

# Subsidiary Performance In MNCs: The Influences Of Absorptive Capacity And Social Capital On Knowledge Transfer

John Chiang, (E-mail: johnmiafl@gmail.com)

## ABSTRACT

*Multinational corporation (MNC) subsidiaries have become more closely linked to globalized business networks. The rapid technological changes are accelerating globalization, these changes have forced producers to constantly upgrade their process technologies, introduce new products and reduce costs to increase profits. Subsidiary performance is at the core of increased profits for MNCs. Accordingly, this research focuses upon subsidiary performance regarding three key contingencies that current international business literature deems likely to impact the bottom line: absorptive capacity, knowledge transfer and social capital. Unique data from more than 300 MNCs with locations in China, Japan, Malaysia, Singapore, South Korea and Taiwan were collected and analyzed. Findings suggest that concentrating on these three factors in subsidiaries' knowledge environment could improve MNCs' overall performance.*

**Keywords:** subsidiary performance, knowledge transfer, absorptive capacity, social capital.

## INTRODUCTION

In recent years, MNC subsidiaries have become more closely linked to globalized business networks. At the same time, rapid technological changes and accelerating globalization have radically changed the context for economic development. These rapid technological changes have forced producers to constantly upgrade their process technologies, introduce new products and reduce costs to increase their profits. These changes, in turn, offer developing countries more access to new resources and markets. Therefore, subsidiaries acquire access to different types of resources and perform differently in their marketplaces and within their MNCs.

As knowledge creation and diffusion in various ways is geographically bound, the MNCs must establish subsidiaries in different countries and also transfer knowledge between these subsidiaries and those countries (Pearce, 1997). It is now commonly recognized that subsidiaries create an important source of competitive advantage for MNCs. Subsidiary strategic independence is designed to enrich the competitiveness of outputs (knowledge outflows and market performance) and inputs (knowledge inflows and organizational learning). This independence can enhance subsidiary objectives and encourage knowledge transfer. Thus, knowledge transfer is no longer simply viewed as a one-way movement from HQ to foreign subsidiaries.

Technology-intensive industrial activities offer benefits from rapid growth, also offer greater learning and knowledge-spillover benefits for other activities. Especially, innovation itself is more costly and more risky than before, with continued high concentration of advanced R&D spending by country and enterprise. It has increasingly been acknowledged that HQs are not the only significant actors with regard to intra-MNC resource sharing; individual subsidiaries can also play a significant role. Focusing on the role of subsidiary as a source of entrepreneurship and examining, the effect of knowledge transfer in subsidiaries on developing absorptive capacity may lead to benefits from knowledge flows, which in turn can improve subsidiary business performance in the marketplace and within its MNC.

By combining the notion of knowledge transfer in business network theory with the discussion of organizational learning and the capacity to absorb new knowledge, the knowledge transfer of a subsidiary is therefore found to be crucial to its ability to acquire internal and external knowledge about new technology. It has been proposed in the knowledge transfer literature that the absorptive capacity of the receiving unit is the most significant determinant of knowledge transfer in MNCs (Gupta & Govindarajan, 2000).

The aim of this study is to provide a better understanding of the relationship between absorptive capacity and knowledge transfer on subsidiary performance. Firms with higher levels of absorptive capacity will be able to manage external knowledge flows more efficiently and be better integrated with internally generated flows which will advance business performance.

The key perspective to understanding knowledge flows in the MNC is to learn from both internal and external knowledge flows in the subsidiary business performance as well as their impact upon the MNC. The absorptive capacity also influences knowledge transfers, which in turn significantly influence subsidiary performance; especially when such flows increase the ability and motivation of a subsidiary to utilize knowledge flows from other organizations of MNCs.

### **ABSORPTIVE CAPACITY, SOCIAL CAPITAL AND KNOWLEDGE FLOWS**

Firms learn from other organizations and the efficiency of such a learning process is dependent on the characteristics of the relationship of the focal firm with other firms. Through such learning, firms can acquire and exploit knowledge developed by other organizations to respond more quickly than their competitors to market changes. (Gupta & Govindarajan, 2000; Sanjaya, 2001) suggest absorptive capacity as being connected to the current knowledge base and found it to be positively associated with ratings of the knowledge acquired. The transition from individual learning to organizational learning was theorized to take place when individual learning and knowledge became embedded in the organizational memory (Argyris & Schon, 1978).

The knowledge transfer and learning advantages associated with the firm's close links with other actors have been called relational embeddedness (Gulati, 1999; Gulati, Nohria & Zaheer, 2000). Learning and the transfer of knowledge with relationship ties in multiple business networks enable and facilitate the firm's value creation. Knowledge is difficult to acquire without having an interactive relationship with the other firm, in order to be competitive the firm needs at least some links with other organizations. Social capital is that relationships of business networks are characterized by mutual acquaintance and recognition and constitute a valuable resource in itself. Therefore, the process of active learning is contingent on the social capital of business networks.

However, firm to achieve a high performance at any level, both the ability and motivation to perform effectively are needed. This study seeks to identify the above two factors as the key aspects of the firm's absorptive capacity which in turn facilitates knowledge transfer.

#### **Employee's Ability**

The ability allows employees access to more knowledge, or diverse knowledge, with the potential for multiple views on similar problems. The more relevant the knowledge available to the employees, the more efficient and productive they become dealing with innovation. In addition, many researchers have pointed out that a unit's performance is contingent on its ability to obtain valuable resources from the environment.

#### **Employee's Motivation**

Megginson, Mosley, and Pietri (1992) explain that motivation is the process of inducing an individual or a group to pursue not only the organization's objectives but also personal/group objectives. To achieve high performance at any level, both the ability and the motivation to perform effectively are needed. The empirical evidence supports an interactive effect of ability and motivation on business performance (Heider, 1958; O'Reilly & Chatman, 1994).

## **KNOWLEDGE TRANSFERS BETWEEN THE MNC AND SUBSIDIARY**

In the international business, knowledge transfer is generally viewed as the movement of knowledge within the organization. Therefore, knowledge transfer is viewed as a learning process; it identifies various factors that influence the acquisition of knowledge from external partners (Bresman, Birkinshaw, & Noble, 1999; Inkpen, 2000). From a subsidiary's perspective, either the knowledge transfer is introduced from the subsidiary to HQ or else to the subsidiary from its corporate internal and external networks. The MNC network facilitates knowledge flows because it functions as a mediator providing the necessary environment for resource exchanges.

Earlier studies have shown knowledge transfer from subsidiaries back to their HQ and parallel to their peer units (Andersson & Forsgren, 2000; Andersson & Dahlgvist, 2001). Hence, the subsidiaries can be viewed as connected to each other in multiple networks of knowledge flows. Due to resource interdependency, a subsidiary's knowledge in a network becomes important in the acquisition of competitive capabilities. Therefore, the performance of subsidiaries is influenced in important ways by the knowledge transfer they are embedded that is unique and useful for other MNC units.

## **ORGANIZATIONAL SOCIAL CAPITAL**

Organizational social capital is becoming one of the core concepts in international business. The organizational social capital concept recently has been applied to a wide range of organizational studies, and has been used in connection with the social context of organizations and organizational relationships (Burt, 1992; Tsai & Ghoshal, 1998). Tsai and Ghoshal (1998) also examined the impact of social capital on cross-national knowledge transfer between dyads of individual MNC units. Moran and Galunic (1998) argued that social capital influences the individual manager's contributions to firm performance. The reasons for focusing on social capital are valuable in understanding knowledge sharing in MNCs. Trust is a construct that translates individuals into the organizational level of social capital since it determines the extent to which individuals associate and interact with each other (Walker, Kogut, & Shan, 1997). However, it is not only a determinant of individual social capital but it also serves as a motivational source for building organizational social capital. Therefore, trust is a dimension that plays a central role in knowledge sharing within MNCs.

## **KNOWLEDGE FLOW INFLUENCES SUBSIDIARY PERFORMANCE**

The influence of the business relationships in the MNC affects the subsidiaries' development and performance. This in turn is likely to have consequences for the MNC's ability to control and integrate the subsidiaries. A subsidiary's organizational performance should reflect the extent to which it can influence the allocation of investment resources and other strategic decision processes within the MNC. Consequently, the concept of knowledge transfer is used to describe how deeply involved the subsidiaries are in their business networks and how strongly resources influence them. Bartlett and Ghoshal (1989) argued a firm's competitive advantage; they suggested that subsidiary performance improves with increases in both the internal compatibility of their networks and their external compatibility with other networks.

In summation, the success of knowledge transfer in MNCs is determined to a large extent by the character of the relationship between the involved units, whether in terms of trust or language can create potentially valuable knowledge in leading subsidiaries to improve their performance.

## **HYPOTHESES**

This research applies a data-set collected on the departmental managerial level. The argument is pursued which relates to the conceptualization of absorptive capacity and knowledge transfer on an MNC subsidiary level. The concept of absorptive capacity has been primarily used to capture a firm's ability to absorb and apply external knowledge to organizational units. Minbaeva, Pedersen, Björkman, Fey, and Park (2003) identified employees' ability and motivation as a key aspect of a subsidiary's absorptive capacity that enables it to benefit from knowledge flows. By applying the interaction effect of ability and motivation to the issue of knowledge transfer, it may be

expected that a higher rate of knowledge utilization will be achieved. It is especially when the receivers have both the ability and motivation to absorb new external knowledge. Therefore, the following hypothesis is proposed:

**H1:** The absorptive capacity of interaction between the employee's ability and motivation will increase the level of knowledge transfer to the subsidiary.

The acquisition of novel knowledge can be obtained not only through absorptive capacity but also from the social capital. As an MNC attempts to transfer knowledge to its subsidiaries, it replicates some of its routines in the organization with the intention to build social capital. Where social capital has higher positive scoring, it would be expected to also find a higher level of sharing and cooperation among the organization. Knowledge transfer in MNC will be examined with a particular focus on the role of trust, language, from a social capital perspective. Therefore, the hypothesis states that social capital will have a stronger impact on tacit knowledge transfer.

**H2:** The higher the level of absorptive capacity and organizational social capital, the higher will be the intensity of knowledge transfer.

Knowledge is becoming more important to the innovation process of firms. Increased complexity of technologies and innovation processes are one reason for this surge in the knowledge transfers. Thus, a firm's specific knowledge is now an important determinant of competitive advantage. Theoretical and empirical analysis has shown that technological closeness and high absorptive capacity increase the flow of knowledge between organizations and consequently raise the incentive to engage in the subsidiary within an MNC. Knowledge transfer may contribute to value creation in a subsidiary. Therefore, the hypothesis states knowledge transfer positively influence subsidiary's performance.

**H3:** Knowledge transfer has a positive influence on a subsidiary's business performance.

## **METHODOLOGY**

The population for this study includes USA based foreign corporations of SMEs sizes, for which size is defined as Small and Medium-sized Enterprises (SMEs). The population covers a wide range of High-tech industries that was constructed from Pacific countries: China, Japan, Malaysia, Singapore, South Korea, and Taiwan with firms operating in the USA. The sample size consists of 1,500 firms were collected based on PACAP Database and Mergent Online. The final data collection of this study consists of a list of 303 foreign subsidiaries. The survey was held with the president of the subsidiary, general manager, sales manager, marketing manager, or deputy manager to obtain the broad scope of the research instrument.

The instrument consists of Web based Likert-styled and multiple choice questions to provide numerical data on the absorptive capacity, social capital, knowledge transfer, and business performance activities. In order to identify multiple responses from the same person, the survey system contained a control mechanism to collect IP addresses from respondents. The pilot study was performed to determine reliability and understandability of the instrument by sending the instrument to fifty subjects chosen by e-mail in a Web based survey. A test for reliability was performed using Cronbach's coefficient alpha statistics for reliability.

## **VARIABLES**

The following variables were constructed for this study:

### **Variables Of Absorptive Capacity**

The variables of absorptive capacity consisted of two items: employees' ability from learning, training, and communication; employees' motivation from rewards, promotion, and compensation.

### **Variables Of Knowledge Transfer**

Knowledge inflows and outflows within the firm (peer subsidiaries and HQ). The respondents were asked to rate the degree of knowledge that firms received from their HQ (vertical flows) and their peer subsidiaries (horizontal flows) for a given knowledge base.

### **Variables Of Social Capital**

Trust measures how well the subsidiary between its HQ makes good-faith efforts to behave honestly in preceded discussions both explicitly and implicitly. Centrality measures how well connected a firm is in the overall business network.

### **Variables Of Subsidiary Performance**

The variables used to measure subsidiary performance are: Market share, Market share growth, Sales growth, Profit growth, Overall profitability and Innovation ability.

### **Control Variables**

There are other variables that can influence business performance. In order to control the characteristics of business performance, the following control variables (nationality, industry sector, subsidiary size, and subsidiary age) were used in relation to it.

## **RESULTS**

The factor analysis was performed. Analyses for items of employees' motivation variables include rewards, promotion and compensation. All items ranged from 0.513 to 0.830, the result suggests that one factor characterizes absorptive capacity and explains 76.755% of the cumulated variance. Cronbach's alpha ranged from 0.754 to 0.870. All variables of social capital including trust and centrality were measured. The results suggest that one factor characterized trust and explains a total 64.044% of the cumulated variance. Cronbach's alpha ranged from 0.755 to 0.866. A substantial and significant effect of trust revealed in 0.840 loading. The influence of trust in social capital indicates the import of the factor while performing knowledge transfer between HQ and peer subsidiaries. The results of knowledge inflows from HQ to peer subsidiaries were 49.196% cumulated variance. Knowledge inflows from peer firms was 67.843%, and knowledge outflows was 76.777% of cumulated variance. Cronbach's alpha ranged from 0.883 to 0.919. The correlation coefficients and descriptive data (mean values and standard deviation) on all exogenous variables are provided in Table 1.

Table 2 exhibits the statistical results of absorptive capacity and social capital on knowledge transfer. The result indicates that the relationship between learning and training (elements of absorptive capacity), trust and centrality (elements of social capital) were significant ( $R^2 = .0647 \sim 0.998$ ,  $Adj.R^2 = .0130 \sim 0.223$ ,  $\beta = 0.120 \sim 0.364$ ,  $D-W = 2.045$ ,  $\rho < 0.001$ ). The Adjusted R squared statistics indicates that approximately 13%~22.3% of the variance can be predicted from this model. The Adjusted R square is similar to R square in interpretation; the significance level is less than 0.001. Therefore, the results of Table 2 strongly support hypotheses 1 and 2.

Table 3 supports that knowledge transfer has significant impact on subsidiary performance. The results indicate that knowledge outflow and knowledge inflow from HQ are significantly dependent upon knowledge inflow from subsidiaries. ( $R^2 = 0.765 \sim 0.936$ ,  $Adj-R^2 = 0.765 \sim 0.936$ ,  $\beta = 0.140 \sim 0.876$ ,  $D-W = 2.165$ ,  $\rho < 0.001$ ). Findings from country dummy3 (China) were shown more significant than the other five countries in the study ( $\rho < 0.003$ ). The Adjusted R squared statistics indicates that approximately 76.5% ~ 93.6% of the variance can be predicted from this model. The Adjusted R square is similar to R square in interpretation; the significance level is less than 0.001. Therefore, the results of Table 3 strongly support H3.

## CONCLUSION

This study has demonstrated that subsidiaries with substantial absorptive capacity, high social capital and intensive knowledge transfers may achieve superior firm performance. There has been a growing interest in looking upon the MNC as a differentiated network in the sense that subsidiaries have access to different types of resources and therefore perform differently in their market-place and within the MNC. The results found overall support for the argument that the absorptive capacity of the subsidiary facilitates knowledge transfer from peer subsidiaries and HQ. The findings suggest that the greater the absorptive capacity and social capital the higher the level of knowledge transfer. Furthermore, this study found that effective knowledge transfers were positively related to sales revenue, market share, profitability and overall firm performance. The findings suggest that HQ may influence the flows of knowledge transfers within the MNC by tailoring the criteria used to evaluate subsidiary performance.

Corporations may thus be able to increase the likelihood for knowledge sharing by organizing international training programs, establishing international task forces, and by encouraging visits across MNC organizations. The results also indicate MNC subsidiaries which execute greater knowledge transfer to peer subsidiaries and parent firms are inclined to improve their performance. The results are in accordance with previous research (DeCarolis & Deeds, 1999).

An important implication of this study is trend to toward subsidiaries with a more pivotal role in the multinational's innovation strategy, and with more discretion to use the MNC structure to source know-how globally, can therefore be expected to generate more technology diffusion to their business networks.

## REFERENCES

1. Andersson, U. & Dahlgvist, J. (2001). Business governed product development: Knowledge utilization in business relationships. In *Business Network Learning*.
2. Andersson, U. & Forgren, M. (2000). In search of centre of excellence: Network embeddedness and subsidiary roles in multinational corporations. *Management International Review*, 40(4), 329-350.
3. Argyris, C. & Schon, D. A. (1978). *Organizational learning: An action perspective*. Reading, Addison-Wesley. Bartlett, C. A. & Ghoshal, S. (1989). *Managing across borders: The transnational solution*. Boston: Harvard Business School Press.
4. Burt, R. (1992). *Structural holes: The social structure of competition*. Cambridge, MA: Harvard University Press.
5. DeCarolis, D. M., & Deeds, D. L. (1999). The impact of stocks and flows of organizational knowledge on firm performance: An empirical investigation of the biotechnology industry. *Strategic Management Journal*, 20(4): 953-968.
6. Gulati, R. (1999). Network location and learning: The influence of network resources and firm capabilities on alliance formation. *Strategic Management Journal*, 20, 397-420.
7. Gupta, A. & Govindarajan, V. (2000). Knowledge flows within MNCs. *Strategic Management Journal*, 21(4), 473-496.
8. Gulati, R., Nohria, N. & Zaheer, A. (2000). Strategic networks. *Strategic Management Journal*, 21(3), 203-215.
9. Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.
10. Inkpen, A. (2000). Learning through joint ventures: A framework of knowledge acquisition. *Journal of Management Studies*, 37(7), 1019-1051.
11. Megginson, L., Mosley, D., & Pietri, P. (1992). *Management: Concepts & applications*. 3rd edition. Boston: Harper & Row. 226-229).
12. Minbaeva, D., Pedersen, T., Björkman, I., Fey, C. F. & Park, H. J. (2003). MNC knowledge. *Journal of Marketing*, 58(3), 20-38.
13. Moran, P. & Galunic, C. (1998). Harnessing social capital for productive resource exchange. *Academy of Management Conference*, San Diego.
14. O'Reilly, C. A. & Chatman, J.A. (1994). Working smarter and harder: A longitudinal study of managerial success. *Administrative Science Quarterly*, 39, 603-627.

15. Pearce, R. D. (1997). Decentralized R&D and strategic competitiveness: Globalized approach to generation and use of technology in MNEs. Paper presented at the International Seminar on Internationalization of Corporate R&D, Montreal, August 21-23.
16. Sanjaya, L. (2001). Link FDI technology development for capacity building and strategic competitiveness. *Transnational Corporations, 11*.
17. Tsai, W. & Ghoshal, S. (1998). Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal, 41*(4), 464-476.
18. Walker, G., Kogut, B. & Shan, W. (1997). Social capital, structural holes and the formation of industry network. *Organization Science 8*(2), 109-125.

Tables

Table 1: Correlations Matrix of All Independent Variables

Correlations Matrix for All Independent Variables																								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1) Learning + Training	1	0	-.004	.251**	.129*	.082**	.372**	.232**	.435**	-.102	.034	.007	-.086	-.006	-.007	.187*	-.143*	-.085	.067	.037	-.093	.051	-.086	.328**
2) Communication	0	1	.355**	.303**	-.140*	.251*	.126*	-.151**	.240*	.055	.443**	-.050	-.131*	.101	.016	-.102	-.112	-.039	-.038	.105	.014	.053	.073	-.020
3) Rewards	-.004	.355**	1	0	0	.144*	-.139	.116*	.231*	.311*	.231*	-.009	-.021	.034	-.123*	-.129*	.044	-.132*	-.113	.091	.221*	.105	.150*	.127*
4) Promotion	.251**	.303**	0	1	0	.147*	.273	-.303*	.301*	-.340*	.445*	.033	.064	-.001	.123*	-.037	-.031	.124*	-.214*	.036	-.096	.005	-.096	-.143*
5) Compensation	.129*	-.140*	0	0	1	.130*	-.049	.318*	.239*	.468*	.042	.047	-.088	.018	.107	-.150*	.052	.102	-.051	.093	-.105	.222*	-.220*	.331**
6) Knowledge Inflow from HQ	.082**	.251*	.144*	.147*	.130*	1	0	0	.279*	.202*	.339*	.153*	-.082	.178*	-.047	-.040	.003	.146*	.068	.173*	-.204*	-.150*	0.045	.387**
7) Knowledge Inflow from Subsidiaries	.372**	.126*	-.139*	.273*	-.049	0	1	0	.127*	-.296*	.059	-.024	-.301*	0	.045	.149*	-.220*	.042	-.002	.019	-.405*	.125*	.119*	.140*
8) Knowledge Outflow	.232**	-.181*	.116*	-.303*	.318*	0	0	1	.006	.334*	-.051	.009	.040	.081	.028	-.158*	-.064	-.041	.050	.078	-.013	-.036	-.025	.875**
9) Social Capital 1	.435**	.240*	.231*	.301*	.239*	.279*	.127	.006	1	0	0	.176*	-.018	.030	-.109	.022	-.026	-.025	.001	.037	-.082	.008	.110	.148**
10) Social Capital 2	-.102	.065	.311	-.340	.499	.202	-.296	.304	0	1	0	.058	-.004	.139	.107	-.072	.067	-.075	-.045	.150	.109	-.043	.095	.357**
11) Social Capital 3	.034	.443**	.231	.445	.042	.339	.059	-.051	0	0	1	.160	.026	.061	-.076	-.089	-.103	.161	-.149	.096	-.037	.094	-.121	.110
12) Age of firm	.007	-.050	-.009	.033	.047	.153	-.024	.066	.176	.058	.160	1	.509	-.170	.106	.102	-.021	.142	-.132	.294	-.098	-.087	-.047	.136*
13) employee size	-.085	-.131*	-.021	.064	-.088	-.082	-.301	.0305	-.018	-.004	.026	.506	1	.002	-.105	.026	.060	.010	-.113	.049	.072	-.070	.032	-.036
14) Electronics (dummy)	-.006	.101	.034	-.001	.018	.178	0	.081	.090	.139	.051	.170	.002	1	-.0108	-.095	-.096	-.074	-.142	.724	-.071	-.110	-.102	.144*
15) Chemical (dummy)	-.007	.015	-.123	.123	.107	-.047	.045	.028	-.109	.107	-.076	.106	-.105	-.108	1	-.147	-.086	-.114	.057	-.062	.070	-.141	-.015	.010
16) Computers (dummy)	.187*	-.102	-.129	-.037	-.156	-.040	.149	-.158	.022	-.072	-.088	.102	.026	-.096	-.147	1	-.077	-.101	.205	-.005	-.013	-.051	.077	-.146*
17) Machinery (dummy)	-.143*	-.112	.044	-.0305	.052	.003	-.220	-.064	-.026	.057	-.103	-.021	.090	-.056	-.096	-.077	1	-.059	.005	-.027	.075	-.087	-.081	-.059
18) Wholesale (dummy)	-.065	-.039	-.132	.124	.102	.146	.042	-.041	-.025	-.075	.161	.142	.010	-.074	-.114	-.101	-.059	1	-.119	-.103	-.074	.137	-.032	.012
19) China (dummy)	.097	-.038	-.113	-.214	-.051	.098	-.002	.050	.001	-.045	-.148	-.132	-.113	-.142	.057	.205	.005	-.118	1	-.196	-.142	-.220	-.205	.053
20) Japan (dummy)	.037	.105	.091	.036	.093	.173	.019	.078	.037	.150	.096	.264	.049	.724	-.062	-.005	-.027	-.103	-.196	1	-.098	-.151	-.141	.130*
21) Singapore (dummy)	-.093	.014	.220	-.096	-.105	-.204	-.409	-.013	-.082	.109	-.037	-.096	.072	-.071	-.070	-.0130	.075	-.074	-.142	-.098	1	-.110	-.102	-.108
22) South Korea (dummy)	.051	.053	.105	.006	.222	-.150	.125	-.0036	.003	-.043	.084	-.087	-.070	-.110	-.141	-.061	-.087	.137	-.220	-.151	-.110	1	-.186	-.064
23) Taiwan (dummy)	-.085	.073	.160	-.096	-.220	.045	.119	-.025	.110	.095	-.121	-.047	.032	-.102	-.015	.077	-.081	-.032	-.205	-.141	-.102	-.158	1	.007
24) Firm Performance	.102	.119*	-.034	.207*	-.112	.051	-.082	-.0126	.197	-.157	.156	.045	.142	-.128	.159	.025	.022	-.225	.003	-.016	.025	-.147	.0162	0
Mean	0	0	0	0	0	0	0	0	0	0	0	2.33	2.49	0.07	0.14	0.12	0.04	0.07	0.22	0.12	0.07	0.15	0.13	0
Std. Deviation	1	1	1	1	1	1	1	1	1	1	1	1.04	1.53	0.25	0.35	0.32	0.20	0.26	0.42	0.32	0.25	0.35	0.34	1
N=303																								

\*\* p<0.01 ; \*p<0.05.

Table 2: Regression models of absorptive capacity and social capital on knowledge transfer

Model Summary(e)												
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R	R <sup>2</sup>	Adj. R <sup>2</sup>	Collinearity Statistics		Durbin-Watson
		B	Std. Error	Beta						Tolerance	VIF	
1	(Constant)	69.053	.531		130.027	.000						
	Learning + Training	3.610	.532	.364***	6.786	.000	.364(a)	.133	.130	1.000	1.000	
2	(Constant)	69.053	.517		133.481	.000						
	Learning + Training	3.526	.519	.356	6.799	.000				.998	1.002	
	Trust	2.151	.519	.217***	4.148	.000	.424(b)	.180	.174	.998	1.002	
3	(Constant)	69.053	.505		136.842	.000						
	Learning + Training	3.736	.509	.377	7.346	.000				.988	1.012	
	Trust	2.143	.506	.216	4.236	.000				.998	1.002	
	Centrality	2.051	.508	.207***	4.037	.000	.471(c)	.222	.214	.990	1.011	
4	(Constant)	69.053	.502		137.645	.000						
	Learning + Training	3.213	.562	.324	5.715	.000				.799	1.252	
	Trust	2.163	.503	.218	4.301	.000				.998	1.002	
	Centrality	1.998	.506	.202	3.950	.000				.987	1.013	
	Language	1.188	.559	.120	2.126	.034	.483(d)	.234	.223	.809	1.237	2.045
a. Predictors: (Constant), Learning + Training												
b. Predictors: (Constant), Learning + Training, Trust												
c. Predictors: (Constant), Learning + Training, Trust, Centrality												
d. Predictors: (Constant), Learning + Training, Trust, Centrality, Language												
e. Dependent Variable: KTCOMP Note: p<0.1*, p<0.05**, p<0.01***, VIF=Variance Inflation Factors, Tol=Tolerance.												

Table 3: Regression models of subsidiary performance

Model Summary (e)												
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	R	R <sup>2</sup>	Adj. R <sup>2</sup>	Collinearity Statistics		Durbin-Watson
		B	Std. Error	Beta						Tolerance	VIF	
1	(Constant)	-2.310E-16	.028		.000	1.000						
	Knowledge Outflow	.875	.028	.875***	31.344	.000	.875(a)	.765	.765	1.000	1.000	
2	(Constant)	-2.399E-16	.017		.000	1.000						
	Knowledge Outflow	.875	.017	.875***	51.971	.000				1.000	1.000	
	Knowledge Inflow From HQ	.387	.017	.387***	22.968	.000	.957(b)	.915	.914	1.000	1.000	
3	(Constant)	-2.376E-16	.015		.000	1.000						
	Knowledge Outflow	.875	.015	.875***	59.085	.000				1.000	1.000	
	Knowledge Inflow From HQ	.387	.015	.387***	26.112	.000				1.000	1.000	
	Knowledge Inflow From subsidiaries	.140	.015	.140***	9.421	.000	.967(c)	.934	.934	1.000	1.000	
4	(Constant)	-.013	.015		-.868	.386						
	Knowledge Outflow	.876	.015	.876***	59.926	.000				1.000	1.000	
	Knowledge Inflow From HQ	.397	.015	.397***	26.476	.000				.950	1.052	
	Knowledge Inflow From subsidiaries	.160	.016	.160***	9.942	.000				.825	1.212	
	Country dummy 3 (China)	.200	.066	.050**	3.032	.003	.968(d)	.936	.936	.791	1.264	2.165
a. Predictors: (Constant), Knowledge Outflow												
b. Predictors: (Constant), Knowledge Outflow, Knowledge Inflow from HQ												
c. Predictors: (Constant), Knowledge Outflow, Knowledge Inflow from HQ, Knowledge Inflow from subsidiaries												
d. Predictors: (Constant), Knowledge Outflow, Knowledge Inflow from HQ, Knowledge Inflow from subsidiaries, Country dummy 3 (China)												
e. Dependent Variable: firm performance Note: p<0.1*, p<0.05**, p<0.01***, VIF=Variance Inflation Factors, Tol=Tolerance.												