How to Perform Knowledge Creation Successfully in International Strategic Alliances: A Multilevel Perspective

Wei-Li Wu, Yi-Chih Lee
Ching Yun University, Dept. of International Business, Jhongli, Taoyuan, Taiwan

Abstract--**For companies in emerging countries, international strategic alliances provide excellent opportunities for knowledge transfer and creation. In practice, it is easy to observe there is a nested relationship between international strategic alliances and a company, and this relationship covers micro strategic alliances level and macro organizational level. In order to more precisely explore knowledge creation in international strategic alliances, this study explores the antecedents of both strategic alliances level and organizational level on knowledge creation. Empirical results show that knowledge transfer which is from strategic alliance level has a positively significant impact on knowledge creation; company scale, R&D intensity and business group scale which are from organizational level have a positively significant effect on knowledge creation. And, both of company scale and business group scale have a cross-level moderating effect on the relationship between knowledge transfer and knowledge creation.**

I. INTRODUCTION

Generally speaking, external knowledge transfer plays an important role in knowledge creation for companies. However, there is still very little research on knowledge transfer and creation in the organizational contexts. For instance, we do not know under what conditions companies can effectively apply external knowledge to the elevation of knowledge creation. In fact, different international strategic alliances are nested in the organization, and this nested and multi-level nature has been overlooked by past studies. This study will use the multi-level perspective to explore why some companies can effectively elevate their technical abilities in international strategic alliances while others cannot. At the strategic alliances level, we will explore how knowledge transfer between partners elevates knowledge creation; at the organizational level, we will explore whether in the process of international strategic alliances, the resources and abilities possessed by an organization would directly affect knowledge creation. On the other hand, this study also explores whether organizational resources and abilities would have a moderating effect on the relationship between knowledge transfer and knowledge creation in alliances. The results of this study will provide us a clearer picture of knowledge creation in international strategic alliances with a multi-level perspective.

II. LITERATURE REVIEW

A. Strategic alliance level: knowledge transfer and knowledge creation

Many past studies took the same view that new knowledge creation the process of two concepts, knowledge exchange and knowledge combination [6][25]. In order to produce innovative knowledge, companies can allocate existing resources or integrate new resources, or use new methods to integrate existing resources [25]. The similar views can be found in the works by [27], it uses the concept of knowledge spiral to explain knowledge creation, and asserted that the creation of knowledge primarily comes from the exchange and combination of knowledge from different sources. Simply put, the exchange and combination of new and old knowledge of different sources can produce the effect of knowledge creation. In the developmental process of knowledge creation, the acquisition of external new knowledge has always played an important role [5][25]. Differences in external knowledge can enhance company understanding of the depth and breadth of product knowledge [35][36], in turn achieving the positive effects in strengthening or supplementation of internal knowledge. Thus, the acquisition external knowledge promotes the effect of knowledge creation for companies. In sum, we argue that when companies transfer greater knowledge from external partners, it would better elevate the internal knowledge creation of companies.

Hypothesis 1: Knowledge transfer from partners in international strategic alliances is positively related to the degree of knowledge creation.

B. Firm level: company resources and abilities

In this study, we deduce that company resources and abilities may produce direct effects on knowledge creation. One of the advantages of participating in international strategic alliances is finding out about the direction of development of important technologies in the future [33], and companies can use their own resources and abilities to conduct knowledge creation. On the other hand, company resources and abilities may form a substitution effect with external knowledge transfer. When companies have greater resources and abilities, it may weaken the importance of external knowledge in the process of knowledge creation (as shown in Fig. 1).

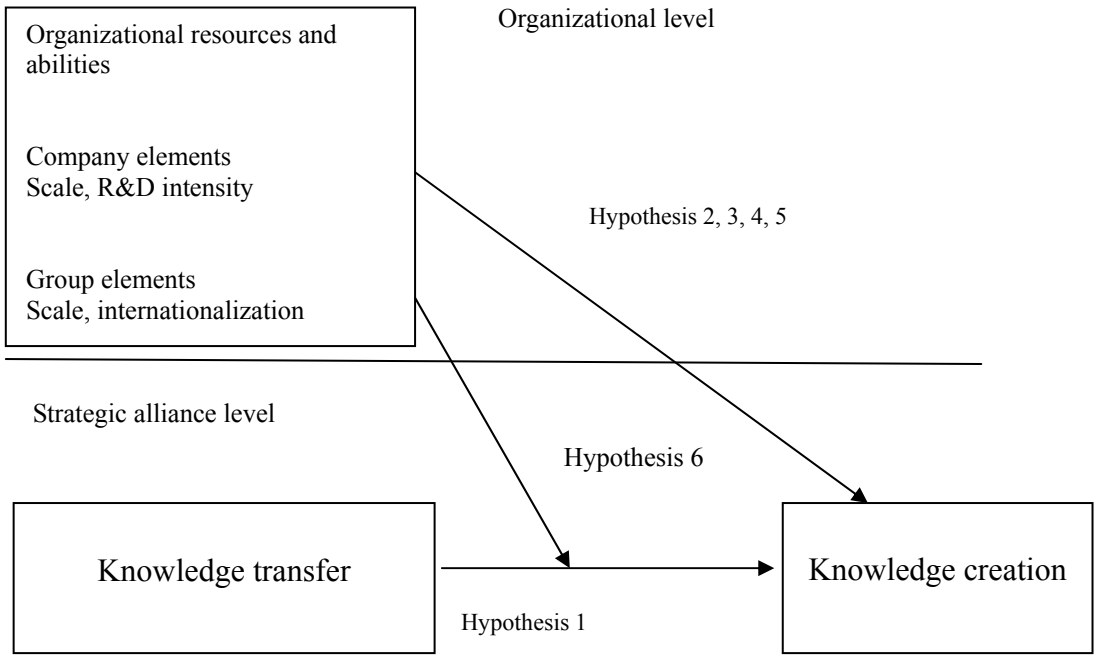

Fig. 1 Multilevel model of knowledge creation in alliances

C. Company elements: company scale and R&D intensity

Scale is an important variable that represents the resources possessed by an organization; companies with greater scale also have more slack resources, thus they would better benefit company development and the various management activities of the company [17][26]. In the cooperative process of international strategic alliances, partners tend to discuss the product and the market, allowing Taiwanese companies to know about important technical development directions in the future. Thus, companies with large scale can devote greater resources to this technical development direction and autonomously develop innovative technology. In addition, the developmental process of innovative technologies is full of various uncertainties and cost input, thus small companies would find it more difficult in resource usage, making it difficult for the development of new technology. Thus, this study believes that when company scale is great, it would have more slack resources devoted to different international strategic alliances, which would benefit the increase of knowledge creation.

There is a close relationship between the R&D intensity and company absorptive capacity; when a company has high R&D intensity, it means that it may have greater absorptive capacity [5][31]. Reference [5] were the first to propose absorptive capacity, which describes the ability of a company to identify valuable external knowledge to internalize and apply such knowledge commercially. Reference [20] pointed out that in international joint ventures, absorptive capacity plays a key role in the knowledge learning and performance of subsidiaries. Although past scholars have continued to reflect on and discuss the content and definition of absorptive capacity, they all agree that absorptive capacity is an important concept for the exploration of external learning and knowledge creation of organizations [5][21]. In international strategic alliances, since companies with high R&D intensity have higher absorptive capacity, it is possible to quickly integrate internal knowledge to partner's knowledge, thus it would benefit internal knowledge creation.

Hypothesis 2: Company scale is positively related to the degree of knowledge creation in international strategic alliances.

Hypothesis 3: R&D intensity is positively related to the degree of knowledge creation in international strategic alliances.

D. Business group elements: business group scale and internationalization

Compared to advanced countries, emerging companies have a special organizational form, known as a business group. The companies under business group are independent but have formed a collective for some financial (such as ownership, capital transaction) or social (such as family and blood relations) reason [3][9]. In emerging markets, since market systems are not yet mature, business groups are important channels of companies connecting to external resources. Business groups in emerging markets tend to develop in different industries, thus the related and unrelated diversification development in business groups are popular. Thus, when business group scale is great, it means that it includes auxiliary corporations of different types, forming a large resource network. When the scale of the business group the company is affiliated with is large, since it can connect to

more external network connections (other auxiliary firms affiliated with the same business group), it would be easier to obtain supplemental resources in the knowledge creation process, and thus it can benefit the increase of knowledge creation.

On the other hand, this study believes that the business group's degree of internationalization can also positively affect knowledge creation. Through contact with different national markets, internationalization increase learning channels, which can benefit the R&D of new products [15][19]. Reference [5] pointed out that the main factor forming absorptive capacity is whether the company itself has corresponding preexisting knowledge and diversified knowledge sources. This study believes that resources of the business group to which the learning company belongs can help construct greater absorptive capacity for the company. Past studies on business groups pointed out companies affiliated with business groups can obtain relevant technical resources from other members in the business group, in turn positively benefit the innovative performance [1][16][23]. When the degree of internationalization in the business group with which the company is affiliated is high, it means that it has more usable experiences and resources, which are important components to absorptive capacity. Thus, when the degree of internationalization in the business group with which the company is affiliated is high, it would have greater absorptive capacity, it can better apply external knowledge to knowledge creation.

Hypothesis 4: Business group scale is positively related to the degree of knowledge creation in international strategic alliances.

Hypothesis 5: Business group degree of internationalization is positively related to the degree of knowledge creation in international strategic alliances.

E. The substitution effect of company resources, abilities, and external knowledge transfer

Past studies pointed out that knowledge creation or technical upgrade may originate from autonomous development within companies or transfer of external knowledge [30][32]. In this study, we simultaneously discuss two different sources of knowledge creation, which are organizational resources and abilities (internal) and knowledge transfer from partner alliances (external). According to past research, external knowledge transfers play important roles for subsequent technical upgrade [7][22], but studies rarely simultaneously consider the moderating effect of resources and abilities possessed by the company. In emerging countries, many companies play the role of manufacturing and production in international strategic alliances, and their partners (mostly in developed countries) are primarily responsible for developing marketing or new technology. In these international strategic alliances, since companies in emerging countries have long been devoted to ODM activity, gradually developing manufacturing ability no less than that of its partners [28]. However, in the whole product value chain, foreign alliance partners have more lead on technical development directions. For companies in emerging countries, international strategic alliances are like learning platforms, they provide direct and indirect learning opportunities. Among them, direct learning means direct knowledge transfer from partners. On the other hand, indirect learning refers to companies learning important technologies necessary for the current or future market in the alliance cooperation process [33], thus it can conduct self-learning by integrating internal resources, at which point the resources and abilities that can be provided by companies plays an important role in the success or failure of self-learning. This study believes that, regardless of whether companies utilize internal resources to conduct technical upgrade or directly use partner knowledge, both are important to internal knowledge creation. However, this study theorizes that when organizational resources and abilities are sufficient to support autonomous technical development in companies, the importance of external knowledge transfer is lowered. Conversely, if companies lack both resources and abilities, this background will further rely on knowledge transferred from partners for subsequent knowledge creation.

Hypothesis H6a: Company scale and R&D intensity would weaken the influence of knowledge transfer on knowledge creation.

Hypothesis H6b: Business group scale and degree of internationalization would weaken the influence of knowledge transfer on knowledge creation.

III. METHODS

A. Sample

This study conducts multi-level analysis on knowledge creation in international strategic alliances, the first level of analysis is the strategic alliances level, the second level is the organizational level. Relevant data for the first level of international strategic alliances is obtained using questionnaire surveys, while data for the second level of organizational context will be acquired from secondary data sources. Among them, information on company scale and R&D intensity will be acquired from Taiwan Economic Journal Database, business group scale and internationalization will be based on data on business groups in Taiwan by China Credit Information Service Ltd. In terms of the questionnaire survey subjects, this study uses the top 1000 manufacturing companies listed by China Credit Information Service Ltd. as the subjects of empirical study, since the main purpose of this article is to explore the interactive learning from partners and knowledge creation for companies in international strategic alliances, thus the main questionnaire subjects are company personnel responsible for communicating and interacting with foreign partners. One

company may simultaneously engage many different international strategic alliances, with different people in the company responsible for different business involving international strategic alliances; it is possible to fill out the questionnaire of this study based on individual alliance cooperation conditions. Since this study will follow up with multi-level analysis, each of the company must at least have collected two sets of data on international strategic alliances.

Because the business world generally is not interested in filling out questionnaires, this study uses purposive sampling to collect questionnaires. Purposive sampling utilizes connections and visits to directly contact participants who are suitable for writing questionnaires, or to find contacts in the companies who are willing to assist in giving out and collecting questionnaires. The questionnaire survey of this study primarily uses electronic questionnaires for transmission and retrieval, most of the sample companies are from science parks and industrial regions in Taiwan. After discarding the incomplete questionnaires, this study collected 97 international strategic alliances from 23 companies, which are all listed companies in Taiwan. Among them, questionnaire respondents include 21 managers, 16 project managers, 16 directors, section leaders, or team leaders, 35 senior engineers and engineers, 9 at other positions. Among the 23 companies, 17.4% have been established for fewer than 15 years, 43.5% have been established between 16-30 years, 39.1% have been established for over 31 years. In terms of company assets, 39.1% have between 4-10 billion USD in assets, 25.8% have between 10-100 billion USD in assets, and 35.1% have more than 100 billion USD. In terms of industry type, 73.9% are in the electronics industry and 22.1% are in the traditional industry. As for the position of alliance partners in the market, among the 97 international strategic alliances, 64.2% are market leaders, thus there are good opportunities for Taiwanese companies to learn from the cooperation process.

B. Measurement of variables

In this study, we refer to past literature to develop the operational definitions and measurement; all questionnaire items are measured using the 7-point interval scale.

Knowledge transfer: for this study, acquisition of knowledge in international strategic alliances includes explicit knowledge and tacit knowledge. The questionnaire design on this concept refers to the knowledge transfer questionnaire developed by [7] and adapted by [34]. In subsequent analysis, explicit knowledge and tacit knowledge will be combined into a singular knowledge transfer variable. Among them, explicit knowledge transfer measures the product design blueprints, product manufacturing process manuals or technical specifications, and product cost analysis technology obtained from partner companies. Tacit knowledge transfer is measured by six items. Measurement items involve tacit knowledge acquisition from partners, like product quality management techniques, product manufacturing process analysis, and techniques in product design etc. The Cronbach α coefficient is 0.89.

Knowledge creation: this study defines knowledge creation that through learning in the alliance process, companies elevate their organizational ability, especially in terms of knowledge innovation in manufacturing ability. This study adapts to the questions by [2] measuring the increase in know-how in product quality, flexibility in manufacturing, and cost management. The Cronbach α coefficient is 0.87.

Company elements: in this study, company scale and R&D intensity are the representative company elements. Company scale connotes the level of slack resources possessed by the company, R&D intensity represents the absorptive capacity that may be possessed by the company, and thus it also represents company ability. Information on company scale and R&D intensity will be acquired from Taiwan Economic Journal Database; company scale is measured using the standardized score based on total assets of companies, while R&D intensity is measured using the ratio of company R&D expenditure to total revenue.

Business group elements: this study uses the scale and degree of internationalization of the company-affiliated business group as the representative of business group elements. Business group scale represents the level of resources that a company can obtain from its affiliated business group, degree of internationalization represents the internationalized operational experiences and resources a company can acquire from its business group. In this study, business group scale and internationalization will be based on data on business groups in Taiwan by China Credit Information Service Ltd. Business group scale is measured using the standardized score based on total assets of the business group. While, according to [8],degree of internationalization refers to the ratio of overseas sales to overall sales.

C. Control variables

According to past literature, this study also added three control variables that may influence knowledge creation, which are knowledge similarity, national cultural differences, and trust. Knowledge similarity: past scholars have asserted that if knowledge learners can have a high degree of similarity with partners [5][24]; it can have better learning effects. We believe that greater knowledge similarity among partners can benefit knowledge transfer, but may be detrimental to subsequent knowledge creation. Since there is a high degree of homogeneity in the knowledge among partners, it would not inspire innovative thoughts, which would obstruct knowledge creation. This study refers to [24], measuring the variable of knowledge similarity using the question: Before you cooperated with this alliance, the technology possessed by your own company is highly similar and overlapping with the partner company. National cultural

differences: this study refers to the descriptions of national culture by [14], and [10], and we define national cultural differences as: differences in partners in terms of language, communication, values, and attitudes. This study believes that greater national cultural differences between partners mean greater heterogeneity is possible between external partner knowledge and internal knowledge, which would facilitate the development of new products and knowledge. In the questionnaire survey, this study adopts the measurement items of national cultural differences by [29], focusing on the national cultural differences perceived by subjects. Trust: in this study, we believe that if partners have greater trust, it would benefit mutual interaction and communication. Thus, in the process of knowledge creation, better communication would be better for partners to discuss solutions for new problems, thus it is beneficial for creating innovative knowledge. This study cites the single question measurement of trust between partners by [18].

IV. RESULTS

Table 1 shows the means, standard deviations, and correlation analysis of main variables at the strategic alliance level. However, correlation analysis in the strategy level does not consider the non-independence in sample data, so next we analyze the hypotheses using HLM.

Compared to the limitations of traditional regression analysis, HLM can simultaneously analyze variables of different levels. In this study, we use HLM to simultaneously process the influence of organizational level and strategic alliances level on knowledge creation in alliances. Before verifying the hypothesis, we first test whether there are significant differences between different companies in terms of knowledge creation, to verify the existence of multi-level effects. According to the suggestion by [13], this study uses null model to analyze the between groups and within group variances of knowledge creation. HLM analysis shows that the null model ICC value of knowledge creation is 0.328, with a high degree of correlation [4]. This value means that 32.8% of variance in knowledge creation in alliances is based on the differences between companies. Thus, data in this study has a nested hierarchical structure, and HLM is suited for subsequent hypothesis analysis.

This study first tests the effect of the strategic alliances level on knowledge creation. After controlling for control variables that affect knowledge creation, Model 1 is shown in Table 2, in which if companies have greater knowledge transfer in the cooperative process with international strategic alliances, they would also have greater knowledge creation (M1, γ=.61, $p<0.001$); empirical results conform to Hypothesis 1. Hypothesis 2 and Hypothesis 3 deduces that company scale and R&D intensity would positively increase knowledge creation respectively. Model 2 shows that company scale (M2, γ=.27, $p<0.001$) and R&D intensity (M2, γ=12.63, $p<0.01$) can both positively affect knowledge creation, thus Hypothesis 2 and Hypothesis 3 both receive support. Hypothesis 4 and Hypothesis 5 deduces that business group scale and degree of internationalization would positively increase knowledge creation respectively. Model 4 shows that business group scale would positively increase knowledge creation (M2, γ=.20, $p<0.05$). However, degree of internationalization has no significant effect on knowledge creation (M4, γ=-.06, n. s.), thus Hypothesis 4 has support, whereas Hypothesis 5 is not supported.

Hypothesis 6a argues that, for company elements, high scale and R&D intensity would weaken the positive effect of knowledge transfer on knowledge creation. According to Model 3 in Table 2, we discover that company scale would have a significant negative moderating effect (M3, γ=-.12, $p<0.01$), but R&D intensity has no moderating effect (M3, γ=-.78, n.s.), thus Hypothesis 6a only receives partial support. Hypothesis 6b hypothesized that for business group elements, higher scale and degree of internationalization would weaken the positive effect of knowledge transfer on knowledge creation. According to Model 5 in Table 2, we can find a significant negative moderating effect in the business group scale (M5, γ=-.19, $p<0.01$), but there is no moderating effect in degree of internationalization (M5, γ=-.53, n.s.), thus Hypothesis 6b also only receives partial support.

TABLE 1 DESCRIPTIVE STATISTICS AND CORRELATIONS

	mean	s.d.	1	2	3	4
1. knowledge similarity	4.25	1.63				
2. Cultural difference	4.52	1.56	0.10			
3. Trust	5.42	1.14	0.42***	-0.02		
4. Knowledge transfer	3.99	1.26	0.23*	0.08	0.31**	
5. Knowledge creation	4.82	1.33	0.01	0.09	0.31**	0.40***

*p < 0.05 **p < 0.01 ***P < 0.001

TABLE 2 RESULTS OF HLM ANALYSIS PREDICTING KNOWLEDGE CREATION

	Knowledge creation				
	M1	M2	M3	M4	M5
Level 1					
Intercept	4.53***	4.60***	4.60***	4.57***	4.63***
Knowledge similarity	-0.09	-0.15*	-0.10	-0.11	-0.10
Culture difference	0.01	0.02	0.01	0.01	0.00
Trust	0.08	0.19	0.16	0.13	0.17
Knowledge transfer	0.61***	0.51***	0.54***	0.56***	0.57***
Level 2					
Company elements					
Company scale		0.27***	0.35***		
R&D intensity		12.63**	11.08**		
Company scale *knowledge transfer			-0.12**		
R&D intensity *knowledge transfer			-0.78		
Business group elements					
Business group scale				0.20*	0.42**
Internationalization				-0.06	0.09
Business group scale *knowledge transfer					-0.19**
Internationalization *knowledge transfer					-0.53

*p < 0.05 **p < 0.01 ***p<0.001

V. CONCLUSIONS AND DISCUSSIONS

In recent years, since scholars have asserted that management research must more realistically reflect the conditions of workplaces in practice, multi-level issues have gradually received attention in the management field [11][12]. Even though scholars have begun attempting to use multi-level concepts to the research issue of knowledge management [37], there are still few relevant empirical studies. Based on the observation of practice, antecedents of knowledge creation in international strategic alliances can at least be divided into two different levels, which are the micro strategic alliances level and the macro organizational level. In this study, we consider partner knowledge transfer as the antecedent variable at the strategic alliances level and company resources and abilities as organizational level.

Results of empirical research show that when companies can successfully transfer partner knowledge in international strategic alliances, it would benefit subsequent knowledge creation. This study conforms to past knowledge management studies stating that the acquisition of external knowledge indeed helps elevate organizational internal knowledge [7][22]. This study also explored the direct and indirect moderating effects of company resources and abilities on knowledge creation in international strategic alliances. In terms of direct effect influence, empirical data shows that company scale and business group scale both have significant positive effects on knowledge creation. This study shows that when company scale is great, it also has more usable slack resources, thus it benefits knowledge creation in alliances. Cooperation in international strategic alliances provides companies with a learning platform, in which companies in emerging countries can obtain many ideas about technical improvement and innovation; however, there is still a considerable gap between having ideals and realizing them as innovative knowledge. If the organization has sufficient resource support, it would have a better chance to realize innovative ideas into innovative knowledge. More importantly, this study finds resources of the affiliated business group also help elevate knowledge creation. Results of this study correspond to past studies that found when an organization has greater scale; it would have more resources to conduct actions beneficial to the organization [16][26]. On the other hand, this study also discovers that company R&D intensity has a significant and positive effect on knowledge creation.

Results of this study also tested the possible moderating effects of organizational resources and abilities, showing that company scale and business group scale would produce a negative moderating effect in the relationship between knowledge transfer and knowledge creation. In this study we find the scales of the affiliated company and business group are greater, it may be able to obtain more resources to engage in technical development, and thus partner knowledge is relatively unimportant. Conversely, when companies and business groups are smaller in scale, there are more limited slack resources in the organization, so the knowledge of external partners would be more important to internal knowledge creation. Thus, company resources and partner knowledge may have substitution effects. However, substitution effect as defined by this study do not mean that large companies in emerging countries would not need to join international strategic alliances, or can independently conduct technical development. Since the keys to dominating market technological development are still maintained by companies in advanced countries, therefore companies in emerging

countries still need to cooperate with companies in advanced countries in order to know about the directions for important technical development, which allow them to effectively use resources in the development of new technology.

REFERENCES

[1] Belenzon, S. and Berkovitz, T. (2010), 'Innovation in business groups', *Management Science*, Vol.56, No.3, pp. 519-535.

[2] Bierly, P. E. and Daly, P. S. (2007), 'Sources of external organizational learning in small manufacturing firms', *International Journal of Technology Management*, Vol.38, No.1/2, pp. 45-68.

[3] Chen, C.N. (2008), Economic Performance of Business Groups and Group-affiliated Companies: Evidence from Taiwan, unpublished doctoral thesis, College of Management, National Taiwan University, Taipei City.

[4] Cohen, J. (1988), *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ. Eribaum.

[5] Cohen, W. M. and Levinthal, D. A. (1990), 'Absorptive capacity: A new perspective on learning and innovation', *Administrative Science Quarterly*, Vol.35, pp.128-152.

[6] Collins, C. J. and Smith, K. G. (2006), 'Knowledge exchange and combination: the role of human resource practices in the performance of High-Technology firms', *Academy of Management Journal*, Vol.49, No.3, pp. 544-560.

[7] Dhanaraj, C., Lyles, M. A., Steensma, H. K. and Tihanyi, L.(2004), 'Managing tacit and explicit knowledge transfer in IJVs: the role of relational embeddedness and the impact on performance', *Journal of International Business Studies*, Vol.35, No.5, pp. 428-442.

[8] Geringer, J. M., Tallman, S., and Olsen, D. M.(2000), 'Product and International Diversification among Japanese Multinational Firms', *Strategic Management Journal*, Vol. 21, No. 1, pp. 51-80.

[9] Granovetter, M. (1994), 'Business groups. In Smelser, N. J. and Swedberg, R. (Eds)', The Handbook of Economic Sociology. New York: Russell Sage, pp.453-75.

[10] Griffin, R. W. and Pustay, M. W. (2002), 'International Business: A managerial perspective (Third edition)'. Upper saddle River, New Jersey: Prentice Hall.

[11] Gupta, A.K., Tesluk, P.E. and Taylor, M.S. (2007), 'Innovation at and across multiple levels of analysis', *Organization Science*, Vol.18, No.6, pp.885-897.

[12] Hitt, M.A., Beamish, P.W., Jackson, S.E. and Mathieu, J.E. (2007), 'Building theoretical and empirical bridges across levels: multilevel research in management', *Academy of Management Journal*, Vol.50,No.6, pp. 1385-1399.

[13] Hofmann, D. A. (1997), 'An overview of the logic and rational of hierarchical linear models', *Journal of Management*, Vol.23, pp. 723-744.

[14] Hofstede, G. (1980), 'Culture's consequences: International differences in work-related values', Beverly Hills: Sage Publications.

[15] Hsieh, T.J., Chen, Y.J., Yeh, R.S. (2011), Internationalization and Firm Innovation Performance: The Moderating Effects of Absorptive Capacity and Location Choice, Journal of *Management & Systems*, Vol. 18, No. 4, pp.607-632.

[16] Hsieh, T.J., Chung, H.J., Lo, H. (2010), Firm Size, Business Group Affiliation and Expansion Aggressiveness, *Sun Yat-Sen Management Review*, Vol.18, No.3, pp.837-861.

[17] Hsieh, T.J., Yeh, R.S. and Chen, Y.J. (2010), 'Business group characteristics and affiliated firm innovation: the case of Taiwan', *Industrial Marketing Management*, Vol.39, pp.560-570.

[18] Kale, P., Singh, H. and Perlmutter, H. (2000), 'Learning and protection of proprietary assets in strategic alliances: Building relational capital', *Strategic Management Journal*, Vol.21,No.3, pp. 217-237.

[19] Kim, W.C., Hwang, P. and Burgers, W.P. (1993), 'Multinationals' Diversification and the Risk-Return Trade-Off', *Strategic Management Journal*, Vol.14, No.4, pp. 275-286.

[20] Lane, P.J., Salk, J.E. and Lyles, M.A. (2001), 'Absorptive capacity, learning, and performance in international joint ventures', *Strategic Management Journal*, Vol.22, pp. 1139-1161.

[21] Lichtenthaler, U. (2009), 'Absorptive capacity, environmental turbulence, and the complementarity of organizational learning processes', *Academy of Management Journal*, Vol.52, No.4, pp. 822-846.

[22] Lyles, M. A. and Salk, J. E. (1996), 'Knowledge acquisition from foreign parents in international joint ventures: An empirical examination in the Hungarian context', *Journal of International Business Studies*, Vol.27, No.5, pp.877-903.

[23] Mahmood, I.P. and Mitchell, W. (2004), 'Two faces: effects of business groups on innovation in emerging economics', *Management Science*, Vol.50, No.10, pp.1348-1365.

[24] Mowery, D. C., Oxley, J. E. and Silverman, B. S. (1996), 'Strategic alliances and interfirm knowledge transfer', *Strategic Management Journal*, Vol.17, Winter special issue, pp. 77-91.

[25] Nahapiet, J. and Ghoshal, S. (1998), 'Social capital, intellectual capital, and the organizational advantage', *Academy of Management Review*, Vol.23, No.2, pp. 242-266.

[26] Nohria, N. and Gulati, R., (1996), 'Is slack good or bad for innovation?', *Academy of Management Journal*, Vol. 39, No. 5, pp.1245-1264.

[27] Nonaka, I. and Takeuchi, H. (1995), 'The knowledge creating company', New York: Oxford University Press.

[28] Pisano, G. P., Shih, W. C. (2009), 'Restoring American competitiveness', *Harvard Business Review*, Vol. 87,No.7/8, pp.144-125.

[29] Simonin, B. L. (1999), 'Ambiguity and the process of knowledge transfer in strategic alliances', *Strategic Management Journal*, Vol.20, pp.595-623.

[30] Soo, C.W., Devinney, T.M. and Midgley, D.F. 2007. External knowledge acquisition, creativity and learning in organizational problem solving. International Journal of Technology Management, 38(1/2): 137-159.

[31] Tsai, W. (2001), 'Knowledge Transfer in Intraorganizational Networks: Effects of Network Position and Absorptive Capacity on Business Unit Innovation and Performance', *Academy of Management Journal*, Vol. 44, No. 5, pp. 996-1004.

[32] Tsang, Eric W. K. (2000), 'Transaction cost and resource-based explanations of Joint Ventures: A Comparison and Synthesis', *Organization Studies*, Vol.21, No.1, pp.215-242.

[33] Wu, W.L. and Lee, Y.C. (2012a), 'Knowledge transfer and international outsourcing alliances: A case study of Taiwanese suppliers', *The Journal of American Academy of Business*, Vol.17, No.2,pp. 130-138.

[34] Wu, W.L. and Lee, Y.C. (2012b), 'Enhancing international knowledge transfer through information technology: The intervention of communication culture', *International Journal of Information and Communication Technology*, Vol.4, No.1,pp. 1-12.

[35] Yli-renko, H., Autio, E. and Sapienza, H. J. (2001), 'Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms', *Strategic Management Journal*, Vol.22,6/7, pp.587-613.

[36] Zahra, S. A., Ireland, R. D. and Hitt, M. A. (2000), 'International expansion by new venture firms: international diversity, mode of market entry, technological learning and performance', *Academy of Management Journal*, Vol.43, pp. 925-950.

[37] Zhao, Z.J. and Anand, J. (2009), 'A multilevel perspective on knowledge transfer: evidence from the Chinese automotive industry', *Strategic Management Journal*, Vol.30, pp. 959-983.