RESEARCH ARTICLE

Knowledge Mobility in Cross-Border Buyer-Supplier Relationships

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Abstract:

- This paper contributes to the debate on the influence of knowledge sourcing in emerging markets by multinational enterprises. The study builds on transaction cost theory, organizational learning theory and the knowledge-based view to examine the determinants and consequences of knowledge mobility in cross-border buyer-supplier relationships.
- I hypothesize that protection and knowledge attributes influence knowledge acquisition from international strategic alliances and that knowledge mobility enhances local suppliers' innovation capabilities.
- Using survey data of 160 firms in the information technology (IT) sector and a structural equation methodology, the empirical results indicate the positive impact that knowledge attributes have on protection. Furthermore, knowledge mobility in cross-border relationships positively affects the development of firms' innovation capabilities. The implications are discussed at the end of the paper.

Keywords: Protection · Knowledge attributes · Knowledge mobility · Innovation capability

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Introduction

In recent years, outsourcing has evolved from low-cost manufacturing activities to high-value-adding activities (Hutzschenreuter et al. 2011). Many MNCs are increasingly restructuring their knowledge-intensive processes worldwide. The impacts of the growth in outsourcing innovation to emerging markets (EMs) remain to be understood either conceptually or empirically and are a particular focus of this paper. Furthermore, the drivers and consequences of this important phenomenon have been less systematically studied from the perspective of local suppliers in resource-limited countries (Jean et al. 2010a).

The co-evolution of inter-organizational and international knowledge linkages is enabling local suppliers to upgrade from low-tech assemblers to sophisticated product designers (Ernst 2000; Schmitz 2004). The IT industry in Taiwan has achieved great success and has played a difficult-to-replace role in the global digital economy in recent years (Ernst 2000; Jean et al. 2010a). The Taiwanese IT companies have gradually developed strong capabilities in original design and climbed the technology chain towards key categories, such as notebook PCs and chip foundry services (Kishimoto 2004; Trindade 2005). This research focuses on examining how these Taiwanese IT suppliers have enhanced their overall capabilities through cooperating with MNC buyers.

As Leonard (1995, p. 135) states, "very few, if any, companies can build core capabilities without importing some knowledge from beyond their boundaries". This is confirmed by the explosive growth in the literature dealing with organizational learning in international strategic alliances (ISAs). As recognized by Crossan and Inkpen (1994, p. 271), 'while much of the research has dealt with static theories of the firm and investigations of structural questions, very little research has devolved into the process of knowledge transfer and the barriers to successful intraorganizationl learning'. The main objective of this paper is to extend and enrich the existing knowledge base on alliance learning (Kale and Singh 2007; Lancioni and Chandran 2009) by examining the following issues that have not received significant attention in the existing literature.

Firstly, most of the studies that focus on learning and knowledge transfer look at the role of firm-specific variables, such as intent (Tsang 2002) or partner selection (Dong and Glaister 2006), or relationship variables, such as trust (Cavusgil et al. 2004), but fall short of linking the nature of knowledge to the barriers to transferability. Drawing on the previous literature on alliances, the knowledge-based view, organizational learning and transaction cost theory, I develop an integrated model which identifies various determinants of alliance learning.

Secondly, despite the wealth of interorganizational learning, i.e. knowledge acquisition from partners, the impact of the utilization of such external knowledge within the organization is under-researched. In an effort to fill this gap, this study is designed to investigate the role of knowledge mobility, so as to consider both external and internal learning at the same time. Knowledge mobility is defined as the ease with which knowledge is acquired from alliances and utilized within the organization (Dhanaraj and Parkhe 2006). I argue that firms need to integrate these two processes to enhance their learning outcomes.

Thirdly, the majority of empirical studies of such issues have been conducted in developed countries, but are particularly limited in emerging market contexts (Zhang et al. 2009). In recent years, the vertical link between the MNC buyers and their offshore sup-

pliers in EMs has been particularly strong, but there has been little systematic research into this relationship (Chen and Chen 2003). To remedy some of these limitations, this research focuses on the perspective of resource-limited local suppliers.

To address the limitations outlined above and further our understanding of learning in cross-border buyer-supplier relationships, this study considers the following questions. (1) Which knowledge attributes influence the knowledge acquisition between partners? (2) How does knowledge mobilize between the inter-organizational and intra-organizational levels? (3) Can alliance learning enhance the firm's innovation capability in a quasi-market, and through asymmetric alliances between MNC buyers and local suppliers?

Theoretical Background and Hypothesis Development

Key Determinants Influencing Alliance Learning

Drawing on the alliance learning literature, *protection* is proposed as a factor related to partner characteristics and an important determinant of learning scope (Inkpen and Tsang 2007; Kale et al. 2000). Many studies have considers the dangers of the unintended and informal transfer of proprietary intellectual assets through outsourcing and manufacturing-based alliances (Teramoto et al. 1993). Simonin's (2004) study indicates that partner protectiveness has a significant negative effect on transferring knowledge. The balance between protecting existing proprietary assets and acquiring new knowledge in alliances is a critical aspect of the asymmetric learning between local suppliers and MNC buyers.

Inkpen (1998) explains a few reasons why many firms have not been able to exploit alliance learning opportunities: The alliance knowledge was undervalued; the necessary knowledge "connections" were not put into practice; and the nature of the knowledge itself made learning difficult. Reed and Defillippi (1990, p. 89) define *tacitness* as the implicit and non-codifiable accumulation of skills that results from learning by doing. Simonin's (1999) empirical research of 147 multinationals found that tacitness and knowledge ambiguity were positively related and that ambiguity limited learning effects. Drawing on the organizational learning literature, I incorporate one of the most important attributes of knowledge–tacitness–into this research.

Specificity is another important attribute of knowledge that impacts learning effects. According to transaction cost economics (TCE), specificity refers to transaction-specific skills and assets that are utilized in production processes and the provision of services to particular customers (Reed and DeFillippi 1990). Local suppliers in emerging economies usually make tangible and intangible investments to fulfill specific requests from their MNC buyers, but do not receive reciprocal commitments (Rokkan et al. 2003). In contrast to the logic of conventional TCE, local suppliers do not receive any economic safeguards but still make client-specific investments for their MNC buyers. Knowledge exchange between partners may be not only tacit but also specific. Following the above arguments, I assert that the amount of knowledge acquired from partners depends on three key antecedents: Protection, tacitness and specificity. Moreover, I investigate the inter-relationships among these constructs.

Knowledge Mobility and Learning Outcomes

According to the knowledge-based view, knowledge is an important resource that helps a firm to develop a set of capabilities that enhance its chances of growth and survival (Lancioni and Chandran 2009). It has become manifest that knowledge and learning are at the root of understanding how the firm develops and sustains its long-term competitive advantages (Foss and Pedersen 2004). The process of capability enhancement can be regarded as the continuing integration of the firm's new knowledge/skills being acquired externally and developed internally (Bartlett and Ghoshal 2000; Kogut and Zander 1992). Most studies of alliance learning have focused on how to acquire knowledge outside the firm but considerably less attention has been devoted to how to utilize acquired knowledge within the firms (Foss and Pedersen 2004). According to Dhanaraj and Parkhe (2006), *knowledge mobility* is defined as the ease with which knowledge is acquired and deployed. Following their propositions, I examine two processes related to knowledge mobility: *Knowledge acquisition from partners and subsequent utilization of such knowledge within the organization.* Empirical studies that link alliance learning and learning outcomes have received less attention than others. A firm's capability enhancement relies on the combination of different types of specialized knowledge, both external and internal. In this research, I use a subjective measure for learning outcomes–a partner's innovation capability.

The Factors Influencing Knowledge Acquisition

Protection

The partners in the alliance strive to outlearn each other and encounter the challenge of managing the balance between 'trying to learn and trying to protect' (Kale et al. 2000). The benefits of interorganizational cooperation may be outweighed by the costs of unintended transfers of information (Baughn et al. 1997). In my preliminary interviews with some case companies, most of the respondents indicate that protection is a critical factor in determining the scope of learning. Foreign partners may put barriers in place to limit local partners' access to their specific areas of skill (Inkpen and Beamish 1997; Simonin 2004). Loss of knowledge also leads to the threat of a new and stronger competitor. The fear of losing competitive advantage and proprietary assets will trigger a partner's protectiveness and thus impede knowledge acquisition. Therefore:

Hypothesis 1: Protection is negatively associated with knowledge acquisition from foreign partners.

Tacitness

Tacitness is defined as the implicit and non-codifiable accumulation of skills that results from learning by doing (Reed and DeFillippi 1990, p. 89). If most of the knowledge relevant to a product is tacit, then the transfer of knowledge between organizational members is exceptionally difficult (Grant 1996, p. 114). Tacit knowledge is very difficult to transfer

across organizational boundaries because it is based on shared experiences and grounded in the day-to-day organizational practices of learning, coordination and communication (Feinberg and Gupta 2004). The degree of tacitness of a particular competency of know-how not only significantly influences knowledge ambiguity (Simonin 1999) but also the speed of capability transfer (Zander and Kogut 1995). The evidence from the preliminary case interviews shows that a comprehensive understanding of tacit product design know-how is difficult to obtain but necessary to speed up the process of new product development. The more tacit the alliance knowledge, the less knowledge acquisition tends to occur (Teng 2007).

As stated above, close ties with an alliance partner may lead to negative outcomes as firms may lose their distinctive competence as a result of unintended knowledge transfer (Inkpen and Tsang 2007). Moreover, tacit knowledge is more likely than other types of knowledge to be the core basis of a firm's competitive advantage. When firms enter into close collaborations, they are likely to invest more in appropriating valuable external knowledge, which is often tacit (Norman 2004). Therefore, firms are expected to take greater action to prevent the loss of tacit knowledge because of its competitive value. Hence:

Hypothesis 2: Tacitness is negatively associated with knowledge acquisition from foreign partners.

Hypothesis 3: Tacitness is positively associated with protection.

Specificity

Asset specificity is defined in the TCE literature as the "degree to which an asset can be redeployed to alternative uses and by alternative users without the sacrifice of productive value" (Williamson 1991, p. 281). Dedicated assets are usually protected by the security and exclusivity of the firm-customer relationship (Reed and DeFillippi 1990). Partners who invest in dyad-specific assets are more likely to build a tightly knit system to coordinate knowledge acquisition (Mesquita et al. 2008). Specific assets and capabilities, are known to have a better fit with the assets owned by the relationship partner and, as a result, enable the attainment of extra marginal performance that is unavailable to outsiders (Milgrom and Roberts 1992). Some managers in the preliminary case interviews said that dedicated equipment and cross-functional project teams were prerequisites for serving a specific MNC buyer. In practice, a dedicated team allows for customized communication and immediate feedback. The buyer-supplier relationship is enhanced through such specialized investments. Local suppliers are likely to accumulate partner-specific knowledge through the investment in dedicated assets (von Hippel 1994). Such knowledge will enable these suppliers to develop better capabilities to outperform other suppliers in future transactions (Kang et al. 2009). These dyad-specific assets are expected to have a positive effect on knowledge acquisition. On the other hand, when the firm invests in more specific assets in the partnership, they are exposed to potential opportunistic behavior. Collaboration does not comprise a safeguard against opportunism (Simonin 1999). This threat may encourage the firm to increase its level of protection or even inhibit transactions. Thus:

Hypothesis 4: Specificity is positively associated with knowledge acquisition from foreign partners.

Hypothesis 5: Specificity is positively associated with protection from foreign partners.

Knowledge Acquisition and Knowledge Utilization

Though the acquisition of external knowledge is a central component of the knowledge-based view (Steensma and Lyles 2000), little empirical research has been conducted to examine its link with the utilization of such knowledge within the organization (Bierly III et al. 2009). I conceive knowledge mobility to be a two-step process. Firstly, knowledge is acquired from a source external to the organization. Secondly, the acquired knowledge is applied to the development of new products within the organization. These two processes should be integrated to support an 'actionable learning system' linking the individual, group, and organizational levels. If the firm only acquires knowledge through collaboration, without utilizing it to enhance its operation, the learning effect is limited (Dhanaraj et al. 2004). The process of disseminating external knowledge is intended to resolve individual views into a shared understanding at a group level. New knowledge and skills acquired from an alliance should then be incorporated into the firm's own systems, structures, and procedures. Hence:

Hypothesis 6: Knowledge acquisition from alliance partners is positively related to knowledge utilization within the organization.

Knowledge Acquisition and Innovation Capability Enhancement

For a firm with limited assets/skills, external acquisition is the preferred path. Knowledge acquisition in this research refers to acquiring knowledge/skills from a partner. It has been widely recognized that learning through alliances is the basis of a firm's value creation (Inkpen 2002). However, few studies have seriously investigated the relationship between learning and alliance outcomes (Norman 2004). If firms do benefit from alliance learning, how will the learning enhance their capability? In this research, I use the term 'innovation capability enhancement' as the indicator of the learning outcome. Searches made across organizational boundaries often integrate distant knowledge elements and yield new products that differ from the existing technological paradigms (Fleming 2001). The findings from my preliminary interviews show that local suppliers have learned to absorb and adapt advanced technology and develop their own in-house engineering capabilities to modify and re-design products for MNC buyers. Therefore:

Hypothesis 7: A local supplier with a higher level of knowledge acquisition is expected to experience greater innovation capability enhancement.

Knowledge Utilization and Innovation Capability Enhancement

The acquisition of knowledge from the alliance partners does not, in itself, influence a firm's innovation capability development. The firm needs to adopt intra-organizational

learning mechanisms in order to effectively deploy and integrate the specific knowledge it has acquired into its existing capabilities (Lane et al. 2001). The firm is likely to need to disseminate and adapt the knowledge and apply it to its own organizational routines (Crossan et al. 1999). The assimilation and utilization process refers to the stage in which knowledge becomes institutionally available (Nevis et al. 1995). Through the internalization processes, acquired knowledge can be embedded in firm-specific capabilities and applied to other product-market tasks. Thus:

Hypothesis 8: A local supplier with a higher level of knowledge utilization is expected to enhance its innovation capability to a greater extent.

Methodology

Research Context and Data Collection

This research focuses on examining how Taiwanese IT suppliers enhance their overall capabilities through cooperating with MNC buyers. The sampling frame was obtained from a variety of sources, including the Taiwan Electronics and Appliance Manufacturers Associates (TEEMA), the Taiwan Computer Association (TCA) and the Top 1000 Manufacturing Firms List. The unit of analysis in this research is the cooperative relationship between MNC buyers and local suppliers in Taiwan. Respondents were invited to focus on the current or past but recent (terminated less than three years ago) ISA with which they were most familiar.

The content and format of the questionnaire were developed on the basis of preliminary interviews and a thorough literature review, and it was pre-tested using several on-site meetings with experienced managers. The final sample included 609 firms from six primary categories in the IT industry: Communication products, systems, peripherals, card/board, semiconductors, and components. Data was collected through a key informant technique. These informants were sufficiently knowledgeable with their firms' collaborative phenomena. The majority of the respondents are top executives (i.e. presidents, CEOs, general managers, vice-presidents, directors and senior managers) and the rest are functional or project managers.

Respondents and Alliance Profiles

From the 609 sample companies, a total of 160 completed usable questionnaires were received, an effective response rate of 26.3%. In terms of the country of origin of the partner, 58.8% were US firms, 17.5% were European, 16.9% Japanese and the remaining 6.8% were based in other areas. Over 70% of the responding firms reported that the duration of their ISA operation was more than three years and 8.8% had maintained a long-term cooperative relationship for more than 10 years. Of the 160 firms, 125 (78.1%) not only manufacture but also design products for MNC buyers. Most of the Taiwanese IT suppliers surveyed had already enhanced their capabilities in product design for their MNC buyers. Over 33% of the companies included in the research had a sales volume

Table 1: Descriptive statistics and correlations of the constructs

	1	2	3	4	5	6
1. Tacitness	*0.71*					
2. Protection	0.30	*0.74*				
3. Specificity	0.26	0.28	*0.74*			
4. Knowledge acquisition	0.33	−0.28	0.38	*0.88*		
5. Knowledge utilization	0.06	0.17	0.16	0.44	*0.79*	
6. Innovation capability enhancement	0.23	0.34	0.37	0.64	0.61	*0.90*
Mean	4.26	4.70	4.60	4.90	5.14	5.14
S.D.	1.08	1.28	1.26	1.29	1.11	1.08

Diagonal terms (in italics) are square root of the average variance extracted. Off-diagonal terms are the correlation of latent constructs. The diagonal term must be greater than any of the elements in the row or the column corresponding to that number

greater than US$ 300 million per year. Half of the sample firms had a workforce of more than 1000 employees.

For nonresponse bias, I ran t-tests to compare the respondent firms' characteristics (e.g., number of employees, annual sales revenue, capital, and age of the company) to those of the original population sample. No significant differences were identified. To obtain feedback from the non-respondents themselves, I identified twenty non-respondents and called them to ask the reasons for their non-response. Most of the reasons provided were related to the limitations of their firm's confidentiality policy. Therefore, non-response bias was found not to be a significant problem in the data analysis for this research.

Measures

The latent variables in the model are measured using multiple indicators. Most of the items are measured using seven-point Likert scales ranging from 'strongly disagree' to 'strongly agree'. These scales were reverse-coded where appropriate. Table 1 reports the descriptive statistics and correlations between all of the constructs.

Protection is operationalized as the degree to which the foreign partners protect their proprietary knowledge. A three-item scale was used to measure this. The measure was adapted from Simonin (2004). *Tacitness* is conceptualized as the extent to which knowledge can be codified and thus transmitted in a formal, systematic language. Tacitness is measured using three items adapted from Simonin (1999) and Bierly III et al. (2009). The operationalization of *specificity* is adapted from Simonin's (1999) definition of dedicated specificity: Assets specially dedicated to a partner. It is measured using a three-item scale adapted from Williamson (1975), Simonin (1999) and Judge and Dooley (2006).

Knowledge acquisition is conceptualized as the extent to which a firm has learned from its partner. In devising scale items for knowledge acquisition, the measurement schemes of

Lyles and Salk (1996) and Buckley et al. (2009) were adapted to this research. *Knowledge utilization* is defined as the integration of learning so that it can be systematically exploited in the organization's routines (Crossan et al. 1999). It was measured using a three-item scale adapted from Nevis et al. (1995), Crossan et al. (1999), and Gold et al. (2001). *Innovation capability* is operationalized as the ability to identify, conceptualize and design the value of products (Thomas 1993). Innovation capability is measured using a three-item scale adapted from Subramanian and Venkatraman (2001), and Zhang et al. (2009).

All of the measures used in this research were collected via the same instrument, which introduced the possibility of common method bias. Harman's one-factor test (Podsakoff and Organ 1986) was used to address the issue of common method variance. I performed principal components factor analysis on the questionnaire measurement items, extracting five factors with eigenvalues greater than 1.0, which accounted for 71% of the total variance. Since the factor accounting for the greatest amount of variance does not account for the majority of it (only 33%), this indicates that common method variance does not appear to be a problem in this research.

Analysis and Results

Structural equation modeling (SEM) is particularly effective when testing models with mediating variables and those which contain latent constructs that are being measured with multiple indicators. The EQS 6.1 program (Bentler and Wu 2003) was used to estimate the structural equation models.

Assessment of Measurement Model

The first stage of the SEM analysis was concerned with the assessment of the measurement items (Anderson and Gerbing 1988). The results of the measurement model are reported in Table 2. The composite reliability for all constructs was greater than 0.70, which indicates acceptable reliability. Confirmatory factor analysis was used to assess the convergent and discriminant validity. Convergent validity was computed using Fornell and Larcker's (1981) formula and evaluated based on the significance of factor loading and shared variance. As shown in Table 2, the factor loadings range from 0.52–0.96 ($p<0.01$), and also share variance coefficients ranging from 0.51–0.82. Thus the constructs demonstrate sufficient convergent validity.

I assess discriminant validity according to Fornell and Larcker's (1981) approach. They recommend the use of average variance extracted, which should be greater than the variances shared between the constructs. Table 1 provides the correlation coefficients in the off-diagonal elements of the matrix and the square roots of the average variance extracted values calculated for each construct, along the diagonal. The discriminant validity of a construct is adequate when its diagonal element is greater than the off-diagonal elements in the corresponding rows and columns. The results indicate that the constructs had adequate discriminant validity.

The Satorra-Bentler scaled chi-square test (Satorra and Bentler 1994), is statistically significant ($\chi^2=211.048$, degrees of freedom$=120$; $p<0.001$). The overall goodness-of-

Table 2: Measurement model and confirmatory factor analysis

Items	λ	t-value	ρ	AVE
Protection: adapted from Simonin (2004) and Gold et al. (2001)			0.78	0.54
The partner has intentional procedures, routines, and policies to restrict the sharing of relevant information concerning its technology/process know-how	0.76	9.69		
The partner is very protective of its technology/process know-how	0.72	9.11		
The partner has technology that restricts access to some sources of knowledge	0.73	9.22		
Tacitness: adapted from Simonin (1999) and Bierly III et al. (2009)			0.70	0.51
It takes time to imitate partner's management process	0.52	6.00		
New product concept is difficult to put into documentation	0.73	8.11		
The partner's managerial idea is difficult to be expressed in oral words	0.72	8.01		
Specificity: adapted from Williamson (1975), Simonin (1999) and Judge and Dooley (2006)			0.78	0.54
To cooperate with this partner, we need to invest significantly in dedicated production equipment, capacity and testing equipment	0.63	7.88		
To cooperate with this partner, we need to invest significantly in dedicated IT hardware and software	0.81	10.46		
To cooperate with this partner, we need to establish process adapted for them	0.76	9.66		
Knowledge acquisition: Lyles and Salk (1996) and Buckley et al. (2009)			0.91	0.77
New R&D expertise	0.92	14.92		
New product development	0.96	15.84		
New manufacturing process	0.74	10.66		
Knowledge utilization: Nevis et al. (1995), Crossan et al. (1999) and Gold et al. (2001)			0.83	0.63
The firm integrates the partner's knowledge into the organization's routines	0.74	10.06		
The firm offers on-job training	0.86	12.26		
The firm is able to locate and apply knowledge to change competitive conditions	0.78	10.81		
Innovation capability enhancement: Subramanian and Venkatraman (2001) and Zhang et al. (2009)			0.93	0.82

Table 2: (continued)

Items	λ	t-value	ρ	AVE
R&D capability in terms of product differentiation and functionality	0.82	12.39		
Speed to introduce new product	0.90	14.27		
Capability to perceive new technology development/ market trends	0.90	14.17		

λ factor-loading lambda, α Cronbach's alpha, ρ Joreskog's rho, *AVE* average variance extracted

Measurement Fit: Satorra-Bentler-Scaled- χ^2=211.048, D.F.=120; p<0.001; Comparative Fit Index (CFI)=0.937; Bentler-Bonett Non-Normed Fit Index (BBNNFI)=0.919; Bollen (IFI) Fit Index=0.938; Root Mean-Square Error of Approximation (RMSEA)=0.069, N=160

fit indices suggest a good fit of the confirmatory measurement model (CFI=0.937; BBN-NFI=0.919; IFI=0.938; RMSEA=0.069). Although the overall chi-square statistic for the measurement model is significant, the ratio of χ^2 to degrees of freedom (1.76, less than 3) corresponds to a satisfactory fit (Hair et al. 2002). Overall, the measurement model represents a good fit with the data.

Assessment of Structural Model

The parameter estimates and goodness-of-fit indicators of the structural equation model are show in Fig. 1. Although the chi-square statistic is significant (χ^2=219.626; D.F.=126;
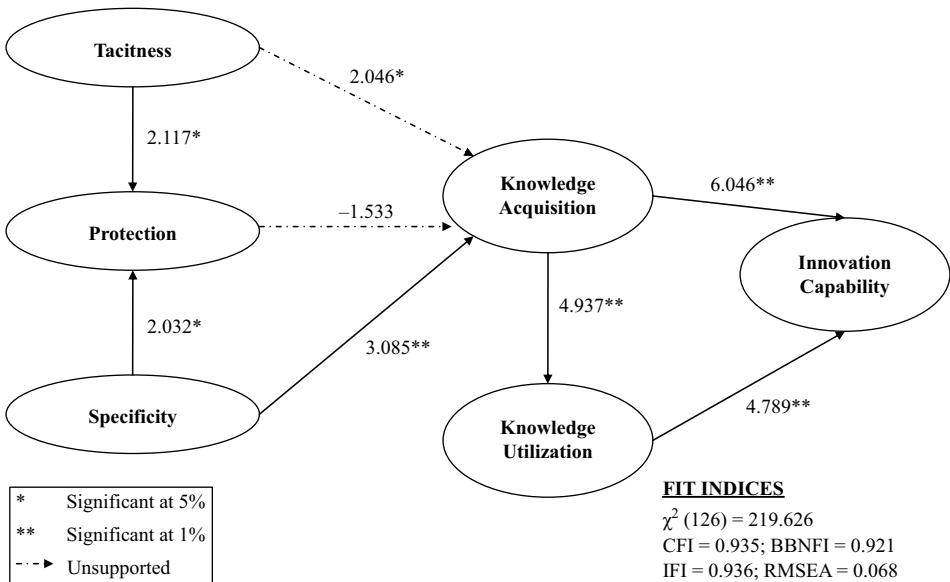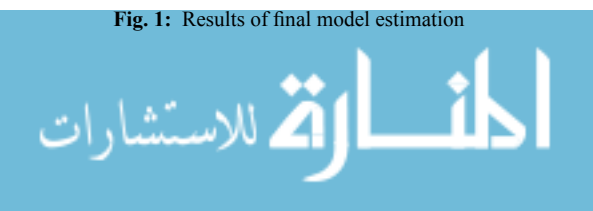

Fig. 1: Results of final model estimation

p-value < 0.001), the sufficiently low ratio of chi-square to degrees of freedom (1.74 less than 3) reports a satisfactory fit. Furthermore, the CFI, the BBNNFI, and IFI all indicate an excellent fit for the structural model (CFI = 0.935; BBNNFI = 0.921; IFI = 0.936; RMSEA = 0.068). Therefore, the hypothesized model is a reasonable representation of the data.

The coefficient for protection to knowledge acquisition is negative but non-significant ($\gamma = -0.100$, $t = -1.553$). Hypothesis 1 is unsupported. The parameter estimates show the significant positive effects of tacitness on knowledge acquisition ($\gamma = 0.175$, $t = 2.046$). Therefore, H2 is not supported. I explain this surprising result in the discussion section. H4 predicted a positive relationship between specificity and knowledge acquisition. The coefficient is positive and significant ($\gamma = 0.124$, $t = 3.085$). Both tacitness and specificity display significant and direct positive effects on protection, in support of Hypotheses 3 ($\gamma = 0.185$, $t = 2.117$) and 5 ($\gamma = 0.127$, $t = 2.032$), respectively. The link between knowledge acquisition and knowledge utilization (H6) is significantly supported ($\beta = 0.062$, $t = 4.937$). The acceptance of H7 ($\beta = 0.063$, $t = 6.046$) and H8 ($\beta = 0.098$, $t = 4.789$) verifies that both knowledge acquisition and knowledge utilization have positive influences on the enhancement of innovation capability.

Discussion

Drawing on TCE, the knowledge-based view and organizational learning theory, this research has developed and empirically tested a more holistic framework that examines the factors influencing knowledge acquisition and the effects of knowledge mobility on learning outcomes. The following discussion will: (1) attempt to understand the different conditions of protection and tacitness; (2) recap the role of knowledge mobility.

Protection and Tacitness: Different Conditions, Different Roles

One postulated relation that fell short of significance concerns the effect of protection on knowledge acquisition. Most of the literature suggests that protection is important to prevent negative learning outcomes in strategic alliances (Baughn et al. 1997; Inkpen and Tsang 2007). However, this orientation towards safeguard knowledge may obstruct the development of mutually beneficial relationships and limit learning opportunities (Madhok and Tallman 1998). If learning goals are not fulfilled due to limitations on transferring knowledge between partners, the alliance provides less value. Furthermore, most of the alliances in this study are still active so the association between protection and failed alliances may not have been detectable. This limitation of studies of this nature has also been acknowledged by Lyles and Salk (1996).

Tacit knowledge cannot easily be communicated and shared. In most of the literature, knowledge tacitness is identified as a source of ambiguity that significantly influences the speed of transfer outcomes (Simonin 2004). However, the final results of this study show that the link between tacitness and knowledge acquisition is, surprising, positive and sig-

nificant. When firms enter into close partnerships, it is easier for the partners to observe and transfer tacit knowledge (Inkpen and Dinur 1998). Furthermore, the firm may make greater investments to acquire tacit knowledge from alliances because such knowledge is more likely to form the basis of a firm's competitive advantage. Tacit learning frequently involves close interaction and the active involvement of the knowledge givers.

The Role of Knowledge Mobility

Organizational learning is a complex issue. Although some knowledge acquired externally can be acted on immediately, it is more likely that it will have to be adapted and disseminated internally before it can be applied to commercial ends (Bierly III et al. 2009). Following these ideas, this research proposes a framework of knowledge mobility comprising two processes: The acquisition process via external channels and the utilization process through knowledge exchange between units of the same organization. Inter- and intrafirm learning can serve as important strategic resources that managers can purposefully design and develop over time to achieve better learning outcomes (Liu et al. 2010; Walter et al. 2007). With the growth in the outsourcing of innovation activities and the shift towards a demand-driven global supply chain, local suppliers in EMs are gradually advancing their capabilities to fulfill the requirements from their demanding global buyers (Jean et al. 2010b).

Managerial Implications

An interesting finding of this research is that knowledge protection is only marginally negatively associated with knowledge acquisition. However, this unexpected result is consistent with the extant research on the dual effects of protection on knowledge acquisition. While knowledge protection may prevent knowledge loss, the limitations placed on sharing and interaction may also reduce the opportunities for alliance learning (Norman 2004). In contrast to the partner opportunism proposed in the transaction cost literature, recent alliance research has highlighted the importance of inter-personal relationships and trust in alliances (Gulati 1995). As far as managerial practice is concerned, the firm should develop relational capital to trigger a close interaction with its alliance partners and thus reduce the negative influences of knowledge protection.

In most of the ISA literature, tacitness is found to potentially cause knowledge ambiguity and impede knowledge transfer (Simonin 2004). However, the results presented here reveal that tacit knowledge is positively associated with knowledge acquisition. The findings of Dhanaraj et al. (2004) also reflect this perspective. Their survey of international joint ventures (IJVs) confirms that tacit knowledge from the foreign parent has a positive impact on explicit knowledge transfer in IJVs. Local firms in EMs usually lack the knowledge necessary to compete in global markets but seek opportunities to learn from their foreign partners (Lane et al. 2001; Tsang 2002). Managers should recognize the importance of exchanging tacit knowledge and build up a close relationship between the teacher and the student to stimulate active involvement.

Limitations and Suggestions for Future Research

Notwithstanding the contributions of this paper have been described in the previous section, the limitations of this study are also well recognized. The findings might only be valid within the narrowly-defined context of ISA partnerships between suppliers and buyers in the electronics and IT industry. Another potential problem is the one-sided survey that depends on local suppliers' perceptions. This research would benefit from the addition of balancing views from the MNC buyers. This study also has limitations due to the cross-sectional data. It is important to understand the evolutionary role of collaboration. Future research could combine in-depth case studies and longitudinal research to explore the dynamic nature of the process of alliance learning.

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