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# Are Social Ties Always Valuable to Knowledge Search? Contextualizing Knowledge Search by Foreign Subsidiary Executives in an Emerging Economy

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**Abstract** The extant research of cross-border knowledge acquisition by multinational enterprises often assumes away the role of local contexts within which knowledge acquisition occurs. To extend this line of research, this study contextualizes the knowledge search by foreign subsidiary executives to examine the contingency value of social ties. The results based on the multilevel analyses of both micro (433 dyad ties) and macro effects of the regional knowledge environment (26 provinces) provide support for the hypotheses that, though close social ties facilitated knowledge search as predicted by social capital theory, the utility value of social ties for knowledge search tends to be attenuated in the regions with high level of social capital and FDI density.

**Keywords** Social ties · Knowledge acquisition · Regional knowledge environment

## 1 Introduction

Conceiving of multinational enterprises (MNE) as a learning network (Bartlett and Ghoshal 1987; Ghohsal and Barlett 1991) and as superior arrangements of knowledge creation and transfer (Kogut and Zander 1992), international business scholars have paid increasing attention to the examination of the determinants of MNEs' knowledge transfer and acquisition (e.g., Gupta and Govindarajan 1991; Zander and Kogut 1995; Makino and Delios 1996; Inkpen and Dinur 1998; Shenkar and Li 1999; Gupta and Govindarajan 2000; Schulz 2001, 2003; Koka and Prescott 2002; Dhanaraj et al. 2004; Bjorkman et al. 2004; Mudambi and Navarra 2004; Cummings 2004; Lyles and Salk 2006). While these studies have examined various

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inter- and intra-firm, as well as team- level determinants, one area in this line of research remains underexplored enough to warrant further investigation. The prevalent studies of the determinants of knowledge acquisition typically *assumed away* the influences of the subnational context in the host markets. So far, little research attention has been paid to whether *within-country* regional variations (i.e., the subnational contexts) affect knowledge acquisition by MNEs in a host country.

Moreover, research of social ties on knowledge transfer has divergent views about the relative value of weak and strong ties, and the empirical findings are mixed. Some take the "bonding view", arguing that strong-ties, in the form of frequent and close interactions among individuals, lower information asymmetry and facilitate resource exchanges and the transfer of tacit knowledge (Uzzi 1997). Coleman (1988, 1990) argues that close and cohesive social ties yield higher levels of information sharing and the exchange of tacit knowledge. Supporting this reasoning, empirical studies show that strong and close relationships positively influence the information and knowledge exchange (Weiss 1998) because the frequent and close interactions help to lower information asymmetries through fine-grained knowledge transfer (Uzzi 1997). By contrast, other research from the structural hole perspective offers a "bridging view," arguing weak ties create brokerage opportunities (Burt 1992, 1997; Granovetter 1973) that facilitate knowledge flow, while strong ties create redundancy in information. Some empirical findings also lend support for this theory, for example, a study by Hansen (1999) shows that weak ties are effective in knowledge transfer. In the context of MNEs, a recent study of knowledge search reports that brokered access to local business networks positively impacted the acquisition of both explicit and tacit knowledge (Li et al. 2010). Moreover, research also shows that there exists an inverted U-shaped relationship between tie strength and knowledge sharing (McFadyen and Cannella 2004).

These deficiencies and the mixed findings in the literature are significant for two reasons. First, knowledge acquisition either by individuals or organizations is nested within specific local contexts that can affect the occurrence and the meaning of behaviors and information (Johns 2006). While cross-country comparisons provide the basis for developing country-level knowledge that can aid market selection and entry decisions, treating a country as a single homogeneous environment masks the regional heterogeneity that can affect the management and operations of MNE subsidiaries. Even recent cross-country comparison research suggests that subnational institutions are the most relevant institutional settings when studying foreign subsidiaries (Chan et al. 2010). In the same vein, many scholars argue that research involving geographically large countries, like China, India, and Russia, requires a subnational perspective (Wright et al. 2005). The emergent empirical literature on subnational institutions shows that the different institutional environments give rise to distinct relationship between social capital in the form of trust and governance formalization (Rus and Iglič 2005) and influence the nature and pace of entrepreneurial development (Welter and Smallbone 2011). Recent research found that the sub-national institutional environment not only affects the performance outcome of foreign subsidiaries (Chan et al. 2010; Ma et al. 2013), but also exerts a contingency effect on the attractiveness of different network attributes (Shi et al.

2012). Nonetheless, as a recent review of network research in the area of IB critiques (Chabowski et al. 2010), the role of subnational institutional differences has been largely ignored. Second, the social capital literature has long been questioned. Nahapiet and Ghoshal (1998) claimed that the benefit of social capital is not universal (p. 245). Maurer and Ebers (2006) called for further research that "explores the contingencies under which social capital becomes an asset or a liability" (p. 290).

Our study fills this gap by empirically addressing the following question: does the value of external ties in the knowledge search still hold in different subnational environments? The external social ties in this study refer to the non-work related relationship between an executive with an individual outside the executive's organization. We characterize subnational environment using two dimensions: institutions (formal, intermediate institutions and informal, regional social capital) and agglomeration (density of foreign direct investment). Specifically, extending from the perspectives of economic geography, we conceive these two subnational dimensions as constituting the key components of a "learning region" that provides the knowledge environment and infrastructure that facilitates the knowledge flow (Florida 1995; Capellow and Faggian 2005; Hauser et al. 2007).[1] We focus on the search for institutional knowledge that encompasses a wide range of knowledge areas such as managerial expertise, host market knowledge and practices, and the host country macro-environment (Luo 1999). Specifically, following this notion, institutional knowledge in this study is defined as the "experiential knowledge of government, institutional framework, rules, norms and values" in this study (Eriksson et al. 1997, p. 343). In a broad sense, it not only refers to explicit rules and laws, but also to more complex cultural and business practices (North 1990) and social institutions (Fligstein 1996). We focus on institutional knowledge because lacking institutional knowledge is costly for MNEs (Eriksson et al. 1997). Particularly in emerging economies, this lack of understanding how formal and informal institutions function can create problems for foreign subsidiaries to formulate and implement appropriate strategic responses (Wright et al. 2005).

We posit that the local context within a large emerging economy can vary significantly across subnational regions along these two dimensions. We argue that, although the external ties (defined as the non-work related social relations an executive has developed outside of his/her organization and outside of the geographic region where the executive lives in the host country) represent useful conduits for acquiring knowledge, the value of the social ties may vary due to the heterogeneous regional knowledge environment. We conceptualize and empirically validate how the munificent regional environment, characterized by the regional-level of social capital embedded in the collective value of trusting relationships (Coleman 1988; Porter 1998; Lin 2001), develops intermediate institutions and how a high density of foreign direct investment (FDI) dampens the utility value of social

[1] Technology cluster is different from learning region. Learning region is a broader context primarily referring to a geographic area endowed with knowledge-facilitative social and economic institutions. In this sense, technology cluster can be a subset of the learning region.

ties in the knowledge search by subsidiary executives.[2] To statistically examine the propositions, we draw on the concept of the "learning region" from the perspectives of economic geographic literature to develop hypotheses on the influences of the regional knowledge environment on the tie-search relationship and test it in a multi-level model (Fig. 1), controlling for subsidiary-specific characteristics.

Contextualization—identifying how context enhances or modifies the understanding of a common phenomenon across contexts—is at the core of detecting novel questions and developing interesting theories (Tsui 2007). The primary contribution of this study is that we conceptualize the subnational environment as a munificent knowledge context and theoretically delineate how it influences the relationship between foreign executives' ties and their search for knowledge in a host market. Given that the substantiation of theoretical discourse on regional context continues to be largely unexplored, our study advances the existing knowledge acquisition research by incorporating the moderating role of the regional knowledge environment. By defining clear boundary conditions within a host market, our study echoes the recent call that "international business scholars analyzing organizational learning should incorporate contextual variations in future research designs" (Meyer 2007, p. 28). Specifically, uncovering the precise nature of knowledge search variations across the regions, rather than studying knowledge acquisition in isolation of the regional context, adds significant explanatory power to the current inquiry of knowledge acquisition by theorizing the interplay of social ties and regional idiosyncrasies without neglecting the powerful influences of social capital. Thus, our findings offer novel insights to MNEs' knowledge acquisition research. As Burt (1997) put it: "Understanding the contingency value of social capital is a useful addition in its own right to organization theory" (p. 357).

Moreover, unlike the extant studies of MNEs' knowledge acquisition and sharing that have paid insufficient attention to micro (individual) level constructs while being preoccupied with macro (organizational level) factors (Felin and Hesterly 2007; Foss et al. 2010), our study complements the knowledge search at the individual executive level and tests this regionally nested relationship using the hierarchical linear model. As such, our analysis not only enriches our knowledge of the micro-foundation of organizational learning in MNEs, but also expands the current research by building a *micro–macro* explanation of knowledge acquisition to provide a fuller and fresher insight to the understanding of this important phenomenon.

[2] In our survey based on the random sample, we do not exclude respondents who are Chinese by ethnicity for the reasons: (1) we target respondents who are executives representing foreign subsidiaries even though some of them happen to be Chinese by ethnicity. (2) Among these executives of Chinese ethnicity, there may be a mix of different types such as some are descendants of Chinese but were born and grew up in another country (e.g., US, UK etc.), some are Chinese but studied and lived in a foreign country and are expatriated on job assignments in China, some could be a "third-country national" in international human resource term, who are Chinese ethnicity hired by a MNE to manage the operation in China (e.g., a Singaporean works for GE in China).

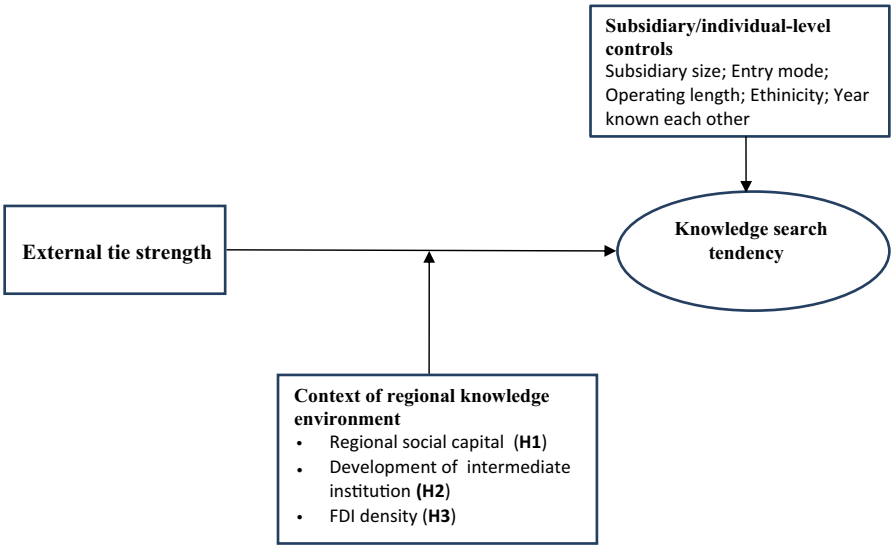


**Fig. 1** Multilevel model of knowledge search tendency

## 2 Theory and Hypotheses

### 2.1 Social Ties and Knowledge Search Tendency

The underlying logic for the proposed link between external ties and knowledge search is derived from social capital theory, which predicts the positive relationship between social networks and the knowledge search (Nebus 2006). The primary thesis of this theory posits that interpersonal ties accrued to an individual or a group through mutual acquaintance and recognition (Bourdieu and Wacquant 1992) provide channels for accessing and sharing valuable information and resources (Burt 1992; Tsai and Ghoshal 1998). Though the social relationships of individuals can be described in a number of ways, the concept of tie strength is central and basic to social capital theory (Granovetter 1973). Ties can be conceived as a spectrum with weak relationships at one end and strong relationships at the other, all of which depend on the amount of interaction and emotional intensity of the relationship (Granovetter 1973). Existing research shows that individual external social ties grant firms access to valuable knowledge bases (Ibarra et al. 2005), impact the transfer of knowledge within organizations (Krackhardt and Hansen 1993), and influence the sharing of fine-grained information through relational embeddedness (Gulati 1998; Hansen 1999; Koka and Prescott 2002).

However, as discussed in the proceeding section, the extant studies provided inconsistent findings that imply these social effects are contingent on other factors. To extend this line of research, this study instead seeks to examine the contingency value of social capital (Burt 1997). Specifically, we focus on subnational environments as contextual conditions influencing the relationship between external

ties and knowledge search. The base-line expectation for our contingency explanations, consistent with the basic tenets of social capital theory, is that when working in the foreign subsidiary, executives as boundary spanners (Schulz 2001) cultivate and build social contacts outside their subsidiaries for a purpose. The external ties serve as useful sources that can add to executives' knowledge stock and constitute the informal advice network from which executives seek information to resolve encountered problems (Nebus 2006). For managers operating within a foreign market context, external ties are instrumental in the knowledge search, particularly under circumstances where the regional knowledge environment is poor. Strong external social ties become effective when local institutional knowledge is ambiguous and harder to access. The diverse cultural and institutional environments of foreign markets, particularly of emerging economies, manifest high levels of uncertainty. To the extent that this study is set in China, which is undergoing fast market and institutional changes constituting a complex and ambiguous business environment (Child and Tse 2001), one effective way of searching for institutional knowledge is through informal interactive learning activities among individuals rather than through formal systems and structures (Schon 1983). Socialization can involve the conscious or unconscious acquisition of culturally embedded knowledge (Lyles and Salk 2006). The study by Luo (2001) also suggests that social ties in the form of personal attachment reduce ambiguity in information and knowledge sharing. However, since the subnational knowledge environments are different, a question that remains unanswered is: when the knowledge environment is heterogeneous across the regions within which executives are embedded, do external ties still have equal value in searching for the needed knowledge? Our contention is that the value of external ties is likely to vary depending on the knowledge environment across the regions and likely to decline in regions exhibiting a better developed knowledge environment. The following section delineates the reasoning of this thesis. When do external ties lose their value? The role of the regional knowledge environment.

The above delineation assumes that possessing external ties facilitates the knowledge search when everything else is equal. However, our point is that other things are not equal, as the search is activated within a broader context. We argue that this decontextualized approach is incomplete, resulting in a limited understanding of the complex ways in which contextual factors influence the role of social ties in knowledge acquisition. The context perspectives (Johns 2006) state that the context that typically exists at a unit of analysis above the phenomena being investigated (Mowday and Sutton 1993) can explain some salient aspects of the phenomena (Cappelli and Sherer 1991). There is a need to further explore the importance of context influencing the knowledge gap due to different contexts (Petersen et al. 2008). Relevant to our study, economic geography research conceptualizes a "learning region" as having strong social and institutional endowments that exhibit the continuous creation and diffusion of new knowledge and high rates of innovation (Florida 1995; Morgan 1997).

Following this perspective, we suggest that subnational regions vary with different levels of information and knowledge resources that can affect the utility value of social ties in the knowledge search. Some regions may offer more abundant

resources—known as munificence (Dess and Beard 1984)—than others. The different knowledge environments across regions within a host country represent the context within which the knowledge search occurs. Thus, the varying regional knowledge environments can either constrain or foster the value of social ties as a mechanism for knowledge search. In a broad sense, we conjecture that a munificent knowledge region, abundant in its variety of information and knowledge sources, diminishes the necessity of social ties as a conduit for knowledge search. Three distinct institutions that participate and support knowledge-building activities are directly relevant to our study: the endowment of regional social capital, the development of intermediate institutions, and the density of foreign invested firms. How each of them moderates the tie-search relationship is delineated below.

### 2.2 The Regional Social Capital

The level of regional social capital is the aggregate of its social resources. Like other factor resources (e.g., human, natural materials, etc.), regions within a country possess heterogeneous endowments in social capital resources that exert different impacts within a region. For example, prior evidence showed that rich regional social capital increased the well-being of regions or societies (Bourdieu 1986; Coleman 1990) and facilitated firm innovation (Laursen et al. 2012a). Putnam (1993) and Helliwell and Putnam (1995) showed that there was a positive link between regional social capital and higher levels of regional government performance and economic development in Italy. However, studying the effects of regional social capital at home on firms' foreign market involvement, Laursen et al. (2012b) found that excessively high levels of social capital in a region can trap firms within the local areas and hinder the market search process. As suggested by these previous studies, regions across China also have heterogeneous social capital resources. For example, a study by Ke and Zhang (2003) showed that the cross-regional social capital, measured by trust, had strong effects on the uneven economic development in China. In this study, we propose that a region endowed with rich social capital reflects a munificent knowledge environment that provides a context encouraging communication and trust. However, we content that regional social capital decreases the value of external ties by creating three substitution effects. The first is the broadened opportunity. In regions endowed with rich social capital, there are more opportunities for developing trust-based social relationships that make the knowledge search relatively easy. As suggested in the previous literature, trust makes communication easy and is a critical driver for knowledge transfer (Zaheer et al. 1998; Inkpen and Tsang 2005). Thus, the broadened opportunity in these regions possibly dilutes the value of external ties by shifting executives from distant external ties to local ties. The second effect is prompt access to social capital because of geographic closeness. As Hauser et al. (2007) asserted, "Physical proximity is the necessary prerequisite for continuous and meaningful social interaction". Individuals who inhabit the same regions with high social capital are likely to have prompt access to nearby sources of knowledge and information, hence reducing the need to turn to external ties. Third, in a region with relatively scarce social capital, social capital becomes valuable as a mechanism in

the knowledge search. Although rich social capital in a region may make it easy for external ties to be developed, the profuse presence of social capital in a region does not necessarily add benefits to already-established social ties. This is because the abundant information and knowledge are transmitted by and diffused through the rich regional social network. Conversely, in a region with low social capital, social ties become valuable to obtain and utilize for knowledge search purposes simply because the development of social ties is constrained by the small resource pool that executives have to rely on as informal sources of information and knowledge. Thus, regions with high levels of social capital resources, and therefore an abundant knowledge and information stock, make executives' existing social ties comparatively less valuable than they would be in a region with scarce social capital.

Taken together, we predict that regions with high social capital can reduce their sensitivity and need for a focal executive embedded in that region to search for institutional knowledge from his/her distant dyadic counterpart. As Geltkanycz and Hambrick (1997) asserted, external ties that cohabit the same environment are likely to provide little information that is new and different from the actor's own knowledge base.

*Hypothesis 1: The effect of the external social tie strength on knowledge search is likely to be weakened in a region endowed with a high level of social capital in emerging economies.*

### 2.3 The Regional Intermediate Institution Development

Aside from the influences of the regional social capital on the tie-search relationship, we also predict that this relationship is also subject to the level of intermediate institutional development in the local region. Intermediate institutions are professional organizations such as law, accounting, and consulting firms providing nonresident knowledge-intensive services (Sharma 1997). While intermediate institutions play a crucial role in developed market economies, emerging economies characterized by institutional void generally have an underdeveloped intermediate institutional environment (Khanna and Palepu 2006; Zhang and Li 2010). In China's transition context, intermediate institutions are unevenly developed across the regions. Given this uneven development of institutions, the variance in the development of intermediate institutions potentially implies different effects on the tie-search relationship for two reasons. First, while the deficiency of market-supporting intermediate institutions creates reliance on non-market sources for needed knowledge (Boisot and Child 1996; Peng 2003), a more institutionally developed region has abundant intermediate institutions that act as network intermediaries for interaction and information exchange (McEvily and Zaheer 1999, p. 1134). Their presence offers more and diverse sources of information and can reduce the subsidiary executives' reliance on informal social contacts in searching institutional knowledge. Second, when intermediate institutions are relatively well-developed, market forces tend to prevail, which creates a less ambiguous institutional environment as compared to those less institutionally developed regions. As early studies suggest, intermediate institutions in developing economies

offer objective information, credibly communicate information (Li et al. 2012), and facilitate the diffusion of information (Gulati 1998; Uzzi 1996; Wolpert 2002). As such, the presence of intermediate institutions epitomizes the munificence of information, thus reducing the need for the use of personal ties to search for institutional knowledge.

Taken together, we argue that the intermediate institutions that sit at the intersection of firms, industries, and government agencies serve as a part of knowledge network and enrich the general knowledge environment in a region. Therefore, the availability of intermediate institutions is likely to weaken the utility value of interpersonal social ties in the knowledge search.

*Hypothesis 2: The external social tie and knowledge search relationship is likely to be weakened in a region with a high level of intermediate institutional development in emerging economies.*

### 2.4 Regional Density of Foreign Direct Investment (FDI Density)

The density of foreign investment broadly reflects an aggregation of competing and complementary firms that are located in relatively close geographical proximity (Birkinshaw and Hood 2000). The literature of economic geography suggests two interrelated characteristics of the local density of firms: learning and spillover. This geographic cluster is found to "provide firms with an arsenal of instruments to obtain and understand even the most subtle, elusive and complex information." (Maskell 2001). The potential for firms to internalize cross-boundary spillovers tends to be high within certain geographic proximity (Saxenian 2000; Powell et al. 1996). Porter (1998) and Porter and Stern (2001), for example, propose that geographically localized firms enhance the frequency and impact of interactions, hence knowledge spillover. These types of location networks can be especially useful in providing ideas about both the need and opportunity for innovation.

Extending these perspectives to FDI density, we argue that a high FDI density region can attenuate the value of using external ties in search of knowledge for two reasons. First, when a large number of foreign firms are located in the same region, the opportunity to learn, imitate, and tap into the local knowledge pool is high. Thus, the chance to use personal social ties to search knowledge and information is reduced because the formal or informal interactions among firms in a region facilitate the exchange of ideas. For example, early studies show that the geographically localized knowledge flow is attributed to the formal relational links, such as alliances and supply relationships between firms in the region (Saxenian 1990) and to informal links such as regional social networks and the mobility of engineers (Almeida and Kogut 1999). Geographic proximity increases the likelihood that a focal firm will draw upon the knowledge stock of another firm located in the same area (Rosenkopf and Almeida 2003). This is particularly relevant since the focal subsidiaries of executives spatially close to other foreign subsidiaries share common conditions, communal social life (i.e., norms, values and conventions), and perceived opportunities and threats, all of which allow and facilitate vicarious learning (Huber 1991). For example, geographically co-located FDIs create opportunities for individual executives to develop local ties through

participation in various local business associations and seminars where peer MNEs can share information like the best practices, knowledge of business operations, and coping with institutional changes. As such, FDIs exposed to similar regional environments with peer foreign subsidiaries co-located in the same region fosters the learning of institutional knowledge consciously or unconsciously via formal and informal connections in geographic proximity.

Second, external ties plausibly lose the value because tapping into geographically close sources of information and knowledge is fast and less costly. Previous literature shows that the social and professional networks within geographic boundaries (Saxenian 1994) enhance the development of complex networks (Almeida and Kogut 1999) by reducing the cost and increasing the frequency of personal contacts (Zucker and Darby 1998).

Third, because firms located in geographic proximity often find bridging communication gaps easier (Eliasson 1996), the knowledge gap of the executives in the region is likely to be filled by the spillover in the vicinity of other peer foreign subsidiaries. Therefore, in a region with greater opportunities to tap into the knowledge pool and to benefit from the regional knowledge spillover, the value of external ties as a channel to seek knowledge is likely to be decreased because of the broadened the alternative sources of knowledge.

*Hypothesis 3*: *The external social tie and knowledge search relationship is likely to be weakened in a region with a high density of FDI in emerging economies.*

## 3 Methodology

### 3.1 Data

The data used in this study were collected in the fall of 2008. We chose the setting of China because of the fast changing nature of the institutional environment (Peng 2000, 2003; Child and Tse 2001) and also because of the high-context culture that often contains ambiguous information requiring individual executives to be innovative in developing ways to seek and comprehend the implicit information and cues embedded in this environment. The data were collected from three sources: (1) a mail survey of subsidiary executives (called principal respondents) to identify their social contacts and knowledge search tendencies, (2) an independent survey of the external social contacts identified by the principal respondents to tap tie strength, and (3) archival data for intermediate institutions created by the China National Economic Research Institute (NERI), the regional social capital study by Zhang and Ke (2002), and the FDI density index from the *China Statistical Yearbook* compiled by the State Statistical Bureau. Each of these data is delineated in the following section.

*Data from Principal Respondents* The data used to construct the dependent variable (search tendency) and the independent variable (tie strength) were collected by a mail survey. To collect data on knowledge search tendencies, we used the State Statistical Bureau (SSB) database as our sampling frame to identify the principal respondents.

This SSB database contains the basic information of 1,423 foreign invested firms, including the names of general managers (GM) or CEOs, the location, number of employees, and registered foreign capital. The SSB database was created in 2004 based on a stratified national sampling of foreign invested firms (FIEs) with 25 % of foreign equity and annual sales of at least 5 million Chinese Yuan. We randomly selected 500 from this database and send our survey questionnaires to the executives carrying the titles of general manager or CEO (we call them principal respondents). This comprises the respondents of our first survey. We send surveys to these respondents to tap information: (a) knowledge search (Appendix 1. B) and (b) external ties (Appendix 1. A), and (c) tie strength questions (Appendix 2).

Following the key informant approach (Kumar et al. 1993), we selected senior executives (called principal respondents) because these individuals embedded in the corporate network are the key knowledge brokers (Snow and Thomas 1993), playing pivotal roles in detecting new ideas and in mobilizing resources around these new ideas (Kanter 1982). Their close links with markets and customers afford them the knowledge of what business environment issues need attention (Floyd and Wooldridge 1994). We mailed the questionnaires to the principal respondents with a cover letter explaining the purpose of the research, guaranteeing the confidentiality of the collected information. To dispel the hesitation to provide their social contacts in the Chinese context, our letter emphasized the confidentiality and the nature of pure academic use of the collected information. To generate the list of social contacts used in the second questionnaire, we provided principal respondents a "contact recall" grid item (Appendix 1. A) (Burt 2002). The "contact recall" method has been found to be reliable (Marsden 1990) in facilitating an individual's recall of patterns of interaction, assisting respondents to recall individuals, and helping them explicitly focus their attention on their social connections. To delimit the contact boundaries and define social ties (Marsden 1990), we followed Converse and Presser (1986) to bind "contact recall" in wording the questionnaire in order to enhance the validity of reporting the past events. Each principal respondent was asked to respond to the following name-generator question: (1) "Think of people with whom you are acquainted with through non-work related interactions *OUTSIDE* your subsidiary and in other provinces and who have acted as a critical source of knowledge and advice for your work during the past year or two." Then respondents were asked to name up to five external social contacts as typically used by social network studies (Reagans and McEvily 2003). For the purpose of constructing a dyad-matched tie-strength measure, we also asked the principal respondents to assess their relationships with the identified social contacts (i.e., use the same two-item questions in Appendix 2 to fill in the column 4 of the grid).

A total of 196 responses (39 %) were returned. Given the high rank of the respondents, this is an acceptable response rate as suggested by previous studies (Hambrick et al. 1993). Of these 196 responses, 18 cannot be used because of severe missing information and another 29 were excluded because the respondents did not state clearly whether they represented foreign investors. This left us a usable sample of 149 responses located in 26 provinces. From the usable sample, 14 % are presidents or general managers of their firms, and 86 % are vice presidents or

deputy general managers. To examine the possible existence of sample bias, we conducted two *t-tests* between the used and no-response samples and between the GM and VP samples in terms of the registered foreign capital and number of employees. We found no significant difference in both cases.

*Data from Identified Social Contact* After we collected the contact information of external tie identified by the principal respondents, we, in a separate survey, sent to the identified contacts the same external tie strength questions (Appendix 2). This comprises our second survey. In this survey we used two items to tap the potential strength of ties (Appendix 2). Since our baseline model (level 1) is to examine the effects of tie strength on knowledge search tendency and not to capture the entire social network structure of an executive, we focused on egocentric networks of individual executives (an individual's unique set of social contacts) (Marsden 1990). This method is useful for understanding how a person's unique set of social contacts relates to variables such as perception, preference, and attitudes at the individual level of analysis (Walker et al. 1993). Although using perceived tie strength as a factor is not without limitations, previous studies suggest that people's perception of their networks is more critical than what the networks actually are (Krackhardt 1996). Krackhardt (1987, p. 128) argues that "perceptions are real in their consequences, even if they do not map one-to-one onto observed behaviors." Therefore, we believe that the previous studies provide ample justification for the appropriateness and reliability of using perceived tie strength. Because our survey of social contacts was through phone calls and fax, we obtained a high response rate of 58 % (a total of 433 responses on social tie strength out of a possible maximum of 745 (149 principal respondents x maximum of 5 contacts on the contact recall list). To examine the potential selection bias stemming from the non-response group, we run several t-tests between the non-responses (those external ties who did not respond, a total of 312) and the responses used in the study (a total of 433). The t-tests were performed on these two groups along two individual level variables (principal respondents' evaluated tie strength and the years known each other) and three key research variables. The test (2-tailed) results showed no significant differences between the respondents included in the study and those non-respondents (principal respondents' evaluated ties: $p = 0.206$, $F = 1.845$; years known each other $p = 0.182$, $F = 1.045$; regional social capital: $p = 0.543$, $F = 0.270$; FDI density: $p = 0.764$, $F = 0.104$; Intermediate institutions: $p = 0.433$, $F = 0.549$).

*Development of Survey Instrument* As mentioned above, we used a mail survey as the instrument for data collection. As suggested by Hoskisson et al. (2000), we collaborated with the faculty at the business school of a prestigious university in Shanghai and had the survey administered by the school using their letterhead. To mitigate potential measurement errors and to examine the content validity of the scale, the questionnaire was developed through an iterative process of drafting, pretest, and redrafting as suggested by DeVellis (1991). After the first draft, a pretest was conducted by two doctoral students through field interviews of six subsidiary executives for the purpose of detecting weakness, clarifying ambiguity, and improving the quality of the final version of the questionnaire (Cooper and

Schindler 1998). The feedback from this pretest was then incorporated into the redrafting of the final questionnaire. The final questionnaire was bilingual and printed double-sided and reverse-translated by two scholars in international management.

*Archival Data* As explained in following variable measure section, we used three archival data to indicate the level of regional social capital, the level of intermediate institution development, and the density of FDI. Although these data are not without limitations, they are large, representative, and diverse in terms of region. We concur with Chow (1993, p. 810) that the data collected through official sources in China are by and large representative, internally consistent, and accurate for solid empirical research.

### 3.2 Variable Measures

*Search Tendency* (*Search Dependent Variable*) To capture the knowledge search tendency, we adapted the items used in the previous studies by Eriksson et al. (1997). We asked the principal respondents to indicate on a 5-point scale on how likely (1 = least likely and 5 = highly likely) they would be to turn to the identified social contacts to seek their interpretation, insights, advice, and opinions about (1) regulatory changes, (2) building government relations, (3) social and cultural cues encountered, and (4) the general trend of the economy. Based on Cronbach's alpha result for these four items (alpha = 0.86), we averaged them to form a composite measure of search tendency.

*External Tie Strength* (*TIES*)[3] The external tie strength is measured by two question items (Appendix 2) and it is the same individual-based measure of dyad (principal respondent-social contact) responses evaluated independently by the principal respondents and their identified social contacts. Rather than using a single question typically employed by network research (Ibarra 1992, 1995), we constructed the strength of external social ties from measures adapted from the instrument used by Hansen (1999) to capture two key facets of tie strength: frequency and closeness (Marsden and Campbell 1984). Previous studies of social network measures found that network-related questions were highly reliable when eliciting these patterns of interaction (Freeman et al. 1987), and that the respondents were fairly accurate in reporting interaction frequencies (Kashy and Kenny 1990). Following the previous studies (Podolny and Baron 1997), we used the one-page questionnaire (with the principal respondents' names on it) to ask social contacts to

[3] While social capital can be measured in many ways, the review of social capital research by Nahapiet and Ghoshal (1998) conceptualizes social capital consists of structural (the proper-ties of the social system and of the network of relations as a whole), the relational (the kind of personal relation-ships people have developed with each other through a history of interactions, and the cognitive (shared representations, interpretations, and systems of meaning among parties dimensions. The extant studies have used variety of ways to measure the relational dimension of social capital at various levels. Just to name a few, for example, Ellis (2000) studied the impact of personal relationships established through business interactions market entry and export initiation. Zhao and Hsu (2007) examined the effects of family-based personal ties on resource commitment and timing of entry. At the national level, Knack and Keefer (1997) measured the "associative aspect" of social capital based on nine items from World Value Survey (WVS).

evaluate two questions on a 7-point scale: (1) "How frequently do you communicate with him/her?" (through email, phone, informal visit, etc.) (0 = once every 3 month; 1 = once every 2 months; 2 = once a month; 3 = twice a month; 4 = once a week; 5 = twice a week; 6 = once a day), and (2) "How close is your relationship with him/her? (0 = far distant; 1 = distant 2 = distantly close; 3 = somewhat close; 4 = close; 5 = very close; 6 = intimately close). These responses (a total of 433 social contacts) were then matched with responses from their respective principal respondents. Since the average measure of the intra-rater correlation between social contacts' and principal respondents' scores is 0.871 ($F = 7.70$, $p < 0.000$), we averaged these dyad responses to form a single measure of external tie strength.

*Regional Social Capital* (*RSC*) The regional social capital data were collected from a study by Zhang and Ke (2002). Zhang and Ke constructed the provincial-level social capital score using information from a national survey conducted by Chinese Enterprise Systems. In this national survey, a total of 15,000 questionnaires were sent to managers located in every province in mainland China and the information was compiled based on 5,000 useable responses. The questionnaire asked respondents to assess the level of provincial trustworthiness: "According to your experience, could you list in order the top five provinces where the enterprises are most trustworthy?" The social capital score of a province is the average trustworthiness ranking given by the managers. Based on a score of 1–5, the number one ranking is assigned the highest score of five and the lowest ranking assigned 1. For example, 22.7 % ranked Shanghai as the top one, 16.5 % as second, and 8.7, 4.8 and 3.7 % as third, fourth, and fifth, respectively. The social capital score for Shanghai is then $2.19 = \{5 \times 22.7\ \% + 4 \times 16.5\ \% + 3 \times 8.7\ \% + 2 \times 4.8\ \% + 1 \times 3.7\ \%\}$. Thus, the higher score represents rich social capital in a given region.

Trustworthiness is one of the facets of relational dimension of social capital (Fukuyama 1995) since it reflects a key attribute of individuals involved in the social relationship (Barney and Hansen 1994). Trustworthiness indicates the confidence between and among individuals who will not exploit vulnerability of each other (Barney and Hansen 1994) such as opportunistic behavior (Zaheer et al. 1998), it facilitates the reciprocity and exchange of information. Previous studies show that search of knowledge is based on social ties involving trust and reciprocity (Dacin et al. 1999). To the extent that trust is an antecedent of cooperation (e.g., Gulati 1995; Ring and Van de Ven 1994) and resource exchange (Tsai and Ghoshal 1998), we expect that a region with high level of social capital in the form of trustworthiness offers easiness and readiness in exchange information and knowledge, diluting the value of external ties.

*The Regional Intermediate Institution Development* (*RII*) The data is from the marketization indices developed by the *China National Economic Research Institute* (NERI) that monitors, gathers, and analyzes the economic activities and reforms in China. The indices were created to capture the progress of China's economic and institutional transition on a yearly basis across 30 provinces (excluding Tibet, due to data unavailability) and they have been used extensively in previous economics and finance studies (Li et al. 2007; Lu et al. 2009). We chose

the 2006 data, three years prior to our survey data, from the NERI marketization data to account for the time effect of institutional change. We used two items from the index: share of lawyers in the total population and share of accountants in the total population. As there is a high inter-correlation between them (Cronbach *alpha* = 0.811), we averaged them to form a single measure of intermediate institution. The value ranges from 0.18 to 10.91 for provinces in our dataset; the larger the value the more developed the intermediate institutions in a region. We assigned this index value to each subsidiary according to in which of the 26 provinces in the sample they are located.

*Regional Density of FDI* (*FDI Density*) Since FDI density refers to the aggregation of FDI in a region, we collected the number of FDI at provincial level from the *China Statistical Yearbook*. Following Miller and Eden (2006), we measured the FDI density by the natural log of the number of FDIs in a province.

*Control Variables* We control a number of variables at individual level to rule out a potential rival hypothesis. At the individual level (level 1), we included the number of years an executive and a social contact had known each other (*Year*) and the ethnicity of principal respondents (1 = ethnic Chinese, 0 otherwise) because ethnic Chinese, due to their natural heritage of Chinese language, culture, and tradition, may likely be in a better position to understand and decode the implicit knowledge and information, hence a lower reliance on external social ties for their knowledge search. Though subsidiary-specifics are not our focus of research, we included three subsidiary-specifics as controls: entry mode (1 = wholly owned—WOS), the years of operating in China, and size (number of employees). These data are collected from the SSB data.

*Analytical Approach* We were interested in the variance in executives' knowledge search tendencies explained by their social ties, which is moderated by the regional knowledge environment (regional social capital, the development of regional intermediate institutions, and the local density of FDI). To account for our hypothesized bi-level relationships and the property of the data structure (433 dyad tie strength and search relationship embedded in 26 provinces/municipalities) we employed hierarchical linear modeling (HLM) (Raudenbush and Bryk 2002) using HLM6.08 software. HLM analysis not only takes into account both individual and regional- level variances simultaneously (Raudenbush and Bryk 2002; Bryk and Raudenbush 1992), it also allows us to examine "the influence of higher level on lower level outcomes while maintaining the appropriate level of analysis" (Hofmann 1997, p. 726) to avoid statistical concerns about the lack of independence when multi-level observations are included from the same higher level unit (Hofmann et al. 2000). Thus HLM allows us to examine simultaneously the significance of contextual characteristics of subsidiary and location that may influence the effects of individual tie strength on the knowledge search.

## 4 Results

The descriptive statistics of the variables in the analysis are reported in Table 1. The results of the HLM analyses are reported in Table 2. To test the hypotheses, we

**Table 1** Means, deviations, and correlations

| Variable | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Search tendency | 3.22 | 0.75 | 1 | | | | | | | | | | | | |
| 2. External tie strength | 3.28 | 1.07 | 0.182** | 1 | | | | | | | | | | | |
| 3. Years known each other | 2.64 | 1.39 | −0.173** | 0.036 | 1 | | | | | | | | | | |
| 4. Ethnicity (1 = Chinese) | 0.26 | 0.49 | −0.078 | −0.012 | −0.122* | 1 | | | | | | | | | |
| Subsidiary-level (n = 149) | | | | | | | | | | | | | | | |
| 5. Subsidiary size (# emply.) | 1,165 | 1,679 | 0.002 | 0.005 | 0.003 | 0.004 | 1 | | | | | | | | |
| 6. Entry mode (1 = wholly owned) | 0.308 | 0.464 | 0.009 | −0.114 | 0.021 | 0.002 | 0.007 | 1 | | | | | | | |
| 7. Operating length | 8.991 | 5.927 | −0.101 | −0.102 | 0.014 | 0.005 | 0.013 | 0.015 | 1 | | | | | | |
| Regional-level (n = 26 provinces) | | | | | | | | | | | | | | | |
| 8. Regional social capital (RSC) | 0.43 | 0.55 | −0.101 | −0.103 | 0.052 | 0.149 | 0.012 | 0.001 | 0.011 | 1 | | | | | |
| 9. Density of FDI (logged) | 9.55 | 1.20 | −0.107* | −0.108 | 0.021 | −0.018 | 0.203** | 0.023 | 0.101 | 0.102 | 1 | | | | |
| 10. Intermediate institution (RII) | 5.09 | 1.08 | −0.101 | 0.002 | −0.006 | −0.006 | 0.018 | −0.104* | 0.006 | 0.045 | 0.021 | 1 | | | |
| 11. TIE × RSC | −0.25 | 0.73 | −0.210** | 0.019 | −0.007 | 0.010 | −0.080 | 0.031 | −0.049 | 0.103 | 0.011 | 0.056 | 1 | | |
| 12. TIE × FDI | −0.45 | 1.15 | −0.230** | −0.005 | 0.030 | 0.011 | −0.004 | 0.030 | −0.052 | 0.102 | 0.113 | 0.101 | 0.075 | 1 | |
| 13. TIE × RII | −0.01 | 3.46 | −0.094 | 0.048 | −0.039 | −0.063 | −0.053 | −0.092 | 0.051 | 0.008 | −0.157* | 0.113 | 0.058 | 0.083 | 1 |

*** $p < 0.000$; ** $p < 0.01$; * $p < 0.05$

**Table 2** Hierarchical linear modeling results for search of institutional knowledge

| Variables | Null model 1 | Individual level predictor 2 | Subsidiary level control 3 | Province level variables 4 | Province Moderator 5 |
|---|---|---|---|---|---|
| Level 1 (individual-level effects) | | | | | |
| Intercept | 0.3.251** (0.048) | 3.279*** (0.050) | 3.301*** (0.047) | 3.241*** (0.052) | 3.263*** (0.054) |
| External tie strength (Baseline) | 0.109** (0.036) | 0.105** (0.030) | 0.108** (0.035) | 0.107** (0.031) | |
| Years known each other | | −0.090** (0.026) | −0.098** (0.030) | −0.095** (0.029) | −0.091* (0.030) |
| Ethnicity | | −0.140 (0.093) | −0.131 (0.083) | −0.138 (0.082) | −0.131 (0.086) |
| Level 2 (control for subsidiary level effects) | | | | | |
| Subsidiary size (no. of employees) | | | 0.002 (0.015) | 0.006 (0.014) | 0.004 (0.016) |
| Entry mode (1 = WOS) | | | −0.038 (0.088) | −0.035 (0.092) | −0.031 (0.095) |
| Years operating in China | | | −0.167** (0.097) | −0.156** (0.099) | −0.132** (0.101) |
| Level 3 (province-level effects) | | | | | |
| Regional social capital (SC) | | | | −0.147* (0.051) | −0.148* (0.052) |
| Intermediate institution development (II) | | | | −0.008 (0.015) | −0.007 (0.018) |
| FDI density (FDI density) | | | | −0.116* (0.041) | −0.115* (0.034) |
| Moderating effects (cross-level interactions) | | | | | |
| External tie × SC (H1) | | | | | −0.121** (0.019) |
| External tie × II (H2) | | | | | −0.015 (0.027) |
| External tie × FDI density (H3) | | | | | −0.109* (0.021) |
| *Pseudo* $R^{2a}_{between\text{-}region}$ | | 0.576 | 0.536 | 0.497 | 0.481 |
| Deviance | 987.98 | 969.75 | 952.36 | 927.42 | 911.58 |
| $\Delta\chi^2$ of Deviance change | | 18.23** | 17.39** | 24.94** | 15.84* |

Unstandardized coefficients (SE = robust standard errors). *** $p < 0.000$; ** $p < 0.01$; * $p < 0.05$

[a] Proportion of between-region variance explained by regional level predictors after level 1 and 2 variables are controlled

conducted five-step analyses. First, we tested an unconditional mode without predictors at both levels (null hypothesis) to partition the *SEARCH* tendency variance into within- and between-region components. If the null hypothesis that there is no variance in the slope parameter across the regions is retained, testing the proposed multi-level models as suggested is not necessary (De Leeuv and Kreft 1995). In the second step, we entered the explanatory variables, external *TIE*, along with the two controls: *YEAR* of knowing each other and *ETHINICITY* at level 1 (the individual level). Third, we added three subsidiary-specific variables as controls. At the fourth step, three regional moderators (the level of regional social capital, the level of intermediate institutional development, and the local density of FDI) were added. In the last step, we regressed the slope estimates of *TIE* strength obtained from level 1 on the regional-level variables to examine the hypothesized moderating effects (Hypotheses 2–4). Additionally, we reported the model fitness statistics based on deviance statistics, which equals −2 times the value of the log-likelihood function and can be used to evaluate alternative models (Raudenbush and Bryk 2002), in Table 2. Generally the smaller the deviance, the better the model fit to the data (Bryk and Raudenbush 1992). The deviance statistics show the better fit of the model as the additions of the interactive slopes in the test models contributed significantly to the explanation of variations in the knowledge search. Table 2 also reports the proportion of variances (pseudo $R^2$) in *SEARCH* explained by regional-level factors ($R^2$ between-region) using the procedures suggested by Snijders and Bosker (1999). As the results show, the model with regional variables as moderators (the interactive terms in Model 5) fits the data better than other models in comparison (deviance = 911.58). Judged by deviance statistics, the regionally moderated model (Model 5) fits better overall for explaining the variances in *SEARCH*.

*The Null Model* The results of the null hypothesis show that 56 % of variances are at level 1, indicating that a substantial amount of the *SEARCH* variation remains unexplained by the model.

On average there is significant variation among executives in their knowledge search tendencies (intercept = 3.251, $t = 67.66$, $p < 0.000$). The significant Chi square generated from the null model (Chi square = 45.31, df = 25; $p < 0.001$) shows that *SEARCH* tendency varies significantly across regions and that the null hypothesis is implausible, warranting further examination of the proposed multilevel hypotheses. Though we do not formally propose and test the effect of external ties on knowledge search, the effects of external ties confirm the that individual executives with strong external ties generally have high tendency to search institutional knowledge without accounting the effects of regional knowledge environment.

*Hypotheses Tests* (*1, 2, and 3*) Since Hypotheses 1, 2 and 3 propose the respective moderating effects of regional knowledge environment variables on the effects of external ties, on the individual-mean level 1 outcome variable (*SEARCH*) adjusted for the individual level predictors (*YEAR* and *ETHNICITY*) and the subsidiary-specific effects, we estimated the slope-as-outcomes models to test the hypotheses

as suggested by Bryk and Raudenbush (1992). Following Bryk and Raudenbush (1992) and Cohen et al. (2003), we centered regional-level moderating variables at the grand mean when including the interaction terms of external ties with these variables in the analyses. Regarding the moderating effect of the levels of regional social capital, the results (Model 5: coefficient = −0.121; SE = 0.019; $p < 0.01$) strongly support our hypothesis that in regions with high levels of social capital, the tie-search relationship tends to be weakened. Regarding the density of FDI, the results show a significant moderating effect (coefficient = −0.109; SE = 0.021; $p < 0.05$). This result also supports Hypothesis 3, suggesting that regions with densely populated FDI tend to dampen the value of social ties as a conduit for the knowledge search. For the proposed moderating effects of the level of intermediate institutional development (DII), however, the estimated result shows the insignificant but the expected negative coefficient of −0.015 (SE = 0.029; $t = -1.486$; $p > 0.05$). Thus, the hypothesis three on the moderating effect of intermediate institutions is not supported. One possible reason is that the current measure using proportions of lawyers and accountants cannot completely capture the essence of intermediate institutions. For instance additional information of number of consultants may be a relevant indicator. To further confirm and illustrate the significant effects of regional social capital and the density of FDI on the value of tie strength, we plotted the above interaction effects (Figs. 2, 3). As seen in Figs. 2 and 3, both interaction plots confirm the moderating effects of these two subnational factors. In Figs. 2 and 3, the level of regional social capital and the density of FDI weakened the effects of tie strength on the knowledge search tendency.

## 5 Discussion

The social network for knowledge creation and transfer has been identified as one of five novel and important questions in international management research (Xiao and

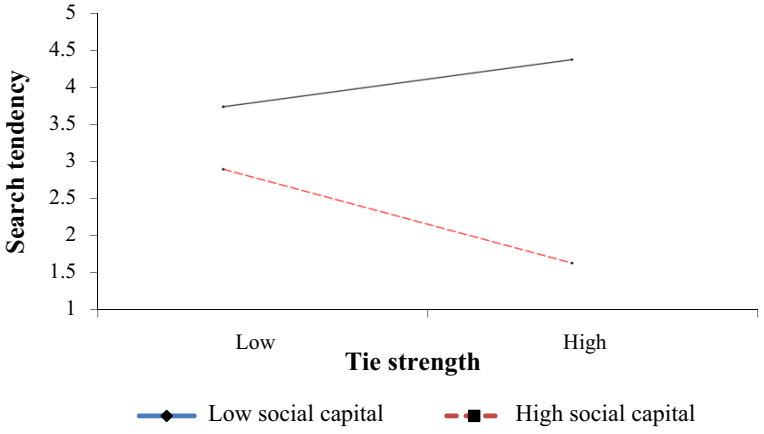


**Fig. 2** Moderating effect of regional social capital

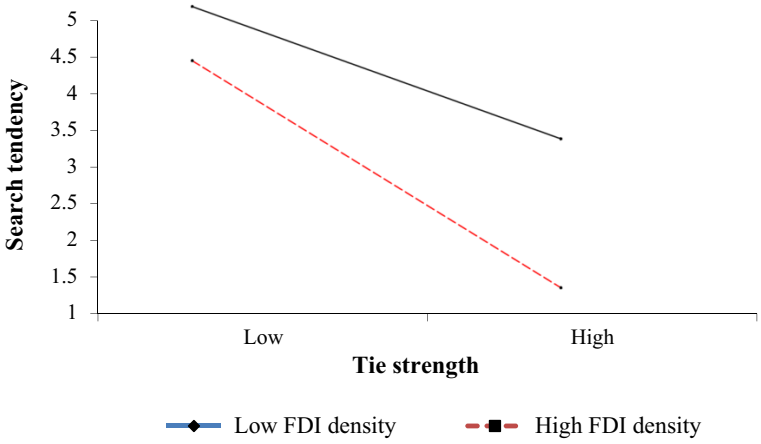


**Fig. 3** Moderating effect of FDI density

Tsui 2007). Little is known, however, about the explanatory factors in the knowledge search as a distinct phase of knowledge creation (Hansen et al. 2005). In particular, there is a need to expand the study of the effects of host country characteristics on the social capital of a foreign unit (Kostova and Roth 2003). This study examined the relationship between the external social ties of subsidiary executives and knowledge search tendencies, and the contextual influences of the regional knowledge environment characterized by regional social capital, intermediate institutional development, and the density of FDI. We propose that while the strong externally-developed social ties of executives facilitate their search for institutional knowledge, its value also depends on the regional context within which the tie-search relationship is embedded. Applying the HLM to a data set of 433 tie-search dyads from 146 foreign subsidiaries residing in 26 provinces in China, we show that the executives' strong external ties with their local contacts are significantly associated with their knowledge search tendencies. Consistent with the view contingency proposition suggesting that the value of social ties depends on certain conditions (Burt 1997; Gulati and Higgins 2002; Xiao and Tsui 2007), our findings also show that this tie-search relationship becomes significantly weakened in the regions where there is a high level of social capital and a high density of FDI.

### 5.1 Theoretical Implications

There are three theoretical implications to be taken from this study. First, responding to the call for greater attention to context in research to prevent further fracturing of the field of management (Pfeffer 1993), we propose that the effects of individual ties are likely to be contingent on the nature of the local context within which the individual executives develop and utilize their social ties. Our findings suggest a contextual view of the values of social ties through a combined micro and macro inquiry and indicate that combining micro–macro variables offer a more

meaningful model of the social network and knowledge acquisition link in foreign subsidiaries. The findings based on the multilevel approach highlight, along with the work of others (e.g., Arregle et al. 2006; Chan et al. 2006; Makino et al. 2004), the value of using multilevel models to diminish the concerns of causal ambiguity between social ties and search. Thus, our study not only provides a more accurate account for knowledge search behavior in different contexts, thereby avoiding losing rich information due to the aggregating search behavior into higher levels of analysis, but can also facilitate future theory development (Hitt et al. 2007). Second, the extant research on knowledge acquisition in the international business domain is almost exclusively theoretically focused on inter- and intra- firm- or team-level study, leaving much of the phenomenon of executives' local ties unattended. Supplementing the existing study, we shift this focus to the individual tie-based search by subsidiary executives. Thus, our findings extend the existing research by offering a micro view of the knowledge sources of multinational enterprises. Third, our study specifically focuses on institutional knowledge as the knowledge search content. Given the transforming nature of institutions in transition economies, it is imperative for foreign subsidiary executives to acquire knowledge and information about these changing institutions. However, existing literature has overlooked the content of learned knowledge (Bingham and Eisenhardt 2011). Our findings fill this gap.

### 5.2 Limitations

There are a number of limitations of this study that invite further research along similar lines of inquiry. First, though integrating the micro- and macro- perspectives provides a useful way of organizing the literature and generating insight into the conditions and mechanisms through which field managers acquire needed knowledge, the current study developed and tested a set of hypotheses only in the setting of one country. This one-country design limits the generalizability of the propositions. Thus, the validity of the findings of this study should be interpreted with caution and be further corroborated in other emerging economies and our findings have yet to be integrated theoretically in a way that yields a set of generalizable propositions about the contingency value of social ties that can be tested in regions of other national markets. As Burt (1997) has long proposed, contingency analysis of social capital provides a frame of reference for designing research and cumulating results across studies. Second, due to limited resources, our study does not account for the relationships between external and internal social ties. As suggested in the existing research, intra-firm socialization plays important roles in facilitating knowledge creation and flow within multinational enterprises (Noorderhaven and Harzing 2009). Along this line, future research can be designed in a way that takes into account both external and internal social ties developed by executives, examining the plausible complementary or substitutable role of each in knowledge creation, acquisition, and transfer. In the same vein, further studies are needed to examine the balance of external and internal subsidiary embeddedness (Meyer et al. 2011) and its implications on knowledge acquisition.

### 5.3 Practical Implications

The current study shows that the management of multinational enterprises (MNEs) should not only assess the within-firm factors in facilitating knowledge acquisition and transfer, but should also pay attention to the external sources of knowledge embodied by social ties. In foreign subsidiaries, most socializing behaviors that executives might display would be beyond their call of duty and would need to stem from their own initiative. Hence, the need for headquarter executives to understand the circumstances that would motivate or discourage them from acting as socialized learning agents is imperative. For this reason, MNEs should encourage the executives of foreign subsidiaries to develop a tie-based source of knowledge in the host country markets. Nonetheless, our findings also suggest that MNEs and foreign subsidiary executives should be aware of the boundary conditions limiting the value of external social ties. For subsidiaries residing in munificent knowledge regions, more managerial attention should be devoted to the development and effective use of other channels and means, such as through local business partners, to acquire institutional knowledge.

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## Appendix

Appendix 1. A: (filled by principal respondents) (Burt 2002)

*Contact recall:* This question asks about your non-work-related social contacts. Social contacts refer to your personal connections with individuals who are *OUTSIDE* your subsidiary and whom you are acquainted with through *non-work related interactions* (such as social events, trade and industry associations, professional meetings/conferences, etc.). Provide their name and contact information in the following table.

| (1) Name | (2) Work address | (3) Phone/Fax number/email | (4) Assess your relation with the identified |
|---|---|---|---|
| | | | |

Appendix 1. B:

*Search tendency*: This question is about the use of your social contacts as identified above. From time to time, people discuss important matters with other people, people you maintain close and frequent contacts. The important work-related matters that you may seek advice and expertise from your local social contacts range from business behavior/practice issues of competitors, suppliers and buyers,

government and institution-related, and cultural/social issues. When you encounter one or a combination of these issues in your work, *how likely are you in seeking from the above listed individuals their insights, interpretation, advice, opinions and know-how on each of the following specific issues:* (1 = least likely; 2 = unlikely; 3 = likely; 4 = very much likely; 5 = highly likely):

*Institutional knowledge* (adapted from Eriksson et al. 1997)

Interpreting regulatory changes
Building government relations
Interpreting social and cultural cues you encounter
Interpreting the general trend of economy

Appendix 2:

*External tie strength*: (filled by both identified alters and principal respondents) (individual level) (Hansen 1999; Marsden and Campbell 1984)

1. How **frequently** do you communicate with them (using email, phone, informal visits, social events, etc.) (0 = once every 3 month; 1 = once every 3 months 1 = once every 2 months; 2 = once a month; 3 = twice a month; 4 = once a week; 5 = twice a week; 6 = once a day)
2. How **close** is your relationship with him/her (the principal respondent)? (0 = far distant; 1 = distant 2 = distantly close; 3 = somewhat close; 4 = close; 5 = very close; 6 = intimately close).

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