ISCTE Business School
Instituto Universitário de Lisboa

KNOWLEDGE TRANSFER FROM EUROPEAN MULTINATIONAL CORPORATIONS TO THEIR SUBSIDIARIES IN CHINA: CONTEXTUAL PERSPECTIVES AND EXPATRIATE'S ROLES

Wang Jincheng

Thesis presented in partial fulfillment of the requirements for the degree of

PhD in General Management, Strategy and Entrepreneurship

Supervisor:

Prof. Nelson Santos António, Professor Catedrático, ISCTE-IUL Business School

Department of Marketing, Operations and General Management

Co-Supervisor:

Prof. Virgínia Trigo, Professora Associada, ISCTE-IUL Business School

Department of Human Resources and Organizational Behavior

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Abstract

This study aims to explore the factors impeding the knowledge transfer from European multinational corporations' (MNC) headquarters to their subsidiaries in China. And the roles that the expatriates play in the process of knowledge transfer are also examined. A quantitative research method is adopted in this study. We collected 67 questionnaires in total responded by the European expatriates in China. The results indicate that the expatriates actively participate in a wide range of knowledge transfer areas and that seven factors related to various contexts are identified by the expatriates as the primary causes of the difficulties in the process of knowledge transfer. The analysis of the results, which is related to the overall contexts in China, is also presented. We conclude the study with the limitations and suggestions for future research.

Key words: knowledge transfer; expatriate; context perspective;

European Multinational Corporation, China

JEL classification: F2, M1

Resumo

Esta tese investiga os fatores que impedem a transferência de conhecimento das sedes das Empresas Multinacionais Europeias (EME) para as suas subsidiárias chinesas. Investiga também o papel que os expatriados desempenham no processo de transferência de conhecimento. Esta investigação utilizou um método de pesquisa quantitativo. Foram recolhidos 67 questionários preenchidos por expatriados europeus. Os resultados indicam que os expatriados participam ativamente em várias áreas de transferência do conhecimento. Os expatriados identificaram sete fatores relacionados com vários contextos como causas primárias das dificuldades do processo de transferência de conhecimento. A tese apresenta a análise de resultados relacionando com o contexto geral da China. Concluímos com as limitações e sugestões para investigação futura.

Palavras Chave: Transferência de Conhecimento, Expatriados, Perspetiva Contextual, Empresas Multinacionais Europeias, China

Classificação JEL: F2, M1

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Chapter 1: Introduction

1.1 The Study

The globalization of markets and production has caused a primary change of corporate strategy in many companies. The ability to create and transfer knowledge internally is one of the main competitive advantages of multinational corporations (MNCs). The MNC is considered to be a differentiated network, where knowledge is created in several parts of the MNC and transferred to various inter-related units (Hedlund, 1986; Bartlett and Ghoshal, 1989). Against this backdrop, knowledge, knowledge transfer, competence development in MNCs，and related issues have been studied both separately and in relation to each other from different perspectives within different disciplines for a long time (Boekema *et al*., 2000). The focus on knowledge is shared by several recent theoretical perspectives such as the resource-based and the knowledge-based views of the firm. Both of the theories see knowledge as the most important resource and the one with the greatest potential for providing sustainable competitive advantage for the firm (Grant, 1996; Davenport and Prusak, 1998). It suggests that firm specific knowledge development is dependent upon its competitive capabilities and its ability to access and transfer such capabilities. Hence, the ability of how MNCs manage knowledge transfer has become one of the central issues of research in the international management literature.

The recently espoused knowledge-based view of the firm focuses specifically on knowledge as an organization's most strategically significant resource and accordingly emphasizes the capacity of the organization to integrate and transfer this knowledge (Conner and Prahalad, 1996; Doz, Santos, and Williamson, 2001). In this context, the issue of knowledge transferability is important, not only between firms but even more important within the firm (Grant, 1996). The previous studies also assumed that the MNC existence largely attributes to their superiority over external market mechanisms in internalizing intangible assets (e.g., Ghoshal, 1987) and more specifically in transferring and leveraging knowledge (e.g., Gupta and Govindarajan, 2000). Almeida, Song, and Grant (2002) found empirical support for MNCs outperforming strategic alliances and markets in facilitating the flow of both codified

and tacit knowledge through the flexible use of formal and informal mechanisms. As a key characteristic of the firm, knowledge transfer capacity is emerging as a significant explanatory factor in the performance of MNCs (Martin and Salomon, 2003).

From a network perspective, MNCs are commonly perceived as networks of geographically dispersed units that exchange capital, products, and knowledge (Ghoshal and Bartlett, 1990). The network-based view of the MNC argues that the differentiated MNC has greater capacity of processing and mobilizing knowledge in the creation and renewal of competitive advantage for its ability to access knowledge residing in its internal as well as external networks (Bartlett and Ghoshal, 1989). Although it is generally accepted that MNCs are better able to exploit knowledge more efficiently internally than would be possible through external market mechanisms (Bartlett and Ghoshal, 1986), effective transfer of organizational knowledge is still likely to be problematic and laborious, especially within diversified and differentiated MNCs (Bartlett and Ghoshal, 1992).

Due to the critical role of international knowledge transfers within MNCs, there has been increasing interest in understanding the difficulties related to such transfers. This is also related to the fact that for a long time it has been recognized that such internal transfer is not very successful (e.g., Kedia and Bhagat, 1988; Zander and Kogut, 1995). Such difficulties have been attributed to the existence of “stickiness factors” (Szulanski, 1996; Teece 1977; Von Hippel, 1994). The term “stickiness” has been applied in various ways to capture such notions as immobility, inertness and inimitability (Szulanski, 2003, p.12). When applied more specifically to the transfer of information and knowledge, stickiness has come to represent an aggregate measure of multiple factors that impede transfers, relating to the characteristics of knowledge as well as to the characteristics of the source, the recipient, and the context (Minbaeve, 2007). Accordingly, stickiness has been defined as the degree of perceived difficulty in transferring knowledge in organizations, which in turn refers to the extent of problems (e.g., communication difficulties, unmet expectations) and the extent of eventfulness (the escalation of disruptive, transfer-related problems) (Jensen and Szulanski, 2004). In general, research into the stickiness of knowledge transfer represents a concerted attempt to gain insights into the pervasiveness of transfer impediments. However, although there have been attempts to form theoretical

frameworks, it is argued that they have been accompanied by few attempts at rigorous and systematic empirical research evidence (Foss and Pedersen, 2002; Gupta and Govindarajan, 2000; Szulanski, 1996).

Researchers have shown that there are various barriers to knowledge transfer. Some are related to the characteristics of the knowledge being transferred and others of a cultural and organizational nature (Kedia and Bhagat, 1988; Zander and Kogut, 1995). Despite the fact that every organizational practice, routine, or piece of information is embedded within its unique context, there have been few studies examining the impacts of contexts on the knowledge transfer with few notable exceptions (e.g., Kostova, 1999; Riusala and Suutari, 2004; Szulanski, 1996). The aspect focusing on the organizational influences as well as country-level influences on knowledge transfers within MNCs has not received much attention from management scholars. Some researchers call for further research to bring context back into the study of organizational behavior (e.g., Mowday and Sutton, 1993) and to integrate macro and micro paradigms and constructs (House, Rousseau and Thomas-Hunt, 1995). Based on the idea that the process of knowledge transfer does not occur in a social vacuum but rather is contextually embedded (Mowday and Sutton, 1993), Kostova responded to the calls by proposing that the transfers are embedded in three types of context—social, organizational, and relational—that operate at the level of country, the organization, and the individual respectively. Although her theoretical framework has been widely recognized in the field of MNCs knowledge transfer, there have been few rigorous and systematic empirical studies related to her model.

Knowledge transfer cannot occur without the existence of systems and mechanisms that enable and facilitate the process. Research has identified a number of control and coordination mechanisms used by MNCs that enhance and encourage efficient transfer and integration of knowledge within the MNCs (Ghoshal and Bartlett, 1988). When an MNC decides to transfer knowledge, particularly tacit knowledge, between different units, it needs MNCs to develop and deploy more sophisticated cross-border transfer mechanisms in order to facilitate a successful and unproblematic process. Expatriation, as a link between headquarters and foreign subsidiaries, is argued to be one such sophisticated transfer mechanism, which is ideally suitable to tacit knowledge transfers through its capacity to cope with and teach the human elements

of knowledge (Bonache, Brewster, and Suutari, 2001). Traditionally, expatriation has been associated with an ethnocentric approach and indicated the practice of using parent-country nationals for staffing key positions in foreign-owned subsidiaries. Consequently, the primary goal of expatriation was explicit and well-defined control and coordination: By relocating expatriates, parent organizations have been able to exert control and achieve global integration across subsidiaries (Evans, Pucik, and Barsoux, 2002; Tung, 1993). According to Harzing (2001) expatriates are used for effect control, in both a direct and indirect manner.

However, over the last decade, the nature of expatriate assignments has gradually changed. The old motto of expatriation –"just get the job done"- is no longer relevant. Today, expatriates are expected to engage in local staff development and support skills transfer from the MNC headquarters to the subsidiaries. The previous research reveals various possible strategic targets for expatriates in that area. For example, some of these targets include developing top talent and future leaders of the company, improving the trust/commitment of the subsidiary, training local employees in order to improve their individual and team skills, implementing knowledge practices, developing, sharing, and transferring best practices and developing international leadership (Bonache and Fernandez, 1999). The knowledge-related function of expatriates is complementary to the traditional function of coordination and control. Delios and Bjorkman (2000) noted that under the control and coordination function the expatriate works to align the operations of the unit with those of the parent organization, while the complementary knowledge function requires the expatriate to transfer the parent company's knowledge to the foreign subsidiary under conditions where the parent has greater proprietary knowledge. Indeed, the role of expatriates as vehicles for transferring knowledge across MNC units has emerged as a new area of inquiry in international management, though empirical work is scarce.

Because there has not been very much research on the role of expatriates in international knowledge transfer processes, there may be a potential for the development of research based on the notion of expatriates as an agent of knowledge transfer (Bonache and Brewster, 2000; Downes and Thomas, 2000). When this is connected to the earlier discussion regarding the stickiness factors relating to such knowledge transfer, the research can be further extended by applying the framework

of the stickiness factors to knowledge transfers through expatriates.

Transfers of organizational knowledge can occur in various directions within MNCs, including transfers from parent companies to foreign subsidiaries, from foreign subsidiaries to parent companies, or from one subsidiary to another. In this study, considering the research context and for purpose of clarity of the presentation, we focus on one particular type of transnational transfer: that of a parent company in Europe to its subsidiary in China.

1.2 The Research Context

Since the inception of economic reforms in 1979, China has become one of the world's fastest-growing economies. From 1979 to 2010 China's real GDP grew at an average annual rate of 9.9% (China Statistical Year Book, 2010). After three decades of spectacular growth, China passed Japan in the second quarter of the year 2010 to become the world's second largest economy behind the United States. Many economists speculate that China could become the world's largest economy at some point in the near future, provided that the government is able to continue and extend economic reforms, particularly in regard to its inefficient state-owned enterprises and the state banking system.

During the last three decades China has been undergoing a fundamental transformation from a central-command to a market-led economy. At its 14th congress in 1992, the Chinese Communist Party (CPP) approved the "Socialist Market Economy", thereby signaling that the Chinese government has finally abandoned orthodox Marxist economic theory in favor of the western style free market economy. Joining WTO in 2001 marked another important milestone in the economic development of China. WTO membership opens up China's market for more international trade and investment, and opens up the world economy for China's exports. The impacts of the membership on China are not only related to its economic institutions, but also to its legal and political institutions. Chow (2003) identified the impact of China' entry into the WTO includes changes in economic structure and the rate of growth of GDP, formal legal institutions, legal behavior of the Chinese people, and the forces toward the development of democratic political institutions. Because the terms of the membership agreement have been introduced gradually and the

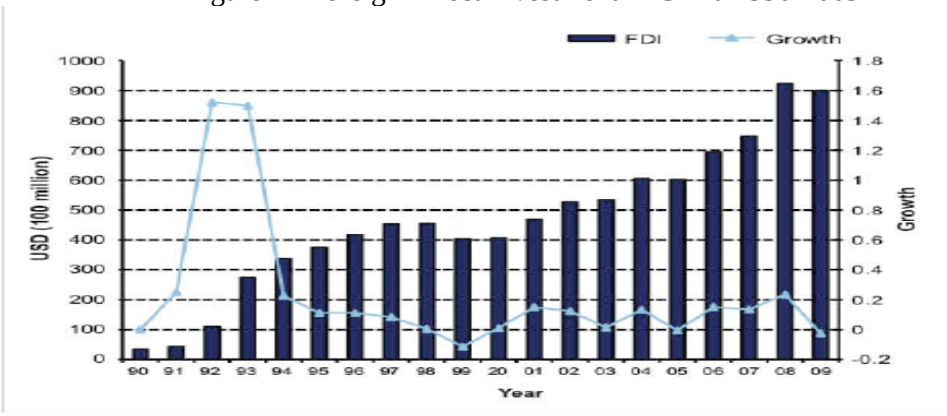
economic, legal and political institutions do not change easily, the effects are taking place in a gradual pace.

Economics generally attribute much of China's rapid economic growth to two main factors: large-scale capital investment (Financed by large domestic savings and foreign investment) and rapid productivity growth. An important part of the economic reform process in China has been the promotion of foreign direct investment (FDI). Since adopting the Open Door policy in 1978, China has attracted a large amount of FDI into China to improve the economy. Lured by China's low cost labor and huge market potential, FDI inflows have maintained a strong growth rate. China has now become one of the most important destinations for cross-border direct investment.

Many researchers believe that foreign direct investment in China has played a largely positive role in China's economic development during the reform (e.g., Chen, *et al.*, 1995). Chen *et al.* argue that FDI can generate more benefits than help solve the capital shortage problem in a developing country. FDI may provide better access to technologies for the local economy. Moreover, FDI can also lead to indirect productivity gains through spillovers (Fung, *et al.*, 2002). For instance, multinational corporations (MNCs) often increase the degree of competition in host-country markets which will force existing inefficient firms to invest more in physical or human capital. In addition, MNCs can provide training of labor and management know-how which can enhance economic development of host country.

During the 1980s, FDI inflows grew steadily but remained relatively low, confined largely to joint ventures with Chinese state-owned enterprises. In early 1992, Deng Xiaoping, the former senior Chinese leader, toured the south; encouraged a massive wave of foreign direct investment, increasingly in the form of wholly-owned subsidiaries of MNCs. FDI inflows peaked at over USD 45 billion a year in 1997-1998. A further surge of FDI preceded and accompanied China's access to the World Trade Organization (WTO) in 2001, promoting China to a prominent position as an FDI destination in 2003. Even though there was a slight dip in FDI in 2009 as a result of the global slowdown, 2010 has again seen investment increase by hitting a record USD105.7 billion. Figure 1 shows the Foreign Direct Investment in China 1990-2009.

Figure 1 - Foreign Direct Investment in China 1990-2009



Source: European Chamber 2011 (www.euccc.com.cn)

Despite the state of the global economy in 2009, China achieved 9.1 percent growth rate and a 10 percent growth level of growth in 2010. As China and the rest of the world recover from the crisis, China's leadership maintained a priority of transitioning from its previous investment and export-driven growth model to a more sustainable one based on the concepts of "balanced growth", "innovative society' and "harmonious society." (National People's Congress of China, 2008). As an important FDI component in China, EU business clearly has the potential to contribute to this transition through investment. However, in 2008, less than 3% of EU outbound foreign direct investment went to China (Eurostat, 2009). This is not because European companies do not want to expand their operations in China, but rather because they face obstacles or risks in excess of what their board member and stakeholders will allow them to bear (European Chamber, 2011). China is still expected to provide an open, fair, transparent and predictable business environment.

Since the economic reform and opening up to outside world 30 years ago, considerable changes have occurred in the Chinese business environment. Foreign investors and companies have recognized the huge market potential in China. However, the influence of the previous command economy can still be seen; for example, in the leadership behavior of managers and in the high level bureaucracy in the country's administrative structure. Differences are also notable among different types of companies and among generations of people. Due to China's importance in the global FDI and the large amount of advanced foreign knowledge transferred into the country, it is critical for MNCs to transfer their knowledge successfully to the

subsidiaries in China. However, little is known about the factors affecting the success of knowledge transfer from MNC parents to subsidiaries in China (Wang, Tong, and Koh, 2004). Thus, this study will try to explore in-depth by examining the knowledge transfers from MNCs in Europe to their subsidiaries in China.

1.3 The Research Objective of the Thesis

In the previous section, two main research tracks related to the international knowledge transfer were discussed. One track is that as knowledge transfer process is contextually embedded, we have to take the different types of contexts into consideration to obtain a more comprehensive view regarding the stickiness factors. Another track involves the role of expatriate as intermediaries in the transfer process. This study will integrate the two research tracks to explore the MNC knowledge transfer from a contextual perspective. By adopting quantitative and qualitative research approaches, our goal is to answer two research questions: 1) what types of knowledge are being transferred from EU MNC headquarters to their subsidiaries in China and what is the role of expatriates in these transfer processes? and，2) what critical contextual variables (CCVs) influence the eventfulness of intra-firm, cross-border knowledge transfer?

To address the research questions, we will develop a model to examine what contextual dimensions may have significant impacts on the cross-border knowledge transfer. The model is based on the argument that knowledge is embedded within a set of contextual dimensions that are critical to the firm's ability to hold, utilize, and extract value from the knowledge. When engaging in knowledge transfers, firms attempt to take knowledge and replant it in a new, different context at the recipient. Our basic premise is that difficulties in transfer stem from the divergence of contextual dimensions between the source and recipient. We argue that the contextual variables at the recipient country may have different levels of impact on the difficulty of knowledge transfer. We examine the model involving international knowledge transfer to achieve the following research objectives:

First, to identify the types of knowledge being transferred and the corresponding levels of expatriate participation in these transfers;

Second, to apply the theoretical framework of stickiness factors presented in this thesis to identify those factors that have particular impacts on the eventfulness of knowledge transfer in the given context.

1.4 The structure of the Thesis

The thesis is composed of six chapters. The current introduction chapter presents the study background and the objectives of the thesis. In the following chapter, previous research on knowledge and knowledge transfer is reviewed. The literature review is limited to those aspects addressed in the thesis. First, the development of the concept of knowledge and knowledge transfer in different streams of literature is discussed. Second, theoretical perspectives, literature on stickiness factors and determinants of MNC knowledge transfer, literature on expatriates, and limitations of previous research are discussed. Based on the literature review, the third chapter develops a framework concerning the stickiness factors to international knowledge transfer through expatriates. In the fourth chapter, the empirical base and research methods of the study are presented. In the fifth chapter, we will discuss the data analysis and the main findings of the thesis concerning the expatriates' experiences of the transfer processes. In the final chapter, the theoretical contributions and managerial implications to the international management literature on knowledge transfer in MNCs are concluded. In addition, the limitations of the thesis and avenues for further research are also addressed.

Chapter 2: Literature Review

2.1 Studies of knowledge in different disciplines

In the last few decades, knowledge has received wide attention from the researchers of a variety of disciplines. Since the studies of knowledge in economics, organizational theory, and strategic management are particularly relevant to this research, the studies in these three disciplines will be highlighted. The researchers in these fields have identified knowledge as one of the most important subjects for scholarly inquiry and they have analyzed the characteristics and roles of knowledge and articulated its implications on the theoretical development.

2.1.1 Knowledge in Economic Theories

In the theory of classical economics, knowledge was treated as a "disturbance" category because it was hard to define. Since the emergence of neoclassical economics, however, most economic theories have treated knowledge, either implicitly or explicitly, as an important factor in economics. Alfred Marshall (1965) was the first to state explicitly the importance of knowledge in economic affairs, "Knowledge is our most powerful engine of production…organization aids knowledge" (p.115). According to neoclassical economic theory, the knowledge utilized by the firms is only represented by price information which every firm can have access to under market mechanism, where the neoclassical economists neglected a huge amount of knowledge held by other economic subjects rather than price information.

Different from the static view on knowledge by neoclassical economists, the Austrian school of economics started to pay attention to the importance of implicit, context-specific knowledge for a dynamic theory of market as the continuous process of change. Joseph A. Schumpeter (1934), an Austrian school of economist, pointed out that the emergence of new products, production methods, markets, materials and organizations resulted from new "combinations" of knowledge in the process of economic change.

While Schumpeter prioritized the process of change in the economy as a whole, Edith P. Penrose (1959) focused on the growth of knowledge in the individual firms. She considered the firm as a combination of productive resources, both human and material. According to Penrose（1959）, “The key to understanding firms’ growth is to focus not on the given resource the firm possesses but on the services rendered by those resources” (p. 25). Services are a function of the experience and knowledge accumulated within the firm, and thus firm specific. In addition, she also argued that the planning process is implemented based on the experience and knowledge within the firm. Although Penrose pointed out the importance of experience and knowledge accumulated within the firm, she did not elaborate on the organizational mechanism or the process through which members of a firm can accumulate, share and utilize the knowledge.

Unlike Penrose’s view, Nelson and Winter (1982) and Winter (1988) considered the firm as a repository of knowledge in their evolutionary theory of economics and technological change. Winter (1988) argued as follows:

> *Fundamentally, business firms are organizations that know how to do things… In fact…a particular firm at a particular time is a repository for a quite specific range of productive knowledge, a range that often involved idiosyncratic features that distinguish it even from superficially similar firms in the same lines of business* (p.175).

According to Nelson and Winter, such knowledge is stored as “regular and predictable behavioural patterns” of business firms, or what they called “routines”. Though they recognized that the essence of technology is knowledge, they did not explicitly link the creation and transfer of technological knowledge to the broad organizational processes.

In short, primary economic theories concerning knowledge mainly deal with predicting the behaviour of firms in external markets and consider a firm a singular decision-maker. Therefore the knowledge theory inside the firms has not been effectively addressed in the economic models. By contrast, organization theory recognizes the firm as a complex organization encompassing multiple individuals and analyzes the internal structure of the firm and the relationship between its constituent

units and departments.

2.1.2 Knowledge in Management and Organization Theories

The strong orientation toward the “scientification” of economics and management illustrates why economists tended to focus on existing knowledge and to neglect the “active and subjective creation” of new knowledge. Frederick W. Taylor, the founder of scientific management, tried to prescribe “scientific” methods and procedures for organizing and managing work. It was an attempt to formalize workers’ experiences and tacit skills into objective and scientific knowledge. However, it failed to perceive the experiences and judgements of the workers as a source of new knowledge. Consequently, the creation of new work methods became the responsibility of managers only, who had to take the task of classifying, tabulating and reducing the knowledge into rules and formulae and applying them to daily work (Taylor, 1991).

With the rapid diffusion of scientific management, another major management theory which highlighted the importance of human factors has drawn more and more attention within the practice of management. In 1930s, George Elton Mayo criticized the Taylorist view of management for treating the workers as an atomized “economic man”, and argued that human beings should be treated in the context of the social group. Mayo (1933) contended that managers should develop “social human skills” to facilitate interpersonal communication within formal and informal groups of the work organization. However, as the human relations theory did not develop a clear-cut theoretical construct that differentiated it from the Taylorist view, it was later absorbed into more “scientific” theories of human group and social interaction that intended to treat human beings as stimulus-response machines with little capability of knowledge creation and sharing.

Based on the two lines of management theories, Chester I. Barnard (cited in Nonaka, 1995) attempted to synthesize the scientific management with the human relations theory at the organizational level. He was one of the first to recognize clearly the importance of the organization in business management. Although knowledge was not a central issue in Barnard’s management concept, his views of knowledge can be summarized into two points. First, knowledge consists not only of logical, linguistic

content, but also of “behavioural,” non-linguistic content. Second, leaders create values, beliefs, and ideas in order to maintain the soundness of knowledge system within the organization as well as to manage the organization as a cooperative system.

Barnard emphasized the importance of “behavioural knowledge” in the management process, which is different from scientific knowledge. He advocated leaders to use both scientific knowledge obtained from logical mental processes and behavioural knowledge extracted from non-logical mental processes. He also recognized the importance of the integration of the logical and non-logical processes of human mental activity, of scientific and behavioural knowledge. However, since the creation of knowledge was not his central concern, the important questions concerning how to convert organizational member’s implicit, behavioural knowledge into organizational knowledge and how to implement this knowledge in practice remained unanswered by Barnard’s analysis of the organization.

Based on Barnard’ insights on the executive’ role, Herbert Simon (1947) developed a view of organization as an “information-processing machine” under the influence by the development of the computer and cognitive science. Identifying that human cognitive capacity is inherently limited; Simon used the concept of “bounded rationality” to build a computer model of the human thought process as a form of information processing. He further argued that the basic features of organizational structure and function were derived from the characteristics of human problem-solving processes and rational choices.

Due to the overemphasis on the rational aspect of human reasoning and the limitations of human cognitive capacity, Simon disregarded the mental process that cannot be presented verbally or “behavioural knowledge” discussed by Barnard. Nor did he pay enough attention to the role of ambiguity and diversity of the information in an organization. Thus, he failed to see human beings as those who actively discover problems and creatively utilize the knowledge to solve them.

To challenge Simon’s view, Cohen, March, and Olsen (1972) developed the “garbage can model” of organization which emphasizes the irrational and ambiguous nature of human problem- solving and decision-making. The model also characterizes the

organization as a system of perception that assigns meaning to what happened retrospectively rather than a system of planning and deductive decision making.

Though the “garbage can model” highlights the role of ambiguity and disorder in the organization, it does not contain a valid insight on the learning taking place among individuals and organizations. The model indicated that it would be very difficult to establish an organizational knowledge base if the learning takes place only at the individual level. Even if individuals involve organizational learning, an organizational learning could still be limited without a systematic organizational learning process.

The dawn of the information age has navigated the leading management thinkers to focus on the role of knowledge in business organizations. Drucker (1991) noticed the sign of this great transformation and coined the term “knowledge worker” around 1960 (p.7). According to his book *Post-Capitalist Society*, it is now “the knowledge society”, in which “the basic economic resource” is no longer capital, or natural resources, or labour, but “is and will be knowledge”, and where “knowledge workers” will play a central role. Drucker (1991) also points out that an organization, to meet the challenge, has to raise the productivity of knowledge and service workers.

From the behavioural studies of organizations, Levitt and March (1988) drew three observations: the first is that behaviour in an organization is based on routines; the second is that organizational actions are history-dependent; and the third is that organizations are oriented to targets. Based on the observations, they interpreted that ‘Organizational learning involves encoding inference from history into routines that guide behaviour. The generic term *routines* include the forms, rules, procedures, conventions, strategies, and technologies around which organizations are constructed and through which they operate.’ March (1991) views organizations as “storing knowledge in their procedures, norms, rules, and forms. They accumulate such knowledge over time by learning from their members.”

Organizational learning generally consists of two activities: one kind of learning is obtaining know-how to solve specific problems based on the existing premises; the other kind of learning is establishing new premises to override the existing ones. These two kinds of learning have been referred to as “single-loop learning” and

"double-loop learning" (Argyris and Schön, 1978). March (1991) also suggested the organizational learning engaged in exploration to pursue new knowledge and exploitation to use the existing knowledge.

To enhance the organization' learning capacity, Senge (1990) proposed "learning organization" as a practical model. He argued that learning organization has the capacity for both generative learning and adaptive learning as the sustainable sources of competitive advantage. However, Senge rarely used the word "knowledge" in his model though he adopted the terms related to knowledge such as "mental models", "a shared vision" and "team learning".

Until recent years, knowledge-based view of firms prevailed, which argues that knowledge and the capacity of creating, sharing and utilizing the knowledge are the most important source of a firm's sustainable competitive advantage (Nonaka, 1994; Parhalad and Hamel, 1990; Nelson, 1991; Cyert *et al.,* 1993; Henderson and Cockburn, 1994; Nonaka and Takeuchi, 1995; Kogut and Zander, 1993; Spender, 1996). Knowledge and skills give a firm competitive advantage because it is through this set of knowledge and skills that a firm is able to produce new products, process, and services, or improve the existing ones more efficiently and effectively (Nonaka *et al.*, 2000).

Given the strategic importance of the knowledge, Nonaka and Takeuchi (1995) developed a model of knowledge creation which views a firm as a knowledge-creating entity. Building on Polanyi's distinction (1966) between explicit and tacit knowledge, Nonaka and Takeuchi (1995) identified four patterns by which existing tacit and explicit knowledge are converted into new knowledge. Knowledge-creating theory defines knowledge as context-specific, relational, dynamic and humanistic and the organization as a place where an individual transcends him/herself through knowledge creation. Their model represents a primary theoretical foundation for the organizational knowledge creation and transfer.

Compared with the knowledge-creating framework, Grant's view on the knowledge in a firm is somewhat different. Grant (1996) claims that knowledge creation is an individual activity and the primary role of firms is in the application of existing

knowledge to the production of goods and services. Despite his emphasis on knowledge application within a firm, he did not deny the importance of organizational context in knowledge creation. In his view, if production creation requires the integration of each person's knowledge with others, the firm provides necessary incentives and direction. And if knowledge is specific to a particular team production process, then knowledge creation cannot be separated from knowledge application—both occur within a common organizational context. Clearly the role of individual in creating knowledge identified by Grant is different from that by Nonaka (1994).

Although both economics and organization theories conducted the insightful exploration regarding knowledge, the studies in strategic management have also produced many outcomes relative to knowledge management in the last two decades; hence, generating more important implications to the related academic research and managerial practices.

2.1.3 Knowledge in Business Strategy

Although the theories of the firm from the perspective of strategic management were derived from the economics and organization theory, its interest area and focus are different from both (Grant, 1996). Strategy has been defined as "the match an organization makes between its internal resources and skills and the opportunities and risks by its external environment" (Hofer and Dan Schendel, 1978) with the primary goals of explaining firm performance and the determinants of strategic choices. During the 1980s, the principal development in strategy analysis focused on the link between strategy and the external environment. A prominent example of this focus is Michael Porter's analysis of industry structure and competitive positioning.

To analyze the attractiveness of an industry, Porter (1986) devised the well-known "Five Forces" model, which provided an understanding of the structure of an industry and how it changed by examining five competitive forces. Porter (1985) proposed another framework called the "value chain" model to analyze the sources of competitive advantage, which is a systematic theory of examining all the activities a firm performs and how they are linked with each other. Though Porter's models

implicitly assumed the importance of strategic knowledge, emphasis is placed on logical and analytical thinking as well as on the use of existing explicit knowledge at the top of the organization. Little attention is paid to the creation, sharing and utilization of knowledge.

As the competitive environment of the 1990s changed dramatically, an externally focused orientation does not provide a secure foundation for formulating long-term strategy, making the structural approach represented by Porter's competitive-forces framework obsolete. Stalk, Evans, and Shulman (1992) observed as follows:

> *When the economy was relatively static, strategy could afford to be static. In a world characterized by durable products, stable customer needs, well-defined national and regional markets and clearly identified competitors, competition was a "war of position".*
>
> *Competition is now a "war of movement" in which success depends on anticipation of market trends and quick response to changing customer needs. Successful competitors move quickly in and out of products, markets, and sometimes even entire business. In such an environment, the essence of strategy is not the structure of a company's products and markets but the dynamics of its behaviour* (p.62).

A new paradigm of corporate strategy, which is called the "resource-based approach", has emerged to help companies compete more effectively in the ever-changing and globalizing environment of the 1990s. The new approach sees resources, capabilities, skills, or strategic assets as the source of sustainable competitive advantage for the firm. Barney (1991) claimed that the resource-based view perceives the firm as a unique bundle of idiosyncratic resources and capabilities where the primary task of management is to maximize the value through the optimal deployment of existing resources and capabilities as well as to develop the firm's resource base for the future.

Among the influential literature on the resource-based approach to the competitive strategy, Prahalad and Hamel's (1990) article on "core competence" defined the core competence as "the collective learning in the organization, especially how to coordinate diverse production skills and integrate multiple streams of technologies". Compared with Prahalad and Hamel's definition, Stalk, Evans, and Shulman's (1992)

view was much broader in terms of the skill base and focused on business processes, which encompass the entire value chain, in defining the capabilities. They argued that it is the broader skills that can transform a company's key business processes into strategic capabilities, thereby leading to competitive success.

Despite this distinction, both groups of authors observe that larger companies today are suffering from the unfair and strict control of the strategic business unit (SBU) and need to overcome it by developing corporate-wide or organizational skills in moving competencies or capabilities from one business unit to another. Though the competencies or capabilities are emphasized by the resource-based approach to strategy, the role of knowledge has not been treated explicitly.

The explosion of interest in knowledge and its management reflects the trend towards 'knowledge work' and recognition of knowledge as the principle source of economic rent (Spender and Grant, 1996). As a distinct part of the strategy field, knowledge has become a focal research topic by strategy scholars since 1990. Nonaka (1991) argued that the knowledge of the organization is a key resource. It has also been argued that the knowledge possessed by an organization --- its procedures, its technical secrets, its contacts with others outside the organization—will deliver significant competitive advantages to many organizations. Some strategists suggest that such knowledge is the key resource that will deliver sustainable competitive advantage (Conner and Prahalad, 1996; Grant, 1996b; Gupta& Govindarajan, 2000; Spender, 1996). Because of the strategic importance of knowledge, researchers have been investigating different aspects of knowledge management. Argote *et.al* (2003) provided an integrated framework for organizing the literature on knowledge management. The framework has two dimensions: the knowledge management outcomes of knowledge creation, retention and transfer on one dimension; the properties of the context within which knowledge management occurs on the other dimension. Not only does the framework identify the research themes and their developments but also suggest the directions for the future research in the field.

2.1.4 Knowledge in Multinational Corporations (MNC)

Since 1980, multinational corporations (MNC) have been playing a pivotal role in promoting cross-border investments and trade. They have been increasingly used as a context for conceptual and empirical work of a variety of studies. Relating MNC context to knowledge management, some researchers (e.g. Almeida 1996; Gupta& Govindarajan, 2000; Kostova, 1999; Minbaeva, 2007; Riusala and Suutari, 2004) have been exploring the issue of knowledge transfer within multinational corporations.

The traditional view of multinational corporations (MNCs) was based on the transaction cost theory. Coase (1937) argued that firms benefited from transaction cost advantages related to ownership, control of technology and a network of global assets. As the turbulence of the business environment has increased in late 1980's, the transaction cost theory evolved from the strategic management research field. The resource-based view prevailed among the researchers who tried to understand the firm's sources of sustained competitive advantages. Barney (1991) proposed that a firm's sustained competitive advantage comes from resources that are valuable, rare among competing firms, imperfectly imitable, and have no strategically equivalent substitute. Dunphy, Turner, and Crawford (1997) contended that a firm can perform well over time if it develops a distinctive strategic competence that allows it to better perform over its competitors. In addition, Prahalad and Hamel (1994) viewed the distinctive competence or the core competence as deeply rooted abilities developed and sustained within the organization. Due to globalization needs, such core competencies have to be effectively transferred across units and borders. According to Szulanski (1996), the identification and transfer of best practices emerged as one of the most important and widespread practical management issues of the latter half of the 1990s. Especially for an MNC, cross-unit transfer of business practices that reflect the core competences and superior knowledge is a main determinant of their competitive advantage (Furu, 2000). In line with that, Conn and Yip (1997) argued that effective international transfer of critical capabilities constitutes the single most important determinant of the multinational corporation success.

Developed from the resource-based view, the emerging 'knowledge-based view'

focuses upon knowledge as the most strategically important of the firm's resources (Grant, 1996). Gupta and Govindarajan (2000) emphasized that knowledge is the key resource that firms must acknowledge, manage, and integrate to grow and create a sustainable competitive advantage. In the area of international business, the knowledge-based view has inspired a recent stream of research on the creation, assimilation, and diffusion of the internal MNC knowledge, which has demonstrated the role of the knowledge in building competitive advantages for the MNCs.

Research in the area of knowledge management identifies knowledge as the most strategically significant resource and indicates that the ability to create and transfer knowledge internally is one of the main competitive advantages of multinational corporations (Minbaeva, *et al*. 2004). The initial central philosophy of MNCs was that firms were viewed as benefiting from superior technology developed in the home country and replicated in other national markets through foreign direct investment (Cantwell and Narula, 2001). The corporate home was seen as the source of all innovation, technical skills, control, and leadership talents. So MNCs have traditionally been stocks of knowledge created at home and brought to the foreign markets for the utilization in its subsidiaries worldwide (Kogut and Zander, 1993). However, the traditional view failed to realize the potential of their globally dispersed sources of talent. In recent studies, researchers have considered the MNC as a 'differentiated network' where knowledge is created through integrating contextually-specific knowledge from various parts of the MNC in different national cultures (e.g Almeida *et al*., 2002). By accessing the knowledge residing in these networks, MNCs can both exploit the existing repositories of knowledge and combine these sources of knowledge to explore new issues (Frost, 2001). This argument, highlighting the potential importance of knowledge as a strategic resource, brought the transfer of knowledge across units into focus as a central challenge for the MNC management. Given that the importance of knowledge transfer within MNCs has been widely acknowledged, there has been substantial evidence that these transfers are not always smooth and successful (e.g. Ghoshal and Bartlett, 1988; Kogut and Zander, 1995). Further, Argote (1999) pointed out the successful knowledge transfer is still difficult to achieve.

2.2 The definition of organizational knowledge and its scope

Despite large amounts of literature on knowledge transfer, very few scholars offered clear definition of knowledge. Grant (1996), in his study of knowledge-based theory of firm, admitted that the question 'what is knowledge?' has intrigued some of world's greatest thinkers from Plato to Popper without the emergence of a clear consensus. Lynch (2000) also claimed "even in the new millennium, there is no widely agreed definition of main aspects of knowledge from a strategic perspective" (p.479). Kostova, Athanassiou and Berdrow (2004) argued that knowledge itself is a very complex resource that is difficult to define and describe. However, if we are to use knowledge in strategic development, we need to be able to define knowledge clearly.

For some researchers and practitioners organizational knowledge tend to be viewed as synonymous with information. For example, in the case of digital information, the interesting issue is thought to be how knowledge-as-information is best stored, retrieved, transmitted and shared (Brown and Duguid, 2000). However, other researchers (e.g., Choo, 1998; Davenport and Prusack, 1998; Nonaka and Takeuchi, 1995) made the distinction between data, information and knowledge. They argued that what differentiates knowledge from information is that knowledge presupposes values and beliefs, and is closely connected with action. Similarly, Bell (1999, pp.lxi-lxiv) has provided an interesting definition of these terms. For Bell, *data* is an ordered sequence of given items and events (e.g., the name of index of a book). The information is a context-based arrangement of items whereby the relations between them are shown (e.g., the subject index of a book). And knowledge is the judgment of the significance of events and items, which comes from a particular context and/or theory (e.g., the construction of thematic index by a reader of a book). Depending on the extent to which they reflect human involvement, data require minimum human judgment, whereas knowledge requires maximum judgment.

Among the very few definitions of knowledge, the following definition provided by Davenport and Prusack (1998) are widely acknowledged:

> *Knowledge is a fluid mix of framed experience, values, contextual information and expert insight that provides a framework for evaluating and incorporating*

> *new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices and norms* (p.5).

This lengthy definition describes the key aspects of knowledge and it also implies that the most useful knowledge in many organizations is often the most difficult to understand, codify and replicate. Importantly, the above definition also tells us that knowledge is not just data or information. Bell (1999: lxiv) also argues that knowledge is the capacity to exercise judgment on the part of individual, which is either based on an appreciation of context or is derived from theory, or both. Fusing Polanyi's insight concerning the personal character of knowledge with Wittgenstein' insight of collective nature of knowledge, Tsoukas and Vladimirou (2001) claimed that knowledge is the individual capability to draw distinctions within a domain of action, based on an appreciation of context or theory, or both.

Because it is difficult to define knowledge, Kostova *et al*. (2004) takes a broad view that "knowledge includes data, and information but goes beyond them because it also consists of ideas, rules, procedures, intuition, experiences, and models that have been developed over time and that guide action and decisions" (p.278) of the companies. The definition illustrates knowledge goes well beyond basic market share, financial data and management accounting information and involves people and unquantifiable assets.

The above definition also reflects two main research perspectives in the study of knowledge transfer. Some researchers primarily focus on the transfers of technology such as technological and product innovations (Ghoshal and Bartlett, 1988; Kogut and Zander, 1992; Zander and Kogut, 1995). Others used the term *organizational practice* to examine 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 and 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 underlying

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. As Winter (1990) suggests that organizational genes range from “hard” (i.e., activities encoded into technologies) to “soft” (i.e., activities encoded into people’s actions).

Nonaka and Takeuchi (1995) defined 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 is not only in the codes and rountines 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 the 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 understanding and experiences.

2.3 Distinction between tacit and explicit knowledge

The distinction between tacit and explicit knowledge is the key for understanding organizational knowledge (Nonaka and Takeuchi, 1995; Inkpen and Dinur, 1998). Polanyi (1962) defined tacit knowledge as the knowledge that is non-verbalizable, intuitive and unarticulated. Tacit knowledge is learned through collaborative experience and is difficult to articulate, formalize, and communicate (Nonaka and Takeuchi, 1995; Polanyi, 1966). Tacit knowledge could be held by individuals or held collectively, in shared collaborative experiences and interpretations of events. Individual tacit knowledge can be found in an employee’s schemes, skills, habits, and abstract knowledge (Lyles and Schwenk, 1992; Starbuck, 1992). The collective tacit knowledge typically resides in top management schemes, organizational consensus on past collaborative experience, firm routines, firm culture, and professional culture (Lyles and Schwenk, 1992; Nonaka and Takeuchi, 1995).

Spender (1996) suggested that tacit knowledge could be understood best as knowledge that has not yet been transformed into practice. It is the knowledge that has

been transformed into habit, and it is highly context-specific and has a personal quality (Nonaka, 1994).

In contrast, explicit knowledge is codified and transferable in formal, systematic methods, such as in rules and procedures (Nonaka and Takeuchi, 1995). Individual explicit knowledge consists of knowledge and skills that can be easily taught or recorded, whereas collective explicit knowledge resides in standard operating procedures, documentation, information system, and rules (Starbuck, 1992).

To distinguish different types of knowledge, Winter (1987) developed the following terminology- complexity versus simplicity, not teachable versus teachable, and not observable versus observable. Similarly, Zuboff (1988) distinguished between action-centered skills and intellective skills. Action-centered skills are developed through actual performance while intellective skills combine abstraction, explicit reference, and procedural reasoning, which makes them easily representative as symbols and therefore, easily transferable.

Kogut and Zander (1993) presented three constructs to measure these different attributes of knowledge (tacit vs. explicit) quite well: codifiability, teachability, and complexity. Codifiability measures the extent to which the knowledge can be articulated in documents; teachability measures the ease by which knowledge can be taught to new workers; complexity is not that easy to measure, but it is the number of critical and interacting elements in the knowledge transferred. In a study of 44 innovations developed by 20 Swedish firms, and subsequently transferred to wholly-owned subsidiaries in other countries, Zander and Kogut (1995) found out that codifiability and teachability are the most related to tacitness and ease of knowledge transfer.

Despite the importance of the distinction, both types of knowledge are not mutually exclusive. Inkpen and Dinur (1998) pointed out the distinction between explicit and tacit knowledge should not be viewed as a dichotomy but as a spectrum with the two knowledge types as the poles at either end. Different areas of knowledge can be categorized as relatively tacit and explicit. Generally speaking, quantifiable technologies and processes are more explicit and more easily transferred (Von Glinow

and Teagarden, 1988). In contrast, managerial and marketing expertise is more tacit than product development, production, and technology (Lane *et al*., 2001). Management and marketing skills are embedded and are not easily codified in formulas or manuals; they also cannot be reversed-engineered easily (Zander and Kogut, 1995).

All organizations have tacit and explicit knowledge. It is the tacit knowledge that often delivers the sustainable competitive advantage because it is this part that competitors have trouble in replicating. Explicit knowledge may also provide sustainable competitive advantage, for example: a company's patents will be recorded for other companies to examine but remain exclusively owned by the originating company. Because tacit knowledge is less easy for competitors to comprehend and copy, it may be particularly important to the sustainable competitive advantages of the organization. Table 2.1 shows examples of tacit and explicit knowledge in a company.

Table 2. 1 Examples of tacit and explicit knowledge in a company

Examples of tacit and explicit knowledge in a company	
Tacit knowledge	Explicit knowledge
● Practical and unwritten procedures for unblocking production stoppages ● Informal networks and procedures for sales order processing ● Multifunctional team working on new projects that rely on informal contacts ● Experience of what has worked in practice in branding development over a number of years ● Specific company treatments of some detailed aspects of management accounting	● Costing procedures codified in company accounting manuals ● New product development through formal company review procedures ● Company patents and legal contracts ● A company's written history of its past events and experiences, successes and failures. ● Training schemes and apprenticeship programs that develop and teach best practice

Source: Richard Lynch, 2000, p. 481.

The table above demonstrates tacit knowledge is more personal, informal or context-related than explicit knowledge.

2.4 Types of organization knowledge

The literature on organizational learning contains numerous typologies of knowledge. Anderson (1983) distinguishes between ‘declarative’ and ‘procedural’ knowledge to capture the difference between knowing the facts and having the skills to do something. Facts are easily codified, whereas procedural knowledge has a significant tacit dimension and is usually learned by doing. Cohen and Bacdayan (1996) stress that “ procedural knowledge is less subject to decay, less explicitly accessible, and less easy to transfer to novel circumstances” (p.409) than is declarative knowledge. Paris, Lipson and Wixson (1983) add a third category, which they label ‘conditional knowledge’ (p.303) in order to characterize the knowledge that implies when and how to apply declarative and procedural knowledge. This form of knowledge is what enables a person to specify the conditions under which facts and skills should be used. Based on the three above items, Sackmann (1992) adds another category, namely axiomatic knowledge, which “refers to reasons and explanations of the final causes perceived to underlie a particular event’ (p.142). To simplify it, it is the knowledge that is drawn upon to explain why things happen.

Among the four types of knowledge, declarative knowledge is the easiest to express and codify, but much of it is likely to be perceived as not being relevant outside the setting in which it was acquired. Conditional knowledge is likely to come up against two difficulties: 1) it has a significant tacit dimension, and since it is closely connected to cultural values, much of it is probably perceived to be of limited relevance outside the culture in which it was created; 2) it would require an openness to second-order learning, a willingness to redefine the frame that establishes what is relevant in an organization. Procedural knowledge, which is largely based upon learning by doing, and axiomatic knowledge, which is absorbed through extensive interaction with a culture, would be the most difficult to share with employees who have not gone through the same extensive experience.

In order to avoid the terminological confusion, Berthoin (2000) refers to the four types of knowledge as knowing what (declarative), knowing how (procedural), knowing when (conditional) and knowing why (axiomatic). Although it is useful to recognize the difference between these types of knowledge, it would be misleading to

regard them as independent of one another. The boundaries between the categories are likely to blur somewhat in practice. More importantly, it is in the synthesis of the types of knowledge that the significance often lies. For example, in most cases knowing “what” can only be applied effectively when one also knows “how” and “when” to use it.

Knowledge is an elusive concept that has been defined and classified in a variety of ways. For the purposes of this study, we use the definition of knowledge adopted by Kogut and Zander (1992) that incorporates both the relatively tacit know-how that is defined as the accumulated practical skills or expertise that allows one to do something smoothly and efficiently, and the information which accommodates more explicit dimensions of knowledge.

2.5 Knowledge transfer

Among all the resources of a firm, knowledge is the most strategically important resource (Grant, 1996) since it provides the capacity for organizational action and new knowledge provides the capacity for organizational renewal (Inkpen, 1998). However, knowledge itself cannot lead to sustainable competitive advantage. Rather, the configuration and integration of knowledge is the key to success of the firm (De Luca and Atuahene-Gima, 2007), which is realized through organizational knowledge transfer.

Argote and Ingram (2000) defined that knowledge transfer in organizations is the process through which one unit (e.g., group, department, or division) is affected by the experience of another. This definition is similar to definitions of transfer at the individual level of analysis in cognitive psychology. For example, Singley and Anderson (1989) defined transfer at the individual level as “how knowledge acquired in one situation applies (or fails to apply) to another” (p.1). Although knowledge transfer in organizations involves transfer at the individual level, the problem of knowledge transfer in organizations transcends the individual level to include transfer at higher levels of analysis, such as the group, product line, department, or division. For example, one manufacturing team may learn from another how to better assemble a product or a geographical division may learn a different approach to product design

from its counterpart in another division.

The previous studies have developed two approaches to knowledge transfer: knowledge spiral model and communication model. The first knowledge transfer model was suggested by Nonaka and Takeuchi (1995), who asserted that four modes facilitate the conversion of knowledge from the individual to the organizational level. This process describes the patterns of interaction between tacit and explicit knowledge in a spiral way. Using the knowledge spiral model of knowledge transfer, tacit knowledge can be transferred through two processes: socialization, which maintains the knowledge in its tacit form, and externalization, through which it is transformed into explicit knowledge. Explicit knowledge can be transferred through two other processes: combination, which retains its explicit nature, and internalization, a process through which explicit knowledge is converted into tacit knowledge. Through these processes existing knowledge can be converted into new knowledge. These notions can be also used as an effective descriptive model for overall knowledge transfer. The limitation of this model, however, is that it does not consider organizational context and the external environmental impact, and the main body of knowledge transfer is generally limited to one organization or within a single enterprise.

The second knowledge transfer model developed by Szulanski (1996) presents a description of intra-firm knowledge transfer, which is a message transmission from a source to a recipient in a given context. He argued that transfers of knowledge are dyadic exchanges of organizational knowledge between a source and a recipient unit consisting of four stages: initiation, implementation, ramp-up and integration. While the first two stages comprise all events that lead to the decision to transfer and the actual flow of knowledge from source to the recipient, the latter two stages begin when the recipient starts utilizing the transferred knowledge. Clearly, pure transmission of knowledge from the source to the recipient has no useful value if the recipient does not use the new knowledge. Based on the Szulanski’s notion, Inkpen and Dinur (1998) analyzed the process in an extended four stages: initiation, where transferred knowledge is recognized; adaptation, where knowledge is changed at the source location to the perceived needs of the recipient; translation, where more alterations occur at the recipient unit as part of the general problem-solving process of adaptation to new context; and implementation, where knowledge is institutionalized

to become an integral part of the recipient unit. Four groups of related factors can be identified: source related factors, recipient related factors, factors relating to the relationship and distance between the two units, and factors related to the nature of the knowledge transferred.

Since organizational knowledge transfer requires the integration of differentiated knowledge, it manifests itself through changes in the knowledge or performance by the recipient units (Argote, 2000). Thus, knowledge transfer can be measured by measuring changes in knowledge or changes in performance. For example, a performance-based approach to measuring knowledge was used by Darr, Argote, and Epple (1995) to estimate the extent to which the productivity of fast-food stores was affected by the experience of the other stores in the franchise.

In addition to studies focusing explicitly on knowledge transfer (e.g., Tsai, 2001), some studies label the knowledge transfer processes in alternative but related ways, for example, knowledge *sharing* (Hansen, 1999; Tsai, 2002), knowledge *flows* (Gupta and Govindarajan, 2000), and knowledge *acquisition* (Darr, *et al*, 1995). For the purpose of this research, the term of knowledge transfer will be adopted.

According to Hansen *et al*. (1999), knowledge transfer follows two general strategies: codification strategy and personalization strategy. Codification typically relies upon electronic databases to store knowledge so that it can easily be accessed by others; personalization relies upon the practice of person-to-person contact for tacit knowledge sharing. Codification strategies are based upon the "economics of reuse" (Hansen *et al*., 1999, p. 110), whereas personalization is based upon the "economics of expertise". They argued that codification strategies are appropriate when knowledge is explicit. When knowledge is tacit, personalization strategies should be employed. In addition, they cautioned that attempts to transform inherently tacit expertise into explicit knowledge may fail if the nuances of face-to-face communication are overlooked.

Hansen and Haas (2001) suggested that task efficiency or productivity is improved through the sharing of codified knowledge, while task quality is improved by sharing personalized knowledge. Personalized knowledge that improves productivity or

quality is distributed across the organization, but may be difficult or time-consuming to access. Codified knowledge that can potentially improve productivity can be archived in electronic databases for easy access. They argued that codified data from electronic databases will not improve work quality; only personal advice from a colleague can provide insights and the benefit of experience that can lead to improvements in quality.

Most efforts to manage organizational knowledge have focused upon information/communication technology (ICT) solutions for building repositories of codified knowledge (Butler, 2003). However, Doz *et al*. (2001) suggested that companies often wrongly believe that ICT is the solution. They argued that ICT-based systems rely upon well-articulated information, require standardization, and are not able to convey tacit and context-specific knowledge from which a competitive advantage is usually derived. To solve the problem, some researchers suggest face-to-face contact and levels of social interaction are needed (e.g., Butler, 2003; Evans, 2004). Roberts (2000) asserted that ICT-based solutions are suitable for transferring information and explicit knowledge, but they are not suitable for transferring tacit knowledge. According to Roberts,

> *The transfer of tacit knowledge often requires proximity between the transmitter and receiver. Videoconferencing and virtual project rooms may aid the transfer of tacit knowledge. Nevertheless, such technologically facilitated communication cannot at present replace the direct face-to-face contact that is often a prerequisite for the successful transfer of tacit knowledge* (p.433).

Recognizing the different nature of both ICT and personal interaction, Mylonopoulos and Tsukas (2003) argued that the social nature of knowledge requires ICT-enabled knowledge management systems to support social interaction. Haythornthwaite (2002) contended that, from a social network perspective, the use and effectiveness of electronic and non-electronic forms of communication depend more upon the strength of social ties between individuals than on the type of media.

As organizational knowledge is socially produced and contextually bound to an organization’s culture and the effectiveness of knowledge transfer is significantly influenced by the context of shared knowledge space. Dinur (2002) claimed that the

more contextually similar the two organizations are, the more likely the knowledge transfers between them are successful. Gill (2004) argued that the concept of shared knowledge is a human-centered approach to technology, which is in contrast to the dominant techno-centric rational approach. According to Gill, " the very concept of shared knowledge space assumes the existence of diversity and therefore associated notions of human dimensions such as those of ambiguity, uncertainty, creativity, judgment, ingenuity that form the part of tacit dimension of shared space" (p.2). Nonaka *et al.*, (2000) used a Japanese word "Ba" to describe a shared space where the knowledge is embedded. This shared space may be physical (e.g., office, dispersed business space), virtual (e.g., e-mail, teleconference), mental (e.g. shared experiences, ideas, ideals), or any combination of them. According to their study, "Ba" provides the context from which shared meaning and collective knowledge develop.

Due to the tacitness of knowledge, practices for managing intellectual capital in the industrial age are no longer appropriate for knowledge management in the era of knowledge economy. According to Starbuck (1992), coordination and control in knowledge intensive firms is generally accomplished through norms and values rather than the formal hierarchy. Brown and Duguid (2002) argued that creative developments were possible if individuals work in an organizational structure of shared knowledge, inherent coordination, and collective understanding. They suggest that a company needs the discipline of formal structure and processes without constraining creativity and contend that the best companies learn how to manage both.

2.6 Knowledge transfer in MNCs

Due to the increasing global integration of business activities, firms are facing enormous pressure to adopt global strategies. As a result, an increasing number of multinational corporations (MNCs) have been set up. To achieve global strategies, the issue of international knowledge transfer has received wide attention. Doz, Santo, and Williamson (2001) pointed out that "globalization meant 'teaching the world' from headquarters, or from subsidiaries in advantaged locations or dominant clusters" (p.10). So, the ability to create and transfer knowledge internally is one of the main competitive advantages of MNCs. As globalization has increased, the knowledge needed to compete in the global economy no longer resides in one location; rather, it

is globally dispersed. The importance of interdependencies and knowledge transfer across MNC organizational units has been recognized and extensively discussed (Doz & Prahalad, 1991; Ghoshal and Bartlett, 1988; Gupta and Govindarajan, 1995; Hedlund and Nonaka, 1993). Bartlett and Ghoshal (1989) considered that the MNC is a differentiated network where knowledge is created in several parts of the MNC and is transferred to various inter-related units. They defined international learning as the development and sharing of knowledge across national boundaries. Kogut and Zander (1993) described the superior ability to transfer knowledge at the international level as a primary source for MNC competitive advantage and growth. Barney, Wright and Ketchen (2001) argued that the MNCs' sustained competitive advantage has become increasingly tied to its ability to share knowledge among its globally dispersed operations.

The primary reason why MNCs exist is that their ability to transfer and exploit knowledge is more efficient and effective in the intra-corporate context than through external market mechanism (Gupta and Govindarajan, 2000). Since Hymer introduced the view of "internalization of intangible assets" in 1960, the nature of firm-specific advantages and their transfer across borders have been the central issue in the theory of the MNC. A principle belief is that the primary advantage that a firm brings to foreign markets is its possession of superior knowledge. Overall, foreign direct investment is the transfer of the knowledge underlying technology, production, marketing, or other activities which embodies a firm's advantage.

Although the external markets continue to become more open, efficient, and global on an ongoing basis, they remain relatively ineffective in terms of knowledge transfer, which could be attributed to two facts. First, much of the specialized knowledge of firms exists in tacit and thereby non-tradable form. Likewise, Kogut and Zander (1992) claimed that much of the knowledge that can lead to a competitive advantage is tacit and not easily shared. Second, market-based transfers of knowledge are often related to negative externalities such as involuntary expropriation and the risk of creating a new competitor. Therefore, MNCs can only transfer the knowledge effectively through internal mechanism.

The idea of MNCs as knowledge networks has been elaborated by Gupta and

Govindarajan (1991). The main idea of their concept is that MNCs can be thought of as a network of multidirectional knowledge transactions among units located in different countries. Network approaches to MNCs emphasize the importance of internal transfers of knowledge between headquarters and subsidiaries (Bartlett and Ghoshal, 1989). The basic premise of these approaches is that competitive advantages can be achieved from the capacity of transferring knowledge to those MNC sub-units where it will add value. A precondition for this is that the geographically dispersed units are able to transfer knowledge to other MNC units as well as adopt knowledge generated there. This capacity of world-wide knowledge transfer becomes essential to support transnational organizational learning and to enhance the holistic perspective of MNCs.

Similarly, Chung (2001) suggested firms typically invest abroad for either one of two purposes. The first purpose is to exploit their existing capabilities. From the traditional perspective, Kogut and Zander (1993) defined a multinational corporation as ‘an economic organization that evolves from its origins to spanning across borders’. Multinational corporations are attracted to invest in developing markets where they can exploit their unique capabilities (Chung, 2001). The headquarters serves as the source of innovation and knowledge for the rest of the organization (Gupta and Govindarajan, 1991). According to Zander and Solvell (2000), MNCs increasingly used the projectionist strategy to invest in foreign subsidiaries and transfer or replicate their technological capabilities to those subsidiaries. Despite the prevalence of the projection strategy, firms find that it is difficult to exploit superior knowledge through the use of foreign direct investment unless they are able to overcome the difficulties inherent in transferring the tacit knowledge (Martin and Salomon, 2003). The second purpose is to acquire new capabilities. Firms choose foreign direct investment as a means to acquire new knowledge and capabilities (Chung, 2001). Kogut and Zander (1993) suggested that MNCs may acquire new knowledge from foreign markets through subsidiaries and combine it with the global knowledge of firm. Multinationals who have pursued diversification of technological capabilities often establish “centers of excellence within the multinational network” (Zander and Solvell, 2000, p.53), allowing them to benefit from integrating and recombining these diverse capabilities. Thus, the sustained competitive advantage of multinational corporations could be realized through sharing their knowledge effectively across the global organization

(Buckley and Carter, 1999).

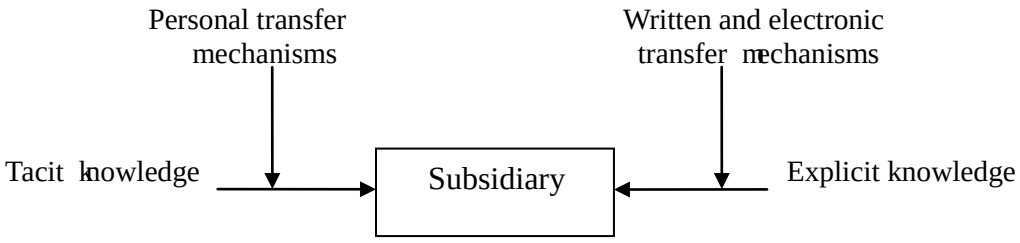
In the area of knowledge management, one of the major challenges is to maintain global collaborative networks that support knowledge transfer. Cantwell and Santangelo (2000) suggested that the opportunity for innovative profits by MNCs comes from the combing of technological knowledge that occurs as a result of cross-border interaction within the MNCs corporate network. If MNCs are not successful in creating an environment for knowledge sharing, transferring tacit knowledge by codification strategies may not be effective. Consequently, the ability to transfer and deploy tacit knowledge has become a strategic concern for MNCs (Subramaniam and Venkatraman, 2001). Tacit knowledge, according to Marquardt and Reynolds (1994), must be "disseminated quickly and seamlessly across functional levels, borders and cultures" (p.32) to support the creation of new knowledge that is essential to organizational growth and survival.

In the context of MNCs, the two types of knowledge require different mechanisms of transfer. Explicit knowledge is more likely to be transferred by a wide range of mechanisms. The widespread use of mail and telephone, company reports, and visits is now increasingly supplemented by real-time information technology (Bonache and Cervino, 1997). Written and electronic modes are able to transfer large amounts of data, which are not possible to be transferred through face to face interactions. In fact, it may result in high costs with personal transfer mechanism, such as travel expenses related to international assignments. Because information can be in a digitalized or in a written format, explicit knowledge transfer could be done more precisely and quickly. Moreover, the storage of information in an electronic form allows permanent access regardless of space, time and context.

However, a significant amount of knowledge transferred between units of a MNC is not explicit but tacit. Given that tacit knowledge cannot be codified or inserted into manuals and can only be observed through its application, when a company decides to transfer tacit knowledge between different units, it must assign employees to the foreign operations. In other words, expatriates are a basic mechanism to transfer tacit knowledge. The use of international assignments allows the transfer of knowledge that the sender may be unaware of to require trust-creation between the sender and the

receiver, and the need for adaptation among different cultures, laws, and business practices. Global teams may also act as interfaces and boundary-spanners between different MNC units (Cohen and Levinthal, 1990). Ghoshal *et al*. (1994) argued that global teams are efficient mechanisms for exchanging tacit knowledge between geographically dispersed subsidiaries and for translating it into a form that is appropriate to specific local conditions. Harzing (2001) suggested that expatriates are not only seen as an instrument for controlling foreign subsidiaries but also as a mechanism for transferring technical and management know-how as well as organizational culture. Lee and Wu (2010) presented a figure (Figure 2) to illustrate the preferred mechanisms of knowledge transfer in MNCs.

Figure 2: Two mechanisms of transferring tacit knowledge and explicit knowledge



(Source: Lee and Wu, 2010)

Although it is widely accepted that the MNC owes its existence to its superior ability (relative to market) to transfer knowledge and that this superior ability may at the same time be a source of competitive advantage (relative to domestic firms), it is also widely recognized that the resource costs of knowledge transfer are likely to be substantial. In possible one of the only studies to date on actual cost of cross-border knowledge transfers, Teece (1981) estimated that transfer costs ranged from 2.25 percent to 59 percent of total project costs with a mean of 19.16 percent. In the view of Kogut and Zander (1993) "… these costs are derived from the efforts to codify and teach complex knowledge to the recipient" (p.630).

Besides the cost problem, scholars continue to find substantial evidence that these transfers are not always smooth and successful. Researchers have shown that there are various barriers to transfer success—some relating to the characteristics of the knowledge to be transferred and others of a cultural and organizational nature (Ghoshal and Bartlett, 1988; Kedia and Bhagat, 1988; Szulanski, 1996; Zander and

Kogut, 1995). In conducting interviews with foreign subsidiary managers, Kostova (1999) found that the managers had various problems in transferring the organizational practices from their headquarters to the foreign subsidiaries. Therefore, to fill in the gap of the research in transferring knowledge from parent country to the subsidiaries in foreign countries effectively, this study is aimed at identifying the factors that influence the knowledge transfer in the context of MNCs.

2.7 Outcomes of knowledge transfer

The literature on the process of knowledge transfer sees the transfer as a process in which an organization recreates and maintains a complex, tacit set of knowledge in a new setting (Szulanski, 2000). Some studies have focused on knowledge transfer along stages and examined factors that are expected to correlate with difficulty at different stages of the transfer. For example, Szulanski (1996) viewed that knowledge transfer process is composed of four stages (i.e, initiation, implementation, ramp-up and integration) between the source and recipient units. The first two stages comprise all events that lead to the decision to transfer and the actual flow of knowledge from the source to the recipient, the latter two stages begin when the recipient starts utilizing the transferred knowledge. Clearly, pure transmission of knowledge from the source to the recipient has no useful value if the recipient does not use the knowledge. The key element in knowledge transfer is not the original knowledge, but rather the extent to which the receiver acquires potentially useful knowledge and utilizes this knowledge in his or her own operations (Minbaeva *et al*., 2003). The literature focusing on the outcome of knowledge transfer implies that the transfer results in the receiving unit accumulating or assimilating new knowledge (Zander, 1991). Further, Davenpot and Prusak (1998) argued that knowledge transfer may lead to some change in the recipient's behavior or the development of some new idea that leads to new behavior, which is in line with the concept of organizational learning. In light of the above, one can suggest that the transfer process does not end with the adoption of the knowledge transferred until the knowledge becomes internalized at the recipient unit. That is, the employees at the recipient unit attach to the knowledge a symbolic meaning and value as the employees do in the parent company.

Several researchers analyze the success of knowledge transfer from the institutional perspective. Kostova (1999) defined the success of transfer as the degree of institutionalization of the practice at the recipient unit. According to Kostova, institutionalization is conceptualized at two levels: implementation and internalization. Implementation refers to the degree to which the recipient unit follows the formal rules implied by the practice; hence, it is reflected in certain objective behaviors and actions at the recipient unit. Internalization is a state in which employees at the recipient unit attach symbolic meaning to the practice. So when the employees at the recipient unit internalize the knowledge transferred, it implies that they not only accept it, but also see the value of using the knowledge. In this case, the knowledge becomes part of the employees' organizational identity.

Although implementation and internalization are theoretically distinct, they are likely to be interrelated. Higher levels of implementation of a particular set of knowledge will be associated with higher level of its internalization. Generally, the more the employees at the recipient unit use it, the more likely it will be that employees take it for granted and attach a symbolic meaning and value to it. However, implementation does not automatically result in internalization. Although sometimes the knowledge is formally implemented, it is possible that employees do not infuse it with value by developing positive attitudes toward it. Overall, only when the knowledge is implemented formally and is also internalized by the employees will it become an institutionalized organizational knowledge in the recipient unit.

Research has shown that organizational knowledge transfer from both internal and external sources has important implications for organizational performances and innovativeness. Prior research supports a positive relationship between organizational knowledge transfer and performance (Lyles and Salk, 1996). Transferring knowledge contributes to the development of organizational capabilities that are difficult to imitate, and subsequently leads to enhanced performance (Szulanski, 1996). Lane *et al*., (2001) found that as joint venture partners acquired and assimilated new external knowledge, performance increased. Hence, organizational knowledge transfer has been associated with higher levels of performance.

In addition, research on organizational knowledge transfer has focused on how knowledge transfer relates to innovation. Organizational knowledge transfer enables an organization to generate new ideas for new product development (Tsai, 2001), as it stimulates the combination of existing and newly acquired knowledge and augments a unit's capacity for making novel linkages and associations (Jansen. *et al*., 2005). Besides, the accumulation of knowledge not only permits more efficient utilization of related knowledge but also enables organizations to better understand and evaluate the nature and commercial potential of technological advances (Cohen and Levinthal, 1990). So, previous studies suggest that organizational knowledge transfer increases innovation.

Empirical evidence also demonstrates the importance of knowledge transfer as a specific medium for managing unit interdependence and enhancing performance. Darr *et al*. (1995) found that interdependent organizational units, connected through knowledge flows, exhibited greater cost reduction than independent units. Ghoshal and Bartlett (1988) found that communications across organizational units facilitated efficient innovation. Gupta and Govindarajan (2000) recognized the importance of knowledge flows in facilitating organizational control across organizational subsidiaries. The creation of knowledge sharing strategic communities within Xerox was related to enhanced performance (Storck and Hill, 2000). Fraser *et al*., (2000) found that having a knowledge sharing facility is related to improved efficiency and bolstered team spirit. At a regional level, Lawson and Lorenz (1999) found that sharing, integrating and combining knowledge may be instrumental in improved innovative capacity.

2.8 Factors affecting organizational knowledge transfer in MNCs

Previous studies on internal knowledge transfer in multinational corporations (MNCs) have often focused on the difficulty of transferring knowledge, which is defined as internal stickiness (Szulanksi, 1996; Teece, 1977; Von Hippel, 1994). This kind of difficulty can be caused by various factors. Some researchers place an exclusive emphasis on the factors that are related to the attributes of the knowledge (e.g., Zander and Kogut, 1995) while others stress the characteristics of the situation in which the transfer occurs (Simonin, 1999a, 1999b). For example, Argote (1999) employs

knowledge transfer process to examine how characteristics of the relationship between organizations, the organizations' characteristics, the features of the knowledge and the dimensions of the transfer process affect the actual knowledge transfer. Eisenhardt and Santos (2002) also explore how knowledge transfer within an organization depends on the characteristics of knowledge, the sender, the recipient, and their mutual relationships. Szulanski (1996) makes a comprehensive study of barriers to intra-firm knowledge transfer. The determinants explored in his study are characteristics of transferred knowledge (causal ambiguity and unproveness), characteristics of knowledge recipients (lack of motivation, lack of absorptive capacity and lack of retentive capacity), characteristics of sources (lack of motivation), and characteristics of the context (barren organizational context and arduous relationships). Based on Szulanski's study, Minbaeva (2007) suggests an eclectic model that indicates four sets of factors are likely to influence the difficulty of knowledge transfer: characteristics of the knowledge, the source, the recipient, and the context in which knowledge transfer takes place. Each of the factors that affect knowledge transfer in MNCs will be reviewed as follows:

2.8.1 Knowledge characteristics

Scholars have studied the characteristics and types of knowledge from different perspectives and levels of analysis (Nonaka, 1994; Spender, 1996; Winter, 1987). One central characteristic of knowledge with respect to its transferability is the commonly accepted premise that there are two types of knowledge: tacit and explicit (e.g., Nelson and Winter, 1982; Polanyi, 1962). Tacit knowledge cannot be codified and is acquired through practical experience and observation rather than formal learning (Grotenhuis and Weggeman, 2002). Without some forms of shared experience, it is extremely difficult for people to share each other's thinking processes (Nonaka, 1994). Explicit knowledge refers to the knowledge that is transmittable in formal systematic language (e.g., blueprints, manuals, and documents) and the ease of communication is its fundamental property.

Previous empirical studies have indicated that knowledge ambiguity is one of the most important predictors of organizational knowledge transfer (e.g. Levin and Cross, 2004; Simonin, 1999b). Knowledge ambiguity refers to the inherent and irreducible

uncertainty as to precisely what the underlying knowledge components and sources are and how they interact with each other. It emerges from the simultaneous effects of tacitness, specificity and complexity of the underlying knowledge to be transferred (Reed and DeFilippi, 1990). Knowledge ambiguity contributes to protecting knowledge from being imitated by rivals, but it also hinders knowledge transfer within and between organizations (Coff *et. al.*, 2006).

Many researchers see tacitness as a main source of ambiguity (e.g., Szulanski, 1996; Simonin 1999a, 1999b) and therefore consider it one of the barriers to knowledge transfer. In identifying this barrier more precisely, two general approaches, articulability and codifiability, are presented. Some researchers like Winter (1987) and Bresman *et al*. (1999), understood tacitness in terms of the relative articulability of knowledge while others, like Zander and Kogut (1995) focus upon the relative codifiability of knowledge. Thus, tacitness is defined in terms of how difficult it is to articulate and codify a given domain of knowledge.

Among the key characteristics of knowledge, tacitness shows a consistently significant negative effect on knowledge transfer. For instance, Zander and Kogut (1995) established that the degree of knowledge codification and the difficulty of teaching capabilities influence the speed of transfer. They found that higher degree of tacitness decreases the speed of transfer since tacit knowledge is hard to articulate in formal language or to express directly. In his study, Minbaeva (2007) also concluded the degree of knowledge tacitness is negatively associated with the effectiveness of knowledge transfer from MNC headquarters to the subsidiary.

The second characteristic of knowledge is complexity and it results from having a large number of interdependent skills and assets (Reed and De Fillippi, 1990). Complexity is associated with the amount of information. According to Winter (1987), “the complexity/simplicity dimension has to do with the amount of information required to characterize the item of knowledge in question” (p.172). However, there are only a limited number of empirical findings on complexity and knowledge transfer. One empirical study by Simonin (1999a) indicates that complexity refers to the number of “interdependent technologies, routines, individuals, and resources linked to a particular knowledge” (Simonin, 1999b, p.600). He found that complexity is

negatively related to knowledge transfer. Overall, complex knowledge is expected to be difficult to transfer since it draws upon multiple types of interrelated competencies—the higher the degree of interdependency, the lower the degree of knowledge transfer.

The third characteristic of knowledge is specificity. Specificity reflects the degree to which knowledge concerns about specific functional expertise and know-how (Minbaeva, 2007). Organizations perform different functional activities, and specific functional knowledge is developed and integrated around these activities. Since MNC units are often integrated vertically around the functions they perform, specificity should be positively related to internal knowledge transfer. However, Zander and Kogut (1995) reveals totally different findings. They used the dimension "system dependence", the same functional department, to capture the similar characteristics of knowledge to be transferred. They hypothesized "system dependence" as being negatively related to the probability of transfer. The dimension，"an element of a system vs. independent"， proposed by Winter (1987) is also related to the specificity dimension. Overall, specificity, or functional knowledge (such as production, marketing, and technological know-how) should be able to "stand alone" and independent from the interrelated knowledge system and thus compared with other types of knowledge, should be easier to transfer.

On the basis of the three characteristics discussed above, Minbaevea (2007) added availability dimension to the list of knowledge characteristics that influence the degree of knowledge transfer. Availability of knowledge resides in the employees' willingness to share the knowledge or in the sharing the culture of the company rather than the form in which the knowledge is stored. Though in some companies the knowledge is explicit, it is not necessarily transferred effectively from the veteran employees to the new comers due to various political reasons (e.g. high knowledge hostility as per Minbaevea, 2007). She proved in her study that availability of knowledge is positively associated with the level of knowledge transfer.

2.8.2 Characteristics of knowledge senders

Much of the previous research on knowledge senders' behavior in relation to knowledge transfer has been largely theoretical and case-based. For example, on reviewing the main sociological and psychological theories, Cabrera (2003) identified nine factors that could influence knowledge senders' behavior. The first factor is trust. Trust was found to positively predict knowledge sharing within and between work units. The second one is a feeling of obligation to share knowledge, which was positively related to the knowledge sharing behavior of individuals. The third one is norms that encourage open exchanges of knowledge among organizational members will lead to a greater degree of knowledge sharing. The fourth is a strong sense of group identity which can influence individual knowledge–sharing behavior. The fifth factor is that individuals will be likely to share their knowledge if they perceive a clear benefit for doing so. Thus, the perceived cost of sharing knowledge，the sixth factor, is positively associated with the knowledge-sharing behavior of individuals. If one believes that the particular piece of knowledge is worth sharing, then she/he is willing to share her/his knowledge with others, which is the seventh factor. The eighth factor is that the knowledge senders' beliefs in various individual competencies and skills are also positively associated with individual knowledge-sharing behavior. The ninth factor --- personality traits, particularly extroversion, agreeableness, conscientiousness, and openness, are positively associated with knowledge sharing behavior. According to Cabrera (2003), norms are expected to influence knowledge-sharing intentions directly, while the other factors are expected to influence knowledge-sharing intention indirectly through their impact on knowledge-sharing attitudes.

Gupta and Govindarajan (2000) argued that the decision to transfer knowledge is driven by at least two behavioral factors: the ability and the willingness of knowledge senders to share knowledge. In analyzing the characteristics of the senders of knowledge, Szulanski (1996) also suggested two factors related to knowledge senders may hinder the knowledge transfer. First, a knowledge sender may be reluctant to share crucial knowledge for fear of losing ownership, a position of privilege, superiority; he or she may resent not being adequately rewarded for sharing hard-won success; or he or she may be unwilling to devote time and resources to support the

transfer. Second, when the source unit is not perceived as reliable, knowledge transfer from the source will be more difficult.

Michailova and Husted (2003) studied knowledge senders in terms of their hostility towards a knowledge sharing. They outlined six reasons for knowledge senders' hostility towards sharing knowledge:

- Knowledge sender's potential loss of value, bargaining power, and protection of individual competitive advantage due to a strong feeling of personal ownership of the accumulated knowledge.
- He or she is reluctant to spend time on knowledge sharing. The knowledge sender may not be interested in knowledge sharing since the time and resources on it could be invested in activities that are more productive for the individual.
- The knowledge senders may be reluctant to share their knowledge with someone who has invested little or no effort in his/her own knowledge development.
- The knowledge senders tend to avoid exposure. By not sharing knowledge, individuals protect themselves from external assessments of the quality of their knowledge.
- Due to the uncertainty of the knowledge receiver's perception and interpretation of shared knowledge, knowledge senders may be highly cautious about revealing the relevant knowledge.
- Knowledge senders' high respect for hierarchy and formal power may also hinder knowledge transfer. They may be reluctant to share crucial knowledge for fear of losing a position of privilege and superiority.

Minbaeva and Michailova (2004) referred to the behavior of knowledge senders as "disseminative capacity". They argue that the ability and willingness of organizational actors to share their knowledge are crucial to the success of knowledge transfer. As valuable knowledge is often tacit in nature, transferring tacit knowledge requires teaching (Winter, 1987). Moreover, knowledge sharing is marked by different interpretations of the same idea, false starts, and disruptions (Zellmer-Bruhn, 2003)；

Therefore, knowledge senders should have well-developed abilities to articulate and communicate knowledge. On the other hand, knowledge senders may be capable but unwilling to share knowledge for the reasons outlined by Michailova and Husted

(2002)，such as knowledge senders' hostility towards knowledge sharing. Generally, a sender's willingness to transfer knowledge depends on the sense of responsibility she or he tends to feel for these decisions.

Although the importance of the knowledge senders' behavior has been illustrated, the empirical studies on it are not as adequate as the theoretical explorations. The few empirical studies are the studies conducted by Szulanski (1996), Simonin (1999a), and Gupta and Govindarajan (2000); however, these studies have not reached a consensus on the appropriate definitions and measure of the behavior of knowledge senders.

When examining the factors influencing the knowledge outflows from the source unit, Gupta and Goindarajan (2000) argue that value of the source unit's knowledge stock and motivational disposition of the source unit decide the extent of the knowledge outflow. In order to make sure a source unit's knowledge is of value to other units, the source unit must create non-duplicative knowledge which is relevant for the rest of the global network. Based on this reasoning, they measure the construct of value of knowledge stock in terms of three variables: mode of entry, subsidiary size, and the economic level of the host country relative to that of the home country. The source's motivational disposition is measured as the extent to which a subsidiary president's bonus is network-focused rather than subsidiary-focused.

Simonin (1999) measured the extent to which knowledge providers protect their competencies with two items: first, whether the partner has intentional procedures, routines, and policies to restrict the sharing of relevant information concerning its marketing skills and know-how; second, whether the partner is very protective of its marketing skills and know-how. For a source's motivation, Szulanski (1996) developed a complex measure of 13 items to capture a source's lack of motivation to share knowledge and 8 items to indicate the reliability of the source knowledge.

Knowledge senders have engaged many researchers' attention. To further illustrate the determinants of the knowledge sender within the context of MNC, Wang, Tong, and Koh (2004) proposed an integrated model of knowledge transfer from MNC parent to a China subsidiary. They argued that knowledge contributed by the parent to the subsidiary is affected by two groups of factors: parent's capacity to transfer

knowledge and parents' willingness to transfer knowledge. Parent's capacity to transfer knowledge refers to the possession of firm-specific knowledge, and the ability to impart the knowledge in a form that can be assimilated by the recipient. Such capacity is primarily determined by 1) the knowledge base of the parent, and 2) the competencies of the expatriates. MNC parents' willingness to transfer knowledge is affected by 1) the importance of the subsidiary among the global network of subsidiaries, and 2) the ownership type. Wang *et al*. (2004)'s study highlighted one of the important roles of expatriates who bring and transfer skills from parent firms to the affiliated organizations in the host countries.

2.8.3 Characteristics of knowledge recipients

In addition to the sender's capability and willingness, successful knowledge transfer requires that the knowledge recipients are capable and willing to acquire knowledge. Oddou, Osland, and Blakeney (2009) argued that recipient's ability to decode the knowledge transferred depends on both the recipients' attitudes about their orientation toward learning and the recipients' ability to integrate that knowledge into the existing practices—their absorptive capacity.

Orientation toward learning refers to characteristics of learning organizations. The characteristics include continuous improvement, openness to new ideas, job autonomy, a tolerance of mistakes, and the encouragement of experimentation (Gold, Malhotra, and Segars, 2001). The richness of information absorbed depends on the degree to which the organization encourages experimentation and slack time, as well as on the degree of receptivity to learning among network members (Davenport and Prusak, 1998). When an organization's orientation toward learning includes openness to new ideas, the recipient is more likely to perceive and understand the knowledge transferred from headquarters.

However, whether and how fast an innovating firm can access, absorb, and integrate external knowledge depends on the "organizational absorptive capability"; that is, the ability of the firm to acquire and utilize external knowledge internally. In their seminal work, Cohen and Levinthal (1990) defined absorptive capacity as the "ability to recognize the value of new external information, assimilate it, and apply it to

commercial ends" (p.128). They assume that a firm's absorptive capacity tends to develop cumulatively, and is path dependent and facilitates building on existing knowledge: "absorptive capacity is more likely to be developed and be maintained as a byproduct of routine activity when the knowledge domain that the firm wishes to exploit is closely related to its current knowledge base" (Cohen and Levinthal, 1990, p.150).

The concept of absorptive capacity and its development have been analyzed in the field of strategic management (e.g., Lane and Lubatkin, 1998), the resource-based view (e.g., Lane *et al.*, 2001) and organizational learning (e.g., Kim, 2001). For example, building on the concept of absorptive capacity, Lyles and Salk (1996) included international joint venture capacity to learn as an independent variable in analyzing knowledge acquisition from a foreign parent. Their results indicate that the capacity to learn, mainly the flexibility and creativity, is a significant indicator of knowledge acquisition from the foreign partner. Furthermore, Lane *et al*. (2001) refined the absorptive capacity definition developed by Cohen and Levinthal (1990). Lane et al., (2001) argue that "the first two components, the ability to understand external knowledge and the ability to assimilate it, are interdependent yet distinct from the third component, the ability to apply the knowledge" (p.1156). In their research, Zahra and George (2002) summarized the representative empirical studies on absorptive capacity. Capacity has four dimensions — acquisition, assimilation, transformation, and exploitation. The first two dimensions form the potential absorptive capacity; the latter two dimensions realized absorptive capacity emphasizing the firm's capacity to leverage the knowledge that has been previously absorbed.

Following Cohen Levinthal (1990) and Kim (2001), Minbaeva (2007) defines absorptive capacity in terms of two elements: prior knowledge and intensity of effort. According to Minbaeva, prior knowledge includes basic skills, a shared language, relevant prior experience and up-to-date information regarding knowledge domains (Cohen and Levinthal, 1990). The term refers to the existing individual units of knowledge available within the organization. Employees need to have combinations of skills that enable them to find, acquire, manage, share, and apply knowledge that the organization needs. Intensity of effort refers to the motivation or willingness the

recipients to learn the external knowledge. Even though the employees in an organization have significant learning abilities, the organization's ability to utilize the absorbed knowledge will be low if employee motivation is low or absent (Baldwin *et al.* 1991).

Not all the recipients are willing to accept knowledge from the outside and some recipients are not cooperative. Katz and Allen (1982) identify the "Not-Invented-Here" (NIH) syndrome which indicates the reluctance of some recipients to accept knowledge from outside. Generally, there are two main drivers of the NIH syndrome. First, ego-defense mechanisms (Sherif and Cantrill, 1947) which can lead some managers to block any information that might suggest that others are more competent that they are. Second, power struggles within organizations (Pfeffer, 1981) can lead some managers to downgrade the potential power of peer units by pretending that knowledge possessed by these peer units is not unique and valuable. Thus, NIH can act as a major barrier to the inflows of knowledge into any focal unit. In order to reduce NIH syndrome, some countervailing forces are needed. Gupta and Govindarajan (2000) argue that the countervailing forces can manifest themselves in several forms: the relative paucity of the focal unit's knowledge stock, incentives that increase subsidiary manager's eagerness to learn from peer units, or coercive pressures from corporate headquarters.

Although the studies from different fields imply that the absorptive capacity of knowledge recipients is a major determinant of the knowledge transfer process, the existing literature paid little attention to how absorptive capacity is created and developed in the firm. To understand the sources of a firm's absorptive capacity, Cohen and Levinthal (1990) focused on the structure of communication between the external environment and the organization, as well as among the subunits of the organization, and also on the character and distribution of expertise within the organization. These factors emphasize environmental scanning and changes in R&D investments but pay little attention to other internal organizational arrangements and their roles in absorptive capacity creation and development.

Lee and Wu (2010) suggest that there are two factors affecting a firm's absorptive capacity in a broad sense. One is an internal factor, such as organizational structure,

culture, human resource management practices, R&D spending, prior knowledge base, employees' level of education, and cross-cultural communication; the other one is an external factor, which includes an external knowledge environment and a firm's position in knowledge networks. In an empirical study of 62 China subsidiaries, Wang *et al*. (2004) suggested that factors affecting the subsidiary's absorptive capacity include the qualifications of its employees, emphasis on training, learning intent of employees, and a link between learning and reward. Overall, both aspects of absorptive capacity—ability and motivation of employees—should be enhanced in order to facilitate knowledge transfer.

2.8.4 The relations between knowledge senders and recipients

Generally speaking, transferring knowledge across organizational units, from the sender to the recipient, is not an easy task and may be attributed to a variety of reasons: the knowledge produced from the MNC headquarters' context may not easily be used in their subsidiaries' business context; differences may exist in the capabilities, culture, structure or technology of headquarters and subsidiaries; and there are inherent differences between the staff of headquarters and in the experience with knowledge transfer (Argote, 1999). Thus, intra-MNC knowledge transfer is possible only when close relationships are established between senders and receivers. There must be communication channels, possibilities for dialogue across organizational hierarchy, conditions for team learning, and systems to capture and share learning within the organization (Levitt and March, 1988; Senge, 1990, Argyri and Schon, 1996). These ideas are supported by several empirical studies on internal MNC knowledge transfer.

In examining the characteristics of organizational context, Szulanski (1996) suggested two kinds of organizational contexts. One is the fertile organizational context, which means communication channels and trust between the organizations. It can facilitate the development of transfers. The other is the barren one (lacking communication channels and mutual trusts) that hinders the gestation and evolution of transfers. He also claimed that since "intra-firm exchanges of knowledge are embedded in an organizational context, a transfer of knowledge, especially when the knowledge transferred has a tacit component, may require numerous individual exchanges." The

study from the similar perspective could be dated back to 1988, when Kedia and Bhagat (1988) proposed two types of organizational effects on the success of technological transfer. One is the compatibility of organizational cultures of the two organizations involved in the transfer. They describe compatibility as similarity between the "negotiated order" of the two transacting organizations, reflected in organizations' structural conditions and patterned lines of communication, and the absorptive capacity of the recipient organization. Some researchers investigate the culture of the organization, because it is a major obstacle to realizing the benefits from organizational knowledge (De Long and Fahey, 2000). They argue that organizational culture creates the context that can either support or discourage social interaction.

Simonin (1999) suggested a term "organizational distance" as one of antecedents of knowledge ambiguities. In his theory, two definitions are concerned: one is "organizational distance". According to his definition, organization distance captures the degree of dissimilarity between the partners' business practices, institutional heritage, and organizational culture. It can take various forms such as centralized vs. decentralized, innovators vs. followers, entrepreneurial vs. bureaucratic. Simonin (1999) argued that the organizational distance between partners negatively affects the level of knowledge transfer. The other definition is knowledge ambiguity, which is "defined as a lack of understanding of the logical linkages between marketing actions and outcomes, inputs and outputs, and causes and effects that characterize a broadly defined marketing-based competency and its transferability."

From the perspective of the organization, Bartlett and Ghoshal (1989) argued that the major obstacle to organizational learning and knowledge sharing in organizations is the vertical structure that inhibits personal relationships and the horizontal flow of knowledge. They suggested that organizations must create informal horizontal communication channels to diffuse the knowledge that gets stuck and protected within the formal organizational structure. According to Bartlett and Ghoshal, this requires an environment of trust and an integrated network of collaboration that supports knowledge transfer. It can be related to transmission channels.

In his empirical study in the domain of MNCs, Bartlett and Ghoshal (1989) claimed that knowledge transfer cannot occur without the existence of transmission channels,

According to the communications theory (Krone *et al*., 1987), transmission channels can be both formal and informal. Nadler and Tushman (1987) identified liaison positions, task forces and permanent committees as some of the key formal transmission channels for integrating multiple units of an organization. Besides the formal structural mechanisms, some other informal channels can also facilitate the intra-firm knowledge transfer. For instance, Bresman *et al*., (1999) showed that interpersonal communication, such as visits and meetings, were significant facilitators of international knowledge transfer. On the same topic, some researcher focused on the knowledge transfers to foreign affiliates through expatriates. For example, Downs and Thomas (2000) state that expatriation is a tool by which organizations can gather and maintain a resident base of knowledge about the complexities of international operations. As one of basic mechanisms for transferring knowledge (Riusala and Suutari, 2004) state that expatriates act as a link between headquarters and foreign subsidiaries, and a great amount of information moves through them.

Gupta and Govindarajan (2000) considered not only the existence of communication channels but also the richness of communication links, captured as informality, openness, and density of communication. The results of their study provided support for the prediction that the existence and richness of inter-unit integration mechanisms are positively associated with the knowledge transfers. Hansen (1999) argued that effectiveness of knowledge transfer depends to some extent on the strength of the tie between the sender and receiver, which is reflected in the ease of communication and the “intimacy” of the overall relationship between the source and the recipient. An arduous relationship might increase the effort needed to resolve the transfer problem.

Social relations among actors play an important role in facilitating resource exchange and knowledge transfer (Adler and Kwon, 2002). Informal, social ties between members of the same organization are superior conduits for knowledge flow between geographically distant locations (Hansen and Nohria 2004). Social relations are consisted of tie strength and trust. Tie strength reflects the closeness of a relationship between partners, and increases with frequency of interaction and communication (Hansen, 1999). Accumulated evidence suggests that strong ties lead to greater knowledge transfer (Reagans and McEvily, 2003). Presumably, strong ties lead organizations and units to expend efforts ensuring that knowledge seekers or receivers

understand sufficiently and exploit newly acquired knowledge (Hansen, 1999). Besides tie strength, prior studies also focused on the trust between partners which determines organizational knowledge transfer (Lane *et al.*, 2001; Szulanski *et al.*, 2004). Trust reflects the belief that a partner's word or promise is reliable and that a partner will fulfill its obligations in the relationship (Inkpen, 2000, p.1027). Trust enables the transfer of organizational knowledge since it increases the partners' willingness to commit to helping partners understand new external knowledge (Lane *et al*., 2001). Although previous research suggested that trust increases organizational knowledge transfer, some studies indicate that a high level of trust may also create collective blindness and inhibit the exchange and combination of knowledge (Lane *et al*., 2001). Hence, although the general belief in prior research is that trust is associated with increased organizational knowledge transfer, there is no evidence for consistent effect.

2.9 The impact of national culture on knowledge transfers

Culture is regarded as one of the most important contextual variables that impact the knowledge transfer process in MNCs (Bhagat *et al*, 2002). Holden (2001) asserts that knowledge transfer in the global economy is essentially a form of cross-cultural management, involving acts of cross-cultural exchange. The literature offers a diversity of approaches to defining culture (Hofstede, 1980, 2001). General consensus seems to view culture as patterns of beliefs and values that are manifested in practice, behavior, and various artifacts shared by members of an organization or a nation (Trice and Beyer, 1993).

As culture has been widely recognized as a key dimension in international business (Hofstede, 2001), international knowledge transfer is not an exception. Indeed, the management of cultural differences within an organization is especially relevant as far as knowledge transfer is concerned. " In the global arena, the complexities increase in scope as multinational firms grapple with cross-border knowledge transfers and the challenge of renewing organizational skills in various diverse settings" (Inkpen, 1998, p.69). Doz and Santos (1997) argue that in MNCs, knowledge management becomes 'eventful' because of the dispersion in space and time and differentiation of context. Generally international knowledge transfers involve two organizations located in two

distinct cultures for a fairly long period of time, so the role of cultural constraints on such transfers should be examined.

Differences in national culture may affect organizational performance and organizational learning. National culture is an element of the relationship among business units, and that MNCs will operate more efficiently when units are more culturally related (Palich and Gomez-Mejia, 1999). They argued that when units of an MNC are more culturally related, the MNC will also be more efficient in sharing knowledge. That is to say, in culturally related countries，MNCs find it easier to transfer knowledge. O'Keeffe's research further substantiated this finding. According to O' Keeffe (2003), the fit between country cultures is a key consideration for MNCs attempting to employ advanced technologies in globally dispersed operations. He argued that organizational learning in a MNC is increasingly dependent upon learning networks and the ability to create knowledge and transfer it across borders.

Researchers usually have studied country-level effects by using the concept of national culture, which has been defined in various ways. Some scholars have emphasized the cognitive nature of culture, defining it as "the collective programming of the mind that distinguishes the members of one category of people from those of another category" (Hofstede and Bond, 1988). Others have stressed its normative component and have proposed that it reflects the shared values of a group (Kostova, 1999). Scholars also have proposed dimensions of culture along which societies differ, and country scores on these dimensions. The cultural dimensions of Hofstede (1980, 2001) are the most frequently used in studies of cultural variations in knowledge transfer, because they represents distinguishing characteristics of societies and the way in which people process information (Bhagat *et al*, 2002). These include the dimensions of individualism versus collectivism, uncertainty avoidance, power distance, and masculinity versus femininity, and long-term versus short-term orientation. Researchers have widely employed this work to study the impact of culture on organizational behavior. For example, Jansens *et al.* (1995) studied the effects of Hofstede's (1980) cultural dimensions on the implementation of corporate-wide safety policies.

The individualism versus collectivism dimension focuses on the degree to which a society reinforces individual or collective achievements and interpersonal relationships. Individualism pertains to societies in which the ties between individuals are loose; everyone is expected to look one's self and his or her immediate family. Collectivism, as its opposite, pertains to societies in which people from birth onward are integrated into strong, cohesive groups. Representing a distinguishing characteristic of societies and the way in which people process information, this dimension is the most frequently used in studies of cultural variations in knowledge transfer (Bhagat *et al.*, 2002). Evidence indicates that this dimension influences the willingness of individuals to share their knowledge (Chow *et al*., 2000). Due to strong identification with the in-group, people from collectivist cultures are less inclined to share knowledge with out-group members (Hofstede, 2001). The dimension of power distance focuses on the degree of equality or inequality between people in a society, that is, power inequality between superiors and subordinate within a social system. In high power distance cultures, people prefer hierarchical communication and the process of knowledge transfer takes place according to hierarchical arrangements within the organization. Superiors in such cultures may have the power to decide when and how knowledge is diffused (Bhagat *et al.*, 2002). The dimension of uncertainty avoidance focuses on the level of tolerance of uncertainty and ambiguity among members of a society. Individuals with a high tolerance for ambiguity are better able to transfer and receive knowledge that is tacit and complex (Bhagat *et al*., 2002). Masculinity refers to the overall "toughness" and competitiveness of the society. The people from feminine countries tend to be less aggressive and more modest than those from masculine countries. There is little evidence regarding how the dimension of masculinity versus femininity influences the knowledge transfer process. But, given the differences in the values associated with masculine cultures and feminine cultures, one would expect this dimension to have implications for the knowledge transfer process. Long-term orientation is the fifth dimension of Hofstede which was added after the original four dimensions (individualism versus collectivism, uncertainty avoidance, power distance, and masculinity versus femininity) to try to distinguish the difference in thinking between the East and West. Long-term orientation stresses persistence, ordering relationships by status and observing this order, thrift, having a sense of shame, and valuing future. Short-term orientation focuses on personal steadiness and stability, respect of tradition, valuing past and

present, reciprocation of greetings (favors and gifts), and fulfilling social obligations. So far, there is no evidence of how this dimension affects the process of knowledge transfer.

Drawing upon Hofstede's (1980, 2001) dimensions of differences in national culture, Kogut and Singh (1988) termed these difference as cultural distance. Several researchers have suggested that cultural distance is an obstacle to knowledge transfer in MNCs (e.g., Bhagat *et al.*, 2002; Holden, 2001; O'Keeffe, 2003). Researchers have argued that cultural distance is related to knowledge transfer in MNCs (Cui *et al.*, 2005; Javidan *et al.*, 2005), because knowledge is created by individuals and embedded in a certain cognitive and behavioral context (Grant, 1996) and then transferred from its holders to its recipients through transmitting their cultural-specific sets of values and frames of reference (Nonaka, 1994; Polanyi, 1966).

Kogut and Singh (1988) examined the effects of cultural distance on a MNC's choice of entry mode in foreign markets. They theorized that "the more culturally distant are two countries, the more distant are their organizational characteristics on average" (p.414). Consequently, the costs and uncertainty of entry into foreign markets are increased. In their empirical study, their findings support the proposition that differences in national culture affect the choice of entry mode by MNCs. They also suggest that cultural distance may be a factor in other types of managerial decision-making in MNCs.

Cultural distance is also considered one of the knowledge ambiguities. Siminon (1999b) defined cultural or psychic distance as the resulting vector of culture-based factors that impede the flow of information between the firm and its partner or environment. He suggested that both tacitness and cultural distance impede knowledge transfer in MNCs. Cultural differences that exist in different countries may cause problems with communication. Olk (1997) claimed that in international strategic alliances, cultural distance creates additional difficulties and challenges for managers who must spend more time on communication, design of compatible work routines, and the development of common managerial approaches. Several other studies also found the partners' organizational and national cultures can significantly impact all aspects of collaboration, including information flows, the process of knowledge management, and knowledge transfer (Lyles and Salk, 1996; Mowery *et*

al,. 1996).

At the collaborative level, Siminon (1999b) argued that cultural distance matters with regard to learning for two reasons. First, cultural distance raises barriers for understanding partners and the nature of their competitive advantage. In this respect, the lack of fluency in a partner's native language may constitute the single greatest obstacle since even well codified knowledge remains inaccessible. Second, cultural distance creates difficulties for identifying market opportunities and understanding market mechanisms. For instance, the knowledge of a partner's pricing or promotional campaign may be so deeply rooted in a prevailing cultural norm (e.g., use of discounts or coupons) that its full grasp cannot be disconnected from the cultural context.

Some researchers explored the relationships between national culture and MNC's business strategy, performance and social ties. For example, Ross (1999) examined the fit between a MNC's business strategy and Hofstede's (1980) dimensions of national culture. In a study of U.S. firms operating in China, Ross attempted to show how each dimension of national culture may affect business strategy. He emphasized the importance of building trust to overcome cultural distance with cultures such as in China, where relationships (*guanxi*) are highly valued. In their empirical study, Kessapidou and Varsakelis (2002) used a measure of culture distance defined by Kogut and Singh (1988) to examine the relationship between cultural distance and MNC subsidiaries' performances in Greece. They found that improved performance by Greek affiliates was associated with higher cultural distance between the culture of the parent company and the Greek culture. Manev and Stevenson (2001) conducted a unique study involving cultural distance and social ties. They studied the relationship between nationality, cultural distance, expatriate status, and the formation of strong ties. The findings illustrated that more culturally distant managers were likely to have strong instrumental ties, while less culturally distant managers were more likely to have strong expressive ties. The transfer of work related information depends upon instrumental ties rather than expressive ties, and work related information is transferred regardless of cultural distance. They suggested that managers in MNCs should promote social interaction and cross-border teams to increase both instrumental and expressive tie strength. Due to the effect of cultural distance on

MNCs, the challenge for managers in MNCs is to establish the organizational environment that encourages "mutual learning, interactive networking, and knowledge sharing" (Holden 2001, p.161).

Kogut and Singh (1988) developed a composite index for the average cultural distance based on Hofstede's (1980) original four dimensions of national culture. Their composite index was computed as "the deviation along each of the four cultural dimensions…corrected for differences in the variances of each dimension and then arithmetically averaged". In a variation of the formula by Kogut and Singh (1988), Morosini *et al.*(1998) computed cultural distance as the total Euclidian distance between two countries based on Hofstede's (1980) original four indices. Although the Kogut and Singh (1988) index was widely adopted in the previous studies, it invited some criticism as being rather simplistic, e.g., non-exhaustiveness, reliance on single company data (Schwartz, 1994). The index amplifies the problems associated with the Hofstede framework in two important ways. First, the index has not been updated to incorporate the latter work by Hofstede and others, for instance, the fifth dimension of Confucian dynamism or Long Term Orientation (LTO) (Hofstede and Bond, 1988). Because of its relationship to Confucianism, cultural distance measures involving East-Asian countries are especially open to challenge. The second and most important way in which the Kogut & Singh's measure amplifies the measurement problems associated with Hofstede is by making an invalid assumption of equivalence. Hofstede (1989) claims that some cultural gaps are less disruptive than others and the differences in uncertainty avoidance are potentially the most problematic for international cooperation due to their differential tolerances towards risk and formalization. Kogut and Singh (1988) examined the role of uncertainty avoidance separately from their index. Both Barkema *et al.* (1997) and Barkema and Vermeulen (1998) supported Hofstede's (1989) contention and found that uncertainty avoidance was more important than other cultural dimensions in predicting FDI success. Other studies have shown individualism has a special effect on FDI (e.g., Hamel, Doz and Prahalad, 1989; Shane, 1992). The aggregate measure may hence provide false readings regarding meaningful cultural differences (Shenkar, 2001). Therefore, in this study, a survey-based research methodology will be adopted to address the issue of cultural difference.

On the national culture level, Chinese culture is considered to be different from that of the west in many ways (Child and Lu, 1996). Characteristics of Chinese culture, such as family orientation, *guanxi*, relational interdependence, face, favor and harmony are found to have an influence on MNC's relationship cultivation strategies (Hung, 2004). Prior research examined the concept of *'guanxi'* from different perspectives. The first one is friendship. Pye (1992) defines *guanxi* as "friendship with implications of continued exchange of favors". The second is contact or common interests. Bian (1994) explains *guanxi* as " 1) existence of relationship between people who share a group status or are related to a common person, or 2) actual connections with and frequent contact between people, or 3) a contact person with little direction interaction." The third one is interpersonal relationship-oriented. Tsui and Farh (1997) maintain that *guanxi* is a type of interpersonal relationship that is personal and built on a particular criterion, such as shared attributes, identity, or origin. The fourth one is related to favor or etiquette. According to Ghauri and Fang (2001) *guanxi* is closely related to *renqing* (favor) and *Li* (etiquette, propriety, and rules of conduct) in regulating relationships. A kind of social interaction falls into the fifth category. Fan (2002) described *guanxi* as a process of social interaction that begins with two persons but involves others at a larger stage. In summary, *guanxi* is all about the cultivation of long-term personal relationships. In the context of Chinese business relationships, *guanxi* can be understood as the concept of drawing on connections in order to secure favors in personal relations, and contains the elements of implicit mutual obligation, assurance, and understanding that govern Chinese attitudes towards social and business relationships (Luo, 1997).

As Chinese *'guanxi'* plays a very critical role in the Chinese social and business life, it is considered the most prominent cultural characteristic that has strong implications for interpersonal and inter-organizational dynamics (Child and Lu, 1996). It is a fundamental web of interpersonal relations permeating Chinese societies. *guanxi*-based business practices can reduce uncertainty, lower search and other transaction costs, and provide usable resources and a sense of connectedness (Wellman, Chen, and Dong, 2002). Though it is vital to adopt the *guanxi* approach in their relationships with Chinese partners, foreign investors should be aware that g*uanxi* alone cannot eliminate threats and competition (Fock and Woo, 1998). In addition, g*uanxi* can be a negative asset if not well managed within and between

foreign and local firms (Vanhonacker, 2004). Overall, foreign investors should take sustained efforts to build up g*uanxi* to give them a competitive edge in their search for an insider position in the Chinese business arena.

2. 10 The impact of institutional context on MNCs knowledge transfer

Institutional theory is widely used for studying the adoption and diffusion of organizational knowledge among organizations (Scott, 1995). A central tenet of the institutional perspective is that organizations sharing the same environment will employ similar practices and thus become “isomorphic “with each other. The adoption of these practices is explained by the organizations’ conformity to institutional pressures driven by legitimacy motives (Kostova and Ruth, 2002).Given that many elements of the institutional environment, such as cultural and legal systems, are often specific to a nation, organizational knowledge can be expected to vary across countries. Gooderham, Nordhaug, and Ringdal (1999) observed that cross-national dissimilarities in institutional structures are likely to create management practices that vary from country to country, regardless of the fact that management theories are often rapidly disseminated across national borders.

Applying institutional theory to the case of multinational corporations (MNCs) highlights the unique institutional complexity that these organizations face. MNCs confront a multitude of different and possibly conflicting institutional pressures (Westney, 1993). Thus, an MNC will experience the pressure to adopt local practices and become isomorphic with the local institution context to achieve and maintain legitimacy in all its environments. Some studies paid more attention to understanding the complex differences among national business system in the institutions governing the way product, labor, and financial markets work, and the way market actors relate to each other (Whitley, 1999). Such cross-national differences place various degrees of constraint upon the international dissemination of practices within MNCs.

Previous studies (Ghoshal and Bartlett, 1988; Grant, 1996) illustrated that an important source of competitive advantage for the MNC is the transfer and utilization of organizational capabilities worldwide. Thus, MNCs will attempt to leverage practices on a worldwide basis. Since a foreign subsidiary is not an independent entity,

if a knowledge is mandated by the parent, the subsidiary is obligated to comply. In other words, there is a within-organization domain that defines a set of pressure to which all units within the organization must conform. At the same time, the foreign subsidiary resides in a host country with its own institutional patterns specific to that domain. As a result, each foreign subsidiary is confronted with two distinct sets of isomorphic pressures and a need to maintain legitimacy with both the host country and the MNC, which Kostova and Roth (2002) refer to as "institutional duality".

As suggested by the institutional perspective, organizational knowledge may have a social meaning shaped by the institutional context, as they are "deeply ingrained in, and reflect widespread understanding of social reality enforced by public opinion, by the views of important constituents, by knowledge legitimated through the educational system, by social prestige, by the laws" (Meyer and Rowan, 1977 in Powell and DiMaggio, 1991, p.44). As knowledge becomes institutionalized, it is viewed in the society as legitimate and is adopted by organizations for legitimacy reasons and not necessarily for efficiency reasons. To better understand the effect of institutional context on organizations' behavior, scholars have developed "new institutionalism" emphasizing the importance of normative and cognitive frameworks (*e.g.*, Scott, 1995). According to the new institutionalism, organizations are under pressure to adapt and be consistent with their institutional environment. They are assumed to search for legitimacy and recognition, which they do by adopting structures and practices defined as and/or taken for granted as appropriate in their environment (Meyer and Rowan, 1977). Hence, isomorphism occurs between organizations in the same context (Bjorkman *et al.*, 2004).

DiMaggio and Powell (1983) suggested that isomorphism is produced in three major ways: coercive isomorphism, where a powerful constituency (e.g., the government) imposes certain patterns on the organization; mimetic isomorphism, where organizations in situations of uncertainty mimic organizations viewed as successful in their environment; and normative isomorphism, where professional organizations such as universities, consultancy firms and professional interest organizations act as disseminators of appropriate organizational patterns which are then adopted by organizations under the influence of these professional organizations. Scott (1995) proposed that institutional environments are composed of various types of institutions

and can be characterized by three pillars: regulatory, cognitive, and normative. The three components of the institutional environments form a so-called country institutional profile, which can be used to compare the institutional characteristics of different national environments. Recently, institutionalism has turned its attention to conceptualizing the interaction among different national institutional frameworks (Kostova and Roth, 2002).

Kostova (1999) proposed the concept of "institutional distance" as a key variable in the strategic organizational practices transfers between national institutional domains. Institutional distance is the difference between the 'country institutional profile' (CIP) of the home country and the country of the recipient organizational unit. The CIP construct provides indices of the regulatory, normative and cognitive institutions of a country. Each of these dimensions reflects the difference between the corresponding dimensions in the institutional profiles of the two countries. Kostova cites the example of a CIP for equal employment opportunity (EEO) in the United States. This would comprise the regulatory institutions such as the relevant legislation of the EEO Act; cognitive institutions, that is, the shared social knowledge that people hold regarding the EEO Act; normative institutions, that is, people's beliefs, values, and social norms related to the EEO Act that people maintain or value.

There is a possibility that the organizational practices may not be consistent with the institutional environments into which they are transferred, and they may even be in conflict with them. For Kostova, if a practice is not consistent with the recipient country's cognitive institutions, the employees in MNC subsidiaries are very likely to have difficulty in interpreting and judging the practice correctly, and hence transfer will be affected. National institutional factors thus interact with the individual characteristics of practices: for instance, as the work systems in Japanese businesses tend to be less codified and more tacit, it is more difficult to be transferred to the UK smoothly. Conversely, US MNCs have a greater organizational capacity for coordinating globally-dispersed learning because the American business systems allow for codifying and disseminating knowledge.

A transferred knowledge can be implemented in the subsidiary in a variety of ways. Tolliday *et al*. (1998) argue that 'systems cannot be transferred without being

significantly reshaped… Hybridization is inevitable.' Hybridization arises from 'interaction with different national, legal, or institutional systems; different political contexts; different labor markets and skill structures, different infrastructures' (p. 4) as firms attempt to make practices drawn from one 'social and economic space' compatible with the constraints and opportunities of the host environment. Although scholars see hybridization playing a critical role in organizational learning, others are concerned regarding the loss of functionality of practices transferred from their original location. Kostova (1999) draws a distinction between 'implementation' and 'internalization' within the host subsidiary. Implementation involves formal adherence to the practice; internalization refers to the way in which employees attach meaning to the practice or 'infuse it with value'. In other words, Kostova is concerned with cognitive and normative integration of the practice within the subsidiary.

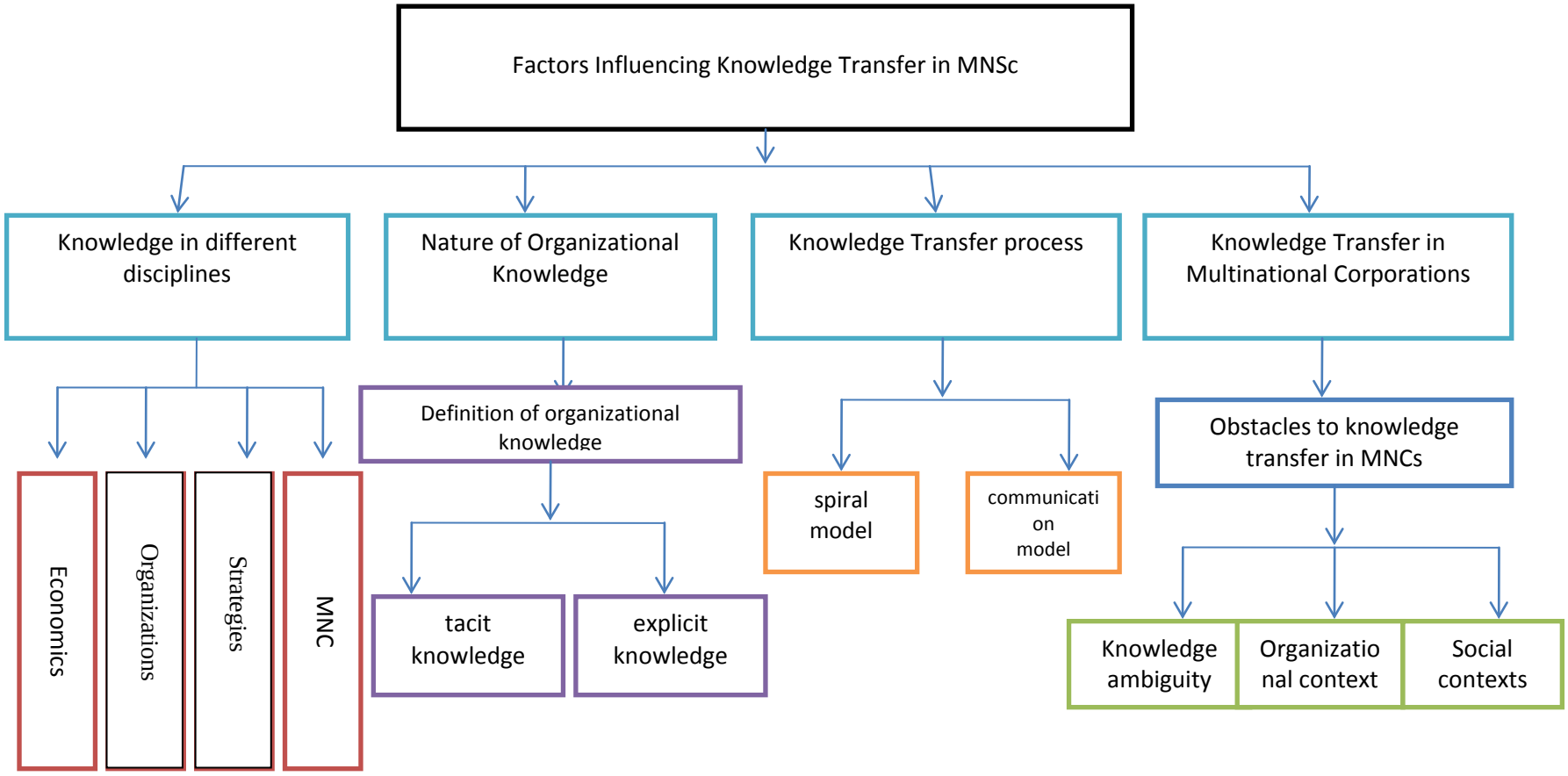
While the impact of institutional theory on cross-border knowledge is widely recognized, the empirical studies in this area are scarce. Liu, Tang and Zhu (2008) explored the relationship between China's institutional profile and technology transfer. Based on an empirical study of 167 foreign ventures sampled in China, they found the results did not fully confirm what the institutional theory emphasized regarding the effectiveness of technology transfer. The normative dimension of the country institutional profile has a positive impact on the effectiveness of technology transferring across borders; but the regulatory dimension has a negative effect upon the technology transfer, while the cognitive dimension has no significant effect upon it. Though the study was conducted within Chinese institutional context, it only focused only on technology transfer which cannot fully reflect the characteristics of knowledge transfer.

Riusala and Suutari's study (2004) was the first empirical work to apply the extended framework of stickiness to knowledge transfers through expatriates. They developed a framework of stickiness factors including the characteristics of knowledge, social context, organization context and relational context, which was built on the theoretical frameworks by Szulanski (1996) and Kostova (1999). The objectives of the study were to analyze what kind of knowledge is transferred within MNCs and what is the role of expatriates in these transfer process and to develop a theoretical framework on internal stickiness factors faced by the expatriates for an empirical test. The study was

conducted with the Finnish expatriates working in Poland. The result showed that the most common social context-related internal stickiness factor appeared to be the bureaucracy of public authorities, culture issues, legislation and taxation; the use of gifts/bribes within the context; and the infrastructure. They found the social factors were the important stickiness factors in international knowledge transfer processes.

Besides the qualitative study by Riusala and Suutari (2004), Riusala and Smale (2007) tested a similar model in a quantitative approach. In their theoretical model, the stickiness factors involve four sets of independent variables: characteristics of knowledge, social context, organizational context and relational context. The study was designed to identify which factors are perceived by expatriates to contribute most to the difficulty of knowledge transfers. Based on the framework, hypotheses were developed and tested with a sample of 112 Finnish expatriates working in USA, Germany and China. The results showed that expatriates are involved in transfers of several different types of knowledge, often requiring them to work across functions. Furthermore, knowledge-related and organization-related stickiness factors dominated those related to the social and relational contexts in explaining the difficulty of knowledge transfers from the expatriates' perspective. Although the study made a contribution to the robustness of the theoretical framework, it did not reveal an in-depth analysis as to why these stickiness factors impede the knowledge transfer through expatriates in different countries, especially in the context of China. The framework of the literature review is summarized in Figure 3.

Figure 3 Framework of the literature review



Chapter 3: Theoretical Framework and Hypothesis Development

3.1 The limitations of the literature reviewed

3.1.1 Restricted perspectives on knowledge area research

Most of previous studies have only focused upon selected functional expertise, such as technological, marketing, product innovations and minimized the study of general organizational knowledge (e.g. Ghoshal and Bartlett, 1988; Kogut and Zander, 1992,1993; Zander and Kogut, 1995; Liu, Tang and Zhu, 2008). As Minbaeva (2007) indicated, "Other components of organizational knowledge, such as knowledge of management systems and practices, or internal processes have been largely neglected in the majority of the reviewed studies" (p.570). Only two studies covered general organization knowledge. The first one is Kostova's (1999) study which examined the phenomenon of the transnational transfer of strategic organizational practices within multinational companies. Though Kostova related to organizational knowledge, she adopted the term 'strategic organizational practices' instead of 'organizational knowledge' to refer to those practices considered to be dominant, critical, or crucial for achieving the strategic mission of the firm. Szulanski (1996) defined organizational practices, in broader terms, as the routine use of organizational knowledge. Based on different perspectives on organizational practices, Kostova defined it as particular ways of conducting organizational functions that have evolved over time under the influence of an organization's history, people, interests, and actions and that have become institutionalized in the organization, which is similar to what Minbaeva (2007) addressed about the other components of organizational knowledge. Following up Kostova's theoretical framework, Riusals and Suutari (2004) used the term 'knowledge' to empirically study knowledge transfers through expatriates. They found the expatriates identified seven most typical key knowledge transfers among the companies in Poland: management knowledge, cultural knowledge, sales and marketing knowledge, technical and production knowledge, product/service knowledge, HRM knowledge and accounting/finance knowledge. Their findings are not fully consistent with Gupta and Govindarajan (2000)'s focus on the transfer of seven types of knowledge: marketing know-how, distribution know-how, packaging design/technology, product design, process design, purchasing know-how, and management systems and practices. In this thesis, we will examine what types of organizational knowledge are transferred to the MNC subsidiaries in the context of China.

3.1.2 Roles of expatriates not being fully explored

The role of expatriates involved in transnational knowledge transfer has not been fully explored. Traditionally, expatriation has been associated with an ethnocentric approach and indicated the practice of using parent-country nationals for staffing key positions in foreign-owned subsidiaries. Consequently, the primary goal of expatriation was explicit and well-defined control and coordination. By relocating expatriates, parent organizations have been able to exert control and achieve global integration across subsidiaries (Evans *et al.*, 2002). According to Harzing (2001), expatriates are used to affect control, in both a direct and indirect manner.

Over the last two decades or so, the nature of expatriate assignments has gradually shifted. The old motto of expatriation "just get the job done" is not longer relevant. Expatriates are expected to engage in local staff development and support skills transfer from headquarters. Research reveals that expatriates try to achieve various targets, such as developing top talent and future leaders of the company, improving team skills, implementing knowledge practice, transferring best practices, and developing international leadership (Harris *et al.*, 2003). Thus, the knowledge-related function of expatriates is complementary to the traditional function of coordination and control.

The previous studies recognize that expatriates play an important role in the international knowledge transfer (Bonache, *et al.*, 2001; Downes and Thomas, 2000); however, very limited research has related this strategic role of expatriates to the earlier discussion relative to the stickiness factors regarding such knowledge transfers. Among the mainstream studies on the international knowledge transfer, one trend that is pertinent to the study of stickiness is how knowledge being transferred within MNCs is adopting more complex and tacit forms. This required MNCs to develop and deploy increasingly sophisticated cross-border transfer mechanisms in order to facilitate a successful and unproblematic process (Riusala and Smale, 2007). Expatriation, as a form of human agency, is argued to be one such sophisticated transfer mechanism, which is ideally suited to tacit knowledge transfers through its capacity to cope with and teach the human elements of knowledge (Bonache, Brewster, and Suutari, 2001). Riusala and Suutari (2004) were the first to develop a model connecting the role of expatriates to the stickiness factors and testing it qualitatively. In their study, four groups of knowledge stickiness factors were examined relative to the effect of knowledge transfers

from the expatriates' perspectives: characteristics of the knowledge, social context, organizational context and relational context. Based on a similar framework, Riusala and Smale (2007) applied a quantitative approach to test the hypotheses by using a larger sample of respondents in multiple geographic locations. Although there have been the two studies in this line of research, more empirical investigations are needed to further develop the framework and to provide additional information.

3.1.3 Lack of integrated research on international knowledge transfer

The constructs of the knowledge transfer framework in the previous studies need to be further developed to get a better understanding of the process of knowledge transfer across borders. Researchers traditionally studied country-level effects by using the concept of national culture, which has been defined in various ways. For example, Kogut and Singh (1988) use a national cultural distance to evaluate the effects of national cultural difference on an entry mode in the view of Hofstede's four-dimension national cultural model. Different from the traditional approach of national cultural perspective, Kostova (1999) propose an alternative way of conceptualizing social or country-level effects by using a country's institutional rather than cultural characteristics. In Kostova's seminal study, she developed a theoretical model of the factors of knowledge transfer success based upon the idea that the process of transfer does not occur in a social vacuum but, rather, it is contextually embedded. Based on Scott's institutional profile (1995) which is characterized by regulatory, cognitive and normative dimensions to capture the institutional characteristics of a national environment, she considers three types of context (social, organizational, and relational) which may affect the success of knowledge transfer. Though the institutional theory and the national culture approaches may overlap in some areas; for example, the cognitive and normative dimensions of institutional profile are conceptually close to culture, any exclusive one approach can not reflect an overall social context. In this study, we will include both the institutional theory and the national cultural approach to develop a thorough review regarding the effect of social context upon knowledge transfer.

Kostova's model (1999) provides a solid foundation for empirical testing of the model. When it is used in different contexts, it will be more convincing if some related constructs are added to the model. For example, as China is a country of relationship-based culture, it would not be a complete model without including the typical cultural dimension "*guanxi*" as

one construct. Lack of motivation from the recipient side may be another important factor that influences the knowledge transfer through expatriate because some recipients are reluctant to accept knowledge from the outside (Szulanski, 1996). Therefore it is necessary to add this factor to the framework for the present study.

3.1.4 Inconsistent research results

The results of the empirical studies lack consistency, which means there is still room for additional research in this area. The lack of consistency in the results may be attributed to the different research settings and methodologies from one study to another. As an example, when comparing the findings regarding the effect of social context on the knowledge transfer, one may find knowledge transfer totally different. Concerning the stickiness factors of the knowledge transfer, Riusala and Suutari (2004) found that regulatory and normative components of the institutional environment were the most significant stickiness factors of the knowledge transfer whereas the cognitive component of institutional environment was an irrelevant stickiness factor. However, in Riusala and Smale's study (2007), none of the three dimensions of institutional environment have significant impacts upon the knowledge transfer. They argued that the surprising result could be attributed to organizational policies that resulted in shared visions and strategic alignment to mitigate any unfavorable host institutional conditions. And Liu, Tang and Zhu's study (2008), based on a Chinese context, showed that the normative component of the host country institution is positively related to the technological performance of technology transfer but the regulatory component is negatively related to the technology transfer, which was not consistent with their hypothesis. They explained that stringent regulations or legislations in host countries would create resistance for the transferring parties to effectively transfer technology. Their study indicated that there is no significant relationship between the cognitive component of the host country institutional profile and the technology transfer, which is consistent with Riusala and Suutari's (2004) finding in this regard but contradicts Riusala and Smale's (2007) findings. Due to the controversial results, further studies are needed to investigate the impact of stickiness factors upon the intra-MNC knowledge transfer through expatriates.

3.1.5 Insufficient studies on uniqueness of Chinese culture

Research on knowledge transfer from context perspective needs more in-depth and comprehensive studies. Much of the knowledge transfer literature views the firm as a dynamic system that processes different types of knowledge to support organizational learning to create a competitive advantage (Quinn, 1992). However, the context of knowledge management，particularly knowledge transfer, has attracted limited theoretical attention. When context is discussed, it is mostly concerned with the context of the person possessing the knowledge or the human context surrounding the knowledge itself. In addition, the contextual embeddedness of knowledge is usually discussed on an organizational level. For example, Studer and Stojanovic (2005) discussed context surrounding the knowledge worker such as personal, social and working context; physical context within which knowledge travels, and context surrounding the knowledge resource. They also analyzed context on an organizational or 'knowledge system' level, where various knowledge transactions occur.

Clearly, for transnational knowledge transfer, the issue of context can be more complicated than explained by just an organizational level analysis. Though Kostova (1999) discussed transnational practice transfers and included three types of context that affect transfer success of such transfers: social, organizational and relational, her study did not include cultural context as a contextual dimension relating to transnational knowledge transfer. It appears that there is a need to incorporate the cultural context into our research framework as the importance of cultural awareness in the process of knowledge transfer has not been fully examined (Bhagat *et al*., 2002). In particular, for knowledge transfer in a Chinese context, it becomes more significant to examine the role of g*uanxi* on the knowledge transfer. Therefore, this study considers the joint effect of five knowledge transfer determinants in a single eclectic model, which makes it possible to identify the relative importance of each determinant.

3.1.6 Lack of research on knowledge transfer in emerging economies

Little is known about the difficulty of cross-border transfer of organizational knowledge involving dissimilar cultural and institutional context. The bulk of the literature on knowledge transfer is focused on developed countries. However, with increasing FDI

coming into emerging economies, such as China, it becomes more important to examine the issue of organizational knowledge transfer from industrial countries to the developing countries. Luo (2002) argued that in the transition economies, researchers must grapple with knowledge transfer within a setting where institutional and cultural factors play an important role in deciding corporate performance. The existing literature therefore does not relate well to knowledge transfer to transition economies where they are at a lower stage of development coupled with diverse cultural and institutional differences. Tung (1993) established that social culture was the most important determinant of success in technology transfer from industrialized to developing countries. Fabry and Zeghni (2003) argued that knowledge transfer to transition economies involved extensive cross-cultural adaptation to promote organizational learning and to develop specific relationships within affiliates. A lack of understanding of the task environment, including the surrounding society's values and mindsets, contributed to lower performance in knowledge transfer. Clearly, due to the diversity and complexity of the Chinese business environment, it is significant to examine how the broader contextual factors may affect the difficulty in the knowledge transfer process.

In the following sections, each of the stickiness factors of knowledge transfer (characteristics of knowledge, social context, cultural context, organizational context and relational context) are conceptualized and hypotheses are developed according to the effects upon the difficulty of knowledge transfer.

3.2 Theoretical framework of stickiness factors and the hypotheses development

The theoretical frame applied in this study is principally based on the integration of three notable contributions to the field of knowledge transfers. First, we adopt Szulanski's (1996) in-depth empirical analysis of internal stickiness factors as the general approach. In the study, Szulanski defined internal stickiness as the difficulty of transferring knowledge within the organization. In addition, he developed an eclectic model that includes all four sets of factors, which together are likely to influence the difficulty of knowledge transfer. The results of the study illustrates that the major barriers to internal knowledge transfer are shown to be knowledge-related factors such as the recipient's lack of absorptive capacity, causal ambiguity, and an arduous relationship between the source and the recipient. Although his broad conceptualization of internal stickiness and some of its stickiness factors are widely

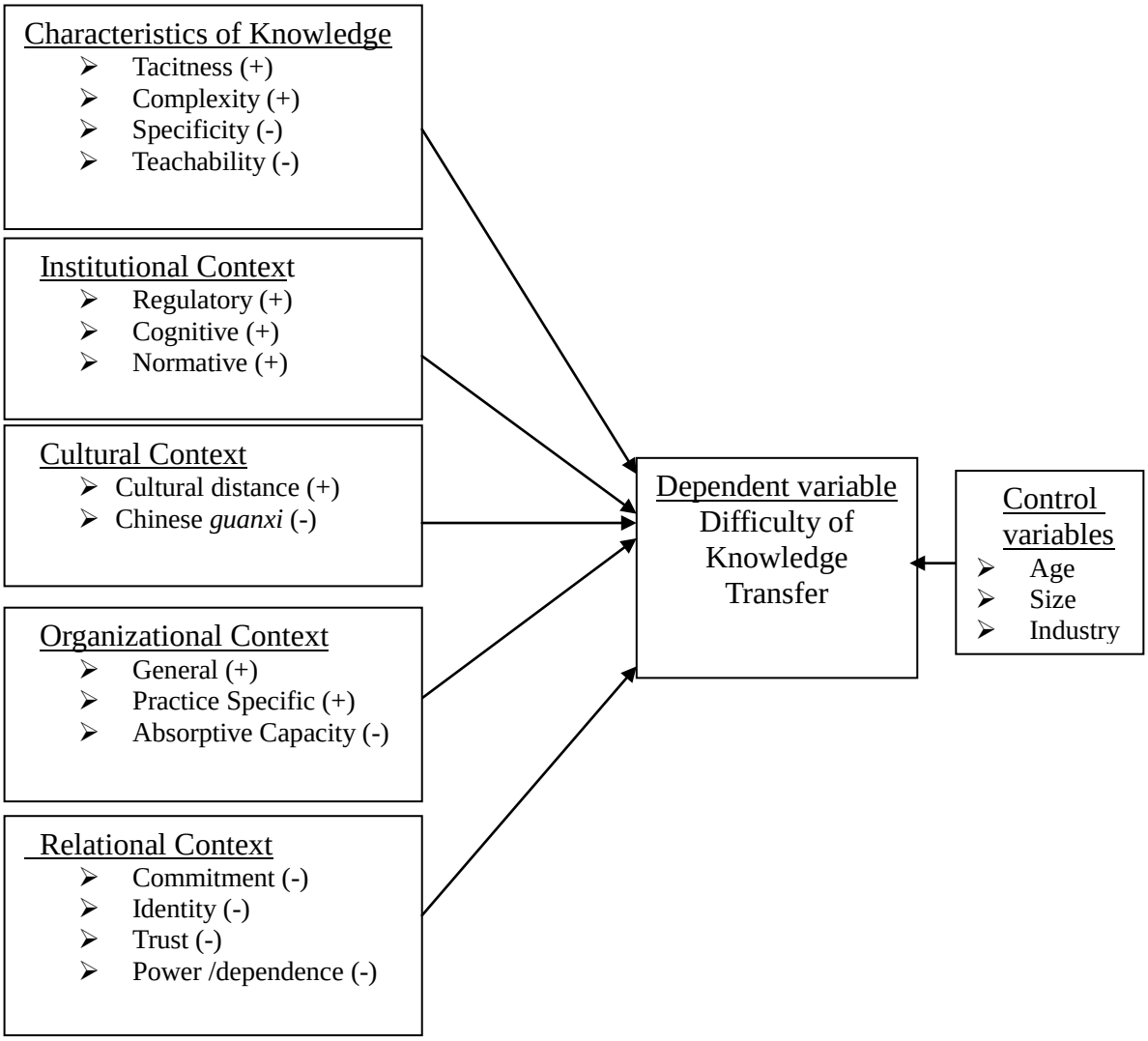
recognized and adopted in the field of knowledge transfer, his findings did not relate to the context of cross-border knowledge transfer. For this reason, in this study we will incorporate the context perspectives to examine the determinants of intra-MNC knowledge transfers in the theoretical model.

The second principal source of theoretical justification for the proposed model is Kostova's (1999) development of a cross-disciplinary approach to analyzing the transfer of strategic organizational practices. She adopted institutional theory to examine how transfer processes are contextually embedded. According to her study, three types of contexts, namely social, organizational, and relational contexts, affect the success of MNC knowledge transfer at three different levels: country, organization, and individual. To examine the effect of stickiness factors on transnational knowledge transfer, Riusala and Suutari (2004) combined these two contributions for a more comprehensive perspective. However, their model did not involve cultural context relative to transnational knowledge transfer.

The third theoretical source is Hofstede's cultural dimensions. He defined "cultural difference" as the extent to which the shared norms and values in one country differ from those in another (2001). Cultural distance is the sum of factors creating a need for knowledge while making barriers to knowledge transfer between the home country and the target countries. In the context of knowledge transfer within MNCs, it is a key issue when headquarters and subsidiaries are located in culturally distant environments (Bhagat *et al.*, 2002). Therefore, it is theoretically justified that cultural context should be included when studying transnational knowledge transfer.

Based on a review of the literature, we developed a theoretical model specifying five broad classifications of knowledge stickiness factors that affect the difficulty of knowledge transfer through expatriates (see Figure 4).

Figure 4　Variables proposed to affect the difficulty of cross-border knowledge transfers



3.2.1 Characteristics of knowledge

The first broad classification encompasses those stickiness factors that are directly related to the characteristics of the knowledge being transferred. In the area of strategy, MNCs may face a paradoxical challenge regarding what knowledge should be transferred, which is related to its degree of complexity and strategic significance. For example, if knowledge that cannot be perfectly imitated by competitors is successfully transferred between units, then according to the knowledge-based view (Grant, 1996)，sustainable competitive advantage should be achieved. However, it is shown that the inimitability of that knowledge also restricts its transferability within organizations (Szulanski, 1996).

One central characteristic of knowledge with respect to its transferability is the commonly accepted notion that there are two types of knowledge: tacit and explicit (Polanyi, 1962).

Tacit knowledge cannot be codified and it is learned through collaborative experience. Tacit knowledge can be held individually or collectively in shared collaborative experiences and interpretations of events. Because tacit knowledge is acquired through practical experience and observation rather than through formal learning, it is difficult to articulate, formalize and communicate (Nonaka and Takeuchi, 1995). It is the knowledge that has been transformed into habit, and it is highly context-specific and has a personal quality (Nonaka, 1994). By contrast, explicit knowledge is codified and can be transferred with formal, systematic methods. Individual explicit knowledge consists of knowledge and skills that can be easily taught or recorded, whereas collective explicit knowledge resides in standard operating procedures, documentation, information systems, and rules (Brwon and Duguid, 2000). Obviously explicit knowledge appears easier to be communicated and to be shared than tacit knowledge (Nonaka, 1991).

It is rare to find absolute tacit knowledge or absolute explicit knowledge. As Inkpen and Dinur (1998) illustrated, the distinction between explicit and tacit knowledge should not be viewed as a dichotomy but as a spectrum with the two knowledge types as the poles at either end. So the knowledge types must be classified on a continuum that ranges from explicit to tacit. The higher the degree of tacitness of firm knowledge, the harder it is to be transferred from one firm to another.

Many researchers see tacitness as a main source of ambiguity (e.g., Szulanski, 1996; Simonin, 1999) and therefore count it among the barriers to knowledge transfer along with complexity and specificity. In identifying this barrier more precisely, two general approaches are discussed. Some have understood tacitness in terms of the relative articulability of knowledge (e.g.,Winter, 1987) while others have taken it to denote the relative codifiability of knowledge. Thus, tacitness is defined in terms of how difficult it is to articulate and codify a given domain of knowledge. Generally tacitness has been found to have a negative impact on knowledge transfer. For example, Zander and Kogut (1995) established that the degree of knowledge articulation and the difficulty of teaching capabilities influence the speed of capability transfer. They found that a higher degree of tacitness decreases the speed of transfer since tacit knowledge is hard to articulate with formal language or to express directly. With regards to the role of tacitness, Simonin (1999) found the degree of tacitness influences knowledge transfer outcomes through its impact on knowledge ambiguity.

The second characteristic of knowledge is complexity. According to Winter (1987), "the complexity/simplicity dimension has to do with the amount of information required to characterize the item of knowledge in question" (p.172). The empirical findings on complexity and knowledge transfer have been limited. Simonin (1999) found that complexity is negatively related to knowledge transfer. According to his study, complexity refers to the number of "interdependent technologies, routines, individuals and resources linked to a particular knowledge" (p.600). Kogut and Zander (1995) argued that complexity refers to the manifestation of critical and interacting elements within the knowledge and is therefore difficult to separate and measure. Overall, complex knowledge is expected to be difficult to transfer since it draws upon multiple kinds of interrelated competencies.

The third characteristic of knowledge is specificity. Originally, specificity referred to the specificity of transaction costs asset. Reed and DeFillippi (1990) defined specificity as transaction-specific skills and assets that are used in production processes and in the provision of services for particular customers. Simonin (1999) considered it as durable investments in specialized equipment and facilities, and in skilled human resources. He found specificity insignificant and suggested further investigations regarding its effects on other types of competencies. Following this advice, Minbaeva (2007) redefined specificity as the degree to which knowledge relates to specific functional expertise. According to Minbaeva, organizations perform different functional activities so specific functional knowledge needs to be developed and integrated around these activities. Since MNC units are often integrated vertically around the functions they perform, specificity should be positively related to internal knowledge transfer. Specificity has also been described by Zander and Kogut (1995) as the dimension "system dependence" that captures a similar characteristic of knowledge. It means that the production of knowledge is dependent on many different groups of experienced people. System dependence, for instance, include items related to the degree of manufacturing's dependence on other functions, and they hypothesized "system dependence" as being negatively related to the probability of transfer. In general, functional knowledge (such as production, marketing, and technological know-how) should be able to "stand alone" without being a part of the interrelated knowledge system (Minbaeva, 2007) and should be easier to transfer. The results of the previous studies were mixed so further exploration on this issue is necessary.

The fourth characteristic of knowledge is teachability. It measures the ease by which knowledge can be taught to new workers. As previously stated, knowledge transfer often requires the sending of engineers and managers from the originating plant to assist in the building up of know-how in the sister plant. Kogut and Zander (1993) argued that if the knowledge is easily taught, the transfer is more feasible and can be expedited.

Tacitness, complexity, specificity, and teachability are the four main characteristics of knowledge. For the first category of the stickiness factors, we therefore propose the following set of hypotheses:

Hypothesis 1a: The higher the degree of knowledge tacitness, the more difficult for expatriates to achieve the success of knowledge transfer.
Hypothesis 1b: The higher the degree of knowledge complexity, the more difficult for expatriates to achieve the success of knowledge transfer.
Hypothesis 1c: The higher the degree of knowledge specificity, the less difficult for expatriates to achieve the success of knowledge transfer.
Hypothesis 1d: The higher the degree of knowledge teachability, the less difficult for expatriates to achieve the success of knowledge transfer.

3.2.2 Institutional Context

Previous research suggests that organizational practices vary across countries as they are affected by the social-cultural environments in which they develop and establish (Adler, 1995). Cross-country differences have been found in a variety of organizational practices such as leadership, power delegation, authority (Hofstede, 1980), and human resource management practices (Adler, 1995). For example, Cateora, Gilly and Graham (2009) pointed out that “promotion in American firms is based primarily on merit and performance; in Japanese companies it is based on seniority and loyalty to the organization” (p.111). With regard to social context, research has shown that there will be country-level effects on the success of transfer, with some countries providing a more favorable environment for the transfer of certain practices and others presenting a number of difficulties and challenges.

Researchers traditionally studied country-level effects by using the concept of national culture. A typical example is Hofstede’s (1980) cultural dimensions. Researchers have

widely employed this work to study the impact of culture on organizational behavior. For example, Kedia and Bhagat (1988) examined the effects of national cultural variations on the success of cross-border technology transfer. Janssens *et al*. (1995) studied the effects of Hofstede's cultural dimensions on the implementation of corporate-wide safety policies. Qin, Ramburuth and Wang (2008) studied the impact of national culture on knowledge transfer between MNCs headquarters and subsidiaries located in dissimilar cultural contexts. Although cultural context, as an exogenous factor, is significant in explaining the extent of difficulty of knowledge transfer, other factors such as host country's political and legal environment can also have impact on across border knowledge transfer. Different from cultural context perspective, Kostova (1999) used institutional theory to conceptualize country-level effects. Because countries differ in their institutional characteristics, when knowledge is transferred across borders, it may not "fit" in the institutional environment of the recipient country, which in turn may be an impediment to the transfer. In order to examine overall country-level effects, we include both cultural and institutional contexts in this study. The effects of institutional context on knowledge transfer are discussed in this section. The issue of cultural context is presented in the next section.

To examine the effects of the institutional environment in a more systematic manner, we adopt the concept of country institutional profile (CIP) to capture the institutional characteristics of a national environment. According to institutional theory, Scott (1995) proposed that institutional environments are composed of various types of institutions and can be characterized by three "pillars": regulatory, cognitive and normative. The *regulatory* component of an institutional environment reflects the existing laws and rules in a particular national environment that promote certain types of behaviors and restricts others. The *cognitive* component reflects the cognitive categories widely shared by the people in a particular country. Scott (1995) suggested that cognitive elements constitute the nature of reality and the frames through which meaning is made. Although carried by individuals, cognitive programs, such as schemas, frames, and inferential sets, are elements of the social environment and social in nature, which affects the way people notice, categorize, and interpret stimuli from the environment. The *normative* component of institutional profile focuses on normative systems which are values, beliefs, norms, and assumptions about human nature and human behavior held by the individuals in a given country. Normative components introduce "a prescriptive, evaluative and obligatory dimension into social life"

(Scott, 1995). Norms specify how things should be done; “they are the standards for values that exist within a group or category of people” (Hofstede, 1991). Although the regulatory, cognitive, and normative institutions reflect different facets of the same institutional environment, they may invoke different types of motivation for adopting social patterns, which in turn may lead to different types and levels of adoption. Thus, we examine the three pillars separately.

There are different ways in which the institutional profile of a host country may affect the adoption of knowledge at a foreign subsidiary. First, the institutional environment, particularly policies, regulations, and laws, may exert direct institutional pressures on the subsidiary to adopt the knowledge, independent from the initiatives of the parent organization to diffuse the knowledge. As a result, a subsidiary may adopt knowledge to become isomorphic with other organizations from its organizational field in the host country. Another way in which the recipient country’s institutional profile will affect the adoption of the knowledge is through subsidiary employees. As institutional theorists suggested, institutional elements enter organizations through people working in them. Employees’ judgments regarding new knowledge will be influenced by their cognitions and beliefs, which in turn have been shaped by the external institutional environment in which they operate. So, the institutional context influences the ability of the recipient unit employees to understand the knowledge, the way they interpret the knowledge and its value, and their motivation to adopt it (Kostova and Roth, 2002). When the institutional profile is favorable for the particular knowledge, such as regulations, laws, and rules supporting and /or requiring the knowledge; cognitive structures that help people understand and interpret the knowledge correctly; or social norms enforcing the knowledge, then the transfer will be less difficult.

However, when MNCs transfer their organizational knowledge across institutional environments, there is a possibility that knowledge may not be consistent with institutional environments into which it is transferred, and it may even be in conflict with them. This, in turn, may increase the difficulty of the knowledge transfer.

The three components of institutional context can be the stickiness factors when organizational knowledge is transferred across countries, as is the case in transnational

transfers of knowledge in MNCs. The effect of the three institutional dimensions on the international knowledge transfer is examined as follows. First, regarding the regulatory institutions, if the knowledge from MNC headquarters is perceived by the employees at a subsidiary to be in conflict with the regulatory institutions in their country, it is highly unlikely that they will engage in transferring and implementing the knowledge. Therefore, the incompatibility of the host regulatory environment with the knowledge being transferred may increase the difficulties for expatriates to achieve the success of knowledge transfer. Second, if the knowledge from MNC headquarters is inconsistent with the cognitive institutions in the host environment, it is also likely that employees will be reluctant to engage in its implementation, because they will probably have difficulties understanding, interpreting, and judging it correctly. Cognitive structures also affect learning processes; it is much easier to learn new knowledge when it is consistent with the prevalent social schemas than when it is inconsistent with these schemas. Thus, the cognitive difference across countries may put expatriates in a more challenging situation to transfer the knowledge in MNCs successfully. Third, regarding the normative dimension, researchers have found that the knowledge, in order to be implemented successfully in foreign subsidiaries, has to be consistent with and take into account the different assumptions and value systems of the national cultures of those subsidiaries (Schneider and DeMeyer, 1991). For example, the decision-making practices used in Japanese firms are different from those used in Western companies. In Japan, the focus is on consensus building through a lengthy process of organization-wide employee participation (Cateora, 2009, p.114), whereas in the Western countries, decision making tends to be a more specialized activity conducted by those directly responsible for the decision. Although the collective decision-making management style may be perfectly understandable to and valued by Japanese employees (Adler, 1995), the foreign employees of Japanese companies may be puzzled by the complexity, length, and subtlety of the process and may question the value of the practice (Kostova, 1999). Thus, the normative dimension of institutional environment is a stickiness factor which may increase the difficulties for expatriates to achieve the success of knowledge transfer.

As MNCs may have their subsidiaries operating in different countries where the institutional environments vary, the effect of institutional dimensions upon knowledge transfer will be also different. With the same observation, Kostova (1999) proposed that the greater the difference between the institutional profiles of the home country of the practice and those of

the recipient country, the greater the likelihood that there will be a misfit between the transferred practice and those of the recipient environment, which in turn may result in difficulties or even failure of the transfer. Adhering to her view, we can understand that transfers of knowledge between the U.S. and Canada perhaps may be easier to achieve than transfer between the U.S. and China, owning to the regulatory, cognitive, and normative similarities or differences between these countries.

Regulatory, cognitive, and normative dimensions are the three components of social context. Each of these dimensions reflects the difference between the corresponding dimension in the institutional profiles of the home country and the host country of MNCs. For the second category of stickiness factors, we propose the following relationships on the three institutional dimensions and knowledge transfer through expatriates.

Hypothesis 2a: The incompatibility of the host regulatory environment with the knowledge being transferred increases the difficulty for expatriates to achieve the success of knowledge transfer.

Hypothesis 2b: The incompatibility of the host cognitive environment with the knowledge being transferred increases the difficulty for expatriates to achieve the success of knowledge transfer.

Hypothesis 2c: The incompatibility of the host normative environment with the knowledge being transferred increases the difficulty for expatriates to achieve the success of knowledge transfer.

3.2.3 National cultural context

Culture is regarded as one of the most important contextual variables that impact on the knowledge transfer process in MNCs (Bhagat *et al*., 2002; Chow *et al*., 2000; Li and Scullion, 2006). Holden (2001) asserts that knowledge transfer in the global economy is essentially a form of cross-cultural management, involving acts of cross-cultural exchange. The literature offers a diversity of approaches to defining culture (Hofstede, 1980, 2001). The general consensus appears to view culture as patterns of beliefs and values that are manifested in practice, behavior, and various artifacts shared by members of an organization or a nation (Trice and Beyer, 1993). To examine the effect of national cultural context on cross-border knowledge transfer, the term “cultural distance” is generally employed.

Differences between National cultures have often been conceptualized in terms of “cultural distance” (Shenkar, 2001), defined as the extent to which the shared norms and values in one country differ from those of another country (Hofstede, 2001). Cultural distance is the sum of factors creating, on one hand, a need for knowledge, and on the other hand, barriers to knowledge flow between the home and the target countries (Barkema, *et al*., 1997). Given the underlying distinctions between cultures throughout the world, understanding the similarities and differences, or relative “distance” between cultures become important from a management standpoint as these similarities and distinctions form the foundation on which managers make strategic decisions. As the national cultural distance between MNCs and their subsidiaries increases, the underlying gap in the norms, values and institutions that govern exchange between the parties increases. Increased national culture distance can reduce communication effectiveness. Lyles and Salk (1996) argued that national cultural distance increases conflicts and misunderstandings, decreases the flow of information and learning among partners; therefore, constitute an obstacle to technology transfer between MNCs and their local subsidiaries. In the context of knowledge transfer within MNCs, it is a key issue when headquarters and subsidiaries are located in culturally distant environments (Bhagat *et al*., 2002; Holden, 2001).

Researchers have argued that cultural distance is related to knowledge transfer in MNCs (Cui *et al*., 2006; Javidan *et al*., 2005), because knowledge is created by individuals and embedded in a certain cognitive and behavioral context (Grant, 1996) and then transferred from its holders to its recipients by transmitting their culture-specific sets of values and frames of reference (Nonaka, 1994). Although specific culture values may have a positive impact on knowledge transfer (Almeida *et al*., 2002), most studies view cultural distance as an obstacle to knowledge transfer. The cultural dimensions of Hofstede (1980, 2001) are the most frequently used in studies of cultural variations in knowledge transfer because they represent distinguishing characteristics of societies and the way in which people process information (Bhagat *et al*., 2002). They include the dimensions of individualism versus collectivism, power distance, uncertainty avoidance, masculinity versus femininity, and long-term versus short-term orientation.

Among the five dimensions of cultural variations (Hofstede, 1991), the individualism and collectivism dimension has been considered as the major distinguishing characteristic in the way that the various societies of the world analyze social behavior and process information.

Some countries are clearly more individualistic than other countries in their orientations. People who are individualistic are motivated by their own preferences, needs, rights, and contracts. However, people with collectivism are motivated by norms, duties, and obligations, which are imposed by the collectives. People are inclined to give priority to the goals of these collectives over their own personal goals. Individualism and collectivism strongly influence ways of thinking. Specifically, they influence how people of a culture process, interpret, and make use of a body of information and knowledge. They provide a basis for sampling the domain of a message, how much weight to give to what is sampled, and what the relationships are among various domains of messages, as well as what pieces of information to sample and what kind of associations already exist among the items and the domains of knowledge. For example, people in individualist cultures think of the "self" as independent of the immediate social environment and see each piece of information as independent of its context. On the contrary, people in collectivist cultures see the "self" as functioning interdependently with significant others within the immediate social environment and look for contextual cues in each piece of information (Triandis, 1998).

People in collectivist cultures are likely to pay more attention to the knowledge concerning about organizational history, patterns of obligations, norms, or in-groups and out-groups. In terms of attending to, comprehending, and putting this knowledge into action, collectivists are much more sensitive to such types of context-specific information. In contrast, people in individualist cultures are more likely to focus on knowledge concerning personal attributes, such as personality, beliefs, feelings, and attitudes toward an event, object, or person. So, individualists are more concerned with rationality when they transfer and receive knowledge. In addition, as collectivists emphasize historical and contextual knowledge to a greater extent than individualists, they are less likely to emphasize the significance of information that is written and codified compared to individualists. According to Hofstede's index (1991), Chinese culture scores very high in terms of collectivism. When multinational corporations from countries with individualism culture transfer their knowledge to their subsidiaries in China, it is very likely that the expatriates meet some difficulties in the process of knowledge transfer due to the difference that people in individualist cultures prefer knowledge independent of its context while those in collectivist culture prefer systemic or contextually relevant knowledge.

In addition to the dimension of individualism and collectivism, the other four dimensions can also affect cross-border knowledge transfer. In high power distance culture, the processing of information and knowledge takes place according to hierarchical arrangements within the organization, with superiors having first access to important knowledge derived from external sources. Superiors may also have the power to decide when and how such knowledge is diffused. Because communication flows differently in the society with high power distance from those with low power distance, cross-border knowledge transfer can become more eventful or more difficult. In a low uncertainty avoidance culture, individuals have a high tolerance for ambiguity which helps them to better transfer and receive knowledge that is tacit and complex. Cultures that are high in the masculinity aspect have more difficulty in knowledge transfer between organizational members if competitiveness is between individuals and not limited to organizations. If a culture has a long term orientation, then members of that culture work for the long-term goals and benefits that accompany knowledge management. Since the benefits of knowledge management are not realized in the very short term, a long term orientation promotes and values knowledge transfer (Al-Shammari, 2010, p.37). In summary, the cultural differences identified along these dimensions which form cultural distance between societies can increase the difficulty of cross-border knowledge transfer.

As g*uanxi* is considered the lifeblood of Chinese business communities and a lubricant of business activities (Ramasamy *et al*., 2006), it is very necessary to include g*uanxi* in analyzing the impact on behavioral management practices in the process of knowledge transfer into MNC subsidiaries in China. As an inseparable part of the Chinese business environment, g*uanxi* is a fundamental web of interpersonal relations permeating Chinese society. *Guanxi*-based business practices can reduce uncertainty, lower search and other transaction costs, provide usable resources and a sense of connectedness (Wellman, Chen, and Dong, 2002). In their empirical study, Buckley, Clegg, and Tan (2006) proposed an integrated model that included g*uanxi* with three relevant parties was examined in China. The first type of g*uanxi* concentrated on relationships among foreign companies and local JV partners. The second type of g*uanxi* emphasized the relationships between foreign companies and central and local governments. The third type of g*uanxi* involves the management of local employees. Because our study only focuses on the wholly-owned enterprises in China, JV partners will not fall into this line of study. In addition, g*uanxi* with

the employees in the subsidiaries will be examined in terms of trust in the category of relational context, so we focus only on the g*uanxi* relative to the government for the analysis of Chinese cultural context.

The Chinese government has traditionally played two incompatible roles in its economy: an industry regulatory role and an ownership role in SOEs (Buckley, Clegg, and Tan, 2006). Since China's transition from a central command system to a market economy, the Chinese government began reducing its role in managing business entities. Even though less intense than previously, "State paternalism remains a dominant feature of China's business environment" (Child and Tse, 2001, p.17). Moreover, it retains the power to change the rules of the business system and to differentiate its policies towards firms of different categories. A key problem is that both central and local governments perform regulatory and participating roles that are not always consistent with each other. Foreign companies therefore need to maintain communications with different levels of government to be well informed regarding rules and policies that may change. Given China's lengthy history of bureaucratic control, foreign firms have to be aware of the rules governing the interaction among foreign invested firms and the government. Typical Confucian values, such as respect for age and hierarchy, avoidance of conflict and the need for harmony must be taken as central to managing interactions with local and central governments. As policy outcomes and regulatory processes are largely determined at the local level through negotiation between foreign investors and local government authorities, foreign managers may find it in their own interest to cultivate their enterprise' personal relationship with relevant Chinese officials to create a facilitating environment and to obtain optimal result from bargaining.

It is well recognized that some types of knowledge are more difficult to transfer among firms because they are more deeply embedded, and highly dependent upon broader contextual factors to operate effectively. Given the diversity and complexity of the Chinese business environment, even for explicit knowledge to be transferred and absorbed, cultural barriers have to be removed and good g*uanxi* with the government has to be established. In China, good g*uanxi* with the government means personal relationships with government officials. As Chinese government officials control a large amount of resources and power, good g*uanxi* with these officials can be beneficial to the FDI in allocating the resources. The importance of the Chinese government support for foreign companies was highlighted in

Buckley's study (2006). In his study, government support was cited as the chief external factor impacting knowledge transfer and utilization in the Shanghai Bell Company. A senior manager of Shanghai Bell commented "Government support is very, very important… as this project was listed as one of the key national projects, it has always enjoyed the endorsement of the Chinese government. The Ministry of Post & Telecommunications even set up a special Bureau, called System 1240 Bureau, for the development of this project…" In the same study, three other companies interviewed also stated that local governments played a key role in their development. For example, they have access to special government funding, technical assistance and tax relief, to speed up assimilation and upgrading of the transferred products. Government support of this nature ensured the allocation of much needed resources to these firms, the opening of local markets to their products and, most importantly, the provision of a high status (Buckley, *et al.*, 2006).

To seek government support, foreign invested firms should endeavor to set up personal relationships with government officials. In fact, the relationship with the government is so important that many foreign companies set up a department named "government relations" in their Chinese headquarters specially mandated to deal with various government organizations. Good g*uanxi* with the government in China can create a favorable task environment for doing business and avoid excessive government interference. Roehrig (1994) argued that it is an important strategy for foreign invested firms to elicit favorable implementation of laws, rules, regulations, and policies from local authorities and to establish good, personal relationships with strategically-located individuals in business, government, and the bureaucracy. This is because they may be able to influence the outcomes of possible future questions and disputes in favor of the enterprise. Based on the previous observations, we propose the following relationships on the two national cultural constructs and knowledge transfer through expatriates for the third category of stickiness factors.

Hypothesis 3a: Cultural distance increases the difficulty for expatriates to achieve the success of knowledge transfer.

Hypothesis 3b: Good guanxi with governments at all levels in China reduces the difficulty for expatriates to achieve the success of knowledge transfer.

3.2.4 Organizational context

In addition to their social embeddedness, transfers are also organizationally embedded, since they occur in a corporate context that can be either favorable or unfavorable regarding a particular transfer. Several studies have illustrated the importance of organizational compatibility for the transfers. For example, in his work on diffusion of innovations, Rogers (1995) suggests that compatibility of an innovation with the systems at the recipient unit is one of several important dimensions of innovations that can explain the success of the diffusion. Similarly, Kogut and Zander (1992) and Zander and Kogut (1995) proposed that the success of transfer will be affected by the compatibility of the organizing principles of the recipient unit with the principles implied in the technology that is being transferred. They suggest such compatibility affects the ease or difficulty with which the new knowledge can be communicated and understood.

Considering differences in organizational cultures, Kedia and Bhagat (1998) proposed two types of organizational effects on the success of technological transfer: 1) compatibility of the organizational cultures of the two organizations involved in the transfer, and 2) the absorptive capacity of the recipient organization. Kedia and Bhagat (1998) defined compatibility as the similarity between the "negotiated order" of the two transacting organizations, reflected in an organizations' structural conditions and patterned lines of communication. They defined the absorptive capacity in terms of local versus cosmopolitan orientation, existence of a sophisticated technical core, and strategic management at the recipient organization. They also claimed that these factors will have a stronger impact on the success of transfer for process and person-embodied technologies than for product-embodied technologies. Therefore, these factors can apply fully to organizational knowledge which involves more process and people characteristics than product ones. Further, Ghoshal and Bartlett (1988) found that an MNC subsidiary's ability to contribute to the task of creation, adoption, and diffusion of innovations is positively affected by the degree of normative integration of the subsidiary into the MNC through organizational socialization and rich intra-unit communication.

Based on the above research, we argue that the organizational culture of the recipient unit has a great impact on the extent of knowledge transfer within MNCs. In most studies, organizational culture is defined as a set of values and assumptions that act as the defining

elements around which other elements of culture, such as norms, symbols, rituals, and cultural activities evolve. Management scholars have proposed various definitions for the concept of organizational culture. For example, O'Reilly, Chatman and Caldwell (1991) and Chatman and Jehn (1994) take a narrower approach, defining organizational culture as a set of values widely shared among organizational members. They group these values into seven dimensions: innovation, stability, respect for people, outcome orientation, detail orientation, team orientation, and aggressiveness. Ravasi and Schultz (2006) stated that organizational culture is a set of shared mental assumptions that guide interpretation and action in organizations by defining appropriate behavior for various situations. They argued that these largely tacit assumptions and beliefs are expressed and manifested in a web of formal and informal practices and of visual, verbal, and material artifacts which represent the most visible elements of the culture of an organization.

Focusing on the recipient unit, Kostova (1999) suggested that organizational culture can have two types of effects on the success of practice transfer: general and practice-specific. As for the general effect, she argued that since the transfer of practices typically is associated with organizational learning, change, and innovation at the host recipient unit, a cultural orientation of that unit toward learning, innovation, and change will likely result in more positive attitudes toward the transfer process and will lead to its eventual success. So it refers to an overall cultural orientation that the host recipient unit has to learn, innovate and change. Regarding the practice-specific effect of organizational culture, Kostova (1999) suggested that the success of transfer will be affected by the compatibility between the values implied by the particular practice and the values underlying the culture of the host firm. When these values are compatible, it will be easier for employees at the recipient unit to understand and internalize the practice. On the contrary, if the underlying values of the knowledge being transferred are incompatible with the values of the recipient unit, it will be difficult for employees to understand, implement, and internalize it.

The third potential stickiness factor in this category that may prove decisive in knowledge transfers reflects the recipient's understanding and application of new knowledge. Defined broadly as the ability and motivation of the organization to acquire, assimilate, and exploit outside knowledge (Cohen and Levinthal, 1990), absorptive capacity is expected to have a direct influence on the overall level of difficulty in the transfer process (Lane and Lubatkin, 1998; Minbaeva *et al*. 2003; Mowery *et al*. 1996).

General effect, practice-specific effect, and absorptive capability are the three types of effects of organizational context. For the third category of stickiness factors, we propose the following relationships on three types of organizational effects and the success of knowledge transfer through expatriates.

Hypothesis 4a: The incompatibility of the host recipient unit's organizational context at the general level with the knowledge being transferred increases the difficulty for expatriates to achieve the success of knowledge transfer.

Hypothesis 4b: The incompatibility of the host recipient unit's organizational context at the practice-specific level with the knowledge being transferred increases the difficulty for expatriates to achieve the success of knowledge transfer.

Hypothesis 4c: The low level of host recipient unit's absorptive capability of the knowledge being transferred increases the difficulty for expatriates to achieve the success of knowledge transfer.

3.2.5 Relational Context

Even when both the social and organizational contexts are favorable，there is a possibility that knowledge transfer could fail. A potential reason for failure in such a case could reside in the relationships that exist between the parties involved in the transfer, namely, the MNC parent company and the subsidiary. In examining the stickiness factors of knowledge transfer inside a firm, Szulanski (1996) argued that the difficulty in knowledge transfer is more likely to occur when there is a lack of motivation on the side of recipient, a lack of perceived reliability of the source, and an arduous (laborious and distant) relationship between the recipient and the source of the knowledge.

It is important to recognize that the knowledge that the MNC attempts to transfer is formulated in the MNC's home institutional context. So its subsidiaries are influenced by the institutional forces of the home country. However, due to the dispersed nature of MNCs, home country institutional influences are indirect, as they are filtered through the parent organizations. Consequently, the relational context that links a foreign subsidiary to a parent becomes extremely important because it influences the way such pressures from a home country are interpreted and perceived by a foreign subsidiary. Previous research indicates that the quality of relationship between the source and recipient influences the knowledge

transfer process. Oddou, Osland and Blakeney (2009) argued that an inadequate relationship can be a primary source of noise that hinders, distorts or even eliminates the transfer of knowledge. Thus, we propose that the willingness of the local employees to engage the process of transfer is affected by the quality of the relationship with the parent company. Kostova (1999) divides this relationship into the two measures: the attitudinal relationships and power/dependence relationship, in which attitudinal relationships refer to the levels of subsidiary employees' commitment to, identity with, and trust in MNC parent company. Subsidiary dependence, or lack of autonomy, is grounded in resource dependence and institutional theory and refers to the extent that subsidiaries are either reliant on the parent or motivated by legitimacy. Both of the two measures can impact on the motivation of the local employees at subsidiaries to engage in the transfer process and are especially important when the direct value of knowledge is difficult to assess, e.g. it is more difficult to assess the value of tacit knowledge than to assess that of explicit knowledge.

In the context of attitudinal relationships, the commitment can be interpreted as the degree to which employees of an MNC subsidiary are committed to the parent company's operation and goals. They must be willing to put in considerable effort in the process of knowledge transfer and have a strong desire to achieve the parent company's objectives. Individuals who are highly committed to the parent company will be likely committed to any task assigned by the parent company. In addition, committed people involved in the transfer process will be more willing to meet the challenges of the process of transfer by providing the necessary resources and organizational support, as well as by investing extra time and effort as needed (Kostova, 1999). Thus, the degree of commitment of the local employees of subsidiaries to the parent company will be directly related to the potential success of the knowledge transfer. We propose the high level of host employees' commitment can reduce the difficulty for expatriates to transfer the knowledge.

Identification of the foreign subsidiary with MNC parent company can be defined as the degree to which subsidiary employees experience a state of attachment to and identity with the parent company. They feel that they are part of the parent organization, belong to it, and partly derive their self-identities from MNC membership. Previous research suggests that individual's identity with an organization results from a strong belief and acceptance of the values and goals of the organization (O'Reilly and Chatman, 1986). Therefore, if the subsidiary employees identify with the parent company, they will be more likely to share the

values and the beliefs of the parent company embodied in the knowledge that is being transferred. They will have a better understanding of the meaning and value of the knowledge and apply it within their subsidiary. Thus, members who identify with the MNC parent and its subsidiary will be more likely to become active in the transfer of the knowledge. In addition, identity with the parent company also reduces the effects of the "not-invented-here" syndrome and is viewed to a lesser extent as unfamiliar and transmitted from an outsider. In Child and Rodrigues' (1996) study, they found knowledge transfer was facilitated when partners involved in the transfer held similar social identities but it was impeded when partners held different social identities. So, when local employees at MNC subsidiaries can have a high level of identity with their parent company, the expatriates may have less difficulty transferring the knowledge.

Trust of a foreign subsidiary in its parent company can be defined as believing that the parent company acts in good-faith to behave in accordance with previous commitments; is honest in whatever discussions preceded such commitments, and does not take excessive advantage of the subsidiary (Kostova and Roth, 2002). The previous research indicated that higher trust expressed in the perceived reliability of a parent company can positively influence practice transfer (Szulanski, 1996). Likewise, in the context of business trust and knowledge transfer, Roberts (2000) argues that the exchange of knowledge, particularly tacit knowledge, is not amenable to enforcement by contract but by trust. Hence, when mutual trust prevails, the MNC headquarters will share and exchange their knowledge with subsidiaries; on the other hand, if the subsidiaries do not trust their parent companies, they would probably have no intention to learn because they assume the headquarters will not transfer knowledge. The subsidiaries would be suspicious regarding the accuracy of information received from the parent company. In addition, trust can also help to reduce the uncertainty and ambiguity regarding the value of the knowledge for the subsidiary. When knowledge is transferred to MNC subsidiaries, mixed and possibly conflicting messages about the value of the knowledge may be received by the subsidiary. This conflict may increase the uncertainty about the function of the knowledge. Under such conditions of increased uncertainty and ambiguity, trust becomes even more critical. So trusting the parent company will shape the perception that the knowledge is efficient and will likely ease the difficulty of knowledge transfer.

Besides the inter-organizational trust, we also assume that personal trust can contribute to the success of knowledge transfer in the Chinese context. In the process of knowledge transfer, the subsidiaries expatriates, who represent the parent company, play a key role to make decisions on what knowledge is transferred and how the knowledge is transferred. Kostova (1999) referred to these key players as the "transfer coalition" which is composed of a stable "core" and a flexible "expert" group. We argue that personal relationship or g*uanxi* between the members of the transfer coalition and local employees at the subsidiary can have a significant influence on the knowledge transfer. In the context of Chinese Confucianism, trust is considered as one of the key foundations of relationship building g*uanxi* in China (Ramasamy, *et al*., 2006). Personal g*uanxi* is described as a process of social interaction that begins with two people but involves others at a later stage (Fan, 2002). It involves a series of activities carried out by the parties concerned within their network and frequently involves gift giving and favors. When two parties begin to trust each other, they become more willing to share their resources without worrying that they will be taken advantage of by the other party. Thus, the existence of *guanxi* can be a strong enabler in influencing the degree of knowledge transfer from MNC headquarters to a subsidiary when *guanxi* is established between the expatriates and local employees. In summary, we propose that the knowledge transfer will be less difficult when the trust between the parent company and subsidiary and *guanxi* between expatriates and local employees are established.

Dependence of a subsidiary on headquarters can be defined as the belief held by the subsidiary employees that the subsidiary relies on, and is contingent on , the support of the parent company for providing major resources, including technology, capital, and managerial expertise (Kostova and Roth, 2002). Implied in the notion of dependence is subordination and control. Thus, dependence reflects the nonsymmetrical, hierarchical nature of the relationships between the parent organization and the subsidiary. According to the institutional literature, the power/dependence of an organization affects its compliance with institutional pressures. So if a subsidiary depends on its parent company, it will be more likely to become isomorphic by implementing institutional structures or procedures in response to institutional pressures from the parent company. When its dependence on the parent company is high, the subsidiary will tend to comply with mandates coming from the parent.

In addition, these subsidiaries might be in a situation where they compete with other units

for organizational resources provided by the parent company or the MNC headquarters. Under such conditions of dependency and intra-organizational competition, a subsidiary will try to become legitimate with the MNC headquarters and will try to gain favorable judgments. So implementing the knowledge that has been institutionalized at the parent company is one of the strategies that subsidiaries may use to achieve intra-organizational legitimacy (Powell and DiMaggio, 1991). Compliance with the requests from headquarters is a strategy that will be viewed positively by the headquarters and could increase the degree to which the subsidiary is perceived as cooperative and committed to headquarters. Therefore, the subsidiaries employees' perception of being dependent upon the headquarters may provide an alternative source of motivation to comply with the requests for knowledge transfer and to engage actively in this process.

Empirical evidence also leads us to expect that the relational context will have a notable impact on knowledge transfer. The relational variable in Szulanski's study (1996) proved to be the third significant predictor of knowledge stickiness. Similarly, Hansen's study (1999) found that "weak ties" between two parties hinder the transfer of complex knowledge.

The commitment, identity, trust, and power/dependence relationships are the four types of relationships. For the fourth category of stickiness factors, we propose the following connection to the four relationship factors and knowledge transfer through expatriates.

Hypothesis 5a: Subsidiary employee's commitment to the MNC headquarters can reduce the difficulty for expatriates to achieve the success of knowledge transfer.

Hypothesis 5b: Subsidiary employee's identity with the MNC headquarters can reduce the difficulty for expatriates to achieve the success of knowledge transfer.

Hypothesis 5c: Subsidiary employee's trust in the MNC headquarters and guanxi with expatriates can reduce the difficulty for expatriates to achieve the success of knowledge transfer.

Hypothesis 5d: Subsidiary's dependence on the MNC headquarters can reduce the difficulty for expatriates to achieve the success of knowledge transfer.

In summary, Chapter 3 developed five groups of hypotheses that define the relationship between the difficulty of knowledge transfer and characteristic of knowledge, institutional context, national culture context, organizational context and relational context. In next chapter, we will present the research design and methodology.

Chapter 4: Research design and methodology

4.1 Sample background

Since China adopted the economic reform and the open-door policy 30 years ago, the foreign direct investment (FDI) flowing into China has been increasing annually, and the multinational corporations (MNCs) from Europe have become one of the important FDI sources in China. And one of the goals of China's 12th Five-Year Plan (2011-2015) is to upgrade and restructure its economy. The Chinese government plans to shift from traditional industries to new industries. Therefore, there will be many business opportunities for high-tech and green products and technologies as well as service industries. European companies appear to be more competitive than other western countries regarding green products and technologies. The amount of investments in China from European Multinational Corporations has increased greatly and Europeans are well-positioned to contribute to China's transformation from the current economic model to a more balanced one; and presenting the world a new model of economic growth. Along with the growing number of European businesses in China, various chambers of commerce have been established, among which the most influential one is the European Union Chamber of Commerce in China (EUCCC), which is the main source of the contact information of the sample companies. It was established in 2000 with 51 member companies. Twelve years since its foundation, the European Chamber now has a total of more than 1,600 members in nine cities: Beijing, Chengdu, Chongqing, Nanjing, Pearl River Delta (Guangzhou and Shenzhen), Shanghai, Shenyang and Tianjin. The variety of the regions where the companies are located can increase the objectivity and the reliability of the research.

4.2 Questionnaire design

A questionnaire is one of the most widely used data collection techniques as it provides an efficient way of collecting responses from a large sample by asking each respondent to respond to the same set of questions. A questionnaire can be used for descriptive and explanatory research (Saunders, *et al.,* 2000, p.297). Since our research involves both descriptive and explanatory analysis, we adopted the questionnaire as the major instrument for collecting data. In order to reach more respondents, we delivered the self-administered questionnaires primarily through emails.

To encourage response to the questionnaire, a cover letter is attached on top of the questionnaire illustrating the purpose of the study and the definition of knowledge. Most respondents are not very familiar with the academic concept of knowledge relative to their work, so they may find questions about knowledge transfer hard to answer if they are not provided a definite explanation of "knowledge". Based on the adopted conceptualization of knowledge, we use words like 'experience', 'ideas', 'advice', and 'know-how' to indicate what knowledge means in the study. The return name and address is presented at the end of each letter.

The validity and reliability of data and the response rate --- to a great extent --- depend on the design of the questions, the structure of questionnaire and the rigor of pilot testing (Saunders, *et al*., 2000, p. 288). When designing the questions we adapted language used in the questionnaires distributed in other countries incorporates the Chinese political, cultural and economic context. In addition, to achieve the validity of the questionnaire, the terms used in the questionnaire are likely to be familiar to, and well-understood by the respondents. Considering the fact that all the respondents were from different EU countries, we designed the questionnaire in English to avoid the misunderstandings caused by using different languages. The types of questions include list questions, category questions, and scale questions. The questionnaire is located in Appendix II.

4.3 Data collection

The data for this study were collected through a questionnaire survey directed at European expatriates working for the subsidiaries of an MNC in China. The contact information for the expatriates was mainly provided by the EUCCC which, with a very high membership across China, guarantee that the survey's database was fairly representative of the EU expatriates population in China.

The database query was initiated by selecting those MNCs from European Union located in different regions in China. The data for this study is mainly collected through four channels.

1) Phone calls and sending emails based on the contact information in EUCCC Directory

2011. When piloting the questionnaire, we met a manager from Germany who provided the Directory 2011. We checked through the EUCCC directory (2011) and singled out the EU MNC subsidiaries among all the companies listed in the directory to ensure that the companies to be surveyed were relevant. After we selected the companies for collecting data, we contacted the companies by making phone calls and sending emails with a cover letter attached and a questionnaire to their public email addresses. However, the method of collecting data ended up was quite ineffective because the operator in the companies usually refuse to connect us with the managers if we could not provide the managers' complete names. In some cases, we can provide the full names of the foreign managers, but we were still not allowed to speak with the managers. The respondents often refuse to participate our survey for the following reasons, such as "they were not interested in the survey", " they do not have time", or "it is a matter of internal policy" and "our company is under serious organizational change", and "our managers travel on business" and so on and so forth.

For those managers who cooperated with us, quite a few replied that their managers left China that indicated a high turn-over rate of foreign managers working in China. Approximately 90% of the companies that we contacted did not respond, which proves the argument that a random sample is not always useful due to the difficulty and challenges confronted by empirical studies in a Chinese context (Liu *et al*, 2008). Certainly, there were some exceptions, for instance, a secretary from BMW in Shenyang and a secretary from a Spanish company in Tianjin were very helpful and asked their foreign managers to fill out the questionnaires and the surveys were emailed back to us. As for the emails sent to their public information email addresses of the various companies, without follow-up phone calls, the emails were usually not opened for a few days and then were deleted permanently as junk mail. Therefore, emailing to the public addresses of the company was proved to be the ineffective but it worked out well when combined with follow-up phone calls. By email, we in total received ten responses.

2) Attending social net-working events

We modified our strategy for collecting data and shifted from "virtual" (phone call or email) contact to a face-to-face contact. From November 2011 to March 2012, we attended several social networking events organized by the EUCCC in Beijing, Tianjin

and Shanghai, where we exchanged contact information with a great number of expatriate managers. Due to the mutual trust established with the managers and us through personal conversation, most of the European managers we met returned our questionnaire promptly except for those who did not believe it was appropriate to answer the questions in our questionnaire. For instance, instead of working for the subsidiaries of European MNCs, some worked for the media or in education. We also attended some other events, for example, the Alumni Reunion organized by ISCTE in the Portugal Embassy, where people from different European companies throughout China convened. With the connections of the alumni and the help of the Ambassador of Portugal and the foreign commercial sections of the Embassy, we were fortunately able to access more EU MNC subsidiaries and received greater responses from more cities in China. Attending social events organized by chambers of commerce or embassies were proved to be an effective way to approach our potential respondents for the data collection.

Though the return rate of the questionnaire sent to the contacts collected from the events was quite satisfactory, they did not represent an adequate sample from the nine cities throughout China where the European companies are located. Most of the companies we accessed at the events were located in Beijing, Shanghai and Tianjin. Therefore, we sought help from personal contacts and friends to collect data from the cities other than Beijing, Tianjin and Shanghai.

3) Personal contacts.

Thanks to our connections within the business community, we received help from our friends, alumni associates, or foreign managers we interviewed when creating the pilot study. We were introduced to many expatriate managers and friends who reached out their contacts to collect data for us. A Russian business person, working at an international search company in Tianjin, was very interested in this research. The individual collected six responses from her clients who are European expatriates. Personal contacts turned out to be an effective channel for collecting data for this study.

4) Collecting data on line (Survey.com)

We experimented online by placing our questionnaire on the website – survey.com to collect more data. Due to time limits and the insufficiency of the internet infrastructure,

we failed to collect data on line. However, if the internet improves, it could be an effective way to collect responses.

Through the four channels, mentioned above, we received the desired responses we need. Some, which were not valid, were excluded from the survey, because they were small European companies rather than subsidiaries of MNCs, or non-European nationality of the respondents (those who are working in European companies but are not from European Union countries, for example, the United States, Canada or China).

4.4 Sample data

We emailed and posted 400 questionnaires to European expatriates who were working in China and were contactable at the time the survey was administered. A total of 84 surveys were returned representing a response rate of 21%. However, 17 respondents indicated that they were involved in either self-initiated foreign work assignments or working at representative offices as opposed to expatriate assignments. Therefore, this study was conducted by analyzing the remaining usable sample of 67 expatriates. The effective respondent rate was 16.7%. According to Hambrick *et al*. (1993), the average response rate of the questionnaire survey regarding managerial personnel ranged from 10% to 12%. So, our research has achieved an acceptable response rate.

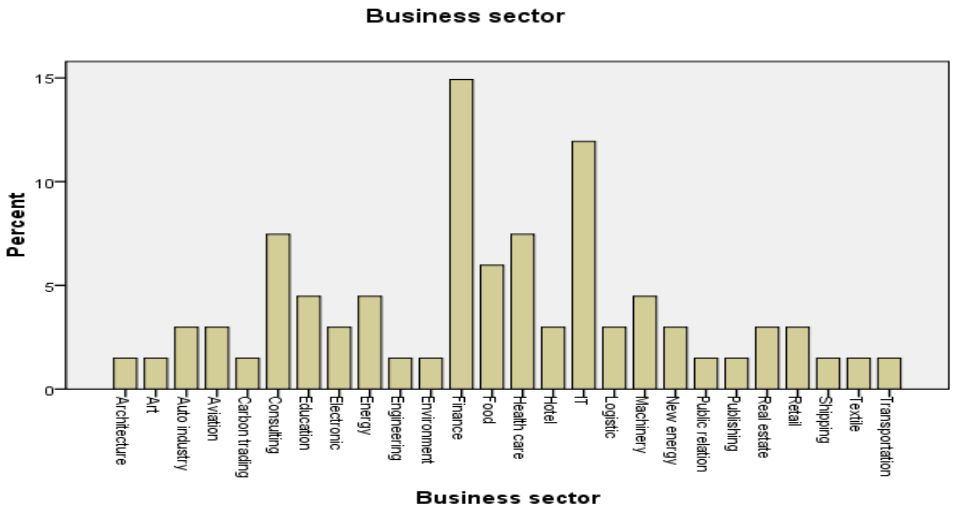
The respondents were from 12 EU countries, covering North Europe, West Europe and South Europe so the range of the sample countries represented Europe. Among the usable sample of expatriates, 13 respondents were from the United Kingdom, which counted as the biggest proportion of all respondents. The specific number of respondents from each sample country is listed below in Table 4.1.

Table4. 1 Number of respondents from the sample countries

Country	Number	Percent
Austria	3	4.5
Belgium	5	7.5
Denmark	5	7.5
France	8	11.9
Germany	7	10.4
Ireland	7	10.4
Italy	5	7.5
Luxembourg	2	3.0
Portugal	5	7.5
Spain	3	4.5
Sweden	4	6.0
UK	13	19.4
Total	67	100.0

The organization the respondents worked for involved a wide range of sectors, such as energy, health care, machinery, and food. From the perspective of a business nature, both manufacturing (34 samples) and service sectors (33 samples) are included. The description of business sectors in the survey is presented in Table 4.2.

Table4. 2 Business sectors in which respondents involve.



Most of the sample companies have been operating in China over five years. And 13 companies have been in China from two to five years and only five companies were in China less than two years. In terms of the number of staff, the sample companies present two scenarios: 32.8% of the companies had less than 50 employees; 19.4% had from 50 to 200 employees, and almost 48% had a staff of between 50 and 200 employees. The length of time in China and the number of the employees of the sample companies are illustrated below in Table 4.3.

Table 4. 3 Establishment years and employee numbers of the sample companies

Establishment years		Number of employers	Percent (%)
	Less than 2 years	5	7.5
	2 to 5 years	13	19.4
	Over 5 years	49	73.1
Employee numbers			
	1-50 employees	22	32.8
	51-100 employees	6	9
	101-200 employees	7	10.4
	Over 200 employees	32	47.8

Table 4.4 describes the gender, their working time and positions in the subsidiaries.

Table4. 4 Descriptive statistics of sample respondents

		Number	Percent (%)
Gender			
	Female	10	14.9
	Male	57	85.1
Years of working in China			
	<1year	10	14.9
	1-3years	18	26.9
	3-5years	14	20.9
	>5years	25	37.5
Organizational position			
	Executive	9	13.4
	Top management	29	43.3
	Middle management	14	20.9
	Specialist	13	19.4
	Regional director	2	3.0

Among the respondents, 57 of them were male, making up over 85% of the sample population. The length of time for their working with their current assignment varies from

one to another. Among the survey, ten expatriates worked in China for less than one year, which was 14.9% of the total respondents. Ten expatriates worked between one and three years, making up 26.9 % of the respondents. The number of expatriates with working experience in China for three to five years was 14, which amounted to 20.9%. The remaining worked for more than 5 years in China, which was approximately 37.5% of the total respondents. All the respondents held managerial positions such as executives (n=9), top level managers (n=29), functional level managers (n=14), specialists (n=13) and regional directors (n=2).

Following Podsakoff and Organ (1986), we used the Harman's one-factor test to examine the extent of common method bias for the data collected in the questionnaires. A principal component analysis reveals there are 9 factors with an eigenvalue＞1, which together account for 79.215% of the total variance. The presence of several distinct factors combined with the relatively low amount of variance explained by the first factor, second factor and third factor (only 14.97%, 12.38% and 11.90%) indicates that the data is not subject to common method variance (Podsakoff and Organ, 1986)

Table 4. 5 Principal components analysis (variance explained by each factor)

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1. tacitness	**2.545**	**14.971**	**14.971**
2.complexity	**2.106**	**12.388**	**27.359**
3. teachability	**2.024**	**11.909**	**39.268**
4. specificity	**1.226**	**7.212**	**46.480**
5. regulatory	**1.147**	**6.747**	**53.227**
6. cognitive	**1.138**	**6.694**	**59.921**
7. normative	**1.125**	**6.618**	**66.539**
8. cultural distance	**1.119**	**6.582**	**73.121**
9. Chinese "*guanxi*"	**1.036**	**6.094**	**79.215**
10.general	.829	4.876	84.091
11. specific	.570	3.356	87.447
12. absorptive capability	.503	2.960	90.407
13.commitment	.411	2.420	92.827
14. trust	.379	2.232	95.060
15. identity	.328	1.930	96.989
16. power/dependence	.273	1.605	98.595
17. the difficulty	.239	1.405	100.000

4.5 Construction of the measures

The items forming all constructs used in the study are described in Table 4.7. Multi-item scales were developed for all the constructs to ensure the reliability and validity of the measurement system. A broad and thorough literature review helped in generation of the initial constructs. Given the empirical context, we refined the choice of constructs and identified the most relevant items for those constructs. Item selection was based also on the feedback obtained from the pilot questionnaire and constructs were refined further by using the full data set.

4.5.1 Difficulty of knowledge transfer—Dependent variable

The difficulty of knowledge transfer was defined in the questionnaire as to the degree of difficulty with which subsidiary expatriates perceived to transfer knowledge to the

subsidiary from the MNC headquarters. In this study, we do not attempt to measure stickiness as it has been operationalized in Szulanski's empirical study. In his study, Szulanski (1996) measured the stickiness with a set of eight items corresponding to the so-called technical success indicators of a project—on time, on budget, and a satisfied recipient. Clearly, it is difficult to measure the different dimensions of stickiness by forming distinctive hypotheses about the effects of the independent variables on outcomes such as time and budget. In addition, it is hard to find a rationale to build a case. For instance, if a country's normative institutional environment is positively related to being over budget and negatively related to being over schedule, developing a case on this outcome will be difficult and worthless.

For practical reasons and ease of measurement, we adapted the operationalization method developed by Riusala and Smale (2007) for our research. Data on the following items were collected: 1) Transferring knowledge to the subsidiary in China was a challenging and problematic process; 2) Realization of knowledge transfer was more difficult than we had expected. Subsidiary respondents were asked to evaluate the degree of difficulty in transferring the knowledge from headquarters to their subsidiaries for each aspect using a five-point Likert-type scale, where "1" indicated "strongly agree" and "5" indicated "strongly disagree". Responses were averaged to yield a composite index reflecting the degree of difficulty in transferring knowledge to the subsidiary.

4.5.2 Independent variables

The independent variables of the present study are predominantly based on pre-existing constructs. The corresponding measures were modified to suit the context of this study.

Characteristics of knowledge

The knowledge-related stickiness factors of tacitness, complexity, and specificity are measured by using scales adapted from the empirical studies of Kogut and Zander (1993), Zander and Kogut (1995), and Minbaeva (2007). Tacitness was defined in the questionnaire as "how difficult it is to articulate and codify a given domain of knowledge". To measure this factor, respondents were asked to identify their attitudes toward the two items: 1) content of

knowledge could be easily expressed through manuals or other documents; 2) transferring knowledge involves a lot of personal interactions between the expatriate and other employees in the company. Another factor in the questionnaire is complexity which refers to the number of interdependent technologies, routines, individuals, and resources linked to a particular knowledge. The factor of complexity was evaluated by the respondents in terms of 1) Defining the content of the knowledge being transfer was not an easy task; 2) The knowledge being transferred consisted of several interacting elements. Teachability, in the questionnaire, refers to the degree of difficulty involved in teaching the Chinese employees within the subsidiary. The respondents were asked to evaluate it from two aspects: 1) Teaching the knowledge to local employees was a quick and easy process; 2) Teaching local employees did not require much previous experience of similar tasks. Specificity in the questionnaire refers to the degree to which knowledge is about specific functional expertise. The respondents were asked to evaluate this factor from two items which involved significant investment in both specialized equipment and facilities and skillful human resources.

Institutional context

The measures relating to the institutional context are adapted from the country institutional profile as developed in earlier theoretical and empirical work (Kostova 1999; Kostova and Roth 2002). According to their studies, the institutional profile measures were developed for the regulatory, cognitive, and normative dimensions which may influence the knowledge transfer to the host country. Considering the institutional context in China, we adapted their measures in the questionnaire for our study. The regulatory dimension of an institutional environment in the questionnaire reflects the existing laws and rules in China that promote certain types of behaviors and restricts others. To measure this dimension, respondents were asked to evaluate two items: 1) Chinese laws and regulations did not support knowledge transfer; 2) being familiar with Chinese legislation was very important for the expatriates with regards to the knowledge being transferred. The cognitive dimension was defined in the questionnaire as shared social knowledge which affects the way people notice, categorize, and interpret the knowledge being transferred. The cognitive dimension was measured by two items: 1) Chinese employees often had difficulties in understanding what the knowledge being transferred meant; 2) Chinese employees often make wrong interpretations about the

knowledge transferred. The normative dimension was defined as the values and norms held by the individuals in China. Norms are standards for values that exist within a group or category of people, which specify how things should be done. To measure this dimension, respondents were asked to decide on the two items: 1) the values and norms of China did not comply with the knowledge transferred; 2) the characteristics of the knowledge being transferred collided with the Chinese culture.

National cultural context

As for the measures of cultural distance, they are adapted from the literature (Simonin 1999b) for our study. Cultural distance in the questionnaire was defined as the culture-based factors that influence knowledge transfer. The cultural distance is measured by two items: 1) the cultural difference between China and the home country of MNC increases the difficulty of knowledge transfer; 2) Chinese language is the major obstacle in transferring knowledge effectively. The measures of "*guanxi*" with the Chinese government are developed based on the study by Ramasamy *et al*. (2006) and they are measured by two items: 1) The government is very responsive to our needs for information; 2) Good *guanxi* with the Chinese government can facilitate knowledge transfer.

Organizational Context

Organizational context includes three sets of measures depicting general effect, practice-specific effect, and the absorptive capacity of subsidiaries. General effect reflects characteristics of the subsidiary that apply to all types of activities associated with learning, innovation, and change in general. Practice-specific effect refers to the compatibility between the values implied by the particular knowledge and the values underlying the culture of subsidiaries. In terms of the general and practice-specific organizational context, measures were developed based on previous studies by O'Reilly, Chatman, and Caldwell (1991), Chatman and Jehn (1994) and Kostova (1999). To measure general effect, respondents were asked to comment on two items: 1) the organizational culture of the Chinese companies fosters attitudes toward learning something new, self-development, and innovation; 2) there is usually not much resistance to change as well as to new issues. To measure practice-specific effect, the respondents were asked to assess three items: 1) the

values characterizing the organizational culture of the subsidiaries supported knowledge transfer. 2) the characteristics of the knowledge transferred were in harmony with the organizational cultural of the subsidiary; 3) there were no major conflicts between the knowledge transferred and the organizational culture of the subsidiary. Absorptive capability was defined in the questionnaire as the employees' ability of identifying value and applies new knowledge in the subsidiaries. The absorptive capability measure was from the earlier studies of Szulanski (1996, 2000), which asked the respondents to clarify two items: 1) the skills of employees were at a lower level than what was required to implement the knowledge being transferred; 2) the employees' ability to absorb the knowledge being transferred was not enough to receive knowledge.

Relational Context

With regard to the stickiness factors related to relational context, we measured two constructs: attitudinal (commitment, identity, trust) and dependence. The measures of commitment were adapted from previous studies by Mowday *et al*., (1979). Commitment in the questionnaire was defined as the degree to which the employees of the subsidiary are committed to the task of knowledge transfer assigned by the parent company. To measure this construct, respondents were asked to clarify two items: 1) subsidiary employees were committed to the parent company's operation and goals; 2) subsidiary employees were willing to make considerable efforts to implement the task of knowledge transfer assigned by the parent company. The measures of identity, trust and dependence were cited from previous studies by Szulanski (1996; 2000) as well as Kostova and Roth (2002) and were adapted for our research. Identity in the questionnaire was defined as the degree to which subsidiary employees experience a state of attachment to the parent. To measure the construct, respondents were asked to evaluate the two items: 1) the subsidiary employees are proud to work for the parent company; 2) the host employees consider that the subsidiary was an appreciated and highly valued employer. Trust was defined as a common belief within the subsidiary that parent company makes good-faith efforts to behave in accordance with commitments, both explicitly or implicitly; and the parent company is honest in whatever discussions precede such commitments; and the parent company does not take excessive advantage of the subsidiary, even when the opportunity is available (Kostova and Roth, 2002). To measure this construct, two items were developed for the respondents:1) the

relationship between the employees of the subsidiary and the parent company is characterized by trust; 2) the subsidiary employees are not suspicious of the parent company's motives behind the knowledge transfer. Dependence in the questionnaire was defined as the belief held by subsidiary managers that the subsidiary relies on, and is contingent upon the support of the parent company for providing major resources, including technology, capital, and expertise. To measure the construct, the respondents were asked to clarify the three items: 1) subsidiary needs daily support from parent company; 2) subsidiary could not function without the parent company; 3) there is strong interdependence between subsidiary and parent company.

4.5.3 Reliability and validity

When constructing the questionnaire, we implemented several measures to ensure the reliability and validity. First of all, the initial constructs of the questionnaire were identified from a thorough literature review. Most of the constructs had been employed by the previous empirical studies (e.g., Szulanski, 1996; Kostova and Roth, 2002, Riusala and Suutari, 2004; Riusala and Smale, 2007). Second, the questionnaire was consulted with experienced researchers in the field of knowledge transfer and pre-tested by three practitioners of European MNC subsidiaries in China. Their feedback helped to improve the questionnaire so that it accurately reflected the knowledge transfer within MNCs. Third, a personalized cover letter accompanying each questionnaire explained the purpose of the study clearly and provided assurances regarding the confidentiality of the collected data. In addition, multi-item scales based on established measures were used for all the constructs within the questionnaire and were measured on the same five-point Likert-type scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Using Cronbach's Alpha (α) as a measure of reliability, the values of all measures are shown in Table 4. 6

Table 4. 6 Cronbach's Alpha of the study's measures

Dependent variable	Cronbach's alpha (α)
Difficulty of knowledge transfer	0.87
Independent variables	
Characteristics of the knowledge	
Tacitness	0.83
Complexity	0.85
Teachability	0.68
Specificity	0.75
Institutional context	
Regulatory	0.78
Cognitive	0.81
Normative	0.72
National culture context	
Cultural distance	0.74
guanxi	0.68
Organizational context	
General	0.79
Practice-specific	0.83
Absorptive capability	0.82
Relational context	
Attitudinal(trust, identity,commitment)	0.77
Power/dependence	0.84

As illustrated in the table above, all the scores have values $\alpha > 0.7$ except the measure of teachability and *guanxi*. According to Nunnaly (1978), 0.7 is considered as an acceptable reliability coefficient. Therefore, most of the measures are reliable. The two measures which are below 0.7 also have reliability because scores are marginally below the standard.

The construct of validity of the measures was reinforced through a factor analysis of all the questionnaire items. When performing the factor analysis, we used the Varimax rotation in order to confirm whether the number of dimensions included in the theoretical model could be verified empirically based on the convergent and discriminated validity of the scales. Table 4.7 shows the loadings of all measure items of independent variables after the Varimax rotation.

Table4. 7 Loadings of all measure items of independent variables after Varimax rotation

Independent variables	Loadings after Varimax rotation
Characteristics of the knowledge	
Factor 1: Tacitness	
Content of the knowledge could be easily expressed through manuals or other documents;	0.807
Transferring knowledge involves a lot of personal interactions between the expatriate and other employees in the company.	0.736
Factor 2: Complexity	
Defining the content of the knowledge being transferred was not an easy task;	0.898
The knowledge being transferred is consisted of several interacting elements.	0.755
Factor 3: Teachability	
Teaching knowledge to local employees was a quick and easy process;	0.579
Teaching local employees did not require much previous experience of similar tasks.	0.534
Factor 4: Specificity	
To transfer the knowledge, your company needs to invest significantly in specialized equipment and facilities;	0.818
To transfer the knowledge, your company needs to invest significantly in skilled human resources.	0.596
Institutional Context	
Factor 5: Regulatory	
Chinese laws and regulations did not support the knowledge being transferred;	0.793
Being familiar with Chinese legislation was very important with regards to the knowledge being transferred.	0.483 *
Factor 6: Cognitive	
Chinese employees often had difficulties in understanding what the knowledge being transferred meant;	0.798
Chinese employees often made wrong interpretations about the knowledge transferred.	0.580
Factor 7: Normative	
The values and norms of China did not comply with the knowledge transferred;	0.734
The characteristics of the knowledge being transferred collided with the Chinese culture.	0.772
National Culture Context	
Factor 8: Cultural distance	
the cultural difference between China and the home country of MNC increases the difficulty of knowledge transfer;	0.597
Chinese language is the major obstacle in transferring the knowledge.	0.561
Factor 9: g*uanxi*	
The government is very responsive to our needs for information;	0.849
Good *guanxi* with Chinese government can facilitate the knowledge transfer.	0.518
Organizational Context	
Factor 10: General	
The organizational culture of the Chinese companies fosters attitudes toward learning new things, self-development, and innovation;	0.807
There is usually not much resistance to change and new issues;	0.198 *
Factor 11: Practice-specific	
The values characterizing the organizational culture of the subsidiaries supported knowledge transfer.	0.883
Characteristics of the knowledge transferred were in harmony with organizational culture of the subsidiary;	0.756

There were no major conflicts between the knowledge transferred and the organizational culture of the subsidiary.	0.753
Factor 12: Absorptive capacity	
The skills of the employees were at a lower level than what was required to implement the knowledge being transferred;	0.835
The ability to absorb the knowledge being transferred was not enough to receive knowledge.	0.813
Relational Context	
Factor 13: Attitudinal (commitment, identity and trust)	
Subsidiary employees were committed to parent company's operation and goals;	0.827
Subsidiary employees were willing to implement the task of knowledge transfer assigned by parent company.	0.756
Subsidiary employees are proud to work for parent company;	0.643
The host employees considered that the subsidiary was an appreciated and highly valued employer.	0.569
The relationship between the employees of the subsidiary and the parent company is characterized by trust;	0.659
The subsidiary employees are not suspicious of the parent company's motives behind the knowledge transfer.	0.532
Factor 14: Power/dependence	
The subsidiary needs daily support from the parent company;	0.698
The subsidiary could not function without the parent company;	0.702
There is strong interdependence between the subsidiary and the parent company.	0.561

* The item is not included in the final scale.

The results of the factor analysis confirmed the validity of fourteen out of the original sixteen independent variables. The subsequent change incorporated into the final data was the grouping of the three attitudinal dimensions (commitment, identity and trust) in the relationship context, which is loaded as one factor. As shown in Table 4.7, the loadings of the two individual items from Factor 5 and Factor 10 were insufficient (below 0.50). Therefore, they were excluded from the final data analysis.

4.5.4 Control variables

In order to make our analysis more in-depth and comprehensive, we defined some organizational characteristics as the control variables in the study. The list of organizational characteristics that are and can be included in the analysis is virtually endless, but many studies have focused upon the factors of size, age, establishment mode, and industry characteristics, as well as decentralization. Previous empirical studies on knowledge transfer identified some factors that could influence knowledge transfer to a subsidiary. Among them are size (Lyles and Salk 1996, Bresman *et al.* 1999, Lane *et al.* 2001, Foss and Pedersen 2002, Minbaeva *et al*. 2003), industry characteristics (Lane and Lubatkin 1998, Gupta and Govindarajan 2000, Lane *et al.* 2001, Minbaeva *et al.* 2003), mode of entry (Foss and

Pedersen 2002, Martin and Salomon 2003), and previous experience (Simonin 1999a, 1999b). With regard to the mode of entry, we limited our survey to wholly-own subsidiaries. Hence, this control variable was excluded from the questionnaire and the final analysis.

Subsidiary age: Generally including it as a control variable, previous research considered age of organizations and units as an important determinant of knowledge transfer. Aging organizations have been argued to become inert and to possess a limited ability to learn and adapt to changing circumstances (Cyert and March, 1992). Cognitive and relational patterns of younger firms are supposed to be modified more easily. Previous studies therefore proposed that younger organizations seem to have learning advantages over older ones (e.g. Frost *et al.*, 2002). In the context of international knowledge transfer, other empirical studies suggest, however, older subsidiaries tend to be more autonomous and thus more innovative (e.g., Foss and Pedersen, 2002), so the innovative subsidiaries might be less dependent on the knowledge from other parts of the MNC. In addition, some studies claim that age has no effect on the extent of knowledge transfer (e.g. Gray and Meister, 2004). In other words, prior research has been inconclusive about the effect of age on organizational knowledge transfer. As a control variable in our study, subsidiary age is measured as the number of years the subsidiary has operated in China.

Subsidiary size: In addition to organizational age, previous studies also included organizational size as a control variable. Most studies assessing the effect of size on knowledge transfer tend to find positive effects (*e.g.*, Gupta and Govindarajan, 2000; Laursen and Salter, 2006). However, other studies have found insignificant (e.g. Tsang, 2002) or negative (e.g,,Makino and Delios, 1996) effects of organizational size on the extent of knowledge transferred. They argued that the larger subsidiaries may acquire less knowledge from other MNC units than smaller subsidiaries because they are able to create more knowledge in more completed functional departments within the company. And because of the professional functions of each department, the larger-sized companies may experience better results of knowledge transfer once it involves in an activity of knowledge transfer. Subsidiary size is measured as the logarithm of the total number of employees in the subsidiary.

Industry characteristics: According to Robson, Leonidou and Katsikeas (2002), the industry

in which a firm operates may influence its performance. In their empirical study, Lane, Salk, and Lyles (2001) argued that international joint venture (IJV) in the service industries may face different incentives for learning from foreign parents than manufacturing joint ventures as services tend to be more culturally specific. In addition, they assumed that the service industry IJV during the economic transitional period could be more challenging to manage than manufacturing IJV because the manufacturing industry in the countries with a transitional economy is more emphasized than a service industry. For those firms in the manufacturing sector, the value is 1; and those in service sector the value is 2.

A quantitative approach was selected over a qualitative one for our study. According to Creswell (2003), a quantitative approach is appropriate when measurements can be collected to statistically analyze testable theories. Linear correlation is appropriate for inference testing of hypotheses when sample data are paired, normally distributed, and hypotheses concern the statistical significance of the relationship between pairs of variables. Triola (2001) stated that a multiple regression analysis is appropriate when analyzing the relationship among multiple variables and the statistical significance of that relationship as a predictor of results from similar studies. In this study, a set of hypotheses are offered concerning the multivariate relationship among those variables. Correlation and regression techniques were applied to test the hypothesized relationships.

Chapter 5: Analysis of Data and Result Presentation

Chapter 4 described the methodology that was used to test the hypothesized relationship among the study variables and to answer the research questions. This chapter examines the results of the survey and reports on the descriptive and statistical analysis of the study relative to the research objectives.

The objectives of the empirical analysis were (1) to describe the types of knowledge transferred from European MNCs headquarters to their subsidiaries in China through expatriates and the corresponding levels of involvement in this process, and (2) to test the proposed hypotheses; the relationships between the difficulty of knowledge transfers and their various contextual factors. To meet the first objective, a discussion of descriptive statistics follows and for the second objective, we present the results of a multiple regression analysis.

5.1 Types of knowledge transferred

In order to identify the types of knowledge transferred to the subsidiaries in China from EU multinational corporations, we asked the respondents to choose from the most common key knowledge areas listed in a multiple choice question. In their qualitative study, Riusala and Suutari (2004) identified seven most typical key knowledge transfers among the Finnish companies in Poland. In the quantitative research work, Riusala and Smale (2007) captured the common central knowledge transfer areas, which were the same as those in the previous study. In addition, they ranked the frequency of the knowledge areas transferred with the most common central knowledge transfer areas in the field of finance and accounting and the least common knowledge in the areas of HRM, product/service, and technical/production. In our questionnaire, we adopted seven types of knowledge transfers identified by the two aforementioned studies. The reasons for our utilizing the seven items are 1) the two studies are contextually similar to the present one because they were carried out in the context of European MNCs cross-border knowledge transferring to other countries; 2) it can increase the reliability of our research for they are both empirically tested.

In our study, we collected the data of the types of knowledge transferred from the European multinational corporations to their subsidiaries in China via the expatriates. A descriptive result is reported in Table 5.1.

From the data presented, management knowledge was identified as the most common central knowledge transfer area by 45 respondents (19.7%). It was closely followed by sales and marketing knowledge and product/service knowledge, each selected by respondents (18.3%). Technical and production comes in the third place on the list, with 14.8% on 34 respondents choosing them. The next type is cultural knowledge listed by 31 respondents 13.5% of the total. Accounting/finance knowledge and HRM knowledge are the last two types of knowledge, with a respective percentage of 8.3% and 7.0% of total respondents. In addition to the seven types of knowledge, we expected the respondents to specify other types of knowledge under the item “others”. However, no respondent selected this category.

Table 5. 1 Type of knowledge transferred through expatriates

Types of knowledge transferred	N	Percent
Management knowledge	45	19.7%
Sales and marketing	42	18.3%
Product/service knowledge	42	18.3%
Technical and production	34	14.8%
Cultural knowledge	31	13.5%
Accounting/finance knowledge	19	8.3%
HRM knowledge	16	7.0%
Others	0	0%
Total	229	100.0%

5.2 The expatriates’ role in the process of knowledge transfers

In the process of transferring knowledge, the role of the expatriates of MNCs may vary from one type of knowledge to another due to the nature of the different knowledge areas and the degree to which respondents are familiar with the knowledge. In order to identify the expatriates’ level of participation in different knowledge transfer areas, we asked them to describe the degree for their involvement in each type of knowledge transfer. In the questionnaire, we set five levels for their participation for each knowledge transfer area,

level 1 is labeled “not active”, level 2 is “rarely active”, level 3 “fairly active”, level 4 “active”, and level 5 “very active”. The findings are reported in Table 5.2

Table 5. 2 Areas of expatriate involvement in international knowledge transfers

Knowledge type	1		2		3		4		5		Mean	Standard deviation
	n	%	n	%	n	%	n	%	n	%		
Management	1	1.5	1	1.5	17	25.4	32	47.8	16	23.9	3.91	.830
Cultural	1	1.5	7	10.4	18	26.9	29	43.3	12	17.9	3.66	.946
Sales / marketing	7	10.4	12	17.9	14	20.9	21	31.3	13	19.4	3.31	1.270
Technical/production	17	25.4	13	19.4	19	28.4	12	17.9	6	9.0	2.97	1.446
Product/service	8	11.9	8	11.9	13	19.4	26	38.8	12	17.9	3.39	1.255
HRM	6	9.0	13	19.4	20	29.9	11	16.4	17	25.4	2.64	1.276
Accounting/finance	20	29.9	21	31.3	15	22.4	10	14.9	1	1.5	2.27	1.095

*In Table5. 2, 1=not active 2=rarely active 3=fairly active 4=active 5=very active
*The total number of respondents is 67.

As illustrated in Table 5.2, the expatriates’ participation in management knowledge was significant with 97 percent of respondents describing themselves as being “fairly active” to “very active” in knowledge transfer. Cultural knowledge transfer also involves the expatriates, and 88 percent of respondents claimed they were from fairly active to very active participation. When it comes to sales/marketing knowledge transfer, 72 percent of the respondents indicated “from fairly actively to very actively”, a lower score than the two previous knowledge areas. For the very specialized areas involving technical and production, the level of the expatriates’ participation was quite low, approximately 25 percent of the respondents claimed that they were not active in this area of knowledge transfer while only 9 percent of the respondents were very actively involved. As would be expected, in the area of product/service, where the expatriates tend to be more engaged than in a specialized field, about 77 percent of the respondents participated from fairly actively to very actively. Approximately 72 percent of the respondents reported to be “fairly” to “very active” in HRM knowledge transfers. Similarly, with technical and production knowledge transfer, the expatriates were not actively involved in the knowledge transfer in accounting and finance due to the high level of specialization, Only 39 percent of respondents described themselves as being “fairly active” to “very active” in accounting or financial knowledge transfer. In summary, the expatriates were more active participating in general knowledge transfer than in specialized knowledge areas.

5.3 Descriptive statistics for all the variables

Univariate statistics for the dependent and independent variables are presented in Table 5.3, which includes the mean and standard deviation for each matrix variable as well as the minimum and maximum values.

Table 5. 3 Descriptive Statistics (Based on 67 samples)

Variable	Minimum	Maximum	Mean	Std. Deviation
Difficulty	2.5	5.0	3.55	.556
Tacitness	2.0	5.0	3.78	.745
Complexity	2.0	5.0	3.86	.668
Teachability	1.5	5.0	3.26	.877
Specificity	1.5	5.0	3.11	.751
Regulatory	2.0	4.8	3.65	.583
Cognitive	1.5	5.0	3.34	.858
Normative	1.0	5.0	3.15	.945
Cultural distance	1.0	5.0	3.54	.931
Chinese "*guanxi*"	2.0	5.0	3.27	.740
General	1.5	5.0	3.08	.742
Specific	2.5	4.7	3.57	.601
Absorptive capacity	1.5	5.0	3.42	.767
Commitment	2.0	5.0	3.37	.761
Trust	1.5	4.5	3.38	.815
Identity	2.0	5.0	3.84	.723
Power/dependence	2.3	4.7	3.54	.603
Size	1.56	8.70	4.44	1.617
Age	1.10	2.71	1.84	.489
Industry	1	2	1.54	.586

In the analysis, all except the three control variables were measured on a 5-point Likert scale using the following categories: (1) Strongly disagree, (2) disagree, (3) neutral, (4) agree, (5) Strongly agree. From Table 5.3, we find that the mean values of all except the three control variables are between 3.0 and 4.0, which indicated that the respondents tend to choose between neutral and agree scales. Taking a closer look, the variables such as Difficulty, Tacitness, Complexity, Regulatory, Cultural distance, Specificity, Identity and Power have the mean valve more than 3.5, which are close to the agree scale. The mean value of other

variables is less than 3.5, reflecting that most of respondents tended to be neutral regarding these variables. The Normative and Cultural distance have a high standard deviation of more than 0.9, indicating the respondents had a wider range of views relative to these variables. The lowest standard deviation is the dependent variable with SD 0.556, which shows that the respondents had a concentrated opinion regarding the difficulty of knowledge transfer.

Among the control variables, Size had a very high mean value (4.44) with a minimum value of 1.56 and a maximum value of 8.70. It has a standard deviation of 1.617, indicating the employee numbers of the samples are quite different. Compared to Size, the variable, Age had a smaller mean value of 1.84 and a standard deviation of 0.489, including the data points tend to be close to the mean. To measure the industry, we established two categories: (1) Manufacturing sector and (2) Service sector. The mean value and standard deviation value do not have much meaning relative to this variable.

5.4 Analysis of Pearson Correlation Matrix of all variables

To find out the correlations between the dependent variable and the independent variables of this study, Pearson Correlations were performed using SPSS 16.0 software. Pearson correlation coefficient (r), which is used to measure the strength of the association between the two types of variables, is employed to illustrate the correlations among all of the study variables. Table 5.4 contains the r-values along with significance levels from all the bivariate correlations. Significance levels were assessed at $p<.05$ (with one asterisk) and $p<.01$ (with two asterisks), which indicate a significant level of correlation and a highly significant level correlation respectively. When the correlation coefficients (r) is $0 < r < 1$, it indicates there is a positive relationship between two variables; on the contrary, when r is between -1 and 0 ($-1<r<0$), indicating the relationship is negative (Wang, 2007).

This study attempted to answer the following question: what stickiness factors affect the difficulty of knowledge transfer within European multinational corporations? We tried to identify the relationship between the dependent variables (difficulty of knowledge transfer, hereafter referred to as “the difficulty”) and the independent variables involving the four categories of context factors and control variables. The first column of the correlation matrix indicates strength, direction, significance level between the dependent variable and

independent variables of the study.

5.4.1 Correlations between the difficulty and the knowledge characteristics

Included in the category of knowledge characteristics are tacitness, complexity, teachability, and specificity. The tacitness variable was significantly correlated with the difficulty, at r = 0.527. Complexity was also highly associated with the difficulty, at r = 0.508. The level of correlation between teachability and difficulty was not as significant as the two previous variables and the correlation coefficient between them was negative, at r = - 0.266. Like tacitness and complexity, specificity was highly associated with difficulty. The correlation coefficient was - 0.409. The correlation coefficients of both tacitness and complexity variables were between 0 and 1, so they were positively related with difficulty. However, the correlation coefficients of teachability and specificity were between -1 and 0, indicating that the two independent variables were negatively related to the dependent variable. The results of their relationships are in line with the expectation in the hypotheses.

5.4.2 Correlations between the difficulty and the institutional context

The institutional context is measured by three variables: regulatory, cognitive, and normative components. As can be seen in the first column of Table 5.4, the correlation between regulatory and difficulty was highly significant, at r = 0.351, which indicated the regulatory context had a significant impact on knowledge transfer. However, there was no asterisk displayed with the cognitive context, indicating the variable was slightly correlated with the difficulty, at r = 0.198. Regarding the normative context, a highly significant correlation level was presented with the difficulty, at r = 0.463. As the correlation coefficients of all three independent variables were greater than zero, it indicates that their relationships with the difficulty are positive. The results were in accordance with the expected direction in the hypothesis.

5.4.3Correlations between the difficulty and the national culture context

The third category involves the national cultural context. The two dimensions, cultural distance and Chinese “*guanxi*”, are included as independent variables. Cultural distance was significantly correlated with difficulty at a correlation coefficient of 0.286, which showed a

positive relationship between the cultural distance and difficulty as expected. The association level between Chinese "*guanxi*" and the difficulty was not significant. The correlation coefficient was negative, at r = -0.186), which indicated both variables were negatively correlated.

5.4.4 Correlations between the difficulty and the organizational context

The organizational context contains three variables: general level compatibility of the organization, practice specific level compatibility, and absorptive capacity. The general level effects were barely associated with the difficulty at r = -0.27. The correlation coefficient was between -1 and 0, indicating the relationship between the general effects and the difficulty was negative. This result was opposite to expectations. The correlation between the practice specific and the difficulty was highly significant, at r = 0.359. The positive correlation coefficient shows that there was a positive relationship. The result was in line with our expectation. The absorptive capacity was significantly correlated with the difficulty and they were negatively correlated as the correlation coefficient was at -0.301. The result was in accordance with our hypothesis.

5.4.5 Correlations between the difficulty and the relational context

In the relational context there are two types of measures of "attitudinal" and "power/dependence". The attitudinal measure includes the variables of commitment to, identity with, and trust in the parent company and both commitment and trust were significantly correlated with difficulty. As the correlation coefficients of the commitment and trust were -0.252 and -0.525 respectively, the relationship between the two variables and the difficulty were negatively associated, which was in line with the hypothesis. Regarding the identity, the correlation with the difficulty was not significant, at r = 0.19. The coefficient showed the relationship between identity and the difficulty was positive, which was contrary to expectations. The second measure of "power/dependence' was significantly correlated with the difficulty. As the coefficient of the "power/dependence" variable was -0.464, its relationship with the difficulty was negative, which was in accordance with the expected direction.

5.4.6 Correlations between the difficulty and the control variables

The three control variables of size, age, and industry were slightly correlated with the difficulty. The correlation coefficient of size was 0.41, indicating a positive relationship between size and the difficulty. However, as the correlation coefficients of both age and industry were -0.66 and -0.168, the relationship between the two control variables and difficulty was negative.

To summarize, 12 out of 16 independent variables were significantly correlated with the dependent variable – the difficulty of knowledge transfer while the control variables were not significantly correlated with the difficulty.

Table 5. 4 Correlation matrix of all variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Dependent variable																				
1. Difficulty	1																			
Independent variable																				
2. Tacitness	.527**	1																		
3. Complexity	.508**	.417**	1																	
4. Teachability	-.266*	-.208	-.165	1																
5. Specificity	-.409**	-.373**	-.231	.570**	1															
6. Regulatory	.351**	.228	.344**	-.023	.091	1														
7. Cognitive	.198	.159	.179	-.311*	-.091	.193	1													
8. Normative	.463**	.165	.148	-.217	-.205	.159	.333**	1												
9. Cultural distance	.286*	.251*	.224	-.032	-.098	.048	.223	.368**	1											
10. Chinese "guanxi"	-.186	-.092	-.052	.181	.305*	.059	.061	.066	.154	1										
11. General	-.027	-.070	.223	-.037	.200	.194	-.009	.074	.008	-.068	1									
12. Practice-specific	.359**	.061	.227	-.072	-.047	.104	.129	.144	.073	-.125	.193	1								
13. Absorptive capacity	-.301*	-.135	-.222	.267*	.323**	-.004	.023	-.297*	.006	.224	-.085	-.264*	1							
14. Commitment	-.252*	-.106	-.284*	.423**	.322**	-.041	-.077	-.294*	.013	-.001	-.118	-.103	.499**	1						
15. Trust	-.525**	-.133	-.183	.148	.284*	.013	.032	-.341**	-.147	.346**	-.053	-.268*	.275*	.066	1					
16. Identity	.190	.150	.224	-.199	-.344**	.000	-.003	.188	.050	-.161	.171	.093	-.142	-.123	-.134	1				
17. Power/dependence	-.464**	-.285*	-.270*	.012	.150	-.113	-.222	-.178	.019	.143	.158	-.219	.154	.084	.180	-.113	1			
18. Size	.041	-.150	-.034	.140	.042	-.205	.067	.129	.138	.089	-.014	.233	.018	-.049	-.003	.099	.077	1		
19. Age	-.066	-.024	.103	.041	.037	-.113	.091	.109	-.007	.297*	-.032	.197	-.152	-.082	.111	-.069	.038	.280*	1	
20. Industry	-.168	-.094	-.267*	.150	.127	-.250*	.019	.031	.014	-.041	-.243*	-.128	-.024	.245*	.015	-.211	.057	.076	-.084	1

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

5.5 Multicollinearity diagnostics among independent variables

Multicollinearity in logistic regression models is a result of strong correlations between independent variables. The existence of multicollinearity inflates the variances of parameter estimates. That may result, particularly for small and moderate sample sizes, in lack of statistical significance of individual independent variables while the overall model may be strongly significant. Multicollinearity may also result in wrong signs and magnitudes of regression coefficient estimates, and consequently in incorrect conclusions about relationships between independent and dependent variables. Since multicollinearity can adversely affect the results of multiple regressions, it is important to properly evaluate if the multicollinearity problem exists in our analysis. From the correlation coefficients matrix in Table 5.4, we find all intervariable correlation coefficients are less than 0.5 except the case of Teachability and Specificity (0.57), which may suggest a problem with multicollinearity (i.e., r >0.5), (Hair *et al*., 1995). In addition, lower coefficients among the independent variables may also cause the multicollinearity problem especially when the sample is small (Wang, Yang and Ouyang, 2011, p. 139).

To properly asses the possibility of multicollinearity among the variables in this study, we first examine the Tolerance and Variance Inflation Factor (VIF) for each variable. Since for each independent variable, Tolerance = 1 – Rsq, where Rsq is the coefficient of determination for the regression of that variable on all remaining independent variables, low values indicate high multivariate correlation. From the column of Tolerance in Table 5.5, all the independent variables have tolerance values more than 0.40, which is considered quite high. The Variance Inflation Factor (VIF) is 1/Tolerance, it is always >= 1. It is the number of times that the variance of the corresponding parameter estimate is increased due to multicollinearity as compared to as it would be if there was no multicollinearity (O'Brien, 2007). Though there is no formal cutoff value to use with VIF for determining the presence of multicollinearity, values of VIF exceeding 4 are regarded as indicating multicollinearity (Hair, Anderson, and Tathum, 1999). The VIF values of all variables in Table 5.5 are less than 4, hence a preliminary assessment is that the independent variables do not have a multicollinearity problem.

Table 5. 5 Tolerance and VIF values of all independent variables

Independent variable	Tolerance	VIF
Tacitness	.660	1.514
complexity	.573	1.744
teachability	.466	2.147
specificity	.409	2.446
regulatory	.675	1.482
cognitive	.649	1.540
normative	.524	1.908
cultural distance	.722	1.386
Chinese "*guanxi*"	.679	1.473
General	.703	1.423
Specific	.742	1.347
absorptive capacity	.553	1.807
commitment	.514	1.947
Trust	.580	1.724
Identity	.749	1.336
power/dependence	.673	1.485
Size	.716	1.397
Age	.747	1.338
Industry	.722	1.385

Second, we evaluated the collinearity diagnostics from the regression data. According to Belsley, Kuh, and Welsch (1980), the regression estimates are not affected by problems of collinearity if the dimensions (independent variables) have variance proportion value less than 0.5. From Table 5.6, the collinearity diagnostics from the regression data screening process reported that none of the dimensions had more than variance proportion greater than 0.5. Therefore, there were no major problems with this analysis with regard to multicollinearity.

Table 5. 6 Multicollinearity diagnostics by regression data

Dimensions	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1.difficulty	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
2 .tacitness	.00	.00	.00	.02	.01	.00	.01	.04	.01	.00	.00	.00	.01	.01	.01	.00	.00	.00	.00	.06
3 .complexity	.00	.00	.00	.00	.00	.00	.00	.02	.00	.00	.02	.00	.01	.00	.01	.00	.00	.08	.00	.36
4 .teachability	.00	.01	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.43	.04	.10
5 .specificity	.00	.00	.00	.04	.00	.00	.05	.00	.00	.04	.06	.01	.00	.01	.07	.00	.00	.04	.12	.00
6 .regulatory	.00	.01	.01	.02	.01	.00	.01	.09	.20	.04	.03	.01	.01	.00	.01	.03	.01	.00	.03	.10
7 .cognitive	.00	.04	.00	.00	.05	.00	.00	.09	.04	.03	.09	.00	.05	.05	.00	.01	.00	.04	.01	.02
8 .normative	.00	.02	.00	.05	.00	.00	.31	.00	.04	.02	.04	.00	.03	.00	.00	.00	.01	.06	.11	.00
9 .cultural	.00	.00	.02	.00	.00	.00	.01	.18	.34	.03	.09	.01	.06	.00	.00	.02	.06	.00	.02	.02
10. "*guanxi*"	.00	.00	.00	.05	.02	.01	.10	.00	.09	.05	.10	.04	.02	.02	.12	.04	.00	.02	.17	.03
11.general	.00	.07	.02	.09	.00	.02	.02	.00	.04	.01	.08	.00	.05	.08	.08	.01	.00	.07	.30	.00
12 .specific	.00	.00	.00	.08	.01	.01	.01	.11	.00	.09	.00	.01	.03	.01	.09	.23	.12	.02	.01	.02
13 .absorptive	.00	.05	.00	.00	.01	.02	.02	.08	.00	.03	.01	.17	.06	.03	.05	.12	.02	.03	.05	.00
14 .commitment	.00	.02	.11	.04	.00	.02	.08	.03	.08	.08	.07	.27	.05	.04	.27	.03	.03	.00	.02	.05
15 .trust	.00	.41	.05	.02	.03	.02	.02	.06	.11	.08	.20	.00	.03	.21	.00	.13	.06	.05	.00	.01
16 .identity	.00	.11	.05	.08	.01	.47	.03	.00	.00	.02	.00	.14	.12	.21	.00	.00	.01	.12	.00	.01
17. dependence	.00	.20	.07	.18	.46	.00	.00	.05	.01	.00	.11	.05	.08	.00	.04	.23	.00	.04	.02	.01
18 .size	.00	.01	.09	.20	.04	.02	.29	.13	.02	.00	.04	.14	.32	.05	.00	.00	.45	.00	.00	.05
19 .age	.00	.02	.34	.09	.12	.40	.01	.11	.02	.01	.06	.02	.07	.23	.11	.03	.03	.00	.07	.08
20 .industry	.00	.02	.03	.03	.01	.00	.01	.01	.00	.01	.01	.12	.02	.03	.13	.10	.19	.00	.00	.08

*Dependent variable: difficulty of knowledge transfer

5.6 Results of regression analysis

In order to test the hypotheses and to measure the true strength and direction of association among the multiple independent variables and the continuous dependent variable, a six-stage hierarchical multiple regression analysis was performed. At the first stage, the four stickiness factors relating to the characteristics of knowledge transferred (i.e.,tacitness, complexity, specificity, and teachability) were inserted into the regression analysis; at the second stage, the three variables of the institutional context including regulatory, cognitive, and normative dimensions entered the regression analysis process; at the third stage, the variables of cultural distance and Chinese "g*uanxi*" of the national cultural context were added in the

regression analysis; at the fourth stage, the three variables of general, practice-specific, and absorptive capacity of organizational context were included into the regression analysis process; at the fifth stage, the group of relational context variables, which contained commitment, trust, identity, and power/dependence) were inserted into the regression analysis; at the final stage, we put the three control variables including size, age, and industry into the regression analysis. Taking the five groups of independent variables and one group of the control variables into the regression analysis, a total six regression models were created, from which we can identify and analyze the specific relationships between the dependent variable and the independent variables. The detailed information about the regression analysis is presented in Table 5.7.

Table 5. 7The six-stage least squares estimation of hierarchical regression analysis (N=67)

	The difficulty of knowledge transfers											
Variables	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Beta	S.E.	Beta	S.E.	Beta	S.E.	Beta	S.E.	Beta	S.E.	Beta	S.E.
Stage1												
Tacitness	.310[2]	.084	.257[1]	.076	.247	.077	.241	.074	.250[1]	.071	.264[2]	.073
Complexity	.327[2]	.089	.249[1]	.084	.241[1]	.085	.235	.085	.193[1]	.085	.206[1]	.087
Specificity	-.199	.092	-.217	.086	-.176	.089	-.129	.089	-.099	.089	-.071	0.92
Teachability	-..034	.075	.013	.071	.014	.071	-.020	.069	-.003	.070	-.039	.073
Stage 2												
Regulatory			.184	.093	.190[1]	.093	.201	.089	.219[1]	.086	.219[1]	.092
Cognitive			-.049	.063	-.046	.064	-.083	.062	-.026	.062	-.031	.064
Normative			.329[3]	.056	.327[2]	0.59	.321[1]	.059	.207	.063	.209[1]	0.64
Stage 3												
Cultural distance					.055	.059	.054	.056	.041	.055	.033	.056
Chinese *"guanxi"*					-.138	.070	-.127	.068	-.046	.070	-.036	.072
Stage 4												
General							-.156	.070	-.150	.068	-.153	.071
Practice-specific							.239	.082	.188[1]	.080	.167[1]	.085
Absorptive capacity							-.356[3]	.087	-.321[3]	.079	-.315[3]	.073
Stage 5												
Commitment									-.064	.077	-.037	.081
Identity									-.010	.068	-.020	.070
Trust									-.298[2]	.068	-.279[2]	.071
Power/dependence									.006	.087	.050	.089
Stage 6												
Size											.101	.032
Age											-.091	.104
Industry											-.049	.088
R^2	**0.420**		**0.555**		**0.572**		**0.635**		**0.694**		**0.706**	
Adjusted R^2	**0.382**		**0.502**		**0.504**		**0.554**		**0.596**		**0.587**	
***F*-value**	**11.211[3]**		**10.492[3]**		**8.463[3]**		**7.826[3]**		**7.088[3]**		**5.936[3]**	

Note 1. Standardized coefficients (Beta) marked with [3, 2, 1] indicate $p < 0.001$, $p < 0.01$, and $p < 0.05$ respectively;

Note 2. Beta column gives the standardized regression coefficients;

Note 3. S.E stands for standard errors.

5.6.1 Regression result of Model One

From Model 1 in Table 5.7, the four knowledge characteristics were found to explain 38.2% of the difficulty of knowledge transfers (Adjusted R^2 =0.382, $p<0.001$). Among the four independent variables, tacitness and complexity had Beta value of $.310^2$ ($p<0.01$)and $.327^2$ ($p<0.01$) respectively, so both of them were significantly and positively correlated with the difficulty. The result confirmed that our hypotheses (H1a and H1b) were supported. However, specificity (Beta= -.199, $p<0.10$) and teachability (Beta= -.034, $p<0.10$) were not statistically significant with the difficulty though they had a negative sign. The result did not support the hypotheses H1c and H1d. However, the result of Stage 1 changed when the variables of other stages entered the regression analysis.

5.6.2 Regression result of Model Two

When the variables relating to the institutional context were introduced to Model 2, approximately 50.2 % (Adjusted R^2 =0.502, $p<0.001$) of the difficulty of knowledge transfers were explained by the joint variance of the independent variables, which increased by 12% compared with that of Stage 1. The result indicated that the impact of the institutional context was significant on the difficulty. At this stage, the correlation of tacitness and complexity with the difficulty was less pronounced though it was still significant. The Beta of specificity remained negative but teachability turned to be positive due to the effect of the addition of the institutional context. Regulatory and cognitive dimensions were not significantly correlated with the difficulty as both of them had *p* values greater than 0.05. The beta of Regulatory variable was 0.184, indicating its relationship with the difficulty was positive, so the result supported H2a. However, as the cognitive variable (Beta= -0.49) had a negative relationship with the difficulty, the result did not support H2b. As the normative dimension was significantly and positively correlated with the difficulty (Beta=0.329, $p<0.001$,), the result supported H2c as expected.

5.6.3 Regression result of Model Three

Model 3 illustrated that the joint effect of the variables of knowledge characteristics, the institutional context and the national cultural context explained 50.4 % (Adjusted R^2 =0.502, $p<0.001$) of the difficulty of knowledge transfers, which only increased by 0.2%. The result indicated that the cultural distance and Chinese *"guanxi"* did not significantly influence the difficulty of knowledge transfers. The introduction of the national cultural context changed the impact of the former variables. Tacitness, specificity and teachability did not significantly affect the difficulty while complexity appeared to have greater significance. Regulatory became significant in terms of its impact on the difficulty ($p<0.05$). The impact of cognitive dimension on the difficulty was not significant and the relationship remained negative. Normative dimension had significant impact upon the difficulty though it became weaker ($p<0.01$). Although cultural distance and Chinese *"guanxi"* did not significantly influence on the difficulty of knowledge transfers, their beta values (0.55 for cultural distance and – 0.138 for *"guanxi"*) supported the posited hypothesis H3a and H3b.

5.6.4 Regression result of Model Four

Introducing the organization context into Model 4, the joint effect of the independent variables explained 55.4 % (Adjusted R^2 =0.554, $p<0.001$) of the difficulty of knowledge transfers, a 5% increase from the previous stage. The result demonstrated the organization context had a significant impact on difficulty of knowledge transfer. The introduction of the organization context brought changes to the impact of the variables performed in the previous models. First, all the four characteristics of knowledge did not significantly impact upon the difficulty of knowledge transfers. Besides, teachability and the difficulty of knowledge transfers became negatively related due to the negative beta value (-0.20), which supported H1d. Regarding the institutional context variables, regulatory dimension did not significantly impact on the difficulty ($p<0.1$) and the impact of the normative dimension was less pronounced ($p<0.05$). The impact of cognitive dimension on the difficulty remained negative though it became stronger. The impact of cultural distance and Chinese *"guanxi"* remained almost same as those in the previous model. Concerning the organizational context, the general context was negatively related to the difficulty (beta= -0.156), which did not support H4a while practice-specific context (beta = 0.239) was

positively related to the difficulty, making the result to support H4b. Neither general nor specific context impacted significantly on the difficulty of knowledge transfer ($p > 0.05$). Absorptive capacity was found to significantly and negatively impact the difficulty of knowledge transfer (beta = - 0.356, $p < 0.001$), which indicated the result supported H4c.

5.6.5 Regression result of Model Five

Model 5 illustrated the regression result after the relational context variables were entered. The joint effect of the independent variables explained 59.6% (Adjusted R^2 =0.596, $p < 0.001$) of the difficulty of knowledge transfers, which increased by 4.2%. The standard coefficients of all the variables in Stage 1, 2, 3, and 4 displayed some new additional changes with the influence of the introduction of relational context dimensions. Tacitness and complexity were significantly and positively related to the difficulty while specificity (at Beta = - 0.99) and teachability (Beta = -0.03) were slightly and reversely related to the difficulty. The result demonstrated that relationships as anticipated. Regulatory was found to be significantly and positively related to the difficulty. Similar to the previous stage, the cognitive dimension was negatively related to the difficulty, however the relationship became less pronounced. Though the normative dimension was positively related to the dependent variable, the relation with the difficulty was not significant. There was only slight change occurring to the national cultural context. Among the three dimensions relating to the organizational context, only the practice specific variable had a noticeable change for its significant relations reversed with the difficulty. Commitment, identity, and trust, which belonged to the attitudinal measure, were all reversely related to the difficulty, which indicates the result supported H5a, H5b, and H5c. However, as the beta of Power/dependence was just 0.06, it indicates its relation to the difficulty was positive but very weak. The result did not support H5d as we expected.

5.6.6 Regression result of Model Six

In Model 6, the final stage of introducing the control variable into the regression analysis, we analyzed the regression result for all the variables. To our surprise, we found the overall effect of the independent variables together with the control variable related less to the difficulties of knowledge transfer, decreasing to 58.7% (Adjusted R^2 =0.587, $p < 0.001$) from the previous stage. This result illustrated the control variables mitigated the effect of

independent variables on the difficulties of knowledge transfers. Regarding the characteristics of knowledge, tacitness and complexity, they were significantly and positively related to the difficulty, while specificity and teachability were negatively related to the dependent variable though the effect was not significant. Basically, the regression results of analysis supported the hypotheses of knowledge characteristics. Regarding the institutional context, both regulatory and normative variables were positively and significantly related to the difficulty, supporting the hypotheses concerned. However, as the cognitive variable (at beta = - 0.31) was negatively related to the dependent variable, the hypothesis relative to the cognitive was not supported. The empirical results relating to the national culture context supported the relevant hypotheses though their relations with the difficulty were not significant. As for the organizational context, as the general variable (at beta = - 1.53, $p<$ 0.10) was negatively related to the difficulty, the hypothesis was not supported. The practice specific and absorptive capacity variables were significantly related to the difficulty and both demonstrated the relationships in the expected direction, hence supporting the relevant hypotheses. Looking at the variables of the relational context, we found all except power/dependence supported the related hypotheses. Among the three control variables, size was positively related to the difficulty but both age and industry were negatively related to it. And all of them did not significantly relate to the extent of difficulties in knowledge transfer processes.

5.6.7 Summary of the regression results

In general, the hypothesized model of stickiness factors performs very well in explaining nearly 60 percent (adjusted R^2=0.587) of the variance in the existence of knowledge transfer difficulties. However, in terms of the overall performance of the theoretical model in its ability to identify effective predictors of knowledge transfer difficulties, the model does not perform quite as well as the individual correlation coefficients might suggest. With regard to the relative contribution of each independent variable, the regression analysis identified that seven out of the twelve independent variables (“tacitness”, “complexity”, “regulatory environment”, “normative environment”, “practice-specific factor”, ‘absorptive capacity”, and “trust”) were statistically significant in terms of the difficulty of knowledge transfer while the other five stickiness factors (specificity, teachability, culture distance, commitment, dependence/power) did not contribute significantly. It indicates that the five insignificant factors were mediated by or redundant to the strong relationships between the difficulty of

knowledge transfers and the seven significant factors.

First of all, absorptive capacity represented the most significant contributing factor in explaining the extent of difficulty of knowledge transfers as its standardized coefficient beta was – 0.315 ($p<0.001$, and was negatively correlated. The result illustrates that the learning capacity of Chinese employees in this case will have an obvious impact on the extent of difficulties in the knowledge transfer process, which is in accordance with our prediction. Therefore, Hypothesis 4c was strongly supported.

The second most significant factor was trust, of which the coefficient was – 0.279 ($p<0.01$). The result indicated that trust was reversely related to the extent of difficulty of knowledge transfers, so we can infer that the trust of subsidiaries' employees in the expatriates and the subsidiaries will affect the extent of difficulties in knowledge transfers. The more trust the employees hold in the subsidiaries, the less difficulties there will be in the knowledge transfer process. Thus, Hypothesis 5c is strongly supported.

The third most significant factor was tacitness and its coefficient (B=0.264, $p<0.01$) indicates it has a positive and significant relationship with the difficulty. If the knowledge is tacit and hard to articulate, then more efforts for transferring the knowledge will be needed, hence increasing the difficulties in the knowledge transfer process. Therefore, Hypothesis 1a is strongly supported.

Regulatory (B = 0.219, $p<0.05$) was found to be the fourth effective factor though it was somewhat pronounced. This indicates the regulatory environment has an impact on the extent of difficulties of knowledge transfer. When the regulatory environment in China is not compatible with the knowledge being transferred, the difficulties will be increased. Thus, Hypothesis 2a is strong supported.

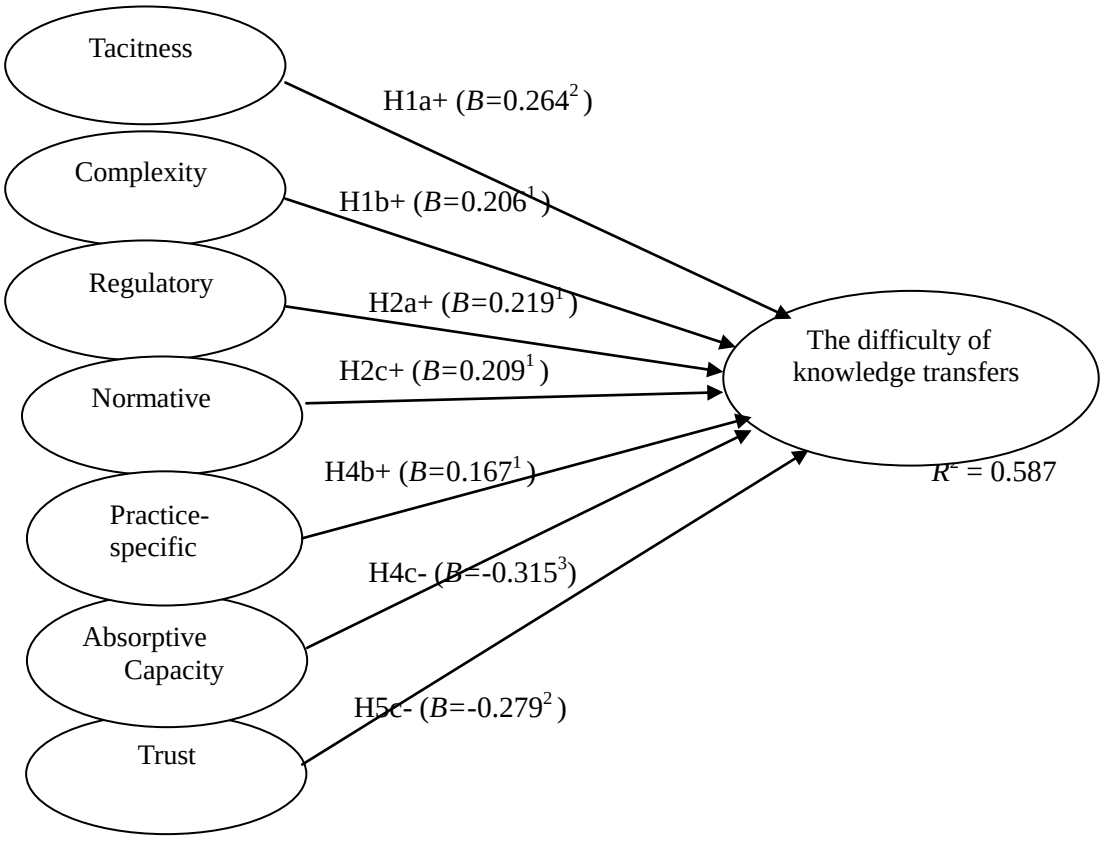
Besides regulatory environment, the normative environment (B = 0.209, $p<0.05$) was also significantly related to the difficulty of knowledge transfer, which was considered to be the fifth factor. Like regulatory environment, if the normative environment in China is not compatible with the knowledge transferred, it will be difficult for expatriates to transfer the knowledge to the subsidiaries' employees. Therefore, Hypothesis 2c is supported.

The sixth effective predictor of knowledge transfer difficulty was another characteristic of knowledge-complexity (B = 0.206, $p<0.05$). This would imply that not only the tacit dimension of the knowledge transferred but also interacting and complex elements within the knowledge are good predictors of transfer difficulties. Hypothesis 1b is thus also empirically supported.

The last contributing factor in explaining the extent of difficulties was another dimension of organizational context—practice-specific (B = 0.167, $p<0.05$). The result indicates that when the subsidiary's organizational context at the practice-specific level is not in favor of the knowledge transferred, the difficulty of the transfer will be increased. Therefore, Hypothesis 4b is supported.

Of the remaining independent variables, the 'general" organizational context was the next most significant contributing factor to the model (B = -0.153, $p<0.10$), but fell outside of the lowest significance threshold of $p<0.05$ and negatively related to the difficulty. Thus, Hypothesis 4a is not supported. Other variables failed to contribute any significant explanatory factors to the extent of difficulties in the knowledge transfer process. Therefore, none of the hypotheses other than the seven mentioned above (i.e, 1a, 1b, 2a, 2c, 4b, 4c, 5c) could be empirically supported. In addition, the three control variables built into the questionnaire did not contribute any significant explanations for the above results. The regression result is presented in a simplified model (see Figure 5 after dropping the non-significant links).

Figure 5 The simplified model depicting the significant correlations



Chapter 6: Discussion on the empirical results

Based on the research results presented in Chapter Five, we will discuss the findings in order to better understand the research questions. In this chapter, we begin with examining the pattern of the areas of knowledge transfer through the MNC expatriates. Then, an in-depth review of the levels of expatriate participation in the various knowledge transfer processes. Finally, we identify the various stickiness factors relative to the difficulty of knowledge transfer experienced by expatriates.

6. 1 Types of the knowledge transferred

Among the seven most typical key knowledge transfers identified by the expatriates, the area of management represented the most common central transfer area used by EU MNCs expatriates. This finding is in line with the results identified in the previous research (Riusala and Suutari, 2004). Two explanations are provided for this finding in the Chinese context. First, the Chinese government has optimized its business environment to accommodate the advanced management knowledge of the western MNCs. Since opening up to the outside world, China has sought to move toward a market economy and is frequently referred to as a socialist economy with market characteristics. During this rapid transformation, the Chinese policy makers began to realize that China's economic development could not be achieved without introducing market-oriented managerial know-how from western countries. Therefore, the import of western management know-how has become one of the major goals in the Chinese open-door policy. In order to promote the initiative, many special economic zones or high technology areas were set up to attract foreign direct investments. The government expects that the managerial skills and knowledge transferred through MNCs will improve the Chinese employees in such areas as administration, storage cost reduction, quality control, distribution systems, accountancy methods, and so on. Thus, with the favorable conditions the MNCs and their expatriates are willing to transfer the management knowledge to China as the most common central area. The finding matches the view that the fast FDI inflow into China requires Chinese managers to be able to understand western business practices and behavior, thus promoting the transfer of management knowhow (Zhuang and Whitehill, 1989). Second, expatriates emphasize management knowledge transfer for their effective control over subsidiaries. Due to the drawbacks of the conventional output-based control including financial performance, quality performance

measures, and personal performance measures, MNCs increasingly pay attention to behavioral control by assigning expatriates to key positions in subsidiaries, which is viewed as a more effective control mechanism. Staffing these subsidiaries with expatriates instead of host country nationals has many advantages. For example, compared to their local employees, expatriates are generally believed to have a better understanding of overall corporate priorities, and are more agreeable on headquarter-determined rules. They are also more committed to the overall corporate goals (Doz and Prahalad, 1991). Rosenzweig and Singh (1991) argue that expatriates are effective in replicating existing organizational specificities and the operating procedures of headquarters in their local units. Therefore, transferring management knowledge from the headquarters to the subsidiaries, which is a priority of Chinese government, can enhance the MNC's control over the overseas subsidiary.

The second most common transfer area involves the knowledge of sales and marketing. It is well-known that China has attracted FDI inflow due to its large market potential, so the expatriates are more involved in sales and marketing where they certainly transferred significant knowledge. In order to gain market share in the Chinese market, the expatriates actively apply marketing and sales knowledge to the subsidiaries. Despite of the uniqueness of the Chinese market, the market mechanism in China has been more market-oriented than previously and more businesses tend to adopt modified western marketing and sales concepts and skills. Another reason, for more frequent transfer of sales and marketing knowledge, is because expatriates can implement local adaptation versus global standardization after transferring the market knowledge. As stated in the aforementioned literature, the marketing knowledge plays a key role in balancing global standardization against local adaptation, namely, marketing strategies need to be culturally contextualized (Simonin 1999b). Despite of the difference between the Chinese and western market, the advanced sales and marketing knowledge are embraced by Chinese customers especially in the markets where free competition prevailed.

On a par with the marketing knowledge, product and service knowledge is also a common transfer area. Generally, the Chinese consumers associate the products made in the western countries with concepts of higher quality, sophistication, prestige, modernity, and novelty. So, they have a strong preference for foreign brands. In the last two decades, an increasing

number of western-based products and brands have been introduced in the Chinese market. The consumption for foreign brands is especially high for Chinese consumers who are living in major cities and are relatively affluent, young, and well-educated (Dickson *et al.*, 2004), which can be explained by the preference of Chinese consumers for the symbolic benefits associated with foreign brands. When the expatriates transfer the product and service knowledge directly from their headquarters, their efforts help build their brands in China. Another explanation is that as the market environment and technological changes emerge so fast in China, the MNCs have to transfer the product/service knowledge quickly to maintain the competitiveness of their subsidiaries.

Compared with product/service knowledge, technical and production knowledge transfer through expatriates is less common. The main reason is that the European MNCs concern regarding the weak Intellectual Property Right protection in China. This situation was described by European-China Chamber of Commerce (EUCCC) in the Position Paper (2011/2012) that IPR protection in China remains an on-going concern of European member companies. As European companies participate more and more in the economic restructuring and innovation in China, IPR protection becomes a critical issue to EU MNCs in terms of the technological and production knowledge transfer. On the positive side, the Chinese government realizes the importance of IPR protection to both foreign and domestic enterprises; so, recently a series of anti-counterfeiting campaigns have been introduced to reduce the widespread and continuous violations of IPR throughout China. If the situation continues to improve, it is believed that the MNCs will transfer more technological and production knowledge to their subsidiaries in China.

In addition to management knowledge, organizational culture knowledge is another important approach for MNCs for controlling their subsidiaries. Therefore, in this study the corporate culture is one of the common knowledge transfer areas. Different from formal and bureaucratic control, cultural control presents an informal and tacit nature, which requires a sophisticated transfer mechanism. In this case, expatriation is capable of instilling headquarters' corporate culture to host employees. Despite the cultural distance between China and Europe, most of the employees working at the subsidiaries can be integrated into the organizational culture because of their extensive education background and open minds. This finding would appear to confirm the more strategic deployment of expatriates as a

control mechanism (Harzing, 2002).

Accounting and finance knowledge is a less common transfer area among our expatriate sample. Because accounting and finance knowledge enjoys more explicit characteristics and can be effectively transmitted through electronic systems, expatriates do not need to become frequently involved in this process. Another explanation is that after 1992, China increased its pace of transformation to adapt its accounting system to international practices by declaring and applying more new accounting standards (Ding, 2008). The accounting and financial systems in China are converging towards International Financial Reporting Standards (IFRS). The establishment of modern financial systems in China helps to reduce the knowledge transfer in this area from the MNC headquarters to their subsidiaries. This finding is contrary to Riusala and Smale's study (2007) which indicated that the finance and accounting knowledge is the most common central transfer area. We believe the different result is attributed to different research objects from different countries.

The least common knowledge transfer was in the area of the human resource management. Generally, MNCs attempt to transfer their HRM practices abroad because HRM policies and practices can act as mechanism for coordination and control of international operations (Bartlett and Ghosal, 1991). However, international HRM knowledge transfer can be problematic due to the complexities involved in employing and managing people from disparate Institutional and cultural environment (Bae *et al*, 1998). As HRM knowledge is based on cultural beliefs that reflect the basic assumptions and values of the national culture in which organizations are embedded, MNCs are likely to find their HRM knowledge does not fit with the institutional and cultural context of the recipient countries. In this case, the HRM policies and practices from European MNCs may not be compatible with the subsidiaries due to the institutional and cultural difference between China and Europe. Therefore, the expatriates employed more local HRM knowledge in the subsidiaries than transferring the HRM knowledge from their headquarters in Europe. The degree of international HRM knowledge transfer is also found to be related to the age and size of the subsidiaries (Myloni, Harzing, and Mirza, 2004), accordingly, older MNC subsidiaries have a lower level of HRM transfer compared with "middle-aged" MNCs because the mentality and way of thinking of the majority of employees who have been working in the same company for many years are very difficult to change. In our sample, about 73.1% of

subsidiaries have been established for over 5 years, which explains the low level HRM knowledge transferred to their subsidiaries. As for the size dimension, Myloni *et. al*.(2004) found that HRM knowledge is generally more difficult to transfer in large subsidiaries because large firms tend to adopt more socially responsible HRM practices with more visibility and under more pressure to gain legitimacy and acceptance . Our sample shows that the subsidiaries with over 200 employees account for 47.8 %, so the result is in line with previous studies (Myloni, *et al.*, 2004).

The different level of knowledge transfer area through the expatriates of subsidiaries reflects that some MNCs knowledge may be more sensitive to pressures of local adaptation, while others may be more prone to internal consistency. In the same subsidiary, some knowledge areas might closely follow the parent company, while others may resemble more those of the host country. In addition, there could be some types of knowledge that follow a global standard.

6.2 The role of the expatriates in the knowledge transfer

With regard to the levels of expatriate involvement in various knowledge transfer processes, the data indicates that the expatriates had a high level of participation in knowledge area of management, culture, HRM, marketing, and product/service. The effective knowledge transfer in the above-mentioned areas required the expatriates to actively participate in the process as a transmitter of corporate culture (Janssens, 1994) or cultural carrier (Lu and Bjorkman, 1997). Expatriates are able to transfer the corporate culture in a more effective way by providing examples to local managers as they were able to demonstrate, on a daily basis, behavior consistent with the parent-company culture. The data also indicates that about two third of transfer areas involve active participation from expatriates, which indicates that many expatriates are working across-functionally to varying degrees and at different managerial levels. This finding has important implications for selecting and assessing the key competencies of expatriate managers. As our study identifies that the expatriates are generally involved in various areas of knowledge transfer, the ideal set of expatriate competencies should include the skills of transferring cross-functional knowledge as well as contextual and cultural knowledge. Another implication is that expatriate managers were found to be key figures in transferring knowledge from MNCs headquarters

to their subsidiaries in China, which supports Downes and Thomas (2000) expatriation as a tool by which organizations can gather and maintain a resident base of knowledge about the complexities of international operations.

6.3 Impact of the characteristics of knowledge on the difficulty of transfers

With regard to the impact of characteristics of knowledge on the difficulty, our research identified that the expatriates were mainly involved with the four dimensions of knowledge that were often tacit, highly complex, non-specific to a certain function, and difficult to teach. For those explicit knowledge MNCs can have a wide range of efficient mechanisms to transfer, such as email, telephone, company reports, and personal visits, compared to the expatriation mechanism which is very costly and difficult to manage. However, a lot of knowledge transferred between units of a MNC is not explicit but tacit (e.g., the capacities of employees to launch new products). Given that tacit knowledge cannot be codified or contained in manuals and can only be observed through its application, when MNCs decide to transfer tacit knowledge cross borders, they must assign employees to the subsidiaries abroad. Such responses in our study echoed with Bonache and Brewster's view (2001) that expatriates are a basic mechanism for transferring tacit knowledge.

6.3.1 Of the four characteristics of knowledge transferred, tacitness displayed a significant, positive effect on the difficulty perceived by the expatriates. Tacit nature is such that it can be difficult to articulate (Winter, 1987) directly in formal language or codified (Zander and Kogut, 1995) into written instructions. It requires personal contacts and learning through which the expatriates need to clarify the meaning of knowledge; to see that it is correctly understood; to give his/her own example of how things should be carried out, and to control that the knowledge is actually taken into practice (Riusala and Suutari, 2004). Therefore, expatriates perceive that the tacitness of knowledge may have increased the difficulties when transferring the knowledge from headquarters to subsidiaries. Empirically, though in different research settings, this finding is in agreement with those from the previous studies (e.g., Zander and Kogut, 1995; Szulanski, 1996; Simonin, 1999; Riusala and Suutari, 2004; Minbaeva, 2007;) which found strong support for the tacitness of knowledge negatively affecting the speed and ease of transfers. The results regarding the tacitness shows that the seminal work of Polanyi (1967) remains timely and fundamental to understanding the

knowledge transfer through expatriation within MNCs. The strength of this result may also shed some light as to why more and more MNCs have begun ambitious programs aimed at the codification of corporate knowledge. The expatriate managers we interviewed also confirmed that some key know-how in the area of marketing, HRM and customer service could be articulated and codified for the transfer with specific mechanisms. In spite of the clear benefits of codification, learning from experience and learning by doing in the presence of expatriates remains an effective mechanism for favoring knowledge transfer.

6.3.2 Complexity also represents a significant stickiness factor for expatriates in the transfer process. When knowledge is highly complex, it is usually involved with interdependent technologies, routines, individuals, and resources. In order to transfer the complex knowledge, expatriates need to leverage a large number of interdependent skills, which could make the transfer very demanding. In the last decade or so, the FDI from EU into China has been shifting from the labor intensive industries to high value-added industries which are featured with high technology and innovation. This trend can be illustrated by the fact that an increasing number of advanced manufacturing companies and high-end service businesses have started to transfer their R&D centers and the state-of-arts managerial capabilities to subsidiaries in China. Compared with the European FDI in 1980s and 1990s, the knowledge being transferred in recent years has become more complex, which increased the difficulties perceived by expatriates. Another explanation is that when the knowledge transfer through expatriates relates to the ways of their working involving their attitudes and feelings, the expatriates may feel difficult to get the local employees to understand the work situation. This result is in line with findings from Szulanski (1996), Simonin (1999), Minbaeva (2007), and Riusala and Smale (2007), who discovered strong support for the complexity of knowledge positively affecting the degree of difficulty.

6.3.3 The impact of specificity of the knowledge on the difficulty seems insignificant. In this study, specificity reflects the degree to which knowledge is about specific functional expertise. The more specific the knowledge is, the less interrelated it is to other functions and the easier to transfer. On the contrary, if the knowledge is developed and integrated around different functional activities, or system-dependent (Zander and Kogut, 1995), it would become difficult to transfer. Since MNCs units are often integrated vertically around the functions they perform, the expatriates may perceive it less difficult to transfer the

specific knowledge within the same function across borders. In addition, it may partly be explained by the expatriates' cross-functional participation in the process of knowledge transfer which is clearly indicated in the results in our study. The non-specific knowledge which was a part of the interrelated knowledge system did not seem to affect the difficulty of knowledge transfer through the expatriates.

6.3.4 Regarding knowledge teachability, the result does not support our hypothesis, that is, the less teachable the knowledge is, the more difficult it is for expatriates to transfer. It also does not agree with the findings in the previous studies (e.g., Zander and Kogut, 1995, Riusala and Smale, 2007). Teachability refers to the degree of difficulty involved in expatriates' teaching knowledge to the local employees within subsidiaries. Despite of the widely-acknowledged fact that teachability has a great impact on the difficulty of transferring, the results of our study could be explained as follows.

First, the gap of the business environment between the home country of MNCs and China has been narrowed. Thanks to the opening-up and reform policy in the past three decades, China has upgraded the business environment to become more in line with international practices. The gap that the knowledge needs to transfer from the home country to China is much narrower than before, which has decreased the difficulty.

Second, the improvement of the overall quality and education background of the employees in the subsidiaries in China could be another explanation for the results. In recent years, more and more Chinese young people go overseas to pursue degrees. It has broadened their horizon culturally and professionally. In addition, learning is contextual and builds upon what the learners already know. Therefore, their professional qualifications and learning experiences in western countries facilitated the transfer of knowledge in spite of the teachability factor.

Third, the expatriates' familiarity with the Chinese business environment also contributes to the insignificance of the correlation between teachability of knowledge and the difficulty of knowledge transfer. With cultural and economic globalization, China is not as isolated from the western world as before. Thus, the expatriates some of whom know Chinese language -- are much more actively involved in the actual business world in China. They are not simply

equipped with the knowledge from MNC headquarters but also with in-depth understanding of the Chinese business context, which, to a great extent, reduces the difficulty of transferring knowledge to the subsidiaries.

Therefore, the insignificant correlation between the teachability of knowledge and the difficulty of knowledge transfer can be attributed to the upgrading of the business environment in China; local human resources and the expatriates' familiarity in Chinese business context.

6.4 Impact of the institutional context on the difficulty of transfers

Adopting country institutional profiles as a means to characterize the national environment is consistent with the social embeddeddness perspective in the organizational field, which suggests that individuals, organizations, and organizational routines are affected by the social environment in which they exist (Kostova, 1999). So, institutional theory has been widely used for studying the adoption and diffusion of organizational knowledge among organizations (e.g. Scott, 1995; Kostova and Roth, 2002; Riusala and Smale, 2007). When it is applied to the case of multinational corporations, institutional context is described as involving certain major stickiness factors in knowledge transfers. In order to import and assimilate knowledge from advanced countries, the developing countries try to set up laws and regulations and cultivate social climates to promote the knowledge transfer. Some studies have indicated that the host country institutional environment has a strong effect upon the knowledge transfer process. However, our empirical study did not fully support the previous studies. By examining the effect of Chinese regulatory, cognitive and normative institutions on the knowledge transfer, we found that the regulatory and normative components were significantly related to the difficulty of knowledge transfers while the cognitive component did not have much influence. To better understand the results, we discuss the effect of each of the three components on the transfer difficulty as follows:

6.4.1 The respondents' response to the item---the regulatory component of institutional context---supports the hypothesis that the incompatibility of regulatory context with the knowledge transferred increased the transfer difficulty for expatriates. This finding is in line with Liu's study (Liu, Tang, and Zhu, 2008) that the regulatory context in China has a

significant impact on the technological performance of technology transfer. A possible reason was that the regulations and legislations in China were not appropriate so the transferring parties faced resistance to transfer the technology smoothly. In our study, we look at the result from different perspectives.

First, the regulatory environment in favor of intellectual property protection (IPP) has not substantially improved in China which may have a negative impact upon knowledge transfer. The previous studies examined the impact of intellectual property rights on international knowledge transfer. For example, in their empirical study, Branstetter *et al*., (2006) found that U.S. multinational firms responded to changes in IPR regimes abroad by significantly increasing technology transfer to reforming countries. If in the countries where the subsidiaries operate, the violations of IPR are significant, the MNCs will be reluctant to invest in an effort to transfer its knowledge to overseas subsidiaries; hence, increasing the difficulties for expatriates. In recent years, the Chinese government established and implemented quite a few IP laws to encourage more active inventions of creative works and to ensure a better investment environment for both domestic and foreign investors. As a result, not only has China's domestic technological growth accelerated, but it also gained access to technological advances in the developed countries. Though China has made progress in building the IP protection framework and in rapidly developing intellectual property right enforcement, there are still some opportunities for catching up with effective enforcement of IP. According to 2011/2012 Position Paper published by the European Union Chamber of Commerce in China (EUCCC), IPR protection in China remains an ongoing concern among European Chamber member companies. If IP is not sufficiently protected, both foreign and domestic enterprises will be deterred from investing in innovation. So when the IPR protection environment is not favorable, the expatriates may perceive a more difficulties in the transfer knowledge into the subsidiaries in China.

Second, the bureaucracy of public authorities in China could be another factor that contributes to the transfer difficulty for the expatriates. As the Chinese government system is extremely bureaucratic, it is not unusual that the MNCs subsidiaries have to go through bureaucratic layers to get approval from public authorities. In order to create a more favorable environment for FDI, the Chinese government, at various levels, has been trying to reduce the bureaucracy to attract FDI. For example, China's Ministry of Commerce (MoC)

allowed local governments to approve foreign investment into China up to US $100 million in certain sectors that China established as priorities. This decentralization reduces paperwork and cuts down on the bureaucracy that foreign investors contend with in China. Though some progress has been made to reduce bureaucracy, many problems remain due to the bureaucratic system. In a 2011 survey conducted by the American Chamber of Commerce in China, bureaucracy was related as the number-one concern for US business. For the EU expatriates, the bureaucracy, as a stickiness factor, often slow down the transfer processes in dealing with public authorities.

6.4.2 The impact of cognitive institution on the difficulty of knowledge transfer was not perceived significant by the expatriates. This result can be explained by the favorability of the cognitive institution profile in China. The effect of cognitive institution on knowledge transfer usually works through subsidiary employees. Employees' judgments regarding new knowledge are influenced by their cognitions and beliefs, which in turn have been shaped by the external institutional environment in which they operate. As a result, the cognitive context influences the ability of the subsidiary employees to understand the knowledge; the way they interpret the knowledge and its value, and their motivation to adopt it. Positive judgments and motivations are more likely when the cognitive context is favorable for the particular knowledge. From the perspective of schema (Neisser, 1967), many of the current Chinese employees have received proper education in the western countries and are more adaptable to the knowledge transferred by the expatriates. As the schema theory illustrated, knowledge that fit into one's schema is likely to be comprehended correctly.

Since China opened up its door to the outside world 30 years ago, the mutual understanding between Chinese people and the rest of the world has been much improved through the increasingly frequent business and social cooperation and exchange between China and other countries. In the international business field, for example, a large number of multinational corporations dispatched managers and professionals to work at the subsidiaries in China. The responsibilities of expatriates not only involved the role of management and control but also transferring the knowledge from MNC headquarters to the subsidiaries. During the process, expatriates developed the cognitive context in China by interacting with Chinese employees as well as actively participating in networks with other MNCs (Bjorkman, *et al.,* 2004). In the meantime, the subsidiary employees' international education background enabled them

to be more receptive to the international practices and advanced knowledge from MNC home countries than other Chinese people. The better understanding between the MNC expatriates and the Chinese employees working at subsidiaries can therefore improve the cognitive institutions in China and the MNC home countries.

The discussion above can be confirmed by the previous studies. For example, in examining HRM practices in the EU MNC subsidiaries in China, Bjorkman *et al.* (2008) stated that as a result of Chinese HRM practices becoming considerably similar to MNC practices during 1996-2006, the HRM practices increasingly resembled both the MNC home country and host-country practices. Considering the cognitive development of the Chinese managerial and professionals working at MNC subsidiaries, we have reason to believe that their cognitive abilities are more consistent with the knowledge transferred; hence the favorable cognitive context did not increase the difficulties for the expatriates to transfer the knowledge. The finding is also in line with Kostova and Roth's (2002) study which identified the adoption of organizational practices was positively affected by the favorability of the cognitive institutional profile of a host county.

6.4.3 The impact of normative institution on the knowledge transfer was found significant. The normative dimension of institutional environment focuses on the values and norms held by the Chinese employees at subsidiaries. To examine the inconsistency of normative context with the knowledge transfer, we highlight several values and norms based on the previous studies, which can represent the normative institutional context in China.

First, Chinese's employees' respect for authority may hinder the effective transfer of knowledge from lower level to higher level employees. When interacting with managers, the Chinese employees tend to remain silent; and subordinates seldom challenged their superiors. Normally, the Chinese managers and employees may consider knowledge transfer from lower levels to higher level managers quite a challenge, but are more comfortable when transferring knowledge to peers. Knowledge transfer from higher level is considered as obligatory learning. Hence, the norms of respect for authority determines not only the direction of knowledge transfer in the subsidiaries but also whether Chinese employees are willing to share their knowledge with others depending upon who will be the receiver of the knowledge. On the other hand, European culture is characteristic of low-power distance,

which clashes with the high-power distance in China. People in European companies will consider challenging their managers in contrast to Chinese employees would think when challenging their superiors. The inconsistency in terms of the norm of authority may increase the difficulty for the expatriates to transfer knowledge.

Second, concerns of losing face (*mianzi* in Chinese) may hinder the expatriates from transferring knowledge to the local employees. In Chinese culture, it is very important to protect a person's *mianzi* or dignity and prestige in front of colleagues. Sometimes Chinese employees make the impression of not being willing to share ideas with others. Actually, instead of intending to protect their knowledge, Chinese employees are afraid of losing face if they say something wrong or say something in a wrong way. In addition, being concerned about losing face (*mianzi*) may also influence the effectiveness of acquiring knowledge. The employees tend to be afraid of asking questions and keep silent in meetings because admitting that they did not understand the knowledge or questions is considered as losing face in the Chinese culture. Although this situation is changing as Qin and Ramburuth (2008) observed that Chinese employees are asking more questions and making comments during presentations and discussions; however, the negative impact of *mianzi* on knowledge transfer is still a challenge to the expatriates.

Third, the disappearing collectivist cultures among the Chinese employees may increase the difficulty to transfer the knowledge. Traditionally, China is a collectivist society where people value group goals and needs. In the empirical research, Chow *et al.,* (2000) argued that people in collectivist cultures are generally more willing to share their knowledge. However, their study shows that the traditional value is changing and that collectivism in Chinese culture is not as pronounced today. They found in the transition stage, Chinese employees prioritize their individual interests ahead of their teams' success. For example, they are much more award or money-oriented. Survival is also very important to them. In this circumstance, people will not put group benefits in front of their individual benefits (Qin and Ramburuth, 2008).

Clearly, if the constructs that comprise the normative context are not managed well, the expatriates will find more difficulty managing the transfer the knowledge to the subsidiaries because the Chinese employees' values and norms are not favorable for knowledge transfer.

6.5 Impact of the national cultural context on the difficulty of transfers

It is surprising that the national cultural context did not significantly impact the knowledge transfer given the high cultural difference between China and European countries. Considering the characteristics of Chinese national culture, we not only adopted the common construct of cultural distance but also a special construct of *guanxi* with the Chinese government to examine the impact of national culture context on the knowledge transfer through the EU MNC expatriates. The purpose of adding "*guanxi*" is to reflect a more complete concept of Chinese national culture.

Cultural distance has been considered as an obstacle to knowledge transfer in most studies (Bhagat *et al.*, 2002; Buckley *et al.*, 2006; Cui *et al.*, 2006, Simonin, 1999). The researchers claim that cultural distance may increase the casual ambiguity in skills and resources deployment and stickiness of knowledge, and thus may have a negative impact on the effectiveness of knowledge transfer. However, the results did not appear from our study. The possible reasons can be presented as follows:

First of all, China's economic reform and opening-up to the outside world in the last three decades increased the integration of China with the rest of world. As Chinese enterprises and employees respect and accept the diversity of foreign cultures, the negative impact caused by the cultural distance has been significantly reduced.

Secondly, the effective face-to-face communication between the expatriates and Chinese managers and professionals may help to establish an important channel in cross-border knowledge transfer. Realizing the important role of in-depth communication in the process of knowledge transfer, the expatriates may devise strategies to ensure that such communication is strengthened. In addition, language is often seen as another obstacle to effective communication. However, in recent years the influence of language has become much less significant because most of Chinese employees working at MNC subsidiaries have essential language abilities. In their empirical study Qin *et al.*, (2008) commented that even though Chinese employees' language is not perfect, as long as they are willing to share their ideas they will find an excellent way to express themselves. And in turn, sharing of ideas improves their language skills significantly. Therefore, the obstacles to the effective

communications have been removed.

Thirdly, national culture is one of important factors that MNCs take into account for making investment decisions in foreign countries. When the MNCs chose to invest in China they were very likely to recognize and accept Chinese national culture to a certain degree. With the development of economic globalization, the cultural distance at the national culture level may become less of a factor impacting on cross-border knowledge transfer and other aspects.

Fourthly, most of previous studies which found the negative impact of cultural distance on knowledge transfer were conducted within the research setting of the inter-firm. For example, Siminon (1999) investigated the influence of cultural distance on transferring marketing knowledge in international strategic alliances and found it had a negative impact on the transfer. In our study we examined the impact of cultural distance on knowledge transfer within MNCs, which characterized the intra-firm knowledge transfer. Compared to inter-firm knowledge transfer, MNC subsidiaries are relatively independent from the external environment of the host country, so the influence of national culture difference on the knowledge transfer through expatriates is minimized.

Finally, the 67 MNC subsidiaries in the research sample are primarily from developed areas in China, such as Beijing and Shanghai, characterized by internationalization and openness. As a result, the expatriates in these areas may not have encountered as many difficulties due to cultural distance when transferring knowledge to the subsidiaries.

Guanxi with Chinese government is another important construct of national culture which we used to examine the impact on the knowledge transfer. The related finding is not in line with the previous studies (e.g., Siminon, 1999; Buckley *et al.*, 2006; Qin *et al.*, 2008). The insignificant impact of *guanxi* with Chinese government on knowledge transfer might be due to a series of FDI policy reforms and the changes from the government in recent years.

During the past two decades, China achieved substantial progress in its FDI policy, laws and regulations. After China's entry into the WTO in 2001, China liberalized its FDI policy in conformity with the WTO rules and requirements. In terms of trade in goods, China progressively lowered its tariffs and phased out non-tariff measures. China also made

substantial commitments in services, opening-up more sectors to international trade. More importantly, China's FDI policy has been improved relative to government transparency and national treatment though there is still room for improvement.

Over the past several years, the PRC central government made a considerable effort to improve the transparency of government. The initiatives involved establishing the policies for soliciting public feedback on new and revised laws and regulations; therefore, opening the government decision-making processes, and boosting the public's ability to access price index and market information. To promote the transparency and simplify the regulations governing the approval progress, the Chinese government is committed to putting two procedures in place: 1) all the local-level internal rules and regulations should be disclosed and available to public; 2) all the rules which are inconsistent with national law or with other regulations or are in breach of China's international obligations shall be abolished (Ma, *et al*, 2005).The aim of these measures is to move towards a more rule-based policy framework; hence, reduce the randomness of the government decision-making. In addition, the e-government development in China has also promoted government transparency. With the government transparency improving, foreign expatriates may find the *guanxi* with the government played less of a role in accessibility of public information and service.

In terms of national treatment of FDI, China's government also implemented several measures to change the laws and regulations in line with international standards. A typical example is the unification of tax rates in China. For Since the early 1980s, China has extensively but selectively used tax incentives as 'economic levers' to guide FDI into its designated regions, economic sectors and industries. The tax incentives offered to FDI firms not only distorted the global capital markets but also the domestic capital market, creating incentives for round-tripping FDI (Chen, 2011). In January 2008, the Chinese government unified the tax rates for FDI firms and domestic firms at 25 percent, symbolizing the end of "super national treatment' offered to FDI firms and marking the beginning of a fully unified national tax system for both domestic and foreign companies. The application of the national treatment will not only level the playing field among all types of firms but also provide equal opportunities for various types of FDI. Under the revisions, the government's interference in the business is reduced, so the chance to obtain favor through *guanxi* with government is not as pronounced.

With the government's behavior becoming more regulated and transparent, the expatriates will experience the influence of *guanxi* with Chinese government on business management declining. This phenomenon is more obvious with the central and local government in developed regions within China. To conclude, due to the independent nature of sampled subsidiaries and the newly developed FDI policies, *guanxi* with the government appears to be less significant in affecting the expatriate's transfer of knowledge.

6.6 Comparison of the application of institutional and national cultural context

To examine the country-level effect on the issues in the domain of international business, researchers usually adopt two main approaches to conceptualize the nature of differences between MNC's country of origin and the subsidiary's country of operation. One approach which researchers have widely employed is the 'culturalist' perspectives stemming from Hofstede (1980) and his followers. These approaches focus on national variations in cultural values which lead to the difference between societies. Another approach is the 'institutional' perspectives which capture the institutional characteristics of a national environment. The representative framework of the institutional environment, which was proposed by Scott (1995), comprises three "pillars": regulatory, cognitive and normative. Although the two approaches reflect differently on social context of countries, there are areas in which they overlap and they differ. According to Kostova (1999), the cognitive and normative dimensions of institutional context are conceptually close to culture, whereas the regulatory dimension is not captured by culture but is unique to country institution. In our study, we used the two approaches to examine the country level effect on the knowledge transfer through expatriation. The first is to conduct a comprehensive examination of country-level effects on the knowledge transfer by jointly using the two different approaches. The second is to identify if there could be identical results in the overlapping areas of the two approaches.

The results of our study indicate that the institutional context and national cultural context had different impacts on the expatriates in the process of knowledge transfer. Regarding the regulatory dimension, where institutional context differs from the cultural context, it is not problematic to understand its significant impact on the difficulty of knowledge transfer. However, the cognitive and normative dimensions, where institutional context and cultural

context overlap, revealed different results from that of cultural context, which stimulates our interest in exploring the possible causes.

One explanation can be related to the different nature of the two approaches. The national cultural approach uses simplistic cultural indices to assess differences between countries. So, it fails to take into account crucial differences in business institutions and organizations in different national business systems. Focusing on national variations in cultural values, it has often been highly reductionist (Ferner, Almond, and Colling, 2005). The culture approach is also essentially ahistorical, seeing values as constant characteristics of national mindsets, and hence is unable to deal with changes in business systems over time. On the contrary, the institutional approach emphasizes the importance of normative and cognitive frameworks in understanding organizational behavior, reflecting the dynamic nature of peoples' value, norms and cognitive capabilities. So, when examining the dynamic context of China by using the two approaches, it is not surprising to find different results.

Another explanation can be that we used different operationalization and measurements for the constructs of cognitive and normative institutions compared to those used for cultural distance, hence the different results. For example, institutional context could be perhaps constructed at different levels of specificity including issue-specific country institutions or applied to multiple levels in addition to the level of the country such as city level or economic region. In a way, the institutional approach can provide a more proximal way of accounting for the effects of social context on certain organizational behaviors.

The comparison of the two approaches from the perspective of international management enables us to have a better understanding of the potential advantages and disadvantages of these two approaches. In addition, the relationship between culture and institutional perspectives, such as conceptual overlap and distinctiveness and possible nested effects, can be articulated.

6.7 Impact of the organizational context on the difficulty of transfers

Regarding the organizational effects on the difficulty of knowledge transfer, three constructs, the general learning and innovation culture; the compatibility between practice-specific

value and organizational culture of the subsidiary; and the absorptive capacity of the subsidiary, were examined among the views of the expatriates. The results of the three variables were mixed, reflecting the on-going cultural changes of MNC subsidiaries in China.

6.7.1 The general organizational culture of subsidiaries was not found to affect the difficulty of knowledge transfer. There are two possible explanations. One is that the employees in the subsidiaries tend to be open-minded and innovative. Since foreign companies entered the Chinese market, with high salaries and better self-development opportunities for the employees, they have attracted a large number of high-level local talents who are young, well-educated and highly-motivated. The western management knowledge can be appealing to them and they are ready to embrace the new knowledge transferred by their expatriates. Thanks to the highly-qualified employees, the culture in the subsidiaries is characterized by learning, innovation, and change, resulting in Chinese employees having a more positive attitude toward knowledge transfer. Therefore, the level of difficulty that the expatriates experienced could be substantially reduced. If this explanation reflects the organizational cultural reality at the subsidiaries in China, then Szulanski's (1996) argument that fertile organizational context facilitates intra-firm knowledge transfer while barren context hinders the transfer can be supported. The other possible explanation is that the difficulties in testing the effects of culture quantitatively (Riusala and Smale, 2007) might have contributed to the result, i.e. the effects of general organizational culture of MNC subsidiaries on the knowledge transfer is relatively difficult to examine.

6.7.2 Though the general context of subsidiaries is not a significant impediment to knowledge transfer, the impact of organizational context on the practice-specific level on the difficulty of knowledge transfer tends to be significant. The results indicate that expatriates may have encountered more difficulties when the value implied by the knowledge transferred was not compatible with the values underling the culture of the subsidiaries.

Prior to 1980, organizational culture was considered by many to be independent from national culture. However, Hofstede (1980) argues that an organization's culture is nested within a national culture. That is to say, national culture should influence human resource practices and organizational behavior (Vazquez, Fournier and Flores, 2009). It is true that

as the cultural values and norms have evolved among the Chinese people particularly, the young generation, over the past three decades; however, the Chinese traditional values still remain with them and profoundly affect the people's minds and behaviors while they were working at foreign companies. For example, if a merit-based promotion approach is introduced to the subsidiary from its European headquarters, it will be more difficult to be accepted by the Chinese employees who are used to the seniority-oriented promotion out of which is a part of Chinese culture on respect for senior people.

In a way, the organizational culture at the practice-specific level has similar effects upon knowledge transfer as the normative dimension of institutional context, which is illustrated by the identical results of the two variables. However, there are some variations among them. For example, organizational culture involves norms, beliefs and values of the employees at foreign companies while normative context is specifically about cultural norms of the general public in the host country. In addition, with the influence of foreign culture introduced from the MNC's parent country, some changes of the organizational culture at subsidiaries must take place over some time.

6.7.3 Among all the variables, the absorptive capacity represented the most significant predictor of difficulty in our study. The result to a large extent mirrors similar empirical findings concerning its influence on knowledge transfers (e.g. Cohen and Levinthal, 1990; Gupta and Govindarajan, 2000; Lyles and Salk,1996; Lane *et al*., 2001). While much prior research on absorptive capacity has focused only on the ability aspect of absorptive capacity (Minbaeva *et al*. 2003), we asked the expatriates to evaluate two key aspects of the subsidiaries' absorptive capacity—employees' ability and motivation for a broader understanding in our study since both aspects of absorptive capacity (ability and motivation) need to be present in order to optimally facilitate the absorption of knowledge from other parts of the MNC (Minbaeva *et al.*,2003). Employee ability or motivation alone does not lead to knowledge transfer.

Factors affecting a subsidiary's ability to learn or accept the knowledge include the qualifications of its employees and the company's emphasis on training (Wang *et al.*, 2004). Regarding the qualifications of Chinese employees, we think the factors such as the education background of employees, the location and reputation of MNC subsidiary, and the

industry involved can affect the qualifications of the employees. In our study, most of the subsidiaries were located in big cities, such as Beijing and Shanghai, so they could attract more qualified employees. Graduates from top universities tended to flock to well-known subsidiaries in high-tech industries, high-end services or modern manufacturing industry. In addition to the qualification requirement, the subsidiaries have also provided various training programs for their employees. The general education employees receive before being employed by the subsidiaries is necessary but not sufficient for the development of absorptive capacity. New employees rarely possess adequate skills to perform their jobs because firm's routines and activities are varied and firm-specific. It is common that the subsidiaries provide adequate training to equip employees with the essential knowledge for their jobs. So, the training programs enhanced individual absorptive capacities and improved the overall learning capacity of the subsidiaries.

As we discussed earlier, most of Chinese employees working at MNC subsidiaries are young and highly educated. They are very inquisitive and willing to learn new things, particularly knowledge imported from the West and that is fresh to them. They realize that acquiring new knowledge and skills will put them in a better position for future career advancement. So, most local employees have strong motivation to accept the knowledge transferred from the MNC headquarters in Europe.

From the responses to absorptive capacity, we found about half the respondents did not believe that absorptive capacity was a problem in the subsidiaries and a third neither agreed nor disagreed. The result indicates that the absorptive capacity of the subsidiaries was generally perceived to be high or satisfactory. However, at the subsidiaries where the absorptive capacity was low, the expatriates would have more difficulties with knowledge transfer.

6.8 Impact of the relational context on the difficulty of transfers

All constructs of relational context except trust had insignificant effect on the difficulty of transfers. This result is quite surprising because most of the previous empirical studies supported the attitudinal dimensions of commitment, identity and dependence to varying degrees in different settings (e.g., Kostova and Roth, 2002; Szulanski 1996; Tsai and

Ghoshal, 1998). There are several possible explanations for the absence of significant explanatory variables in the relational context.

6.8.1 Commitment

The impact of local employees' commitment to the parent company on knowledge transfer is not significant and two possible explanations for this result exist. The first possible reason is that Chinese employees may not be committed to the parent company because MNC headquarters is fairly distant to them and the direct communication between local employees and the headquarters is infrequent. So the commitment of Chinese employees to the MNC parent company tends to be low, which hinders the local employees from investing additional time and effort to support knowledge transfer. The second possible explanation is that the Chinese employees were committed to the parent company but it does not manifest itself at the expatriate task level, or, if it does, it does not translate directly into discernable difficulties perceived by expatriates in the knowledge transfer process.

6.8.2 Identification

Regarding the insignificant effect of identification with the parent company, we believe that the reasons for the finding are basically the same as those for commitment. Given the legitimacy of less identification with the parent company, we can not rule out the possibility that the local employees may identify themselves with the local subsidiary. In fact, the expatriates we interviewed on this issue commented that the Chinese employees mainly identified with the subsidiary. However, as the questionnaire did not include questions regarding the identification with the subsidiary, the result did not address the factor.

6.8.3 Trust

Comparing with commitment and identity, trust shows a different effect on knowledge transfer. The first possible explanation is that expatriates may perceive that there exists a trust between the parent company and the locals. Most of Chinese employees have a perception that the European companies are honest, human-based, and socially responsible. So, when the knowledge from the headquarters is transferred to the subsidiary, the locals throw their trust behind it. Higher trust in the parent company not only reduces the

uncertainty regarding the value of knowledge, but also reduces the costs of communication, negotiation, and exchange associated with a knowledge transfer between parent company and subsidiary (McEvily, Perrone, and Zaheer, 2003). Therefore, the local employees' trust in the parent company can increase the efficiency of knowledge transfer through the expatriates. In addition to the inter-organizational trust, we also include Chinese *"guanxi"* between the expatriates and local employees to examine its effect. To compliment the rigid and formal structure of a subsidiary, *guanxi* can act a catalyst that enables a more flexible arrangement in the transfer of knowledge from the parent company to its subsidiary. Through trust building, the expatriates and local employees can form a loosely structured network that is based mainly on *guanxi* (Luo, 1997). As one aspect of the *guanxi* network, expatriates can have direct perceptions on how *guanxi* building can affect knowledge transfer. So, the trust in the parent company, together with *guanxi* between expatriates and local employees, jointly contributes to the reduction of difficulty of knowledge transfer through expatriates.

6.8.4 Power/dependence

With regard to the power/dependence, most expatriates responded that the effect of subsidiary dependence on the parent company was not significant in the process of knowledge transfer. We offer two possible explanations for this finding: First, as the Chinese market environment is very different from that of Europe, some local employees may not have perceptions of being highly dependent upon the parent company in implementing routine business practices. For example, an expatriate we interviewed when piloting our questionnaire, commented that the marketing practice the subsidiary adopted differed greatly from the marketing strategies employed at the parent company in Europe due to the political, economical and cultural uniqueness of the Chinese market. Furthermore, the adaptation and modification of the knowledge transferred from the parent company may also somewhat discourage the employees' dependence on the parent company. Another possibility is that the local employees in the subsidiaries tend to dependence upon the parent companies for the knowledge transferred from Europe because it is superior to the locally-generated knowledge. Since we only surveyed the expatriates, we may not have a full picture of employees' perceptions of depending on parent company. Therefore, the significance of the effect of subsidiary's dependence on the parent company in the process of knowledge transfer has not been demonstrated in the data.

6.9 Impact of control variables on the difficult of transfer

The impact of three control variables on the difficulty of knowledge transfer did not appear to be significant. With regards to the control variables of size and age, this result was not in agreement with most previous empirical studies in which the effect of size on knowledge transfer tend to be positive (e.g., Gupta and Govindarajan, 2000; Laursen and Salter, 2006) and younger organizations seem to have advantages over the older ones in learning knowledge (e.g., Frost *et al.*, 2002). Regarding with the control variable of industry, the previous study found the service industry was more challenging with knowledge transfer than the manufacturing sector and in transitional economies service-oriented firms had more difficulties with transfer knowledge due to lack of experience (Lane, Salk, and Lyles, 2001). There are a couple of possible explanations for our findings.

First, the level of difficulty that expatriates perceive in the process of knowledge transfer may largely depend on the absorptive capacity of subsidiaries. Our review clearly demonstrates that prior experience and related knowledge contributes to transferring knowledge between and within organizations (Cohen and Levinthal, 1990). However, our data did not reveal that there is a direct link between such factors such as size, age, and industry and level of absorptive capacity. Even with same age, size, and industry, companies may be of various levels of absorptive capacity because the employees' capability and willingness to absorb new knowledge varies from one company to another. So, we assume that the three control variables did not produce a significant impact on the transfer difficulty.

The second possible explanation could be the comparative small size of our sample. We found there were no significant variations in either direction of the relationships or the regression coefficients of independent variables after control variables were introduced. This lack of significance, however, is owed mainly to the limited sample size, which does not suggest the control variables are not important.

To summarize, in this chapter, we discussed the results of all the independent variable and control variable and provided possible explanations for these findings. To seek the justifiable reasons for the results, whether they support our hypothesis or not, we tried to take Chinese characteristics and factors into consideration with the goal of obtaining more practical

implications for the theoretical development and managerial practice. Among all the independent variables, tacitness and complexity of knowledge characteristics, regulatory and normative dimensions of institutional context, practice-specific and absorptive capacity of organizational context and trust of relational context had significant impact on the knowledge transfer, which increased the level of difficulty for the expatriates working at subsidiaries in China. The rest of variables were not found to have significant impact on the issue.

Chapter 7: Conclusion

Organizational knowledge, as the most important strategic resource, has become one of the key research topics in strategy and organization studies during the past two decades. In the domain of multinational corporations, the study of knowledge creation and transfer has drawn great attention to both academic researchers and practitioners. According to Bartlett and Ghoshal (1989), the MNC is considered to be a 'differentiated network', where knowledge is created in various parts of the MNC and transferred to several inter-related units. As such, the ability to create and transfer knowledge internally becomes one of the main competitive advantages of the MNC. Over the external market mechanisms or inter-corporate context, the intra-corporate context has an advantage in transferring and exploiting knowledge more effectively and efficiently. The reason is that bulk of the specialized knowledge of any firm exists in a tacit and thereby non-tradable form and market-based transfers of knowledge are often associated with negative externalities such as involuntary expropriation and the risk of creating a new competitor. However, it does not in any way imply that internal knowledge transfer within the MNC can take place smoothly and easily on a routine basis. Such factors as significant transfer cost, causal ambiguity of knowledge, absorptive capacity, and macro-environmental driving forces could be the barriers to its transfer and replication. Despite the criticality of internal knowledge transfers within MNCs, very few studies have been conducted to investigate into the determinants of intra-MNC knowledge transfers from a systematic contextual perspective, in particular the MNC knowledge transfer within the Chinese context. In addition, previous studies on the knowledge transfer within MNCs have focused on the parent ("view from above") or a hosting country ("view from below"). Therefore, with some notable exceptions (Ruisala and Suutari, 2004; Riusala and Smale, 2007), very little empirical investigation into the expatriate "view from middle" has so far been attempted. Building upon these observations, we integrated the two issues into our study to find out the factors which affect knowledge transfer through MNC expatriates.

The goals of this study were to examine quantitatively the international transfers of knowledge within the MNC from expatriate's perspective. First, we identified what type of knowledge is being transferred and the corresponding levels of the expatriates' involvement in these processes. Second, we applied a theoretical model of stickiness factors to find out

those factors that increase the level of difficulty in knowledge transfer by expatriates. Based on the literature review, we developed a theoretical model covering an array of stickiness factors that appear to present particular difficulties to expatriates during the process of knowledge transfer. The theoretical stickiness factors which involve the characteristics of knowledge, institutional context, national cultural context, organizational context and relational context were explored relative to the difficulty of knowledge transfer, necessitating five sets of hypotheses. In addition we also included three control variables: size, age and industry, to examine relationship to the difficulty of knowledge transfer. Theoretically, our model integrates a broad range of contextual factors that MNC expatriates encounter in the process of cross-border knowledge transfer, and this is advantageous because of the limitations of most of the previous studies which focused only on a few contextual variables.

In the study, we employed a quantitative approach in order to obtain a comprehensive understanding of the variables and how the variables may significantly impact on knowledge transfer. For the data collection, we distributed 400 questionnaires to the EU expatriates working in different regions within China. To achieve validity and equilibrium of data, we managed to administer the survey to the expatriates with different nationalities, gender and industries. In total, 67 valid responses were obtained for the study. We obtained the findings for the study through analyzing the data with statistical software.

The results of the study indicate that the key areas of knowledge transfer are management knowledge, sales and marketing knowledge, product/service knowledge, technical knowledge, cultural knowledge, accounting/finance knowledge and HRM knowledge. Though the quantities of the knowledge transferred vary from one type to another, they cover almost all the key functions of MNC subsidiaries. This finding indicates that expatriates play a strategic role not only in terms of control, coordination, but also in knowledge transfer (Bonache *et al*., 2001). As well, our study provided confirmatory evidence that expatriation continues to act as an effective mechanism for transferring tacit technical know-how as well as value-based management and organizational knowledge for development purposes (Bonache, *et al.*, 2001). The role of expatriates in these international knowledge transfer processes has been stressed in research (Bonache and Brewster, 2000; Downes and Thomas, 2000; Inkpen, 1998). The present study provides new empirical evidence to support this. First, the findings reveal the expatriate managers play a central role in the transfer process.

The expatriates pointed out that they were highly involved in key knowledge transfer that took place across the border. Second, the expatriate mangers often participate in different areas of knowledge transfer and have autonomy concerning decisions on what type of knowledge transfer are necessary within the strategic framework. All these findings supported the view of the importance of expatriates in international knowledge transfer processes. In addition, the roles of expatriates are often autonomous, cross-functional, multifaceted and personally challenging (Riusala and Suutari, 2004).

The results supported the relevance of the theoretical model of stickiness factors when applied to the knowledge transfer processes through expatriates. The study produced expected relationships in twelve out of nineteen variables. We find that most stickiness factors that best explained the degree of difficulties in the knowledge transfer process through expatriates seem to directly relate to the expatriates' tasks which are explicit. For example, high knowledge tacitness and complexity leads to the expatriates' high degree perceptions of difficulty. Likewise, low absorptive capacity of the subsidiary will have significant and direct effects on the smoothness of knowledge transfer via the expatriates. The stickiness factors that are more implicit and do not have direct task-related implications for the expatriate, such as national culture, identification to, and dependence upon the parent, do not seem to be an obstacle for the expatriate in the process of knowledge transfer. We present a summary of the findings of five categories of stickiness factors as follows.

First, the characteristics of knowledge are perceived to be a relevant stickiness factor in MNC knowledge transfers. Two common knowledge-related internal stickiness factors, namely tacitness and complexity, were found to impact significantly upon the difficulty of knowledge transfers perceived by the expatriates. It indicates that expatriates are required to provide more background information and explanations for the local employees. Furthermore, it is necessary to strengthen the personal interaction, on-the-job observation and teaching in the transfer process (Grotenhuis and Weggeman, 2002). Because of the personal presence of expatriates and the involvement of cross-functional knowledge transfer, teachability and specificity of the knowledge do not appear as common as stickiness factors to the knowledge transfer through expatriates.

Second, the regulatory and normative dimensions of institutional context are perceived by

expatriates to be a stickiness factor. The intellectual property protection, bureaucracy of public authorities, high power distance, Chinese *Mianzi,* and growing individualism among the young generation are the main issues which challenge the expatriates in the process of knowledge transfer. Pertaining to the transitional economy of China, the incomplete law system and ineffective legal enforcement are considered to be the main source of uncertainty; hence, raise the difficulty of the knowledge transfer. In addition, due to the restriction access certain industries, the expatriates find it more difficult to transfer related knowledge to subsidiaries. So, institutional factors were found to be important stickiness factors to consider in the international knowledge transfer processes.

Third, the cultural distance and "*guanxi*" with government, which reflect the Chinese national cultural context, do not turn to be a significant obstacle to the knowledge transfer. Two contradictory findings regarding cultural distance and knowledge transfer were identified in the previous studies. Some authors suggested that cultural distance is an obstacle to knowledge transfer (Simonin, 1999; Holden, 2001; and Almeida and Grant, 1998), while others suggested that important work-related information was transferred regardless of cultural distance (Manev and Stevenson 2001). The finding of this present study confirms with the previous one, where they found that culturally distant managers seemed to compensate for cultural distance by developing strong instrumental ties to facilitate work-related tasks. As for *guanxi,* which is supposed to play an important role in Chinese national culture, it appears that it is a stickiness factor to the expatriate due to the improved transparency of government. Of course, this by no means suggests that the expatriate in China can ignore the *guanxi* with government. In fact, as it is becoming common that expatriates receive training on Chinese *guanxi* before and during the expatriation. The establishment of *guanxi* with the government has become a norm among MNC subsidiaries in China.

Fourth，practice-specific and absorptive capacity appears to be the stickiness factors related to organizational context. This result is in line with the observation that the difficulty of knowledge transfer is primarily related to the direct and explicit tasks for the expatriate. Specifically, this study provides new evidence that absorptive capacity is one of the most important determinants for success of international knowledge transfer. The same results have been noted in multiple studies (e.g., Lane *et al.,* 2001; Minbaeva, *et al.,* 2001; Martins and Antonio, 2009). In this study, the general organization culture does not have a significant

impact on the transfer difficulty perceived by the expatriate. This result is related to the fact that the subsidiary is supportive of change and innovation because most local employees are young and well educated.

Fifth, with regard to the relational contexts, two types of relationships were examined: attitudinal and power/dependence relationships. Among the four variables, only trust appears to be a stickiness factor to the knowledge transfer. Higher level of trust (personal *guanxi*) with both the expatriate and the parent company can reduce the difficulty of the knowledge transfers perceived by the expatriate. In terms of the impact of commitment, identity, and dependence, the finding does not support the previous studies. The main reason is that higher-order issues such as local employees' commitment to, identity with and dependence on the parent company do not manifest themselves at the expatriate task level. If they do, they do not translate directly into discernable difficulties perceived by expatriates in the transfer process (Riusala and Smale, 2007).

Last, although many studies (e.g., Minbaeva *et al.*, 2003; Robson *et al.*, 2003; Liu and Wang, 2007) claimed that organizational characteristics such as age, size, industry, and decentralization, have a significant effect on international knowledge transfer, our study does not provide supporting evidence. We assume that sampling bias or error may be an issue. In spite of our findings, we urge that the control variables must be taken into account in the area of international knowledge transfer.

Theoretical and practical implications

Both theoretical and practical implications can be drawn from this study. Theoretically, our study potentially made two contributions to the existing literature. First, we adopted context perspectives which integrated Szulanski's (1996) analysis on internal stickiness factors, Kostova's (1999) institutional context theory and Hofstede's (1991) national culture-based approach to explore the possible stickiness factors of international knowledge transfer. Inclusion of both institutional context and national cultural context in an integrated model could be the first attempt in the subject research. Though the argument that both theories overlap concerns us, we found they had separate effects on the across-border knowledge transfer. So, this study provides a more comprehensive and systematic theoretical framework

for the analysis of international knowledge transfer. The framework, which is characterized by multiple level contexts covering characteristics of knowledge, institutional context, national cultural context, organizational context, and relational context, provides a new perspective to the existing literature. Second, our study examines the emerging role of expatriation as a mechanism of knowledge transfer and provides further empirical research into factors that can enhance or hinder expatriates' ability to transfer knowledge. Bonache *et al.,* (2001) argued that expatriation functions as mechanism of control, coordination, and knowledge transfer. The focus of the expatriation research has traditionally been on the control function and the coordination function. Recently, the research on expatriation as a means of knowledge transfer has received more attention in international management literature (e.g., Riusala and Suutari, 2004). In response to this new research area, we conducted this empirical research to get a better understanding regarding the expatriation's role in MNC knowledge transfer in China. With regards to the role of expatriate in the knowledge transfers, we found most expatriates involved themselves in different types of knowledge transfer, or cross-functional knowledge transfer. This indicates that the expatriate is taking on a more "generalist" roles than a "specialist" role. This new trend could have important implications for competency identification and development when selecting and training expatriates (Bonache, *et al.*, 2001). Concerning the stickiness factors influencing the knowledge transfer, our study found those specific task-related factors have significant impact upon the knowledge transfers. This finding implies that expatriates need to be good at not only translating the tacit and complex knowledge, but also teaching this knowledge to the local employees who may lack absorptive capacity. In this sense, the efforts for developing such competencies for expatriates will help reduce the kind of difficulties inherent in international knowledge transfers.

The findings of the present study also have some practical implications for both MNC knowledge management and the Chinese government. First, due to the important role of expatriate managers in the transfer processes, MNCs should include adequate competencies for managing cross-border knowledge transfers as one of the qualifications when selecting expatriates. In addition, training should be provided for expatriates who are responsible for conducting the international knowledge transfers. Second, the MNC should focus more systematically on identifying their core knowledge and managing the transfer of such knowledge across functions. If the expatriates are required to transfer knowledge beyond

their specialist fields (e.g., Financial managers transferring marketing knowledge), or MNC assigns an incompetent expatriate to transfer tacit and complex knowledge, then expatriation will not be an effective transfer mechanism. Third, in order to attract more FDI and knowledge into China, the Chinese government needs to create a more favorable institutional environment for MNC knowledge transfer. Specifically, the issue of intellectual property protection, government transparency, and equal access to market opportunities are the key areas for improvement. Fourth, European MNCs and their expatriates should provide various training programs and motivation measures to improve the absorptive capacity of the Chinese employees at subsidiaries. Finally, the expatriates are encouraged to cultivate trust (*guanxi*) with the local employees. Good *guanxi* can not only facilitate the expatriates in transfer of knowledge from the MNC headquarters to subsidiary but also benefits reversed knowledge transfer.

Limitations and future research direction

We can identify three major limitations of this study. First, the sample size of our study is relatively small and most of the samples are from the developed regions in China. So, the sampling bias or error could affect the stability of all the constructs and subsequently the generalization of the findings. Second, although we developed a multi-level model to systematically examine the stickiness factors which impact on the difficulty of knowledge transfer, the regression findings at the six stages illustrate that the explanation degree of all the variables does not exceed 60%. The result indicates that some other important factors have not been included in the model. For example, HRM management of subsidiaries may also be an important factor that impacts on the knowledge transfers. Third, this study focused only on the views of European expatriates. Though their views facilitated the necessary assessment of both parent company and subsidiaries relating to knowledge transfers, there is a possible risk of common method bias. Future research should collect data from multiple respondents, such as the views from the local employees, for a more balanced and validated account.

Although this study makes important contributions to our understanding of the role of expatriates in international knowledge transfer and the factors that influence the difficulty of knowledge transfer via expatriates, additional research is needed to further develop the field

of international knowledge transfer. Several research directions are suggested as follows: First, our study focused on unidirectional knowledge transfer, which is from EU MNC headquarters to their subsidiaries in China. Additional studies can examine the reverse direction of knowledge transfer from subsidiary to parent company or the subsidiaries in other countries. The research on multi-directional knowledge transfers has recently drawn more attention as knowledge transfer within MNC becomes one competitive advantage. Second, future studies can investigate the extent of stickiness at different stages in the knowledge transfer process. It will be valuable to establish additional investigations into what stage the expatriate most frequently faces difficulties. Third, our study investigated the difficulty of knowledge transfer as a dependent variable. Further research should investigate multiple dimensions of knowledge transfer, such as speed and quality to obtain a more comprehensive understanding of the influencing factors. Last, due to unbalanced regional development in China, particularly, the gap of economic development between the east and the west, an investigation into the knowledge transfer within MNCs at different regions in China and a comparative study may be prudent.

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Appendix I Cover letter

Dear Sir/ Madam,

I am a PhD student with ISCTE-IUL of Portugal. Currently, I am working on a research project on knowledge transfer from MNCs Headquarters in Europe to the subsidiaries in China.

The “knowledge” in my study refers to the experience, ideas, know-how, and advice you obtained from the MNC headquarters or other organizations. When you introduce them to the subsidiaries or companies in China, you are engaged in the process of knowledge transfer. You may transfer some technology, management skills, organizational routines or common understandings. However, knowledge transfer could be problematic due to various factors, to which my research aims to identify.

All the information related to you and your company will be maintained in strict confidence.

Thank you very much for taking time to fill out the questionnaire.

Yours Sincerely,

Wang Jincheng

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Appendix II Questionnaires

Questionnaires

Personal information

Gender		Years of working in China	
Area of expertise		Position	

Information about your company (For the multiple choice questions, please indicate the letter "A" "B" or "C")

1. Which country does your company come from? _____
2. How long has your company been established in China? _____
   A. Less than two years B. Two to five years C. More than five years
3. How many employees are there in your company? _____
4. Which sector does your company engage in? _____
   A. Manufacturing B. Service
5. What type of key knowledge have you transferred to your compay in China? _____
   A. Management knowledge
   B. Cultural knowledge
   C. Sales and marketing knowledge
   D. Technical and production knowledge
   E. Product/service knowledge
   F. HRM knowledge
   G. Accounting/finance knowledge
   H. Others _____

Please put the corresponding number of your choice into the brackets after the statement.

1. Content of the knowledge could be easily expressed through manuals or other documents.( )
   1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
2. Transferring knowledge involves a lot of personal interactions betwee you and other employees in your company. ( )
   1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
3. Defining the content of the knowledge being transferred was not an easy task. ( )
   1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
4. The knowledge being transferred was demanding and complicated. ( )
   1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
5. Teaching the knowledge to local employees was a quick and easy process. ( )
   1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
6. Teaching the knowledge to local employees did not require much previous experience of similar tasks. ( )
   1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
7. To transfer the experience and technology, your company needs to invest significantly in specialized equipment and facilities. ( )
   1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
8. To transfer the experience and technology, your company needs to invest significantly in skilled human resources. ( )
   1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
9. Chinese laws and regulations did not support the knowledge being transferred. ( )
   1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
10. Being familiar with Chinese legislation was very important with regard to the knowledge being transferred. ( )
    1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
11. Chinese employees often had difficulties in understanding what the knowledge beign transferred meant. ( )
    1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree

12. Chinese employees often made wrong interpretations about the knowledge transferred. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
13. The values and norms of China did not comply with the knowledge transferred. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
14. The characteristics f the knowledge being transferred collided with the Chinese culture. ( )
1) strongly agree 2)agree 3)neutral 4)disagree 5)strongly disagree
15. The cultural difference between China and the home country of MNC increases the difficulty of knowledge transfer. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
16. Good *guanxi* with Chinese government can facilitate the knowledge transfer. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
17. The organizational culture of Chinese companies fosters attitudes toward learning new things, self-development and innovation. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
18. In your company in China, there is usually not much resistance to change and new issues. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
19. The values characterizing the organizational culture of your company in China supported knowledge transfer. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
20. Characteristics of the knowledge being transferred were in harmony with the organizational culture of your company. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
21. There were no major conflicts between the knowledge transferred and the organizational culture of your company. ( )
1) strongly agree 2)agree 3)neutral 4)disagree 5)strongly disagree
22. The skills of the employees in your company were at a lower level than what was required to implement the knowledge being transferred. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
23. Your company's ability to absorb the knowledge being transferred was not enough to receive knowledge. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
24. The employees in your company are committed to the parent company's operation and goals. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
25. The relationship between the employees of your company and the parent company is characterized by trust. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
26. The expatriate has enjoyed a good *guanxi* with local employees. ( ).
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
27. The employees of your company are proud to work for the parent company. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
28. From the perspective of your company's employees, your company in China is an appreciated and highly valued employer. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
29. Your company needs daily support from the parent company.( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
30.Your company could not function without the parent company's support. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
31. There is strong interdependence between your company and the parent company. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
32. Transferring knowledge to your company in China was a challenging and problematic process. ( )
1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree
33. Realization of the knowledge transfer was more difficult than I had expected. ( )

1) strongly disagree 2)disagree 3)neutral 4)agree 5)strongly agree

34. Please identify your involvement in the following areas of knowledge transfer.

A. Management knowledge ( )
1）not active 2）rarely active 3）fairly active 4）active 5）very active

B. Cultural knowledge( )
1）not active 2）rarely active 3）fairly active 4）active 5）very active

C. Sales and marketing knowledge ( )
1）not active 2）rarely active 3）fairly active 4）active 5）very active

D. Technical and production knowledge ( )
1）not active 2）rarely active 3）fairly active 4）active 5）very active

E. Product/service knowledge ( )
1）not active 2）rarely active 3）fairly active 4）active 5）very active

F. HRM knowledge ( )
1）not active 2）rarely active 3）fairly active 4）active 5）very active

G. Accounting/finance knowledge ( )
1）not active 2）rarely active 3）fairly active 4）active 5）very active

Thank you very much!