by private enterprises. Qualified focus companies to my research, despite of ownership status, can be both from public and private sectors. In another word, qualified Chinese MNEs only have to be in line with two criteria: knowledge learning oriented ODI into Europe, and Chinese manufacturing industry MNEs that belong to the category in “Made in China 2025”.

I have decided to screen the companies from official channel: website of Ministry of Commerce of China (MOFCOM). The website contains list of all companies who invested overseas in past years. It also provides the reason of investment, where keywords such as “learning” help me to select the right companies for my research.

I defined this research under the geographic scope of “Europe” and “China”. However, considering the needs of conducting face-to-face interviews, I have a preference of focusing on Chinese MNEs who invest in Sweden or Portugal, so that data is easier to access and follow-up.

Looking through the registered companies in MOFCOM, most of Chinese ODI flows with interest in “knowledge learning” into Portugal resides in the new energy industry. Meanwhile Sweden has advanced in innovation and thus successfully attracted a great amount of Chinese ODI in the past decades, among which the most leading industries are automotive, bio-medicine and green energy, which all belong to the categories in “Made in China 2025”.

Selected enterprises’ contact information was checked through “tianyancha.com”, a search engine that provides the majority of company background and contact information in China. In consistency with the screening-criteria, the Chinese MNEs listed have to be in the manufacturing industry and with purpose of knowledge learning. I am capable to select a group of companies from both Portugal and Sweden. As a result, until the list retrieved date, qualified focus companies from the MOFCOM website are 5 from Portugal and 29 from Sweden.

3.2 Sampling design

Briefing the 34 companies, I predict they fulfill the request of our focus group. A confirming strategy is to get the companies own words about their participation in knowledge transfer and whether they are interested in participating in this research. From February to May 2016, I have continuously collected second-hand information about the above 34 companies from internet focusing on their strategies and cooperation model with Chinese company. Additionally, I have contacted these companies’ business relation department by email and introduced my research.

In the end, by discussion with their employees, I was able to confirm that three companies are well suitable to the research topic: knowledge transfer, among which 2 companies are from Sweden and 1 company from Portugal. Even though it is just 3 companies out of 34, these 3 cases are able to present all variety of Chinese MNEs entry model to the European market, including M&A, greenfield investment and invest in stakes.

Companies who either act as knowledge sender or knowledge receiver are essential participants to the RKT process. In these three companies, not all employees in European company have possibility to transfer tacit knowledge to Chinese company in their daily work. Citing what has been discussed in the literature review, expatriates from both companies and employees who had face-to-face work experience with colleagues from their Chinese/European counterpart are qualified for this research. At the same time, employees from Chinese company who temporarily work in European company have the clearest role in learning and bringing

knowledge back to Chinese company. Therefore, even though I can narrow the research focus towards these 3 companies, it is difficult for me to give a clear number of the research population.

In order to solve research population issue, simple estimation is made based on the data I can have from the discussion with employees of these three companies. The population is calculated by double the amount of expatriates and employees had experience in mobility. The result turns to be around 1040 (company W: 300 + company A: 200 + company D: 20). In this case, based on 95 % confidence level and confidence interval of 10, the sample size by minimum should reach 88. According to Connelly (2008), extant literature suggests that a pilot study sample should be 10% of the sample projected for the larger parent study. That means, in the pilot test, it is expected to reach around 8 RKT participants. At the same time, recipients are selected proportionally to represent the background of different RKT participant groups.

3.3 Pilot test

Pilot test is a small-scale trial, where a few examinees take the test and comment on the mechanics of the data collection method. In the pilot test, I would like to talk to RKT participants about their “real-life” operations in working in Chinese/European company. Besides, I use pilot test as a method to verify the questionnaire, confirming respondents’ understanding about description and question settings.

Before the pilot test, a tentative questionnaire was drafted. Entirely guided by literature review, I have set up questions about demographic information, working experience, role in Reverse Knowledge Transfer. I also plan to know the organizational information: the investment history, organizational design, company culture. The questionnaire is designed for both knowledge sender and knowledge receiver. Recipients will continue the question until they need to self-evaluate their role in RKT, which will further lead them to prepared questions, covering variables, as “knowledge transfer channel”, “incentive”, “apprenticeship”, “socialization”, “trust”, “sender capacity”, “receiver ability”, “length of time of participation” and dependent variable “knowledge transfer performance”.

Important adjustment has been made after running pilot test, namely improvement to description and question setting. Since many respondents are Chinese who are weaker in

reading and answering in English. Thus, soon in the process of pilot test, I have also prepared questionnaire in Chinese.

The success of pilot test relies on personal network. Friends and acquaintances of the researcher opened possibility for initiating the research. Involved RKT participants are from all the 3 companies in Sweden and Portugal. Even though the pilot test has taken a longer time than planned, it has contributed valuable inputs to the continuation of research. The first batch of qualitative data was collected through follow-up interviews among the respondents in pilot test.

Table 14: List of Pilot questionnaire delivery

No.	Company	Name	Area of expertise	Date
1	Company W	BB	HR	2016-02-18
2	Company W	CB	Marketing & Sales	2016-02-16
3	Company A	WW	R&D	2015-10-15
4	Company A	SJ	R&D	2016-03-18
5	Company W	LY	R&D	2016-04-03
6	Company W	NN	R&D	2016-03-15
7	Company A	YX	R&D	2016-03-19
8	Company A	YW	R&D	2016-03-19
9	Company D	HH	Executive	2016-03-22
10	Company W	FY	Marketing & Sales	2016-02-18

3.4 Questionnaire deliver channels and quantitative data collection

Summarizing feedback from the pilot test, I am ready to officially collect quantitative data. Due to the geographical distance among targeted respondents, my research employs online questionnaire to collect data from RKP participants.

Comparing to face-to-face interview, data collection through questionnaire might encounter problems such as recipients drop out without completion and misunderstanding towards questions or research background. As stated before, after pilot test, I have already adjusted many descriptions, wordings according to the feedback. Learning also from pilot test, I was able to notice other potential problems: (1) recipients might not be aware or clear about their identity as RKT participants; (2) recipients need to be reminded to consider tacit knowledge all along the time when answering the questionnaire. In order to minimize the possible influence

from these problems, I have adopted several preventive solutions. (1) Clearly stated screening criteria for recipients: a. recipients should work in Chinese MNEs or their invested European company; b. recipients should have experience in working in tacit knowledge transfer activities, including both sending and receiving knowledge. (2) Illustrate complete scenarios with simple language:

“You are selected for this research is due to that 1) you are/were staff in mobility from a Chinese company to work in its invested European company and vice versa. or 2) you work in a Chinese company (European company) that invested (is invested) European company (by a Chinese company). We notice the Chinese company that you work in/for, invested in the European company with a clear intention of knowledge learning.

If you work in one of the stated situations, you might have already participated in the knowledge transfer activities. When you introduce know-hows to the Chinese company, train employees from Chinese company or work with colleagues from Chinese company in the same project, you are already engaged in the process of knowledge transfer.

The focus of this research is about “Tacit knowledge” that refers to your owned/learned work experience, know-how. Tacit knowledge often embeds in your everyday work but difficult to describe.

In earlier research, most data on knowledge-related outcomes has been collected using perceptual scales and the data’s validity was often limited by the use of only one respondent per MNE – usually a CEO at the MNE’s headquarters (Minbaeva, 2007). However, in real operations, knowledge transfer is an activity that every employee has possibility to involve in. Therefore, the respondents of the questionnaire will not be limited to chief/managerial positions from the companies. My research will put attention on the ordinary knowledge transfer participants, who indeed involve in RKT activities every day.

The majority of the data was collected through online platform. Considering that a certain proportion of respondents will be Chinese or locate in China, platforms such as “Google forms” are not accepted. In the end, I choose the platform sojump.com, which is tested to be internationally accepted and mobile friendly.

As the questionnaire was delivered through online survey platform, I have also prepared a “research introduction presentation” in addition to the cover letter inside the questionnaire. This presentation is more email friendly for respondents, and it is also easier to “click through”.

Multiple channels are selected to approach RKT participants in these companies. The primary method is snowball sampling using researcher’s network. Respondents from pilot research, for instance, have supported in sharing the questionnaire links to their colleagues. Personal network turns out to be the most effective channel for data collection. Meanwhile, other efforts are being carried contemporarily, for instance, I seek people who work in the target company on professional network online platform LinkedIn. Even more, after identifying the working venue of target companies, I have also tried to be in the area for getting to know some RKT participants occasionally.

Even though different efforts are given, I believe that questionnaire delivered through research network contributes the majority of data collection. In the end, summing all invitations to questionnaires through email, through other online platforms and in-person delivery, approximately, I have delivered 334 questionnaires, and received 106 questionnaires. The response rate is 31%.

3.5 Qualitative data collection

Personal network is the vital channel for researcher to collect qualitative data. Respondents in pilot test are open to further discussion even after the first interview. I have successfully run a second time talk with several respondents from pilot test. Some of them are kindly introducing my research to their colleagues. Through this channel, I have been able to make deep dive interviews with 10 RKT participants.

Interview is carried out under semi-structured method. Interviewees might hold two different identities, either direct RKT participant or company representative who does not work directly on RKT but with good knowledge about RKT activities within company. To include the second category of interviewees can bring in organizational perspective in understanding, for instance system design, company strategy and company background. It is a supplementary advantage for research data collection. However, I only have one company representative case among all interviewees.

Qualitative data is expected to supplement the research result of quantitative data. Interviews are continued until I was certain that there appears to be repeated information from the interviewee.

3.6 Data analysis method: combination of qualitative and quantitative

This research combines qualitative data for understanding the RKT process and participants' experience. Quantitative data will firstly be used to explore the hidden impacting variables and later for testing RKT model for best performance. The two methods are expected to jointly guarantee the reliability and repeatability of the result.

The quantitative data will be checked by descriptive analysis and factor analysis. Multivariate regression is employed to test the key factors that impact on RKT performance. I will handle qualitative data by content analysis. The combination of qualitative and quantitative methods is not first time brought into knowledge management research, but rarely used in EM-MNEs RKT research.

Chapter 4. Field Work

4.1 Qualitative research

4.1.1 Chinese MNEs investment actions – three example cases

4.1.1.1 The case of Merger and Acquisition: company W

Company W was acquired by Chinese investor company G six years ago under a clear purpose of acquiring advanced knowledge in developing their competitive advantages. Company G is a big private company in China. Following up the performance of Chinese company after acquisition, it receives proved acceleration in new product development and strengthened brand reputation. During one and half year after acquisition, company W has established a “mirror organization” “W China” in order to “move fast to beat our competitors”. That means, the organizational structure shows up in triple level “Chinese investor company G” – “company W” – “company W China”.

Employment lay-off and factory location shift have been the primary worries of company W after being acquired. Bad experience from former international owner weakens the confidence that employees from company W have towards their new Chinese owner, who have fewer international business management experience, and also less recognition for both brand and product quality in industry. Not many people believed that the acquisition can work out from the beginning.

However, Chinese investor seems to be wiser than its earlier counterpart. Partly owing to weaker innovative capability in China, Chinese company G continuously adds R&D investment, and gave a high relevance of governance freedom to company W. In 2015, company W has reached its highest sales record in its history.

4.1.1.2 The case of wholly-owned subsidiary: company A

Subsidiary A was founded in 2013, three years after Chinese firm G invested in company W. The wholly new subsidiary locates at the high-tech zone of the city, neighbors with other iconic technology companies. When drafting the team spirit, company A wrote: we reward those who

share knowledge and make an effort to teach others. Our effective collaboration leverages on our open attitude and cultural diversity. We create an environment in which we support each other and collectively tackle challenges.”

Apparently, Chinese company G has an idea about how to initiate a business in a new market. Company A has brought in a great number of new jobs to the city. In the year of entry, it has already won the “heart” of local government proven by a yearly reward for the foreign-owned companies that contributes to the city’s economic growth. Besides running a good relationship with government, company A also builds up a good relationship with universities to attract local intelligence. At the same time, a strong presence was also given to the local business association, with a smiley face to all the local business partners, company A has already become a harmonious friend in the new market. The result is remarkable. Data from 2015 shows, company A has 900 employees. In 2016, when we did interview in their company, company A already grew to 1900 employees, around 200 expatriates from Chinese investor company G.

A highly-valued company reputation and attractive salary have brought in company A lot of local intelligence from company W and another bankrupted Swedish company. The importance is that even though patents and other explicit knowledge is legally unavailable for the successor (company G cannot use patented technology that was developed under the period of former acquirer), for the Chinese company G, “the knowledge in the brains” carried by people is even more important.

From one side company A acquires intelligence from other companies by more attractive salary, from other side enhancing R&D cooperation with company W. The innovation ability of company A has also steadily increased since only 3 years ago. In the first half of 2016, company A has also completed a platform development together with the employees from company W. This is undoubtedly a great achievement for a short period of knowledge integration.

4.1.1.3 The case of investing in stake: company D

In 2011, Chinese company T invested in stakes of a Portuguese company D. Unlike the ODI in energy industry to undeveloped regions, European companies are discreet in giving out their stake. The chief executive of company D pointed out that Chinese firms are actively prospecting for investment in Europe even through minority stakes that offer relatively little control. The drivers of investment are access to new markets, investment in new energy and gaining

experience with deregulated energy markets. Surely, Chinese firms like T understand that they are not necessarily welcome to gain higher control in some European countries, but they see a minority stake as a learning phase, with the idea that they can ramp up in the future.

From the other aspect, company D take Chinese investment as a part of their global strategy. Selling minority stakes to Chinese investor T and use the funds to develop more new projects and broaden company's portfolio.

Concerning the benefits of Chinese company T, they commented that investment in company D has helped company T in opening to new markets. The joint projects with company D enable Chinese firm T to be present in many markets in Europe.

4.1.2 Case study

4.1.2.1 Individual interview: Chinese employee with work experience from Chinese MNEs' Subsidiary in Europe

WW is a young professional received master degree from a local technology University. After graduation, she was directly recruited by company A. With no former work experience in China, she experienced difficulties in understanding the work method that Chinese MNE G carries in the beginning.

Company A is the wholly-owned subsidiary of its parent company G in China. In company A, each department holds 2 meetings every day when work starts and ends. The purpose is to align and summarize work tasks on a daily basis.

In general, she notices that four different employees in organizational structure are involved in the knowledge sharing or transfer after the acquisition: local recruited, expatriates from parent company G, employees in mobility from company W and employees in company G. Employees from company G and A can attend different programs to work in their counterpart company from 2 weeks to 2 years. As WW described, during the visiting period, employee from company G have to participate intensive workshops and meetings. Expatriates from parent company G are obliged to report to home company on a daily basis.

WW confirmed that the acquisition of company W is made in the purpose of learning and obtaining advanced tacit technology. As according to WW, Chinese parent company is not generous in sharing their knowledge and intelligence to subsidiary.

Acquired company G does not assign many personnel to assist knowledge sharing. There is only one Chinese HR assisting in the mobility service. Chinese visiting employees are placed every other seat with the local engineer in order to increase the “spontaneous” communication. However, WW thinks that whether the knowledge can be transferred is controlled by Swedish engineers, from another word, decided by the willingness of knowledge sender. After many bad ownership experiences, employees from company W are sensitive in knowledge sharing.

4.1.2.2 Individual interview: Chinese employee with work experience from both Chinese subsidiary and acquired company

SJ is also a young employee of company A. He joined company A since the beginning of 2016. Earlier he worked at company W. As a graduate of the local technology university, his profile is very attractive to the company A.

SJ has joined a team with several newly arrived expatriates from Chinese company G. As the locally recruited Chinese, besides responsibility to his position, SJ also supports the expatriate colleagues in his team in adapting to the society, for instance by visiting the tax office or applying to language courses. As according to SJ, his idea about the investment from company G is to build a strategic brand structure in the group company. However, knowledge acquisition in enhancing the R&D capability of Chinese company is the path to realize it. In order to realize all goals, Chinese company G strategically designed to copy the entire organizational structure of company W into the design of company A. Also for intelligence perspective, in the initial stage of company A, many former employees from company W were recruited to work in company A instead.

4.1.2.3 Individual interview: Chinese employee with experience from Chinese MNE’s subsidiary in Europe

LJ works at company A in business relations for about 2 years. After graduating from university, she came to work in company A directly. She officially introduced the situation of company A.

Since establishment in 2013, the company has fast increased from 10 people to 1900 in three years. Among 1900 employees, six hundred are full-time employees, eight hundred consultants and five hundred employees working at Chinese parent company' research center. Company A is the wholly-owned subsidiary of company G. From an organizational structure aspect, company A and acquired company W are equally affiliated to parent company G in China. The management board of company A include the CEO from Chinese company G and the CEO of acquired European company W. Deputy CEO, who earlier worked at another company that was acquired by Chinese company G is experienced in creating a new subsidiary. The first facility that the new office bought was a coffee machine. Close to the coffee machine is an open landscape, available for discussion and spontaneous meetings. This initiative was promoted by the deputy CEO, who understands that in the local work culture, coffee and pantry room is an important element supporting spontaneous work discussions.

From the continuous ODI perspective, until 2020, company A will continue receiving about 3 billion USD in investment from Chinese parent company G. In the year of 2016, company A continues to recruit 300 people. In the future, company A is expected to be the European center of parent company G.

In company A, expatriates work as local employees, merge to normal teams and work on the project together. LJ confirms that the innovation capacity between acquired company and Chinese company is obvious with huge gap. In some specific technology area, Chinese parent company is outpaced by 30 years.

In the interview, LJ's confirms her idea that the most important knowledge is tacit knowledge which is rooted in the employee's mind and based in every employee's daily routines. LJ mentioned, even if the engineer can take back the patent, they might be not capable to understand it due to big knowledge gap. Thus, in company A the working method is widely adopted as "learning by doing". Even when expatriates shift to work in the European subsidiary, their daily task is doing as the local employees do.

Employee rotation between subsidiary and parent company is always ongoing. The major flow is employees from Chinese company to work in European company. Currently there are 70 expatriates embedded at company A. In fact, when expatriate returns to China, they are warmly welcomed by both Chinese company and colleagues. Company culture seems to greatly impact

on the result of knowledge transfer. In this case, Chinese company G shows a very positive learning attitude.

From the management hierarchy aspect, the expatriate has to directly report to their home manager. The subsidiary is weak in supporting the integration of expatriates. In company A, expatriates from China will receive introduction meeting upon arrival. However, there are no further social activities during the following period of the stay. Working life is better organized, where each expatriate has a corresponding European colleague at subsidiary to support their work. We have mentioned in the earlier discussion of thesis that knowledge transfer is not an activity at manager level; instead normal employees in the company have potential in their daily work to involve in knowledge transfer. LJ confirms the idea. Meanwhile, she addresses that expatriates are the group who really are aware of their role in knowledge learning and transfer, and obliged to do it besides their daily work.

Expatriates normally stay in the subsidiary from 6 to 24 months. To the company, the longer expatriates stay, the more cost it will lead to. However, LJ mentioned that from the initial stage of expatriate mobility from 2014 until now, many expatriates turned out to extend their stay in subsidiary. At the very beginning, a normal plan of stay is about 6 months. However, more and more expatriates turned to stay longer. There is still a limitation that expatriate work contract is maximally 2 years.

Can we conclude a longer length of time participating in knowledge transfer in subsidiary will positively impact on the knowledge transfer performance? We cannot directly make the conclusion, however “length of time of participation” is a possible influencing factor. LJ did not give a clear answer to this question either. But in reality, to extend expatriate stay in subsidiary has been adopted as a direct solution for expecting a better knowledge transfer result. The gap about no contemporary evaluation system for monitoring expatriates’ RKT result appears to be one of the main problems at the moment.

4.1.2.4 Individual interview: Expatriate from Chinese MNEs parent company to subsidiary in Europe

YW is an expatriate from Chinese parent company G. Arrived in October 2015, he has already spent 7 months working in European subsidiary when we had interview. From LJ’s interview,

we are told that expatriates both take normal work responsibility in subsidiary and are responsible to transfer knowledge back to parent company.

The biggest challenge that YW noticed is the different focus in product development process. In China, the R&D department focuses on breadth and efficiency. However, in Sweden, R&D focuses on depth and product quality.

Limited by R&D capacity, while also with purpose of achieving efficiency in the research result, much R&D work is outsourced to suppliers. YW told that comparing R&D departments in same function, European subsidiary might team up 20 engineers, while the counterpart parent company team may have only 2 employees working on coordinating the project outsourcing. This dissimilarity in organizational structure between subsidiary and parent company in China significantly impacts on knowledge transfer performance. One direct result is that the transferred knowledge has no chance to be communicated in parent company timely. For the same reason, many expatriates from parent company, like YW, start a good habit in writing working diary for memorizing the learned knowledge and keep it as working manual for future usage when they come back to China. YW's experience has proved the fact that in the process of reverse knowledge transfer, tacit knowledge has been transferred into explicit format for easier storage and communicated to further knowledge receivers by distance.

According to YW's experience, control is important to knowledge transfer. Expatriates from Chinese parent company join the subsidiary's team and function as local employees that are obliged to report to the local manager. However, at the same time the expatriate will have to report in a separate line to the home manager in Chinese parent company.

When YW was selected to work in the European subsidiary, the home manager wishes that YW could thoroughly learn technical knowledge by working abroad. However, the home manager in parent company requested YW to trace and push the project working progress in subsidiary, and also report the knowledge that he has learned in the subsidiary back to China. Every week, YW has to report to home manager the project progress, The reverse knowledge transfer evaluation is done in the form of completing a product development list, including behavior check and self-evaluation. At the end, expatriates are expected to write down additional notes, both related to knowledge learning and project monitoring. This is the place where YW sometimes share parts of his working diary. The difference of focus in delivery between home and host managers makes YW exhausted at work. Since in the subsidiary's team, expatriates

are also obliged in normal amount of deliveries, their task in tracking and reporting project progress and knowledge sharing has become seen sometime as task “above their responsibility”. YW feels that “European colleagues very much focus on their own expertise, they can deep dive in their research area and enjoy to be an expert.” From this aspect, YW senses that to check what every other is doing is sometimes rude and cannot be understood. YW would like to focus more on learning, as he wants to be an expert in his area in the future, and learning knowledge is very important to him.

Current incentive system does not obviously impact expatriate’s performance. YW said the work contract clearly indicates that all expatriates’ salary will receive 10% yearly increase. However, the base part for increment is very small. So the organizational incentive, such as salary does not show strong impact on encouraging expatriates to transfer knowledge back to Chinese parent company. YW thinks that what motivate the expatriates are the promising returns in career development. When they have accumulated sufficient knowledge and expertise, for instance, they have the capacity to individually lead a test in Chinese lab, and they might jump to a leader position after coming back to parent company in China.

Encouraged by the potential career development, expatriates like YW take more actions in learning knowledge. At the beginning of start working in subsidiary, YW has listed out his work plan and techniques that he wants to learn and show it to his host manager in subsidiary. His initiative was appreciated and supported by the host manager. In the following days, YW was officially introduced to the colleagues that are responsible in related area. In the normal working routine, YW actively asks the other colleague in team whether he could also participate in testing. He observes how the other colleagues do the test, asks questions and then writes down in his working diary. As YW said, most of his peer expatriates would like to do the same as he does.

Working relation is highly related to the country’s culture where subsidiary locates. As in Sweden, the work place culture is often open and helpful, and so YW does not sense that European colleagues are reluctant in answering questions from him or receive his work invitation. The difficulty, as he said, lays in the cultural difference between China and Sweden. Normally for him to feel supported at work, he needs to have “closeness” with colleagues. As a Chinese, YW likes to be “personal friend” with work colleagues. However, the work relation and private life is clearly separated in the Swedish work culture. YW might expect to be

surrounded by colleagues both at work at after-work, have dinner with colleagues from time to time, or cook Chinese food to European colleagues. All these situations did not happen. Routinized working life is combined with routinized “colleague-time”. Except for manager organized group activity, YW does not have much chance to create personal relations with Swedish colleagues. However, international colleagues are easier to become close with.

Language has often been proved as big barrier for communication and understanding. But YW, who has difficulty in answering the English questionnaire, does not consider language as a problem for him. Along with staying longer in Swedish society and subsidiary, YW evaluates himself better in absorbing and transferring knowledge. He regards that it is primarily due to his increment in mastering knowledge in his learning area.

4.1.2.5 Individual interview: European employee with working experience from Chinese MNEs subsidiary in Europe

CB works at company A since 6 months ago, and very soon he will have a business trip to parent company in China to support in a project. Recruited directly after graduation and working in an international company, he is very satisfied about his job. CB does not feel much Chinese elements in company A, for instance hierarchy. “We are a Swedish company, open and innovative”, he emphasized.

CB does not feel his work is involved in knowledge transfer. To him, knowledge transfer is a strategic issue only taken care at manager level. However, in his daily work, CB works directly with colleagues from Chinese parent company, and will visit China for directly instructing the Chinese colleagues at parent company in a project. Even in his daily work in subsidiary, he has a close cooperation with expatriates from parent company.

CB confirms difficulty in understanding and communicating with Chinese expatriates. He understands that Chinese colleagues deny the problem in language in order to protect their professional reputation. No one would like to show their shortcomings and so Chinese expatriate want to earn their face in front of both managers from parent company and subsidiary. Even though CB has doubts about expatriates’ English ability, he trusts their professional in transferring knowledge. Quoting CB, “Chinese expatriate are surely strictly selected out according to their qualification. Besides, all the delivery that Chinese expatriates give will be verified by colleagues in their team. There is no need to doubt the credibility of their work.”

CB can see the big knowledge gap between acquired European company and Chinese parent company. As his observation, both the subsidiary that he works with and the Chinese parent company are trying to copy the organizational structure, production development process from the acquired European company. As in his idea, the newly founded subsidiary is the pioneer.

CB also confirms Swedish work culture is open and supportive, but Swedish colleagues treat professional and private life separately. Therefore, the pro-activeness is very important characteristics for expatriates or anyone who wants to learn or gain extra in the organization.

4.1.2.6 Individual interview: Chinese employee works at European company that Chinese MNEs invested in stake

HH works majorly on maintaining business operation and relation with Chinese MNEs at company D. As a young Chinese graduate, she got job opportunity when Chinese company T bought stake of company D.

After buying a great part of company D's stake, Chinese MNE T also initiated joint ventures together with company D in operating projects in Brazil and in Africa. The reason behind Chinese investment was not clear for HH in the beginning. However, now she can answer that the Chinese MNE T is interested to learn management know-how from company D.

According to HH, the knowledge transfer between the 2 companies is carried out by sending employees to the other company for certain time, in most of cases for 3 months.

A very interesting point that HH mentioned is that Portuguese company D also aims at learning certain techniques when they decided to sell stake to Chinese investor. This comment is significant. We see sometimes, even though Chinese MNEs come to the European market with clear intention of knowledge learning, they also brings knowledge to European companies.

4.1.3 Content analysis

Table 15: Qualitative data content analysis

Variables	Operative fundamentals	References of interviewees
Reverse knowledge transfer performance	Strengthen the innovation ability of employees of Chinese parent company;	<p>1. Many expatriates from parent company, like YW, start a good habit in writing working dairy for memorizing the learned knowledge and keep it as working manual for future usage when they come back to China.</p> <p>2. Along with staying longer in Swedish society and subsidiary, YW evaluates himself better in absorbing and transferring knowledge. He regards that it is primary due to his increment in mastering knowledge in his learning area.</p>
Sender ability	Motivation of knowledge sender; Reliability of knowledge sender	<p>1. WW thinks that whether the knowledge can be transferred is controlled by Swedish engineers, from another word, decided by the willingness of knowledge sender. After many bad ownership experiences, employees from company W are sensitive in knowledge sharing.</p> <p>2. CB does not feel his work is involved in knowledge transfer. To him, knowledge transfer is a strategic issue only taken care at manager level. However, in his daily work, CB works directly with colleagues from Chinese parent company, and will visit China for directly instructing the Chinese colleagues at parent company in a project. Even in his daily work in subsidiary, he has a close cooperation with expatriates from parent company.</p> <p>3. LJ confirms that the innovation capacity between acquired company and Chinese parent company is obvious with huge gap. In some specific technical area, Chinese parent company is outpaced by 30 years.</p> <p>4. In China, the R&D department focuses on breadth and efficiency, while in Sweden; R&D focuses on depth and product quality.</p> <p>5. European colleagues very much focus on their own expertise, they can deep dive in their research area and enjoy to be an expert.</p> <p>6. YW does not sense that European colleagues are reluctant in answering questions from him or receive his work invitation.</p> <p>7. Chinese expatriate are surely strictly selected out according to their qualification. Besides, all the delivery that Chinese expatriates give will be verified by colleagues in their team. There is no need to doubt the credibility of their work.</p>

Receiver ability	Employee's ability and employee motivation; Technique to transfer tacit knowledge to explicit; Creating possibility to learn tacit knowledge; Identity the right knowledge to transfer; Efficiency in learning, learning with quality, integrate learned to practice	<ol style="list-style-type: none"> 1. LJ pointed that expatriates are the group who really are aware of their role in knowledge learning and transfer, and obliged to do it besides their daily work. 2. Many expatriates like YW, start a good habit in writing working dairy for memorizing the learned knowledge and keep it as working manual for future usage when they come back to China. 3. YW would like to focus more on learning, as he wants to be an expert in this area in the future, thus learning knowledge is very important to him. 4. At the beginning of start working in subsidiary, YW has listed out his work plan and techniques that he wants to learn. He showed it to his host manager. 5. YW actively asks the other colleague in team whether he could also participate in testing. He observes how the other colleagues do the test, asks questions and then writes down in his working dairy. 6. Pro-activeness is very important characteristics for expatriates or anyone who wants to learn or gain extra in the organization. 7. YW was only responsible for coordinating research project with supplier before, but while deepening into this area, he is confident in his capacity in learning.
Organizational climate	Employee perception of company, their colleagues and company value; company value setting	<ol style="list-style-type: none"> 1. WW is a young professional. After graduation, she was directly recruited by company A. With no former work experience in China. She experienced difficulties in understanding the work culture that Chinese parent company G carries. 2. In fact, when expatriates return to China, they are warmly-welcomed by both organization and Chinese colleagues. 3. Working relation is highly related to the country's culture where subsidiary locates. YW doesn't sense European colleagues have hesitation when they answer to his question.
Incentive	Enterprise dominant incentive	<ol style="list-style-type: none"> 1. YW said work contract clearly indicates that all expatriates' salary will receive 10% yearly increase. However the base part for increment is very small. 2. What motivate the expatriates are the promising returns in career development. When they have accumulated sufficient knowledge and expertise, for instance, they have the capacity to individually lead a test in Chinese lab, and they might jump to a leader position after coming back to parent company in China.

Socialization	Training program, expatriate participate in daily work, frequent face-to-face communication; frequent expert visit parent company, frequent communication between top managers.	<ol style="list-style-type: none"> 1. As WW described, during the visiting period, employee from parent company have to participate intensive workshops and meetings. 2. In company A, expatriates work as local employees, merge to normal teams and work on the project together. 3. When expatriates shift to work in the European subsidiary, their daily task is doing as local employees do. 4. Employee rotation between subsidiary and parent company is always ongoing. The major flow is employees from Chinese parent company to work in European company. 5. Expatriates from Chinese parent company join the subsidiary's team and function as local employees that are obliged to report to the local manager. 6. CB works at company A since 6 months ago, and very soon he will have a business trip to China. 7. According to HH, the knowledge transfer between the two companies is carried out by sending employees to the other company for certain time, in most of cases for 3 months. 8. Chinese visiting employees are placed every other seat with the local engineer in order to increase the spontaneous face-to-face communication.
Trust	Trust between RKT participants	<ol style="list-style-type: none"> 1. Even though CB has doubts about expatriates' English ability, he trusts their professional in transferring knowledge. Chinese expatriate are surely strictly selected out according to their qualification. Besides, all the delivery that Chinese expatriates give will be verified by colleagues in their team. There is no need to doubt the credibility of their work.
Organizational structure similarity	Similarity of organizational structure facilitates RKT	<ol style="list-style-type: none"> 1. Chinese company G strategically designed to copy the entire organizational structure of company W when founded company A. 2. R&D departments in the same function in Chinese parent company have only 2 employees working on coordinating the project, while European subsidiary have a team of 20 engineers. The dissimilarity in organizational structure between subsidiary and parent company in China significantly impacts on knowledge transfer performance. One direct result is that the transferred knowledge has no chance to be communicated in parent company timely. 3. Both subsidiary and Chinese parent company are trying to copy the organizational structure, production development process of acquired European company.

Transmission channel	Formal knowledge transfer channel increase knowledge outflows and inflows; informal knowledge transfer channel improve knowledge sender motivation and knowledge receiver absorptive capacity	<ol style="list-style-type: none"> 1. During visiting period, employee from Chinese company G has to participate in intensive workshops and meetings. Visitors are obliged to report to their home manager at parent company on a daily basis. 2. Chinese visiting employees are placed every other seat with local engineer in order to increase spontaneous communication. 3. The first facility that the new office bought was a coffee machine. Close to the machine is an open landscape, available for discussion and spontaneous meeting. 4. Every week, YW has to report to home manager the project progress. The RKT evaluation is done in the form of completing a product development check list. In the end, expatriates are expected to write down additional notes that related to knowledge learning. 5. Routinized working life is combined with routinized colleague time. Expect for group activity, YW does not have much chance to create personal relations with local colleagues.
Length of time of participation in RKT	Longer time in participation better RKT result	<ol style="list-style-type: none"> 1. From 2014 until now, many expatriates turned out to extend their stay in subsidiary. In reality, to extend expatriate stay in subsidiary has been adopted as a direct solution for expecting a better knowledge transfer result. 2. Alone with staying longer in Swedish society and subsidiary. YW evaluates himself better in absorbing and transfer knowledge. He regards that is due to his increment in mastering knowledge in this learning area.

4.1.4 Research result interpretation by variable

4.1.4.1 Reverse knowledge transfer performance

A successful RKT performance is not about firms that obtained core knowledge in certain areas; instead it should be their entire capacity enhancement in coping with the diverse requirements (Lee & Lin, 2001). Both organization capacity and individual employee capacity impact RKT performance. At organizational level, the transferred knowledge can facilitate the innovation ability, shorten innovation time, introduce many innovation activities and achieve many innovation results (Chen, C.J., Hsiao, Y.C. & Chu, M.A., 2014). For individuals, RKT can strengthen the innovation ability of knowledge learner. From content analysis, we mainly gained input at individual level, that YW evaluates himself improving in transferring knowledge along with staying longer at subsidiary, is due to his increment in expertizing knowledge. YW's experience in RKT also clearly shows the process that knowledge conversion

in “socialization” and “externalization” processes. YW has always been active in following lab tests with colleagues, well prepared targets list containing the techniques to learn and communicated with host manager to complete the goals. In Nonaka’s “socialization” stage, tacit knowledge is exchanged through joint activities, to undertake similar situation and experience with the original tacit knowledge source. While knowledge learner gained their own experience, they go through a self-transcendent process, to express and translate tacit knowledge into explicit forms that can be easily stored and communicated to others. Externalizing learned tacit knowledge to “work diary”, quoted by YW is “must to do” process due to organizational structure dissimilarity and the expected long time that the tacit knowledge will be “stored” by expatriates. In this process, YW has also trained his capability in reasoning, structuring and technique in expression. From both aspects, YW’s innovation ability is improved.

4.1.4.2 Sender ability

Sender ability, in this thesis, constitutes “reliability” and “motivation” of knowledge sender. Szulanski (2000) pointed that the effectiveness and efficiency of knowledge transfer depend on the motivation of the source. From content analysis, WW pointed that after many bad post-acquisition experiences, employees at company W feel sensitive in sharing knowledge. However, to her perception, whether knowledge can be transferred is determined by the willingness of knowledge sender. WW’s view indicates a common concern among knowledge learners, especially at the early phase of post-acquisition or subsidiary initiation. To knowledge senders, anti-acquisition disposition or uncertainty of redundancies, might all lead former employees into reluctance in knowledge sharing. However, from content analysis, YW mentioned, he does not sense that European colleagues are reluctant in answering questions from him or receive his work invitation. This is probably highly associated with organizational climate that knowledge sender carries in their behavior.

Additional to knowledge sender motivation, what appears as a bigger issue is employees’ unawareness towards their role in RKT activities. As an example from content analysis, CB does not feel he is involved in knowledge transfer, even though he already actively works on training colleagues in Chinese company.

Szulanski (2000) initially pointed out the importance of “reliability of knowledge source”. Sender reliability refers to knowledge sender reputation and qualification. In the content of tacit

knowledge, reliability of knowledge source extendedly covers the context that whether knowledge receiver is the witness of original data or event, so that knowledge receiver can generate their own experience based on the “first-hand source”. In content analysis, LJ points that in many technical areas, Chinese company lacks 30 years of innovation ability compared to the acquired European company. YW also mentioned R&D department in China focuses on knowledge breadth, while R&D in Sweden focuses on depth and product quality. These quotations prove the qualification and reputation of the knowledge sender organization.

When we discuss about knowledge sender, the dual role of expatriates from Chinese company is worth to be emphasized. As we know, expatriates work as knowledge receiver in the beginning of RKT, but they also take the role to send and teach colleagues in China about the knowledge they obtained. Considering this is the other stream of knowledge source, we also pay attention to analyze its reliability. Recalling CB from content analysis, he mentions that Chinese expatriates are surely strictly selected out according to their qualification; besides, all the deliveries that Chinese expatriates give will be verified by colleagues in their team; therefore it is no need to doubt the reliability of their work.

4.1.4.3 Receiver ability

Receiver ability is a combination of employee ability and motivation (Minbaeva, 2007). Comparing to the unawareness that knowledge sender carries in RKT process, examples in content analysis show that knowledge receivers are in general clear with their responsibility and rich in self-motivation in knowledge learning. LJ pointed that expatriates are the group who really are aware of their role in knowledge learning and transfer, and obliged to do it besides their daily work. YW as expatriate from Chinese company, states his motivation in knowledge learning is mostly encouraged by potential career development due to accumulated knowledge. In the qualitative data collection aspect, we have limited access to those knowledge receivers who are based in China. However proved by LJ’s statement, when expatriates return to China, they are warmly welcomed by both Chinese company and colleagues. Associating with Chinese MNEs ODI motives, a high learning motivation at organizational level is confirmed.

An organization’s absorptive capacity depends on its individual members. Absorptive capacity is the ability of the knowledge receiver company to recognize the value of new information, assimilate it and apply it to commercial ends (Cohen & Levinthal, 1990). To add in dimension

of tacit knowledge, receiver ability also covers the ability to translate the tacit knowledge into explicit format. In content analysis, take YW as example, at the beginning of working in subsidiary, he has an idea about his work plan for 2 years of mobility, and he is clear about the techniques that he wants to learn. YW is active in creating possibility in knowledge learning, especially in creating possibility to learn under the same work scenarios, which will benefit him in obtaining “first-hand source” and create his own knowledge. In the end, YW writes work diary to record this learned knowledge, while at the same time trains his own ability in interpreting tacit knowledge into explicit format.

4.1.4.4 Organizational climate

Organizational culture tightly associates with the culture of company embedded society. The content analysis indicates, employees that work at acquired European company or subsidiary in general are friendly towards Chinese expatriates and open to knowledge sharing. On the other side, employees in Chinese company are welcoming to European colleagues and returned expatriates, active in knowledge learning. McDermott & O’Dell (2012) pointed out when organization have a trust and cooperation emphasized culture, employees will be more willing to share their knowledge. Company itself has responsibility and capability to maintain knowledge-sharing-friendly organizational climate for facilitating RKT. Pfeffer (1981) suggested that administrative activity needs to be involved in constructing and maintaining a “belief system”, which assures commitment and positive effect on participants. For instance, we notice from qualitative data, company A clearly states that they reward those who share knowledge and make an effort to teach others; company A would like to create an environment in which colleagues support each other and collectively tackle challenges.

Employees at acquired European company or subsidiary, despite of nationality, might have wrong perception or misunderstanding towards Chinese company. From qualitative data, WW has difficulty in understanding Chinese company’s strict control on expatriates. Furthermore, she interpreters an inequality that Chinese company has on knowledge transfer: active in learning from European subsidiary but reluctant in sending knowledge from their own side.

4.1.4.5 Incentive

Xie & Liang (2013) introduce three kinds of incentives that improve tacit knowledge transfer: self-incentives, the recipient's dominant incentive and enterprise dominant incentive. As in definition, self-incentive and recipient's dominant incentive relate to RKT participants' individual motivation and ability, that we defined under the variables "sender ability" and "receiver ability". Enterprise dominant incentives refer to mechanisms that can facilitate the motivation of RKT participants, namely salary, training, job rotation, and promotion. Szulanski (2000) mentioned that the motivation of participants can be encouraged by incentives for both sender and receiver. Certainly, enterprise dominant incentives facilitate the knowledge receiver motivation. From content analysis, we conclude, compare to salary, potentials in promotion and career development are more attractive for expatriates to devotedly learn and transfer knowledge. We have no quotations from knowledge sender. It might highly associate with knowledge senders low awareness in their role in RKT, at the same time, we have fewer case of knowledge sender in qualitative data.

4.1.4.6 Socialization

Corporate socialization mechanisms, which build interpersonal familiarity and personal affinity between members of different companies, increase communication flows between companies and thus eases knowledge transfer (Gupta & Govindarajan, 2000). Socialization mechanism for RKT from subsidiary to parent company was tested by a scale of five items: training program, participation of expatriates in daily routines, frequent face-to-face communication between employees, frequent invitation of experts and frequent communication between MNEs and subsidiary's managerial level (Chae & Park, 2013). As WW described, during the visiting period, employee from parent company have to participate in training programs. A common cited socialization mechanism is to enable expatriates work the same as local employees do, join local team and participate in the same routine. In addition, to increase employees mobility between Chinese company and European company is another widely adopted mechanism for making frequent face-to-face communication possible. Through this mechanism, employee mobility can also lead more European experts to visit the investor company in China.

4.1.4.7 Apprenticeship not showed as important as expected

Apprentices learn their craft not by spoken words or written textbooks but by observing, imitating and practicing the works of their masters. Long years of apprenticeship allow newcomers to understand others' way of thinking and feeling (Nonaka & Konno, 1998). Apprenticeship is a common way of transferring the tacit knowledge where the quality of communication is very high.

We did not get too much information from content analysis about the influence that apprenticeship can contribute to RKT performance. From content analysis, YW mentioned that in his work daily, he has been actively asking to join other colleagues in testing. During this process, he was able to observe and create his own knowledge. However, these "apprenticeship" situations are occasional, that means it is not based on a standard nor stable "master and apprentice", "teaching and learning" system. Nonaka & Konno (1998) clearly stated that due to tacitness, only a long time of apprenticeship may enable newcomers to understand other's way of thinking and feeling. Gupta & Govindarajan (1991) pointed that the level of tacitness in transferred knowledge is higher, the expected performance impacted by apprenticeship is better. From qualitative data, stable apprenticeship is not yet shown as contributive as it is expected. However, occasional "apprenticeship" that "expatriate join the local team and do as the local employee do" enables "learning by observing".

4.1.4.8 Trust at individual level is observed

Trust has been found to be correlated with knowledge acquisition (Politis, 2003). Trust is a social factor that is important for knowledge management activities (Verkasalo & Lappalainen, 1998). Trust shows the relations between RKT participants as individuals, between individual towards leadership, and between groups. In content analysis, trust was only mentioned at individual level on knowledge senders' reliability and expatriate's capacity in RKT.

4.1.4.9 Organizational structure dissimilarity mentioned as an obstacle for RKT

The ability of a firm to learn from another firm is jointly determined by the relative characteristics of the "student firm" and "teacher firm", namely, the similarity between firms' organizational structure and student firm's familiarity with teacher firm's set of organizational

problems (Lane & Lubaktin, 1998). Content analysis shows organizational structure dissimilarity between European company and Chinese company has restricted expatriates from transferring knowledge back to Chinese company after tacit knowledge is obtained and translated into explicit knowledge. We can associate with the other observation from content analysis that both new founded subsidiary and Chinese company are trying to copy the organizational structure and product development process of acquired European company who are richer in tacit knowledge.

4.1.4.10 Formal transmission channel are the major learning occasion

Content analysis indicates formal knowledge transfer channel is strongly identified in the organization. Formal channels, such as intensive workshops and meetings create opportunities for knowledge transfer. Obligated reporting system and structured check list jointly facilitate greater knowledge outflows from expatriates to Chinese company. At the same time, reporting directly to home manager requests expatriates to interpret his tacit knowledge learning to communicable format. Therefore, it also increases knowledge inflows to Chinese company. Formal knowledge transmission channels are established in a more conscious and stable way (Moreno-Luzon & Lloria, 2008). From content analysis points 2 and 3 under “formal transmission channel”, we also observe that company can use administrative instruments to foster spontaneous communication, such as company A did in office landscape design or special arrangements to employees’ sitting position. Informal knowledge transmission channels are often used for knowledge acquisition (Gupta & Govindarajan, 2000), in order to acquire knowledge in a spontaneous way. However, informal channels are organized voluntarily by people who have same feeling or common interest (Guan, 2005). The culture different on work relation between China and Europe creates a great barrier for informal transmission channel to function as good as formal channels. As stated in content analysis, YW would like to be private friend with work colleagues, however, the work relation and private life is preferred to be separated in European work culture. YW might expect to hang out with colleagues also after work. Through such activities, interpersonal closeness and shared topics can encourage him to have more spontaneous dialogues with European colleagues. However, routinized work life is combined with routinized colleague time. In this case, formal transmission channel creates more knowledge learning opportunities. At the same time, informal transmission channels heavily rely on administrative instruments and company promoted activities.

4.1.4.11 Length of time of participating in RKT

Time is especially crucial in tacit knowledge transfer due to the feature of tacitness (Ivarsson & Valhne, 2002). From content analysis, along with increasing RKT participation time, expatriates from Chinese company might gradually accumulate collective sense in understanding and learning from European employee's experience, therefore becoming better in transferring knowledge. From qualitative data, a majority of expatriates extend their stay in European subsidiaries.

4.2 Quantitative research

4.2.1 Frequency data analysis

The questionnaire is designed for collecting RKT participants' demographic data and work experience (some information about you), company background and ODI relation (some information about your company), knowledge type and RKT mechanism (a series of closed questions). Key questions to research model, independent variable, mediator and dependent variable is designed in a 1-7 Likert scale. The numbers are consecutively referring to "Strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" and "strongly agree".

4.2.1.1 Respondents demographic background

I have collected 106 questionnaires from January 2016 to June 2016. All recipients are from Chinese company, invested European company or European subsidiary. Among 106 recipients, 5 recipients answer they do not have experience in working with knowledge transfer from European company to Chinese company. In this research, I ask recipients to self-evaluate their role in RKT. Only after role confirmation, recipients are processed to answer role-related questions. Therefore, in this case, I eliminate the 5 invalid questionnaires. The total valid data size is 101.

I use SPSS version 23 to do frequency analysis to the first 5 questions from "some information about you" in questionnaire. The result presents demographic feature and working background of recipients. From the tables below, we can see: a. among all recipients, 59 recipients are male,

42 are female. b. the majority of recipients are from China, meantime, 36 recipients are from other nationality. c. major area of experience of recipients are from R&D and Sales & Marketing, respectively take 39.6% and 36.6% of the recipients. I have also gotten 13.9% of recipients work in Executive management and 9.9% from other area. d. The majority of recipients do not work at managerial position; meantime the rest 38.6% recipients are with managerial background.

Table 16: Demographics of quantitative study respondents

Feature	Options	Frequency	Percent	Valid Percent	Cumulative Percent
Gender	Female	42	41.6	41.6	41.6
	Male	59	58.4	58.4	100.0
	Total	101	100.0	100.0	–
Nationality	Chinese	65	64.4	64.4	64.4
	Other Nationality	36	35.6	35.6	100.0
	Total	101	100.0	100.0	–
Area of Expertise	R&D	40	39.6	39.6	39.6
	Sales and Marketing	37	36.6	36.6	76.2
	Executive Management	14	13.9	13.9	90.1
	Other	10	9.9	9.9	100.0
	Total	101	100.0	100.0	–
Managerial Position	Yes	39	38.6	38.6	38.6
	No	62	61.4	61.4	100.0
	Total	101	100.0	100.0	–

4.2.1.2 Company features

I continue employ SPSS version 23 for frequency analysis to get basic information on company background. Table 17 indicates: 57.4% of Chinese companies invested in European companies through M&A, 22.8% through establishing wholly owned subsidiary, 11.9% through joint venture and 7.9% through other channel, namely investment in stake. In regards of company size of the European company, 89.1% of the European companies are large size company, who have more than 500 employees. From the aspect of “time after investment”, 32.7% of total have ODI relation for 1-5 years, 61.4% of total have ODI relation for 6-10 years. This result is in line with the fact that Chinese ODI into Europe started intensively since around 2010.

Table 17: Features of companies in quantitative study responses

Feature	Options	Frequency	Percent	Valid Percent	Cumulative Percent
Entry model	Merger or Acquisition	58	57.4	57.4	57.4
	Fully owned subsidiary	23	22.8	22.8	80.2
	Joint Venture	12	11.9	11.9	92.1
	Other	8	7.9	7.9	100.0
	Total	101	100.0	100.0	–
Number of employees	1–10	1	1.0	1.0	1.0
	11–50	7	6.9	6.9	7.9
	51–200	1	1.0	1.0	8.9
	201–500	2	2.0	2.0	10.9
	More than 500	90	89.1	89.1	100.0
	Total	101	100.0	100.0	–
Time after Chinese company investment	1–5 years	33	32.7	32.7	32.7
	6–10 years	62	61.4	61.4	94.1
	More than 10 years	1	1.0	1.0	95.0
	Other	5	5.0	5.0	100.0
	Total	101	100.0	100.0	–

4.2.1.3 Reverse knowledge transfer participants, type of knowledge and organizational setting

From frequency analysis result, I also find among 101 respondents, 76 regard themselves as both “knowledge sender” and “knowledge receiver”, while 18 respondents regard themselves only as “knowledge sender” and 7 only as “knowledge receiver”. We know that RKT participants need to learn from rich knowledge source and transfer knowledge to Chinese company. In most cases, RKT participants often take both responsibilities. However, as stated before in this study, the role in RKT knowledge transfer is defined by respondents themselves. We cannot infer respondents who regard themselves as “both knowledge sender and receiver” only to “expatriate” in RKT process. For instance, in pilot test, we receive answer from RKT participant, who newly employed by European subsidiary, regard himself as “knowledge receiver” from other senior colleagues at European company, and also “knowledge sender” to Chinese colleagues.

Table 18: RKT responses in quantitative study

RKT Item	Options	Frequency	Percent	Valid Percent	Cumulative Percent
Role in knowledge transfer to Chinese company	Send knowledge	18	17.8	17.8	17.8
	Receive knowledge	7	6.9	6.9	24.7
	Both	76	75.3	75.3	100.0
	Total	101	100.0	100.0	–
Time participate in knowledge transfer to Chinese company	less than 1 year	8	7.9	7.9	7.9
	1–2 years	54	53.5	53.5	61.4
	3–5 years	31	30.7	30.7	92.1
	6–10 years	6	5.9	5.9	98.0
	more than 10 years	2	2.0	2.0	100.0
Total	101	100.0	100.0	–	
Type of tacit knowledge transferred to Chinese company	Technological know-how	40	39.6	39.6	39.6
	Marketing know-how	37	36.6	36.6	76.2
	Management know-how	15	14.9	14.9	91.1
	Other know-how	9	8.9	8.9	100.0
Total	101	100.0	100.0	–	
Formal channels for knowledge transfer	Yes	92	91.1	91.1	91.1
	No	9	8.9	8.9	100.0
	Total	101	100.0	100.0	–
Informal channels for knowledge transfer	Yes	66	65.3	65.3	65.3
	No	35	34.7	34.7	100.0
	Total	101	100.0	100.0	–
Incentive system encourage knowledge transfer	Yes	55	54.5	54.5	54.5
	No	46	45.5	45.5	100.0
	Total	101	100.0	100.0	–
Knowledge learner experience same work situation for knowledge transfer	Yes	79	78.2	78.2	78.2
	No	22	21.8	21.8	100.0
	Total	101	100.0	100.0	–
Similar organizational structure between European company and Chinese company	Yes	40	39.6	39.6	39.6
	No	61	60.4	60.4	100.0
	Total	101	100.0	100.0	–
Other Support Policy	Yes	18	17.8	17.8	17.8
	No	83	82.2	82.2	100.0
	Total	101	100.0	100.0	–

From Table 18: Table 18, we see more than half of respondents (53.5%) have joined RKT for 1-2 years, followed by 3-5 years (30.7%) and less than 1 year (7.9%). When considering type of knowledge, the top 2 type of tacit knowledge transferred among respondents are technological know-how (39.6%) and marketing know-how (36.6%).

Even though all data collected for focus questions is through Likert scale, we have pre-question about respondents' awareness of knowledge transfer mechanism. Table 18 also indicates the answers to a group of close questions. We know from the tables that: high proportion (91.1%) of respondents are aware of formal knowledge transmission channels in company. 78.2% of respondents see company facilitates knowledge learner to experience the same work scenario as knowledge sender. 65.3% of respondents are aware of the informal transmission channel exists for RKT. 54.5% of respondents notice there are incentives from company to encourage RKT. 39.6% of respondents think Chinese company and European company have similar organizational structure. The lowest ratio falls on other support policy: only 17.8% of respondents mentioned there exists other policy support the process of RKT. However, I didn't receive their answers from the open question about what the support policy is.

4.2.2 Reliability check

I employ SPSS version 23 for data validity and reliability check. Following the statistical standard, Cronbach's Alpha is used to check the reliability. Statistically, we expect Cronbach's Alpha value of each variable will be above 0.7, which indicates that all the items have relatively high internal consistency.

Table 19: Reliability statistics result

	Cronbach's Alpha	N of Items
Sender ability	0.630	4
Receiver ability	0.761	7
RKTP	0.776	5
Organizational climate	-	-
Incentive	0.746	3
Socialization	0.733	5
Apprenticeship	0.861	2
Trust	0.556	3
Organizational Structure	0.691	2
Transmission channel	-	-

After the first time running reliability check in SPSS version 23. We notice: a. Cronbach's alpha for sender ability and trust are lower than 0.7; both organizational climate and transmission channel are suggested by SPSS for splitting into 2 factors. Starting by Sender ability, we look into these 4 cases individually.

Table 20: Sender ability - Reliability statistics by item

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
KSMotivation in RKT	16,07	4,328	,255	,671
SA1 Confident in own profession and reliability of the knowledge that send	15,76	3,864	,525	,486
SA2 Have capacity in identifying the right tacit knowledge	16,02	3,806	,455	,527
SA3 Have technique in translating tacit knowledge into explicit format	16,52	3,693	,432	,544

SPSS suggests that knowledge sender's motivation in RKT does not present "Sender ability" as much as the other items. If we remove it, variable "Sender ability" will climb to 0.671. This means: the question item about knowledge sender's motivation in transferring tacit knowledge to Chinese company cannot present "sender ability" as good as the other 3 items. We take the suggestion and remove it.

Table 21: Trust - Reliability statistics by item

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
Trust1 Trust in leadership	10,67	1,862	,420	,374
Trust2 Trust in others' expertise	10,79	1,866	,479	,299
Trust3 Company's mutual trust in RKT	11,72	1,882	,237	,689

Similar suggestion is also given to variable "trust", which refers to question item "company's mutual trust in RKT" cannot present variable "trust" as good as the other two items. As a result, we also accept to delete the trust 3 item. The adjusted Cronbach's alpha value jumps to 0.689.

Additionally, for dependent variable RKTP, even the Cronbach's alpha value is 0.776. However, SPSS suggests, if we remove item3: transferred tacit knowledge can shorten the innovation time period in Chinese company. Cronbach's alpha value will climb to 0.814. Again, we take SPSS suggestion and remove item 3.

Table 22: Reverse knowledge transfer Performance - Reliability statistics by item

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item- Total Correlation	Cronbach's Alpha if Item Deleted
RKTP1 Transferred knowledge can enhance independent innovation ability of Chinese Company	22,23	6,318	,581	,728
RKTP2 Transferred knowledge can strengthen innovation ability of employees in Chinese Company	22,07	6,425	,531	,741
RKTP3 Transferred knowledge can shorten the innovation time period for product in Chinese Company	23,08	6,934	,294	,814
RKTP4 Transferred knowledge can induce innovation activities in Chinese Company	22,77	5,038	,679	,685
RKTP5 Transferred knowledge can achieve innovation results in Chinese Company	22,72	5,202	,704	,675

Table 23: Rotated component matrix to variable “organizational climate”

	Rotated Component Matrix^a	
	Component	
	1	2
OC1 People are open and positive towards transferring knowledge	,143	,818
OC2 People are connected with company interests	,878	,150
OC3 The most important concern is the good of all people as whole	,882	,130
OC4 Very important to follow company culture rules and procedures	,119	,827

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Under the result of varimax rotation, we split variable “organizational climate” in to 2 factors: factor 1 contains OC1 and OC4, factor 2 contains OC2 and OC3. The result of Cronbach’s alpha to the two new factors is 0.557 and 0.740. As a result, we accept factor 2 and remove original items OC1 and OC4 from list.

The last check to reliability is variable “transmission channel”. The varimax rotation result is very instructive. According to Krone (1987), transmission channels can be both formal and informal. Regarding knowledge transmission channel variable, we collect answers separately from formal channel, informal channel and channel richness 3 dimensions. Reliability check and varimax rotation shows, we should continue split them in to 3 factors. However, richness of channel does not pass the check, both of scores in rotation matrix is >0.5 . After data handling, the Cronbach’s alpha value to variable “formal transmission channel” and “informal transmission channel” are respectively 0.860 and 0.761.

Table 24: Rotated component matrix to variable “Transmission channel”

Rotated Component Matrix^a		
	Component	
	1	2
TCFORMAL1 Formal channels encourage knowledge outflows from European company to Chinese company	,908	-,046
TCFORMAL2 Formal channels encourage knowledge inflows from European company to Chinese company	,877	,130
TCINFORMAL1 European company’s motivation related to informal channel	,200	,813
TCINFORMAL2 Chinese company’s absorptive capacity related to informal channel	-,019	,901
TC1 Richness of transmission channels related to outflows of knowledge	,675	,520
TC2 Richness of transmission channels related to inflows of knowledge	,596	,513

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

After adjusting items, we have Cronbach’s alpha to all variables again. Sender ability, Trust and Organizational structure are still under 0.7. However, since they are only marginally below the standard, we will accept them. After reliability check, we adjust our model to contain the split of formal and informal transmission channels as two variables, and eliminate some items according to analysis.

Table 25: Reliability statistics after adjustment

Reliability Statistics		
	Cronbach's Alpha	N of Items
Sender ability	,671	3
Receiver ability	,761	7
RKTP	,814	4
Organizational climate	,740	2
Incentive	,746	3
Socialization	,733	5
Apprenticeship	,861	2
Trust	,689	2
Organizational Structure	,691	2
Formal Transmission channel	,860	2
Informal Transmission channel	,761	2

4.2.3 Validity check

Table 26: Validity statistics before reliability adjustment

KMO and Bartlett's Test		
	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity Sig.
Sender ability	.675	,000
Receiver ability	,827	,000
RKTP	,658	,000
Organizational climate	,595	,000
Incentive	,685	,000
Socialization	,693	,000
Apprenticeship	,500	,000
Trust	,558	,000
Organizational Structure	,500	,000
Transmission channel	,660	,000

Table 27: Validity statistics after reliability adjustment

KMO and Bartlett's Test		
	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity Sig.
Sender ability	.647	,000
Receiver ability	,827	,000
RKTP	,631	,000
Organizational climate	,500	,000
Incentive	,685	,000
Socialization	,693	,000
Apprenticeship	,500	,000
Trust	,500	,000
Organizational Structure	,500	,000
Formal Transmission channel	,500	,000
Informal transmission channel	,500	,000

The Principal Component Analysis is employed to test the validity of questions. Two tables 26 and 27 present respectively the KMO and Bartlett's test before and after variable reliability adjustment. In the statistic, we consider if KMO value is below 0.5, sampling is not adequacy for factor analysis. In table 2, KMO value is either above 0.6 or equals to 0.5 (all variables tested by only 2 question items). At the same time, the result of Bartlett's test of sphericity is all 0.000, below 0.01. Results from both the tests show, our data is adequate to run factor analysis.

4.2.4 Factor loading

Table 28: Component Matrix^a and Total Variance Explained After reliability adjustment

		Component Matrix^a and Total Variance Explained	
		Component	Extraction Sums of Squared Loadings
		1	Cumulative %
Sender ability	SA1 Confident in own profession and reliability of the knowledge that send	,815	60,880
	SA2 Have capacity in identifying the right tacit knowledge	,805	
	SA3 Have technique in translating tacit knowledge into explicit format	,717	
Receiver ability	KRMotivation RKT to Chinese company	,531	41,705
	RA1 Have capacity in identifying the right tacit knowledge	,664	
	RA2 Have capacity in creating possibility to learn tacit knowledge	,581	
	RA3 Have capacity in fast absorbing tacit knowledge	,582	
	RA4 Have capacity in absorbing tacit knowledge with good quality	,692	
	RA5 Have technique in translating tacit knowledge into explicit format	,759	
	RA6 Can integrate what learnt to practice	,682	
RKTP	RKTP1 Transferred knowledge can enhance independent innovation ability of Chinese Company	,760	64,460
	RKTP2 Transferred knowledge can strengthen innovation ability of employees in Chinese Company	,734	
	RKTP4 Transferred knowledge can induce innovation activities in Chinese Company	,852	
	RKTP5 Transferred knowledge can achieve innovation results in Chinese Company	,858	
Organizational Climate	OC2 People are connected with company interests	,878	74,344
	OC3 The most important concern is the good of all people as whole	,882	

Incentive	IC1 Incentive maintain employees in positive attitude in transferring knowledge to China	,826	66,327
	IC2 Incentive motivate employees fulfill knowledge structure by active learning	,829	
	IC3 Incentive encourage employees keep close relationship with knowledge carriers	,787	
Socialization	SC1 Training program facilitate knowledge transfer	,699	48,722
	SC2 Expatriates' daily work participation can facilitate knowledge transfer	,749	
	SC3 Frequent face-to-face communication can facilitate knowledge transfer	,710	
	SC4 Frequent experts visit from European unit to China can facilitate KT	,732	
	SC5 Top manager communication between EU and China can facilitate KT	,588	
Apprenticeship	AP1 Apprenticeship can ensure the correct understanding	,937	87,838
	AP2 Apprenticeship can guarantee efficient transmission	,937	
Trust	Trust1 Trust in leadership	,874	76,314
	Trust2 Trust in others' expertise	,874	
Organizational structure	OSS1 Not-matched organizational structure negatively influence KT	,874	76,464
	OSS2 Undermanning of functionality negatively influence KT	,874	
Formal Transmission channel	TCFORMAL1 Formal channels encourage knowledge outflows from European company to Chinese company	,939	88.083
	TCFORMAL2 Formal channels encourage knowledge inflows from European company to Chinese company	,939	
Informal Transmission Channel	TCINFORMAL1 European company's motivation related to informal channel	.900	81.062
	TCINFORMAL2 Chinese company's absorptive capacity related to informal channel	.900	

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

In social science research, normally when the factor loading to each measurement is above 0.4, indicates it is valid. In table after reliability adjustment, factor loadings to our 11 variables (10 independent variables and 1 dependent variable), in total 34 measurement items, are all above 0.5. Factor loading shows, questionnaire is high with convergent validity. At the same time, cumulative extraction sums of squared loadings ranges from 41% to 88%, which also exceed the requirement of being above 30%. That stands for good construct validity.

4.2.5 Variable descriptive result

Table 29: Variable descriptive result

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Sender Ability	94	3,67	7,00	5,3582	,69344
Receiver Ability	83	3,86	7,00	5,4320	,61180
RKTP	101	4,25	7,00	5,7698	,65830
Organizational Climate	101	3,00	7,00	4,8564	,88413
Incentive	101	4,00	7,00	5,4620	,72414
Socialization	101	5,00	7,00	5,9762	,49500
Apprenticeship	101	4,00	7,00	6,0545	,83636
Trust	101	3,50	7,00	5,8614	,68600
Organizational Structure	101	3,00	7,00	5,2079	,88110
Transmission channel Formal	101	3,50	7,00	5,2376	,91813
Transmission channel InFormal	101	2,00	7,00	5,0000	,92195

4.2.6 Spearman correlation

The spearman correlation between two variables equals to the Pearson correlation between the rank values of those two variables. While Pearson's correlation assesses linear relationships, Spearman's correlation assesses monotonic relationships (whether linear or not).

I also use SPSS 23.0 to run Spearman correlation. Table 30 contains the r values indicate the significance levels of all the bivariate correlations. Significance level at $P < 0.05$ (with one asterisk) and $P < 0.01$ (with two asterisks), which respectively represent a significant level of correlation and a higher significance level of correlation. When the correlation coefficient value is positive (negative), it means the relationship between two variables is positive (negative).

We notice that all independent variables, mediators and control variables' bivariate correlation coefficients are below 0.6. It indicates the possibility of multicollinearity is not high. To properly assess the possibility of multicollinearity among the variables in this study, I also examine the Variance Inflation Factor (VIF). According to statistics standard, VIF values that below reference value 10, indicates no multicollinearity problem. When VIF value of two variables in the model is higher than 10, we should eliminate one variable. In table 31, we have made a separate diagnosis of multicollinearity: the biggest VIF value is less than 2, which is much lower than reference value 10. Therefore, we can say there are no multicollinearity problems in this research.

Spearman coefficients shows dependent variable: Reverse knowledge transfer performance is positive correlated to all independent variables, mediator and control variables. But the correlation coefficient is only significant for five independent variables: Receiver ability (0.278*), Apprenticeship (0.245*), Trust (0.260**), Organizational structure similarity (0.214**), Formal transmission channel (0.395**) and the control variable: Company size (0.335**). The other independent variables, mediator and control variable might also impact on dependent variable RKT performance under mediation.

Table 30: Correlations between variables

			Correlations													
			Sender Ability	Receiver Ability	RKTP	Organizational Climate	Incentive	Socialization	Apprenticeship	Trust	Organizational Structure	TCFor mal	TCinFor mal	TSCOM PANY	TimeSpentKT	Company size
Spearman's rho	Sender Ability	Correlation Coefficient	1,000	,501**	,202	,095	,068	,053	,135	,083	,229*	,126	,185	,058	,346**	,110
		Sig. (2-tailed)	.	,000	,051	,364	,516	,615	,194	,427	,026	,227	,074	,578	,001	,292
		N	94	76	94	94	94	94	94	94	94	94	94	94	94	94
Receiver Ability	Receiver Ability	Correlation Coefficient		1,000	,278*	-,081	,163	,083	,146	,134	,101	,058	-,019	-,069	,244*	,043
		Sig. (2-tailed)		.	,011	,469	,142	,458	,188	,226	,366	,600	,867	,534	,026	,699
		N		83	83	83	83	83	83	83	83	83	83	83	83	83
RKTP	RKTP	Correlation Coefficient			1,000	,053	,117	,153	,245*	,260**	,214*	,395**	,070	,014	,095	,296**
		Sig. (2-tailed)			.	,599	,244	,126	,014	,009	,031	,000	,486	,886	,346	,003
		N			101	101	101	101	101	101	101	101	101	101	101	101
Organizational Climate	Organizational Climate	Correlation Coefficient				1,000	-,061	-,053	,048	,068	-,062	-,091	,050	-,054	,006	,075
		Sig. (2-tailed)				.	,542	,595	,631	,498	,541	,366	,618	,593	,952	,458
		N				101	101	101	101	101	101	101	101	101	101	101

Incentive	Correlation Coefficient	1,000	-,090	,024	-,023	,116	,063	-,061	-,005	,005	-,110
	Sig. (2-tailed)	.	,371	,810	,823	,246	,533	,542	,957	,958	,271
	N	101	101	101	101	101	101	101	101	101	101
Socialization	Correlation Coefficient		1,000	,267**	,358**	,003	,218*	-,037	-,085	-,050	,059
	Sig. (2-tailed)		.	,007	,000	,975	,028	,716	,400	,619	,558
	N		101	101	101	101	101	101	101	101	101
Apprenticeship	Correlation Coefficient			1,000	,091	,229*	,328**	,145	-,153	,000	,280**
	Sig. (2-tailed)			.	,367	,021	,001	,148	,127	,998	,005
	N			101	101	101	101	101	101	101	101
Trust	Correlation Coefficient				1,000	,082	,130	,036	,012	-,053	,165
	Sig. (2-tailed)				.	,415	,196	,717	,902	,598	,099
	N				101	101	101	101	101	101	101
Organizational Structure	Correlation Coefficient					1,000	,176	,157	,011	-,004	,105
	Sig. (2-tailed)					.	,078	,116	,910	,967	,298
	N					101	101	101	101	101	101

TCFor mal	Correlation	1,000	,241*	-,154	,119	,262**
	Coefficient					
	Sig. (2-tailed)	.	,015	,124	,235	,008
	N	101	101	101	101	101
TCinF ormal	Correlation		1,000	-,043	,044	,060
	Coefficient					
	Sig. (2-tailed)		.	,670	,664	,554
	N		101	101	101	101
TSCO MPAN Y	Correlation			1,000	,226*	,134
	Coefficient					
	Sig. (2-tailed)			.	,023	,181
	N			101	101	101
TimeSp endKT	Correlation				1,000	,229*
	Coefficient					
	Sig. (2-tailed)				.	,021
	N				101	101
Compan y Size	Correlation					1,000
	Coefficient					
	Sig. (2-tailed)					.
	N					101

** . Correlation is significant at the 0.01 level (2-tailed). * . Correlation is significant at the 0.05 level (2-tailed).

Table 31: Multicollinearity diagnostics by regression data

Collinearity Statistics		
Variable	Tolerance	VIF
Time participate in knowledge transfer to Chinese company	.708	1.412
Employees number	.761	1.315
Time your company connects to Chinese company	.866	1.155
Sender Ability	.500	1.999
Receiver Ability	.610	1.638
Organizational Climate	.842	1.188
Incentive	.876	1.141
Socialization	.684	1.462
Apprenticeship	.711	1.407
Trust	.738	1.355
Organizational Structure	.878	1.139
TCFormal	.707	1.413
TCinFormal	.848	1.179

4.2.7 Model testing

In order to test the hypotheses and to measure the true strength and direction of association among control variables, multiple independent variables and mediator, a five-stage hierarchical multiple regression analysis was performed. At the first stage, the 2 control variables (i.e. “length of time after invested in European company”, “European company size” were inserted into regression in analysis; at the second stage, we maintain the control variables, but also add in all independent variables (i.e. “sender ability”, “receiver ability”, “organizational climate”, “incentive”, “socialization”, “apprenticeship”, “trust”, “organizational structure similarity”, “formal transmission channel” and “informal transmission channel”). At the third stage, we start introduce the mediator (i.e. “length of time participate in RKT”); at the fourth stage, we change to introduce joint mediation between “sender ability” and “length of time participate in RKT”; at the final stage, we change to test the last joint mediation between “receiver ability” and “length of time participate in RKT”. In model 4 and model 5, mediator (“length of time participate in RKT”) and mediation (“sender ability” + “length of time participate in RKT” and “receiver ability” + “length of time participate in RKT”) have multicollinearity problems, therefore we only test one in each model. Taking the groups of control variables, independent variables, mediator and mediations into regression analysis, a total of five regression models were created, from which we can identify and analyze the specific relationships between variables.

Table 32 is the result of regression. Model 1 is the test on control variables: “length of time after Chinese MNEs invested in European company” and “the size of European company”. Model 2 tests both Control variables and independent variables, inclusive the test of hypothesis 1.1, hypothesis 1.2, hypothesis 1.3, hypothesis 1.4, hypothesis 1.5, hypothesis 1.6, hypothesis 1.7, hypothesis 1.8, hypothesis 1.10 and hypothesis 1.11. Hypothesis 1.9 about Knowledge transmission channel richness impact on RKT performance is eliminated after data reliability adjustment. In Model 3, based on model 2, we add in mediator variable to the test: “length of time that knowledge sender or receiver participate in reverse knowledge transfer”. In Model 4, we test the impact from mediation between “length of time participate in RKT” and “sender ability” that equals to the test to hypothesis 2.1. In Model 5, we test the impact from mediation between “length of time participate in RKT” and “receiver ability”, which equals to the test to hypothesis 2.2.

Table 32: Statistics of model testing result

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Control variable					
Time after Chinese company investment	-.010 VIF 1.006 (.08)	.159 VIF1.073 (.100)	.161 VIF1.155 (.104)	.167 VIF1.148 (.104)	.161 VIF1.158 (.104)
Company size of European company	.253*** VIF 1.006 (.073)	.150** VIF1.263 (.069)	.151* VIF1.315 (.071)	.154** VIF1.309 (.071)	.151** VIF1.310 (.071)
Independent variable					
Sender Ability		-.038 VIF1.716 (.116)	-.035 VIF1.999 (.126)	-.018 VIF2.268 (.135)	-.035 VIF1.977 (.126)
Receiver Ability		.221* VIF1.627 (.131)	.220 VIF1.638 (.132)	.217 VIF1.639 (.132)	.222* VIF1.642 (.132)
Organizational climate		.145** VIF1.188 (.071)	.145** VIF1.188 (.072)	.145** VIF1.189 (.072)	.145** VIF1.188 (.072)
Incentive		.000 VIF1.141 (.093)	.000 VIF1.141 (.094)	.001 VIF1.143 (.094)	.000 VIF1.142 (.094)
Socialization		.015 VIF1.456 (.144)	.015 VIF1.462 (.146)	.018 VIF1.464 (.146)	.016 VIF1.469 (.146)
Apprenticeship		.001 VIF1.403 (.092)	.001 VIF1.407 (.093)	.000 VIF1.404 (.093)	.001 VIF1.406 (.093)
Trust		.206** VIF1.323 (.099)	.205** VIF1.355 (.101)	.200 VIF1.367 (.101)	.204** VIF1.361 (.101)
Organizational structure similarity		.144* VIF1.134 (.075)	.144* VIF1.139 (.076)	.143 VIF1.136 (.076)	.144* VIF1.138 (.076)
Formal Transmission channel		.217*** VIF1.384 (.076)	.218*** VIF1.413 (.078)	.221*** VIF1.416 (.078)	.218*** VIF1.418 (.078)
Informal Transmission channel		-.038 VIF1.179 (.069)	-.038 VIF1.179 (.069)	-.038 VIF1.179 (.069)	-.038 VIF1.179 (.069)
Mediator					
Time participate in RKT			-.005 VIF1.412 (.087)		
Interaction effects					
Sender ability × Time participate in RKT				-.005 VIF1.662 (.015)	
Receiver ability × Time participate in RKT					-.001 VIF1.544 (.016)

R ²	.113	.466	.466	.467	.467
Adjusted R ²	.095	.365	.355	.356	.355
F-value	6.273	4.590	4.170	4.183	4.170
df	2	12	13	13	13

*p<0.10; **p<0.05; ***p<0.01; each cell contains Beta, VIF value and Standard error.

4.2.7.1 Model 1: Control variables

Table 33: ANOVA^a and Coefficients^a result of model 1

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.875	2	2.438	6.211	.003 ^b
	Residual	38.460	98	.392		
	Total	43.335	100			

a. Dependent Variable: RKTP

b. Predictors: (Constant), Company size, Time after Chinese company investment

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients		Sig.	Collinearity Statistics	
	B	Std. Error	Beta	T		Tolerance	VIF
(Constant)	4.850	.306		15.831	.000		
Time after Chinese company investment	-.010	.090	-.011	-.113	.910	.994	1.006
Company size	.253	.072	.336	3.521	.001	.994	1.006

a. Dependent Variable: RKTP

Model 1 tests both the control variables impact on dependent variable. The first model's significance is <0.05. From the first model, we can see that only control variable: European Company size impact on RKT performance is significant, and this impact is positive ($\beta=0.253$, $p<0.01$). Afterwards, after we add in independent variables, mediator and mediation (from Model 2 to Model 5), the situation does not change, European Company size impact on RKT performance remains significant and positive, but the level of influence (β) is weaker. From model 2 to model 5, the level of influence (β) remains at around 0.15 (Model 2: $\beta=0.150$, $p<0.05$; Model 3: $\beta=0.151$, $p<0.05$; Model 4: $\beta=0.154$, $p<0.05$; Model 5: $\beta=0.15$, $p<0.05$). This result is in line with Gooding & Wagner (1985) and Cohen & Levinthal (1989) theory with focus on linkage between company size and the resource of company. In this research, it means,

the bigger size of invested (acquired) European company, the higher reverse knowledge transfer performance is expected. Big company with alongside longer company history is generally richer in knowledge source and innovation strength. Therefore, the reverse knowledge outflow from this type of company is expected to be higher. This finding is also in accordance with the fact about Chinese MNEs ODI activities in Europe. In year 2010, Zhejiang Geely holding acquired Swedish reputed automotive manufacturer Volvo; in year 2012, Hunan Sany Heavy Industry Company acquired German concrete pumps manufacturer Putzmeister. Chinese MNEs ODI with purpose of knowledge learning often targets at big size European company.

The other control variable: “Length of time after Chinese company invested” does not have significant impact on the result of RKT performance in this research. Scholars, such as Buono and Bowditch (1989) and Bresman (1999) claims the positive impact from “length of time after investment” to “knowledge transfer performance” relies in employees’ psychological acceptance evolution after their company being acquired. In my research, Chinese manufacturing MNEs enter Europe through M&A, greenfield and stake acquisition. Employees work at greenfield subsidiary join in the company as initial employees. Psychologically, they will not have negative feeling and worries towards Chinese investment. In contrast, regarding entry models, such as M&A and stake acquisition, original employees at European company might encounter those negative feelings. Reading the result from table 32, the impact from “length of time after Chinese investment” to “RKT performance” is positive after we add in independent variables. However, the impact is not significant. One possible reason is that in this research, more than half of the questionnaire respondents work at European companies acquired by Chinese MNEs, nearly half of the other respondents work at Chinese MNEs greenfield subsidiaries or invested European companies. Under these circumstances, the psychological acceptance for employees participating in reverse knowledge transfer is not a strong issue among the questionnaire respondents.

4.2.7.2 Model 2: Independent variables

Table 34: ANOVA^a and Coefficients^a result of model 2

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.276	12	1.273	4.590	.000 ^b
	Residual	17.474	63	.277		
	Total	32.750	75			

a. Dependent Variable: RKTP

Model	Coefficients ^a						
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.251	1.212		.207	.836		
Sender Ability	-.038	.116	-.040	-.329	.743	.583	1.716
Receiver Ability	.221	.131	.198	1.691	.096	.615	1.627
Organizational Climate	.145	.071	.204	2.037	.046	.842	1.188
Incentive	.000	.093	-.001	-.005	.996	.876	1.141
Socialization	.015	.144	.011	.101	.920	.687	1.456
Apprenticeship	.001	.092	.001	.013	.989	.713	1.403
Trust	.206	.099	.221	2.088	.041	.756	1.323
Organizational Structure	.144	.075	.188	1.919	.060	.882	1.134
TCFormal	.217	.076	.308	2.846	.006	.723	1.384
TCinFormal	-.038	.069	-.055	-.554	.582	.849	1.179
Time after Chinese company investment	.159	.100	.152	1.596	.115	.932	1.073
Company size	.150	.069	.226	2.181	.033	.792	1.263

a. Dependent Variable: RKTP

Model 2 includes all independent variables based on Model 1, testing impact from both control variables and independent variables to reverse knowledge transfer performance. This means model 2 is testing hypothesis 1.1 to hypothesis 1.11 (hypothesis 1.9 is eliminated after reliability check). The model is significant ($p < 0.01$). Besides the control variable, European company size ($\beta = 0.150$, $p < 0.05$) still have significant positive impact on RKT performance, independent variables: receiver ability ($\beta = 0.221$, $p < 0.1$), organizational climate ($\beta = 0.145$, $p < 0.05$), trust ($\beta = 0.206$, $p < 0.05$), organizational structure similarity ($\beta = 0.144$, $p < 0.1$) and formal knowledge

transmission channels ($\beta=0.217$, $p<0.01$), all have significant positive impact on reverse knowledge transfer performance. The result also indicates that hypothesis 1.2 (receiver ability), hypothesis 1.3 (organizational climate), hypothesis 1.7(trust), hypothesis 1.8(organizational structure similarity) and hypothesis 1.10 (formal knowledge transmission channels) is not rejected.

We look into each significant independent variable by the order of impact level. Model 2 tells that “receiver ability” has the highest β value ($\beta=0.221$). Therefore, hypothesis 1.2: in Chinese knowledge learning ODI, receiver ability, including receiver motivation and absorptive capacity have positive impact on reverse knowledge transfer performance, is not rejected. This result is in line with Gupta & Govindarajan (2000) and Liao et al. (2012)’s theory. The difference is both of the cited scholars paid attention to knowledge learning in the context of general multinational enterprises. Liao et al. (2012) have additional focus on Chinese manufacturing industry. However, in this research, we discuss specifically in the context of Chinese MNEs tacit knowledge learning from invested European company through ODI. Chinese MNEs, in these circumstances, are comparatively weaker in knowledge source. As we noticed, owing to the big gap of tacit knowledge between investor and acquired companies, Chinese MNEs are always positioned at the role of knowledge receiver. The result shows, in order to achieve great RKT performance, Chinese MNEs need to develop high absorptive ability. Furtherly, Chinese MNEs absorptive capacity relies on employees’ motivation towards knowledge learning and their capacity of knowledge absorption, which refers to series of capacity, inclusive identifying right tacit knowledge, creating possibility to learn, learning tacit knowledge with efficiency and quality and transferring learned tacit knowledge into explicit format and into practice. From model 2 to model 5, receiver ability is always positive impacting on RKT performance, but not significant when add in mediator “length of time participate in RKT” and the mediation of “sender ability” and “length of time participate in RKT” (Model 3: receiver ability: $\beta=0.220$, $P=0.101>0.1$; Model 4: receiver ability: $\beta=0.217$, $P=0.105>0.1$). In model 5, when we add in mediation “receiver ability” and “length of time participate in RKT”, the impact from “receiver ability” is significant again (Model 5: receiver ability: $\beta=0.222$, $P=0.099<0.1$).

Model 2 also indicates that “formal knowledge transmission channel” has positive impact on reverse knowledge transfer performance ($\beta=0.217$, $p<0.01$). The impact is with high significance. This proves that hypothesis 1.10 is not rejected in model 2. After we add in

mediator and mediation from model 3 to model 5 (model 3: $\beta=0.218$, $p<0.01$; model 4: $\beta=0.221$, $p<0.01$; model 5: $\beta=0.218$, $p<0.01$), the impact from “formal knowledge transfer channel” to “reverse knowledge transfer performance” remains positive and significant. The chain of results shows that impact from “formal knowledge transfer channel” to “RKT performance” is stably supported. We have learned the division of formal and informal knowledge transmission channel from Daft & Lengel (1986). Formal transmission channel can link different individuals and units of organization and create higher density of communication between individuals and between units. The finding in this research points out the importance of formal knowledge transfer channels to the result of knowledge transfer performance.

To the other side, informal knowledge transmission channel to all models has a minor negative impact to RKT performance, but the impact is not significant (from model 2 to model 5: $\beta=-0.038$). Scholars, such as Davenport & Prusak (1998), Gupta & Govindarajan (2000), Moreno-Luzon & Lloria (2008), Pan et al. (2007) and Sammarra & Biggiero (2008) argue that informal mechanisms are often used as knowledge acquisition channels. The reasons often fall on that informal mechanism can facilitate spontaneous communication. However, Guan (2005) also points that informal mechanisms are invented often by people who have the same feeling or common interest. Borrowing qualitative inputs, due to cultural difference, language barrier and not-shared life experience, Chinese employee and local employees are routinized in “colleague time”. Under this circumstance, informal knowledge transmission channel, in contrast to formal transmission channel, is not a significant variable impacting RKT performance in this research.

“Trust” is tested out with high significance and positive impact on “reverse knowledge transfer performance” (model 2: $\beta=0.206$, $p<0.05$; model 3: $\beta=0.205$, $p<0.05$; model 5: $\beta=0.204$, $p<0.05$), only when add in the mediation from “sender ability” and “length of time participate in RKT”, the impact from “trust” to “RKT performance” is still positive but not significant. Many scholars have found the importance of trust to knowledge transfer performance in their research. Citing from literature review, trust can enable employees to be more willing to share their knowledge (McDermott & O’Dell, 2001); when knowledge receiver and knowledge sender have good relations, mutual trust will promote the transfer (Xie & Liang, 2013). Nonaka (1994) pointed trust act as a critical role in knowledge sharing. The result of this research can enhance the important role that “trust” plays to knowledge transfer. However, the finding is under the background of reverse knowledge transfer from invested companies in advanced

economies to emerging market. Trust, in detail, including trust in leadership and trust in other RKT participants' expertise have great importance to the result of reverse knowledge transfer.

The result of model 2 supports also hypothesis 1.3, which means "organizational climate", referring to "employees' commitment to company's best interests" and "all goods of all employees" have a positive impact on reverse knowledge transfer performance. This finding in my research agrees with McDermott & O'Dell (2011)'s theory that when the organization has a trust and cooperation oriented culture, employee will be more willing to share their knowledge. From model 2 to model 5, after we adding mediator and mediation, the impact from "organizational climate" to "reverse knowledge transfer performance" remain at the same level (model 3: $\beta=0.145$, $p<0.05$; model 4: $\beta=0.145$, $p<0.05$; model 5: $\beta=0.145$, $p<0.05$), it means hypothesis 1.3 is not rejected in all the 4 tested models.

"Organizational structure similarity" is tested that has positive impact on reverse knowledge transfer also (model 2: $\beta=0.144$, $p<0.1$). At the same time, the impact is consistent (model 3: $\beta=0.144$, $p<0.1$ and model 5: $\beta=0.144$, $p<0.1$) expect when adding mediation from "sender ability" and "length of time participate RKT" (model 4: $\beta=0.143$, $p>0.1$). Academically, we did not find organizational structure similarity's impact on reverse knowledge transfer widely discussed. However, scholars Lane & Lubatkin (1998) argued that the relative characteristics of "student firm" and "teacher firm", namely organizational structures and student firms' familiarity with teacher firm's organizational setting, jointly determine the result of a firm to learn from the other firm.

4.2.7.3 Model 3: Control variables, independent variables and Mediator

Table 35: ANOVA^a and Coefficients^a result of model 3

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.277	13	1.175	4.170	.000 ^b
	Residual	17.473	62	.282		
	Total	32.750	75			

a. Dependent Variable: RKTP

b. Predictors: (Constant), Time participate in knowledge transfer to Chinese company, Organizational Climate, Organizational Structure, Incentive, TCInFormal, Apprenticeship, Trust, Time after Chinese company investment, Receiver Ability, Company size, TCFormal, Socialization, Sender Ability

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.243	1.229		.197	.844		
Sender Ability	-.035	.126	-.037	-.280	.780	.500	1.999
Receiver Ability	.220	.132	.198	1.666	.101	.610	1.638
Organizational Climate	.145	.072	.204	2.020	.048	.842	1.188
Incentive	.000	.094	-.001	-.005	.996	.876	1.141
Socialization	.015	.146	.012	.104	.917	.684	1.462
Apprenticeship	.001	.093	.001	.010	.992	.711	1.407
Trust	.205	.101	.220	2.038	.046	.738	1.355
Organizational Structure	.144	.076	.188	1.895	.063	.878	1.139
TCFormal	.218	.078	.309	2.803	.007	.707	1.413
TCInFormal	-.038	.069	-.055	-.549	.585	.848	1.179
Time after Chinese company investment	.161	.104	.154	1.543	.128	.866	1.155
Company size	.151	.071	.227	2.132	.037	.761	1.315
Time participate in knowledge transfer to Chinese company	-.005	.087	-.007	-.061	.952	.708	1.412

a. Dependent Variable: RKTP

Model 3 is also significant ($p < 0.01$). Besides control variables and independent variables, we added in mediator: “time participate in knowledge transfer to Chinese company” into regression calculation. In model 3, we have five variables with impact to reverse knowledge transfer performance, control variables: “company size” ($\beta = 0.151$, $p < 0.05$) remains a positive impact on RKT performance; independent variables: “organizational climate” ($\beta = 0.145$, $p < 0.05$), “trust” ($\beta = 0.205$, $p < 0.05$), “organizational structure similarity” ($\beta = 0.144$, $p < 0.1$) and “formal knowledge transmission channel” ($\beta = 0.218$, $p < 0.01$) remain positive impact to RKT performance. Main difference of model 3 is that after adding mediator “time participate in RKT”, independent variable: receiver ability’s impact on RKT performance is not significant any longer. We interpret that “time participate in RKT” does not facilitate knowledge receiver ability contributing to RKT performance. Therefore, even though Lundvall (1988) had suggested that time seems to be especially crucial in the case of transferring tacit knowledge. We cannot prove the supportive impact from “time participate in RKT” to “RKT performance”.

Model 3 also indicates that hypothesis 1.3 (organizational climate), hypothesis 1.7 (trust), hypothesis 1.8 (organizational structure similarity) and hypothesis 1.10 (formal knowledge transmission channels) are not rejected.

4.2.7.4 Model 4: Control variables, independent variables and Mediation 1

Table 36: ANOVA^a and Coefficients^a result of model 4

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.302	13	1.177	4.183	.000 ^b
	Residual	17.448	62	.281		
	Total	32.750	75			

a. Dependent Variable: RKTP

b. Predictors: (Constant), Mediation1, Trust, Incentive, Apprenticeship, TCinFormal, Time after Chinese company investment, Organizational Climate, Organizational Structure, Receiver Ability, Company size, TCFormal, Socialization, Sender Ability

Coefficients ^a							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.163	1.255		.130	.897		
Sender Ability	-.018	.135	-.019	-.135	.893	.441	2.268
Receiver Ability	.217	.132	.195	1.645	.105	.610	1.639
Organizational Climate	.145	.072	.205	2.031	.047	.841	1.189
Incentive	.001	.094	.001	.006	.996	.875	1.143
Socialization	.018	.146	.014	.123	.902	.683	1.464
Apprenticeship	.000	.093	.000	.003	.997	.712	1.404
Trust	.200	.101	.215	1.986	.051	.732	1.367
Organizational Structure	.143	.076	.187	1.889	.064	.880	1.136
TCFormal	.221	.078	.313	2.839	.006	.706	1.416
TCinFormal	-.038	.069	-.055	-.544	.589	.848	1.179
Time after Chinese company investment	.167	.104	.160	1.609	.113	.871	1.148
Company size	.154	.071	.232	2.184	.033	.764	1.309
Mediation1	-.005	.015	-.036	-.303	.763	.602	1.662

a. Dependent Variable: RKTP

Scholars point that time is especially crucial in tacit knowledge sharing due to the feature of tacitness (Ivarsson &Valhne, 2002). In model 4, we add in the mediation between “time participate in RKT” and “sender ability” (hypothesis 2.1) into calculation. At the same time, due to multicollinearity between mediator and mediation 1 (VIF value >10), we remove mediator from calculation.

The model 4 is still significant ($p < 0.01$). In model 4, only three variables have significant impact on RKT performance. Control variable: “company size” remains positive impact ($\beta = 0.154$, $p < 0.05$); independent variable: “organizational climate” ($\beta = 0.145$, $p < 0.05$) and “formal transmission channel” ($\beta = 0.221$, $p < 0.01$) also have positive impact on RKT performance. The mediation between “time participate RKT” and “sender ability” is not significant, so we conclude the mediation does not exist. In this case, only hypothesis 1.3(organizational climate) and hypothesis 1.10 (formal knowledge transmission channels) are not rejected.

4.2.7.5 Model 5: Control variables, independent variables and Mediation 2

Table 37: ANOVA^a and Coefficients^a result of model 5

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.278	13	1.175	4.170	.000 ^b
	Residual	17.472	62	.282		
	Total	32.750	75			

a. Dependent Variable: RKTP

b. Predictors: (Constant), Mediation2, Trust, Incentive, TCinFormal, Apprenticeship, Organizational Climate, Organizational Structure, Time after Chinese company investment, Receiver Ability, Company size, TCFormal, Socialization, Sender Ability

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
		1	(Constant)	.227				
	Sender Ability	-.035	.126	-.036	-.276	.783	.506	1.977
	Receiver Ability	.222	.132	.199	1.677	.099	.609	1.642
	Organizational Climate	.145	.072	.204	2.022	.047	.842	1.188
	Incentive	.000	.094	.000	-.004	.997	.876	1.142
	Socialization	.016	.146	.012	.107	.915	.681	1.469
	Apprenticeship	.001	.093	.001	.009	.993	.711	1.406
	Trust	.204	.101	.220	2.029	.047	.735	1.361
	Organizational Structure	.144	.076	.188	1.896	.063	.879	1.138
	TCFormal	.218	.078	.309	2.801	.007	.705	1.418
	TCinFormal	-.038	.069	-.055	-.549	.585	.848	1.179
	Time after Chinese company investment	.161	.104	.154	1.546	.127	.864	1.158
	Company size	.151	.071	.227	2.139	.036	.763	1.310
	Mediation2	-.001	.016	-.009	-.077	.939	.648	1.544

a. Dependent Variable: RKTP

In parallel to model 4, mediation 2 indicates the joint effort from “receiver ability” and “time participate in RKT”. In model 5, we add in the mediation 2 (hypothesis 2.2) into calculation.

Also due to multicollinearity problem between mediator and mediation 2 (VIF value >10), we remove mediator from calculation.

Model 5 is significant ($p < 0.01$). The tested result of model 5 is similar to model 2. Control variable, “invested European company size” still have significant positive impact on RKT performance ($\beta = 0.151$, $p < 0.05$). Besides, independent variables: “receiver ability” ($\beta = 0.222$, $p < 0.1$), “organizational climate” ($\beta = 0.145$, $p < 0.05$), “trust” ($\beta = 0.204$, $p < 0.05$), “organizational structure similarity” ($\beta = 0.144$, $p < 0.1$) and “formal knowledge transmission channels” ($\beta = 0.218$, $p < 0.01$), all have significant positive impact on reverse knowledge transfer performance. The result again indicates that hypothesis 1.2 (receiver ability), hypothesis 1.3 (organizational climate), hypothesis 1.7 (trust), hypothesis 1.8 (organizational structure similarity) and hypothesis 1.10 (formal knowledge transmission channels) are not rejected.

The mediation between “time participate in RKT” and “receiver ability” is not significant, so we conclude the mediation does not exist.

Five-stage-hierarchical multiple regression shows the result that “company size of European company” as control variable has all the time significant positive impact on RKT performance. That means the bigger European company that Chinese MNEs invested, the higher performance on reverse knowledge transfer to Chinese MNEs can expect. Independent variables constitutes ba: “formal transmission channels” and “organizational climate” are all the time significant positive impact on RKT performance. In model 2 and model 5, “receiver ability” has positive impact on RKT performance; in model 2, model 3 and model 5, “trust” and “organizational structure similarity” has positive impact on RKT performance.

4.3 Integration of qualitative and quantitative research result

Table 38: Comparative result between qualitative and quantitative findings

Qualitative Findings	Quantitative Findings
<ul style="list-style-type: none"> • RKT performance relies on individual innovative capacity; • Knowledge sender motivation varies from individual to individual; • Knowledge sender reliability is ensured; • Common unawareness of RKT role among knowledge senders; • Chinese expatriates commit to dual identities as both knowledge receiver and knowledge sender; • Knowledge receivers with general high motivation; • Career development as the strongest enterprise dominant incentive; • Self-incentive encourage knowledge receivers to get close to knowledge source and optimize knowledge structure; • Company has the capacity to shape company culture; • Listed socialization instruments are all mentioned by RKT participants; • Apprenticeship system not yet showed as important as expected; • Only trust at individual level is observed; • Organizational structure dissimilarity mentioned as obstacle for RKT; • Formal transmission channels create the major RKT opportunities; • Informal transmission channel is restricted by culture distance; • Length of time participate in RKT might have relation to RKT performance 	<ul style="list-style-type: none"> • Size of invested European company is positively correlates to RKT performance; • Receiver ability positively correlates to RKT performance; • Organization climate positively correlates to RKT performance; • Trust positively correlates to RKT performance; • Organizational structure similarity positively correlates to RKT performance; • Formal knowledge transfer channel positively correlates to RKT performance; • Receiver ability, formal knowledge transfer channel, trust, company size, organization climate and organizational structure similarity contribute to RKT performance in sequence of importance; • Formal transmission channel, company size, trust, organization climate, organizational structure similarity and receiver ability contribute to RKT performance in sequence of significance; • Length of time after Chinese company investment does not have significant impact on RKT performance; • Length of time participate in RKT does not have significant impact on RKT performance; • Incentive does not have significant impact on RKT performance; • Socialization does not have significant impact on RKT performance; • Apprenticeship does not have significant impact on RKT performance; • Informal knowledge transmission channel does not have significant impact on RKT performance; • Sender ability does not have significant impact on RKT performance, no matter with or without mediation with length of time participate in RKT; • Length of time participate in RKT does not facilitate receiver ability contribution to RKT performance

Qualitative findings show the summary of content analysis results. There are two perspectives that we should be aware of before using the qualitative findings. (1) Since the source for qualitative data is overall from ten interviews, findings are not capable to generically explain all RKT situations. However, these interviews cover a full scope of RKT company archetypes and RKT participant archetypes, and thus the qualitative findings are adequate for supplementing the quantitative results. (2) Ten interviews were conducted among the three enterprises located in Sweden and Portugal. Questionnaires were delivered also in these two countries, targeted at all the RKT participant archetypes. Thus, we can continue with comparative analysis at checking commonality and difference between findings of these two research methods.

4.3.1 Key factors determine successful RKT

Table 39: Summary of hypotheses and results

Number	Description	M1	M2	M3	M4	M5
H1.1	In Chinese MNEs' knowledge learning ODI, knowledge sender ability has positive impact on reverse knowledge transfer performance.	–	R	R	R	R
H1.2	In Chinese MNEs' knowledge learning ODI, knowledge receiver absorptive ability has positive impact on reverse knowledge transfer performance.	–	NR	R	R	NR
H1.3	In Chinese MNEs' knowledge learning ODI, organizational climate has positive impact on reverse knowledge transfer performance.	–	NR	NR	NR	NR
H1.4	In Chinese MNEs' knowledge learning ODI, organizational incentive has positive impact on reverse knowledge transfer performance.	–	R	R	R	R
H1.5	In Chinese MNEs' knowledge learning ODI, the level of socialization has positive impact on reverse knowledge transfer performance.	–	R	R	R	R
H1.6	In Chinese MNEs' knowledge learning ODI, adoption of apprenticeship system has positive impact on reverse knowledge transfer performance.	–	R	R	R	R
H1.7	In Chinese MNEs' knowledge learning ODI, trust level has positive impact on reverse knowledge transfer performance.	–	NR	NR	R	NR
H1.8	In Chinese MNEs' knowledge learning ODI, organizational structure dissimilarity between Chinese company and invested European company has negative impact on reverse knowledge transfer performance.	–	NR	NR	R	NR

Number	Description	M1	M2	M3	M4	M5
H1.9	In Chinese MNEs' knowledge learning ODI, richness of knowledge transmission channels between Chinese company and invested European company has positive impact on reverse knowledge transfer performance.	-	-	-	-	-
H1.10	In Chinese MNEs' knowledge learning ODI, the greater reliance on formal transmission channels between Chinese company and invested European company the better performance on reverse knowledge transfer.	-	NR	NR	NR	NR
H1.11	In Chinese MNEs' knowledge learning ODI, the greater reliance on informal transmission channels between Chinese company and invested European company the better performance on reverse knowledge transfer.	-	R	R	R	R
H2.1	In Chinese MNEs' knowledge learning ODI, length of time of knowledge sender participation in RKT mediates sender ability's impact on RKT performance, that means, the longer time knowledge sender participated in RKT, the impact from sender ability to RKT performance is higher.	-	-	-	R	-
H2.2	In Chinese MNEs' knowledge learning ODI, length of time of knowledge receiver participation in RKT mediates receiver ability's impact on RKT performance, that means, the longer time knowledge receiver participated in RKT, the impact from receiver ability to RKT performance is higher.	-	-	-	-	R

R: rejected; NR: not rejected; -: not tested; M: model

The earlier research, with focus on firms from developed markets (Bresman, 1999; Persson, 2006; Pérez-Nordtvedt, 2008) did not pay attention to firms from emerging markets with weaker innovative capacity, weaker culture integration ability and higher reliability on acquired firms. Therefore, earlier research results cannot apply on the new scenario about EM-MNEs ODI. By combining both quantitative and qualitative analysis, this research tries to reveal the key factors that determine successful RKT from emerging markets.

4.3.1.1 Receiver ability positively correlate to RKT performance

Quantitative findings indicate that receiver ability has positive impact on RKT performance, in both scenarios with and without the mediation from "time participate in RKT". However, impact from mediation is not significant. Therefore, we shall only summarize that when knowledge receiver has higher motivation and with higher knowledge absorptive capacity, the RKT performance is expected to be higher. Regression results also tell that when the impact

from receiver ability is significant, receiver ability contributes most to the RKT performance (highest β value) among variables.

Qualitative findings can further supplement quantitative results. Content analysis shows knowledge receivers are in general clear with their responsibility and highly committed into reverse knowledge transfer. Among knowledge receivers, expatriate is the group who are fully aware of their role in knowledge learning and transfer, and at the same time obliged to do it besides their daily work. Expatriates from Chinese company, state their motivation in knowledge learning is mostly encouraged by potential career development. From the qualitative data collection aspect, we have limited access to those knowledge receivers who are based in China. However quoting one company representative's description, when expatriates return to China, they are warmly welcomed by both Chinese company and colleagues. It is a very good indication that high learning motivation also exist on the Chinese company side. Associating with Chinese MNEs ODI motives, high learning motivation at organizational level is strongly confirmed.

An organization's absorptive capacity depends on its individual participants. RKT performance relies on individual participants' absorptive capacity. Integrating the findings of Cohen & Levinthal (1990), receiver ability, besides motivation, refers to individual participants' capacity in recognizing the value of knowledge, enabling learning possibilities, obtaining knowledge in both efficiency and quality and in the end, applying the knowledge into business use. Combining with tacit knowledge dimension, receiver ability also covers the ability to translate tacit knowledge into explicit format. Expatriates at the beginning of working in European company can clearly plan on what techniques to learn. During their learning period, they are actively creating possibilities in knowledge learning, especially in creating possibility to learn in the same work scenarios, which will benefit them in obtaining "first-hand source" and create knowledge on their own. At the same time, frequent exercise on translating tacit knowledge, such as observations, know-hows into diary, manuals or reports to home managers in China, expatriates train and improve their capacity in "transcend through the boundary of inner-self" to codified and communicable explicit knowledge.

Finding in regards of receiver ability, calls RKT companies to: (1) encourage knowledge receivers to keep sustained motivation in RKT activities; (2) support knowledge receivers in improving a series of capacity, inclusive identifying right tacit knowledge, creating possibility

to learn, learning tacit knowledge with efficiency and quality and transferring learned tacit knowledge into explicit format and into practice.

4.3.1.2 Formal knowledge transmission channels positively correlate to RKT performance

Quantitative finding indicates that “formal knowledge transfer channel” correlates positively to RKT performance. That means the greater the reliance on formal knowledge transmission channels, the greater knowledge transfers from European company to Chinese company. Thus quantitative result indicates a statistical positive correlation between formal transmission channel and RKT performance. In fact, formal knowledge transmission channels consistently remain the highest significance among all other key factors, together with one of the highest contribution to RKT performance (second highest β value). This finding is in accordance with Daft & Lengel (1986), who declared that the greater the extent to which a unit is linked to the rest of the global network through such integrative mechanisms, the greater the density of communication interface between units would be.

We obtained the same finding from qualitative data. Content analysis shows that formal transmission channels create the major RKT opportunities. In quantitative data, in respondents’ companies, formal knowledge transfer channels are greatly identified within organization comparing to informal knowledge transfer channel (formal transmission channel awareness: 91.1%; informal transmission channel awareness: 65.3%). Formal channels, such as obliged reporting system and structured check list jointly facilitate greater knowledge outflows from European company to Chinese company. At the same time, reporting directly to home manager requests expatriates to interpret his obtained tacit knowledge into explicit knowledge. Therefore, formal knowledge transfer mechanism drives tacit knowledge transfer into explicit format, thus guarantees knowledge inflows to Chinese company.

Sammarra & Biggiero (2008) suggested that both formal and informal mechanisms are available to acquire multiple types of knowledge. However, in my research, informal knowledge transmission channel’s contribution to RKT performance is not proved. Formal knowledge transmission channels are established in a more conscious and stable way (Moreno-Luzon & Lloria, 2008), while informal channels heavily rely on spontaneous occasion and

strong interpersonal relations. In the next session about unproved variables, we will analyze informal transmission channel separately.

4.3.1.3 Trust positively correlate to RKT performance

Quantitative findings show trust has positive impact to RKT performance. In the meantime, trust remains a high significance and high contribution to RKT performance. Trust is re-operationalized into trust in leadership and interpersonal trust between RKT participants. From content analysis, trust at individual level, mainly referring to trust in other participants' capacity, is observed. Thus, both quantitative and qualitative findings enhance earlier scholars' conclusion that trust has been found to be correlated with knowledge acquisition (Politis, 2003) and trust is an important social factor for knowledge management activities (Verkasalo & Lappalainen, 1998).

4.3.1.4 Company size positively correlate to RKT performance

Invested European company size as control variable is proved to be positively correlated with RKT performance. Finding on that "company size" impacts RKT performance is observed only from quantitative result. However, this finding is in accordance with the fact that Chinese MNEs ODI with purpose of knowledge acquisition often targets at big size European company. This result is in line with Gooding & Wagner (1985) and Cohen & Levinthal (1989) theory with focus on linkage between "company size" and the resource of company. In this research, it means, the bigger size of invested European company, the higher tacit knowledge source exists. Big company with longer history is generally richer in knowledge source and innovation strength. Therefore, the reverse knowledge outflow from this type of company is expected to be higher. And thus, the higher RKT performance is expected.

4.3.1.5 Organizational climate positively correlates to RKT performance

Quantitative finding shows "organizational climate" has positive impact to RKT performance. At the same time, the impact from organizational climate is consistently stable and significant. Organizational culture tightly associates with the culture of company embedded society. The content analysis indicates, employees that work at invested European company or subsidiary in general are friendly towards Chinese expatriates and open to knowledge sharing to Chinese

companies. On the other side, employees in Chinese companies are welcoming to European colleagues and returned expatriates, active in knowledge learning. McDermott & O'Dell (2012) points out when organization have a trust and cooperation emphasized culture, employees will be more willing to share their knowledge.

Important input from content analysis is that company itself has responsibility and capability to shape “knowledge-sharing-friendly” organizational climate for facilitating knowledge transfer. In reality, employees at invested European company, despite of nationality, might have wrong perception or misunderstanding towards Chinese company and RKT. However, case study indicates that companies can shape organizational climate by clearly stating company values towards knowledge sharing.

4.3.1.6 Organizational structure similarity positively correlates to RKT performance

Quantitative finding indicates organizational structure similarity has positive impact to RKT performance. Organizational structure problems, such as dissimilarity in structure setting and unpaired responsibility in RKT have negative impact on RKT performance. In qualitative finding, organizational structure dissimilarity was mentioned as obstacle for knowledge reversely transferred to Chinese company. One fact revealed in research is that expatriates from Chinese company are normally assigned with heavier work load by combining knowledge learning tasks compared to their earlier responsibility in Chinese company. When tacit knowledge obtained or tacit knowledge interpreted into explicit format, expatriates find the dilemma in transferring knowledge back to China, which majorly falls in missing correspondent functionality in China. Knowledge that resides at the side of expatriates is risked by expatriate's translation techniques. Additionally, tacit knowledge might be challenged by being inadequate or outdated. In Simon's theory (1973), effective information processing was possible only when complex problems were simplified and only when organizational structure were specialized.

As a reflection to ODI operations, we suggest organizational structure to be constructed before knowledge transferred into Chinese company. In most cases, a similar organizational structure is recommended, where correspondent employees can easier facilitate the implementation of RKT.

4.3.2 Discussion about unproved variables

From quantitative result, sender ability does not have significant impact on RKT performance, no matter with or without mediation with “time participate in RKT”. In the reliability adjustment, “knowledge sender’s motivation” is eliminated from question items. Besides the statistical explanation that knowledge sender’s motivation cannot present the independent variable “sender ability” as good as the other three items, from content analysis, we also observed that knowledge sender motivation varies from individual to individual, while knowledge sender reliability is certainly ensured. Besides motivation problem, a common unawareness of RKT role among knowledge senders is also observed from qualitative data.

The other control variable “length of time after Chinese company investment” is tested without having significant impact on RKT performance. From content analysis, we are not able to draw any finding about this variable. According to earlier researches, the discussion on “length of time after investment” did not come to a final conclusion. Bresman (1999) suggested “length of time after acquisition” has positive impact on knowledge transfer. However, his conclusion is based on a psychological hypothesis that former employees’ acceptance level to the acquisition will increase over time. Thus the perception towards knowledge transfer within European company will become positive. In this case, if investment doesn’t bring in tenseness of antipathy into European company or considerable amount of new employees replace former employees after investment, that “length of time after Chinese company investment” shall not impact on knowledge transfer. What’s more is that, in this research many invested European companies are wholly owned subsidiary or joint venture. Thus, resistance against investment does not appear in these two types of companies.

Nonaka et.al (1998) and Lundvall (1998) all pointed out tacit knowledge transfer or technological development both request a long years of apprenticeship. From qualitative data, we see “time participate in RKT” might have correlation to knowledge transfer performance. Along with working in European company over time, expatriates’ knowledge structure might be enhanced. RKT participant’s ability in transferring tacit knowledge into explicit knowledge might also be improved after replicated exercises. However, in quantitative analysis, mediator “time participate in RKT” is tested with no significant impact on RKT performance. As stated earlier, the mediation between “receiver ability” and “time participate in RKT” does not prove to be significant. This means that the hypothesis about knowledge receiver’s ability to increase

while incremental in “time participate in RKT” is rejected. Possible reason might fall in that the length of time for RKT participants to gain experience in transferring tacit knowledge is still seen as a short period, restricted by the history of Chinese MNEs ODI in Europe.

We follow Xie & Liang’s (2013) category on incentives, suggesting that “self-incentive”, “recipient’s dominant incentive” and “enterprise dominant incentives” stimulate tacit knowledge transfer. However, the definitions to self-incentive and recipients’ dominant incentive overlap with RKT participants motivation and ability, therefore as stated before, in quantitative testing, we only test enterprise dominant incentive, such as promotion, salary increase, awards, rotation and training’s impact on RKT participant motivation and active learning. However, in quantitative research, incentive does not have impact on RKT performance. This is different from Xie & Liang’s (2013) finding that when the incentives are suitable and appropriate it can enhance knowledge bodies to have strong activeness to knowledge transfer. However, we know from content analysis, in this research, only “potentials in promotion and career development” is the interesting incentive mentioned by RKT participants comparing to salary increase, rotation or other enterprise dominant incentives. The possible reasons might be: (1) current incentive system is not sufficient for encouraging RKT participants in knowledge transfer; (2) knowledge sender as one of the two participant-identities does not have significant impact on RKT performance in this research. Combing the other research findings, we only notice that “self-incentives” encourage knowledge receivers to get close to knowledge source and optimize their own knowledge structure.

Socialization is good for facilitating tacit knowledge exchange through joint activities. Series of activities, such as training program, expatriate participating in daily work, frequent face-to-face communication, employee mobility between Chinese company and European company and frequent communication between leaderships were tested. In quantitative analysis, socialization doesn’t have significant impact on RKT performance. However, content analysis indicates several companies selectively adopted socialization instruments in RKT activity. From content analysis, we observe that company can use socialization instruments to foster more frequent face-to-face communication, such as office landscape design or arrangement to employees’ sitting position.

In quantitative analysis, unlike formal knowledge transfer channel, informal knowledge transfer channel doesn’t have significant impact on RKT performance. Informal knowledge

transmission channels are often used as knowledge acquisition channels (Gupta & Govindarajan, 2000) in order to acquire knowledge in a spontaneous way. However, informal channels are organized voluntarily by people who have same feeling or common interest (Guan, 2005). Content analysis clearly pointed out that culture different on work relation between China and Europe leads a great barrier for informal transmission channels to function as good as formal channels. As stated in content analysis, work relation and private life is preferred to be separated in European work culture. Routinized work life is combined with routinized colleague time. In this case, formal transmission channels create more knowledge learning opportunities. In all, informal transmission channel is restricted by culture distance, and heavily relies on company promoted activities.

Apprenticeship is common way of transferring tacit knowledge where the quality of communication is high. Assigning knowledge receiver with knowledge sender is likely to be a very efficient method for knowledge transfer (Göthensten & Persson, 2014). However, apprenticeship does not have significant impact on RKT performance from quantitative analysis in this research. In content analysis, there is not a clear apprenticeship model observed, knowledge receiver, for instance, expatriates from Chinese company come to work in European company as normal employee and take on normal responsibilities. In summary, apprenticeship system not yet observed nor shown to be as important as expected.

Chapter 5. Conclusion and future discussion

5.1 Conclusion and findings

5.1.1 Key factors facilitate tacit knowledge reverse transfer

Classical overseas investment concludes their success to their monopoly advantage. Earlier theory shows, only monopoly advantage can guide foreign firms through difficulties in overseas markets, in the end lead to the success of overseas investment. Scholars later concluded the internationalization of firms is a process of knowledge standardization. This research corrects the two stereotypes, meanwhile proves that companies from emerging markets with weaker capacities can make successful investment abroad, including investment with focus on knowledge acquisition. The significant difference of this type of investment is that it is not based on stored advantage, but instead built up by new advantages. Certainly, the success of investment is far beyond economic strength, but puts strong requirements on firms' absorptive capacity, especially under the environment of high-employee-committed organizational climate, trust in leadership and trust in other RKT participants' expertise, well-established formal knowledge transmission channels and similarity in organizational structure in both Chinese MNEs and European companies. Among all key factors, receiver ability, formal knowledge transfer channel, trust, company size, organization climate and organizational structure similarity contribute to RKT performance in sequence of importance. A valuable contribution from both qualitative and quantitative research is the importance added on factor "similarity of organizational structure", that is rarely put into attention in the earlier researches. Integrating all these findings, my research is not about challenging the classic theories, but to amend the theory that can be applied to the specific focus on Chinese ODI to Europe with aim of knowledge acquisition.

5.1.2 ODI is a walkable path for acquiring knowledge for industrial upgrading

Noticing the expansion of Chinese companies' overseas investment in the past five to six years, many have been successful in terms of economic returns and innovative knowledge acquisition. At the same time, more companies have failed at different stages of their ODI process. Examining the independent variables, I have found that besides economic strength, Chinese MNEs need to pay attention to companies' absorptive capacity, while at the same time

preparing an environment with high-employee-committed organizational climate, mutual trust, well-established formal knowledge transmission channel and similar organizational structure in both Chinese MNEs and invested European companies. Companies that blindly add in economic investment and ignore developing absorptive ability and ignore preparing the right environment for facilitating reverse knowledge transfer can hardly achieve the goal as they want. The finding of this result implies that ODI is a walkable path for realizing long-term industry upgrading, once prerequisite capacities and conditions are satisfied.

5.1.3 “One-way” knowledge transfer in current China’s ODI

Companies from developed markets also choose FDI as their method for knowledge acquisition. However, knowledge transfer in this case is bilateral as it circulates between companies. When FDI comes from developed markets, investor companies are richer in knowledge source, so that they often play the role as knowledge sender. In the opposite case when ODI comes from emerging markets, knowledge is expected to flow one-sidedly from invested company back to investor company. This research also proves that after ODI, Chinese firms are mostly in the knowledge receiver position, especially in regard of transferring tacit knowledge. We also notice that the bigger tacit knowledge gap exists between Chinese and European companies, the higher possibility that Chinese company employs M&A or through joint venture when entering European markets. While, Chinese firms that target at knowledge with lower tacitness level would prefer to invest in stake.

5.1.4 Variety of RKT participants but expatriates take the main responsibility

This research confirms RKT is an activity that every employee has possibility to involve in, despite of hierarchy level, working experience or nationality. Knowledge transfer is embedded in participants’ daily work, namely when employees from two companies have face-to-face work opportunities. However, in this research, employees in European companies have, in general, low awareness in recognizing their role in RKT, even though they might have day-to-day work with expatriates from Chinese company or had mobility experience to Chinese company. Many employees in European company believe that RKT is a strategy issue that only the managers have to understand and involve in. In contrast, expatriates are with high awareness, and are committed to facilitate knowledge transfer.

5.1.5 Employee mobility bilateral should facilitate RKT

Enhancing the level of “shared experience” is the key way to increase tacit knowledge transfer. As we know, the majority of knowledge that increase company’s competitive advantage carries the nature of tacitness. Face to face work scenario can facilitate tacit knowledge transfer. For Chinese MNEs ODI, reverse knowledge transfer needs high intensity of employee mobility. Along with the process of knowledge integration in the post-acquisition stage, progressively more employee mobility should be planned between Chinese companies and their invested European companies.

Chinese companies’ absorptive capacity counts on each individual employee’s absorptive capacity. Factors such as limitation in individual’s innovative capacity, language and cultural barrier and weakness in absorptive capacity restrict company’s RKT performance. To promote employee mobility bilaterally, means that not only send expatriates from Chinese company, but also encourage European employees going to Chinese company. In fact, the reverse knowledge flows also benefit the European companies, mostly relating to marketing know-how on China market.

5.1.6 Lack of real-time evaluation system for RKT performance

As we have described in previous section, one of the dilemmas of RKT is that obtained tacit knowledge has to reside with expatriates for a long period due to organizational structure dissimilarity between Chinese and European company. The case studies revealed that most of expatriates habituate to write down their experience or learned knowledge for future usage in case they are assigned to a knowledge-related position. Additionally, a weekly checklist with answering set questions is also required. However, the checklist only reports to their home managers. Case studies from this research indicate no real-time RKT performance evaluation system exists, thus the risk of losing obtained tacit knowledge is high. To build up an evaluation system is surely another puzzling question, however, with accumulated RKT experience and incremental skills in expatriate management, a real-time evaluation system is expected to facilitate knowledge transfer efficiency.

5.1.7 Prompt the growth of European company contributes to RKT performance

As we found that in China's ODI, invested European companies are richer in knowledge source, so that they play the role as knowledge sender. However, assigning the invested European company only to foster knowledge creation and knowledge transfer, doesn't promise a long-term benefit to both Chinese MNE and European company. After investment, Chinese MNEs shall prompt the growth of European company, for instance, to include European companies into Chinese MNEs global strategy in brands or sales. An example is that after Company G acquired Company W, even though W has high responsibility in transferring knowledge to G, G also assign W with strategic responsibility within the group holding and foster the development of W. As a result, employees in W are more motivated to work within the group company and to support knowledge transfer. We believe that it has positive impact to RKT performance.

5.1.8 Advantage of Chinese MNEs promise benefits to European companies

The fundamental discussion about the recent ODI trend from Chinese MNEs to developed economies relies on the fact that Chinese companies need to learn knowledge in coping with industrial upgrading. We also find that knowledge mainly flows in one direction, from European company to Chinese company. However, Chinese companies are not passive in the relation with European companies. From a resource aspect, knowledge of the Chinese market, well-developed sales network and low manufacturing cost, promise benefits to European companies. Additionally, some Chinese companies have already achieved high reputation in specific industries, such as Huawei in telecommunication and Lenovo in personal computer. This should strengthen Chinese companies' confidence in international business arena even with the identity as knowledge learner.

5.2 Limitation of research

In this research, qualitative data is collected through 10 semi-structured interviews. Quantitative data is constructed by 101 valid questionnaires. Content analysis is employed for analyzing qualitative data, but the main contribution from qualitative data is for supporting the explanation of quantitative result. In the prior research, a single research method is often regarded as a limitation to the research result. As it is difficult to precisely calculate the research

population, the size of field work restricts us in concluding that the research result is applicable to all Chinese ODI cases.

Additionally, even though we have made efforts to contact all the companies that are listed on the official MOFCOM website who are evaluated to meet the prerequisite of knowledge acquisition investment, we have no control of the amount of respondents from each company. Since the researcher's personal network is used as a basis for finding respondents to the qualitative study, it is expected that the majority of answers are collected from the three companies. This fact would not impact the data reliability, but it is needed to be careful when trying to generalize these results to all Chinese MNEs. It means that the tested model might suit better to a few types of Chinese MNEs, namely Chinese MNEs with strong economic strength that have invested in big size European companies.

5.3 Future research possibility

5.3.1 Factors impact on Chinese SOE and private company learning ODI

Chinese companies' motivation in ODI is to a great extent surged by government policies. Therefore, SOE is the main player in operating overseas investment. Benefitting from Chinese government supports, ODI from SOEs is often doubted for its intention. In many occasions, it restricts Chinese SOEs' ODI activities in US and European markets. From political aspect, private Chinese companies have advantages in foreign investment, but their economic strengths and ODI experiences are comparatively limited. Chinese SOEs and private companies shall be different in overseas investment behaviors and organizational culture. In this research, I do not differentiate company's ownership type in the research group, that means companies are analyzed under the same factors for their knowledge transfer pattern and RKT performance. However, whether factors that impact RKT performance between Chinese SOE and private company learning ODI are the same or not, can be a topic to the future research.

5.3.2 Acquired tacit knowledge integration and implementation in Chinese companies

In this research, with focus of RKT from invested European companies to Chinese companies, my research interest is in the factors and mechanism for tacit knowledge transfer. In the SECI knowledge creation process, tacit knowledge conversion to explicit knowledge for facilitating

RKT is also included. Thus, I have discovered but did not look into two other *ba* for “explicit knowledge combination” and “internalization process to tacit knowledge”. In the concrete context for Chinese MNEs, future research is to understand the process that how Chinese company organizes the fragmented externalized explicit knowledge to apply to company’s operations. And after that, how does Chinese company create its own tacit knowledge and transfer knowledge back to the invested European companies. Until then, we will have a more holistic perspective towards the knowledge creation and conversion in the context of Chinese ODI with focus on knowledge learning. However, we also need to wait for Chinese MNEs RKT enter into a more mature stage.

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Appendix A: Questionnaire Final- English

Research on "Structure Reverse Knowledge Transfer Mechanism in Chinese MNEs"

You may want to know me

I am a PhD student at ISCTE Business School. Currently, I am working on my thesis project "Structure Reverse Knowledge Transfer Mechanism in Chinese MNEs".

"You are selected for this research is due to that 1) you are/were staff in mobility from a Chinese company to work in its invested European company and vice versa. or 2) you work in a Chinese company (European company) that invested (is invested) European company (by a Chinese company). We notice the Chinese company that you work in/for, invested in the European company with a clear intention of knowledge learning.

If you work in one of the stated situations, you might have already participated in the knowledge transfer activities. When you introduce know-hows to the Chinese company, train employees from Chinese company or work with colleagues from Chinese company in the same project, you are already engaged in the process of knowledge transfer.

The focus of this research is about "Tacit knowledge" that refers to your owned/learned work experience, know-how. Tacit knowledge often embeds in your everyday work but difficult to describe. In practice, not all Chinese companies invested in knowledge learning turn to be success. Knowledge transfer could be difficult due to multivariate factors. My research aims to develop and test a model that analyze the joint effect of multivariate determinants on the result of reverse knowledge transfer in Chinese outbound investment activity.

Please kindly notice: all the information related to you and your company will be maintained in strict confidence.

We estimate that to complete this questionnaire, you will need around 10 minutes.

Thank you very much for your cooperation.

Lan Li
BRU - IUL
ISCTE Business School
Email: lanphdresearch@gmail.com or lan_li@iscte.pt

Some information about you

1. Gender

- Female
- Male

2. Nationality

3. Currently you work in

- Chinese investor company
- European company (Acquired or Merged company, Joint venture, wholly-owned Subsidiary)
- Other _____*

4. You have work experience from

- Chinese company
- European company (Acquired or Merged company, Joint venture, Wholly-owned Subsidiary and others)
- Both

Note: You may choose more than one option. You can count your short experience in Chinese/European

company, for instance, exchange, business travel, training as "your work experience in Chinese/European units" also.

5. Your total year of work experience in the option(s) you chose above

- Less than 1 year
- 1 to 5 years
- 6 to 10 years
- More than 10 years

6. Area of expertise

- Research and development
- Sales and Marketing
- Executive Management
- Others

7. Are you at a managerial position

- Yes
- No

Some information about your company

8. European company and Chinese MNE's relation?

- Merger or Acquisition
- Wholly owned subsidiary
- Joint venture
- Other _____ *

Note: If you have worked in more than one European company in Chinese MNEs group, please answer following questions relates to your answer in question 8.

9. How long does European company connect to the Chinese MNEs?

- less than 1 year
- 1-5 years
- 6-10 years
- more than 10 years
- Other

10. How many employees are in European company?

- 1 - 10
- 11 - 50
- 51 - 200
- 201 - 500
- more than 500

11. Are there more international employees than Chinese employee in European company?

- Yes
- No

12. There is a department in your company in responsible for bridging up with Chinese company/European company?

- Yes
- No

13. Would you like to write your company name?

Your ideas about: the company you work in

14. Are you aware there are formal channels, for instance, permanent committee, function and meeting setting, for knowledge to be transferred from European company to Chinese company?

- Yes
- No

15. The questions below request your answer reflecting a scale from 1-7, which means from "strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" to "strongly agree". Please choose one number according to your experience or your observation.

1 2 3 4 5 6 7

1. The greater the reliance on formal knowledge transmission channels to integrate European company with Chinese company, the greater will be the knowledge out flows from European company to China.

2. The greater the reliance on formal knowledge transmission channels to integrate a European company with Chinese company, the greater will be the knowledge in flows from European company to Chinese company.

16. Are you aware that there are informal channels for knowledge to be transferred, for instance unscheduled meetings, informal gatherings and coffee break conversations, or you actively blog in the intranet?

Yes

No

17. The questions below request your answer reflecting a scale from 1-7, which means from "strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" to "strongly agree". Please choose one number according to your experience or your observation.

1 2 3 4 5 6 7

1. A European company's motivation to send knowledge is positively related to the use of informal knowledge transmission channels between employees.

2. A Chinese company's absorptive capacity is positively related to the use of informal knowledge transmission channels between employees.

18. The questions below request your answer reflecting a scale from 1-7, which means from "strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" to "strongly agree". Please choose one number according to your experience or your observation.

1 2 3 4 5 6 7

1. Richness of transmission channels linking European company and Chinese company will positively associate with the outflows of knowledge from the European company.

2. Richness of transmission channels linking a European company to Chinese company will positively associate with the inflows of knowledge to Chinese company.

19. Does your company have "incentives system" for encouraging employees to participate in knowledge transfer?

Yes

No

20. The questions below request your answer reflecting a scale from 1-7, which means from "strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" to "strongly agree". Please choose one number according to your experience or your observation.

1 2 3 4 5 6 7

1. Incentives, such as promotion, salary increase, awards, rotation and training can maintain employees in positive attitude in transferring knowledge to Chinese company.

2. Incentives, such as promotion, salary increase, awards, rotation and training can motivate employees to fulfill their knowledge structure by active learning.

3. Incentives, such as promotion, salary increase, award, rotation and training can encourage employees to keep close relationship with the resourceful knowledge carriers.

21. Do you think your company is capable to alliance personnel in order for "knowledge learner" to experience the same working scenario as "knowledge sender" in order to facilitate "tacit knowledge transfer"?

Yes

No

22. The questions below request your answer reflecting a scale from 1-7, which means from "strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" to "strongly agree". Please choose one number according to your experience or your observation.

- 1 2 3 4 5 6 7
1. Apprenticeship can ensure the correct understanding between knowledge sender & receiver when transferring tacit knowledge.
2. Apprenticeship can guarantee an efficient transmission for tacit knowledge transferring from knowledge sender to receiver.
23. The questions below request your answer reflecting a scale from 1-7, which means from "strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" to "strongly agree". Please choose one number according to your experience or your observation.
- 1 2 3 4 5 6 7
1. People here are open and positive towards transferring knowledge to Chinese company.
-
2. People here are connected with company' interests.
-
3. The most important concern is the good of all the people in the company as a whole.
-
4. It is very important to follow the company's culture, rules and procedures here.
-
24. The questions below request your answer reflecting a scale from 1-7, which means from "strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" to "strongly agree". Please choose one number according to your experience or your observation.
- 1 2 3 4 5 6 7
1. From perspectives of "professional ability" and "commitment", I trust in the leadership in facilitating successful knowledge transfer.
2. I trust in other knowledge transfer participants "professional ability" and "commitment" in the RKT process.
3. I agree that Chinese company and invested European companies have mutual trust in each other's behavior and intention in the process of RKT
25. The questions below request your answer reflecting a scale from 1-7, which means from "strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" to "strongly agree". Please choose one number according to your experience or your observation.
- 1 2 3 4 5 6 7
1. Training program can facilitate knowledge transfer to Chinese company.
-
2. Expatriates participate in daily work in European units can facilitate knowledge transfer to Chinese company.
3. Frequent face-to-face communication between employees can facilitate knowledge transfer to Chinese company.
4. Frequent visit experts to China can facilitate knowledge transfer to Chinese company.
-
5. Frequent communication between European company' and Chinese MNEs' top managers can facilitate knowledge transfer to Chinese company.
-
26. Does your company and Chinese parent company have "similar organizational structure" for knowledge transfer, which means, each "knowledge sender unit" has a correspondent "knowledge learner unit" in Chinese parent company?
- Yes
- No
27. The questions below request your answer reflecting a scale from 1-7, which means from "strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" to "strongly agree". Please choose one number according to your experience or your observation.
- 1 2 3 4 5 6 7
1. Not-matched organizational structure of Chinese company and European company has negative influence on knowledge transfer to Chinese company.
-
2. Under-manning of Chinese company's functionality has negative influence on knowledge transfer

- to Chinese company.
28. Does your company have other support policy in facilitating the knowledge transfer?
 Yes
 No
29. Can you simple describe what the "support policy" is?
-
30. What do you think the effectiveness level of the "support policy?"
Extremely low 1 2 3 4 5 6 7 Extremely high

Your ideas about: you and your colleagues

31. What role do you think you are playing in the process of knowledge transfer to Chinese company?
 Send knowledge
 Receive knowledge
 Both
 Neither
32. How long have you participated in knowledge transfer from European company to Chinese company?
 <1 year
 1-2 years
 2-5 years
 5-10 years
 >10years
33. What tacit knowledge do you think you have transferred or will transfer to Chinese company?
 Technological know-how
 Marketing know-how
 Management know-how
 Other know-how _____ *
34. The questions below request your answer reflecting a scale from 1-7, which means from "strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" to "strongly agree". Please choose one number according to your experience or your observation.
1 2 3 4 5 6 7
1. I think cultural differences create difficulty in understanding or working with my colleagues who also participate in knowledge transfer.
2. I closely cooperate with my colleague who also participates in knowledge transfer.
35. Please choose your attitude towards statement: If I have chance to work on "knowledge transfer" in the future, it is my mission to introduce my experience and knowledge to Chinese parent company.
Strongly disagree 1 2 3 4 5 6 7 Strongly agree

For you as "knowledge sender"

We would like you to understand "knowledge sender" as you take roles in activities, such as sending tacit knowledge to Chinese company directly, or "teach" or "share" your work know-how "officially" or "unofficially" to your colleagues who will bring the knowledge to Chinese company.

36. The questions below request your answer reflecting a scale from 1-7, which means from "strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" to "strongly agree". Please choose one number according to your experience or your observation.
1 2 3 4 5 6 7
1. I have big motivation in transferring my knowledge to Chinese company.
2. I have great confidence in "profession" and "reliability" of the knowledge that I send.
3. I always have capacity in identifying the right tacit knowledge for transferring to Chinese parent company.
4. I always have technique in translating the tacit knowledge into explicit format, like manual and

work notes. ○ ○ ○ ○ ○ ○ ○

For you as "knowledge receiver"

We would like you to understand "knowledge receiver" as you take the role in activities, such as you work in or travel to European units, to work with colleagues in European units in the same project, or attend seminars or workshops in purpose of learning. In your current or future work, you share or will share the knowledge to Chinese company in both "official channel" and "unofficial channels".

37. The questions below request your answer reflecting a scale from 1-7, which means from "strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" to "strongly agree". Please choose one number according to your experience or your observation.

- | | | | | | | | | | |
|---|---|---|---|---|---|---|--|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | |
| 1. I have big motivation in transferring the knowledge to Chinese company. | ○ | ○ | ○ | ○ | ○ | ○ | | | |
| 2. I always have capacity in identifying the right knowledge to transfer to Chinese company. | ○ | ○ | ○ | ○ | ○ | ○ | | | |
| 3. I always have capacity in creating possibility to learn tacit knowledge. | ○ | ○ | ○ | ○ | ○ | ○ | | | |
| 4. I always have capacity in fast absorbing the tacit knowledge. | ○ | ○ | ○ | ○ | ○ | ○ | | | |
| 5. I always have capacity in absorbing tacit knowledge with good quality. | ○ | ○ | ○ | ○ | ○ | ○ | | | |
| 6. I always have technique in translating the tacit knowledge into explicit format, like manual and work notes. | ○ | ○ | ○ | ○ | ○ | ○ | | | |
| 7. I can always integrate what I learn into practice. | ○ | ○ | ○ | ○ | ○ | ○ | | | |

Your ideas about: obtained knowledge

38. The questions below request your answer reflecting a scale from 1-7, which means from "strongly disagree", "disagree", "disagree somewhat", "undecided", "agree somewhat", "agree" to "strongly agree". Please choose one number according to your experience or your observation.

- | | | | | | | | | | |
|--|---|---|---|---|---|---|--|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | | | |
| 1. The transferred knowledge can enhance the independent innovation ability of Chinese company | ○ | ○ | ○ | ○ | ○ | ○ | | | |
| 2. The transferred knowledge can strengthen the innovation ability of employees of Chinese company | ○ | ○ | ○ | ○ | ○ | ○ | | | |
| 3. The transferred knowledge can shorten the innovation time period for the product of Chinese company | ○ | ○ | ○ | ○ | ○ | ○ | | | |
| 4. The transferred knowledge can induce many innovation activities of Chinese company | ○ | ○ | ○ | ○ | ○ | ○ | | | |
| 5. The transferred knowledge can achieve many innovation results of Chinese company | ○ | ○ | ○ | ○ | ○ | ○ | | | |

That's the end.

Thank you very much for your cooperation.

If you are interested in the result of this research, please contact lan_li@iscte.pt or lanphdresearch@gmail.com after the summer of 2016. I will be glad to reconnect with you.

Lan Li

Appendix B: Data collection introducing letter - English

Structuring Reverse Knowledge Transfer Mechanism in Chinese MNEs (Data Collection)

Lan Li

PhD Candidate ISCTE Business School (ISCTE-IUL) Lisbon-Portugal

lan_li@iscte.pt

Researcher Information

Lan Li

PhD candidate in Strategy and Entrepreneurship

Research focus: Chinese outbound investment and Knowledge acquisition

Supervisor

Prof. Nelson António, PhD in Management

Director of PhD program in Strategy and Entrepreneurship

Former Dean of Faculty of Business Administration, Macau University

Research focus: Strategy, Knowledge Management, Quality Management

1. Research background

- Design knowledge transfer model from invested European company to Chinese company
- Accelerate knowledge transmission speed/Knowledge acquisition / Competitive Advantage
- Facilitate success result for Chinese company outbound investment
- Sustainable competitive advantage for company
- Realize industrial upgrading for Chinese manufacturing MNEs

2. Aim at structuring success model for tacit knowledge acquisition

Research does not pay attention to transfer patents.

Research focuses at acquiring skills & know-hows embedded in the practice of employees from invested European company.

“We used to buy technology, but technology will be outdated. Only the technology in mind is the best technology.”

- Zhang Xiaoyu China Automotive Engineering Society Director

3. Facts: Complexity

Multiple factors in the MNEs will influence the result of tacit knowledge acquisition

4. Literature Review

Knowledge creation, ba, Nonaka Ikujiro (1998)

Absorptive capacity Cohen & Levinthal (1990)

Knowledge transfer Gabriel Szulanski (1996)

Organizational climate Gee-Woo, Bock, Robert W. Zmud, et al. (2005)

Employee mobility Dirk Fornahl, Christian Zellner, et al. (2005)

Outbound acquisition and Reverse Knowledge Transfer Wu Xianming (2014)

5. Methodology

Quantitative Research, 100 questionnaires.

Multiple data collection channels: research network, company contact and internet direct contact.

To analyze multiple variables, research will employ multivariate regression to test out best model.

Target companies include SOEs and private-owned Chinese MNEs in the manufacturing industry that are actively involved in ODI with purpose of knowledge acquisition.

6. Benefit for you as knowledge transfer participant

To reflect on your experience by comparing to other participants in knowledge transfer activity.

7. Returns to your company and business society

To track employee's contribution and satisfaction of participating in knowledge transfer.

To reflect on current design of knowledge transmission mechanism.

To enhance employees' knowledge absorptive and sharing capacity.

To accelerate efficiency of knowledge transmission.

To suggest other Chinese companies that wish to realize industrial upgrading by outbound investment.

8. Contribution to Academy

To fill in the gap of "Reverse knowledge transfer" from emerging marketing (China in specific).

9. What we need from you

Please answer this questionnaire if you are involved in knowledge transfer to Chinese parent company.

Please send this questionnaire to your colleagues who are involved in knowledge transfer to Chinese parent company.

If you are interested in the result of this research, please contact lan_li@iscte.pt or lanphdresearch@gmail.com after the summer of 2016