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Abstract

For new ventures to acquire necessary resources, social network theory emphasizes the importance of connections with industrial partners, while human capital theory focuses on entrepreneurs’ experience. As such, this research examines how new ventures’ industry ties (intra-industry ties and extra-industry ties) and their entrepreneurs’ employment experience (breadth and depth) collectively influence resource acquisition in the new ventures. Since intra-industry ties and extra-industry ties as well as experience breadth and experience depth can both facilitate and hinder resource acquisition, we propose a framework to show that when new ventures’ industry ties and entrepreneurs’ employment experience are synergic, ties and experience can collectively enhance resource acquisition. Otherwise, resource acquisition would be harmed. Empirical data of 165 new ventures operating in China showed strong support to our research hypotheses. Our synergic framework contributes to disentangle the debate between social network theory and human capital theory in terms of how new ventures should acquire necessary resources: industry ties versus entrepreneurs’ experience. By doing so, our study enriches the entrepreneurship literature by providing a more nuanced understanding of how new ventures’ industry ties and their entrepreneurs’ employment experience collectively influence resource acquisition.

Keywords: intra-industry ties; extra-industry ties; experience depth; experience breadth; resource acquisition; new ventures
INTRODUCTION

Due to the liabilities of newness and smallness, new ventures are often faced with a paradox of resource acquisition (Alvarez and Busenitz, 2001): New ventures are pressurized and eager to obtain resources from external environments which, however, are reluctant to supply them because of no or low degrees of legitimacy and credibility that the new ventures have (Katz and Gartner, 1988). To address such paradox in new ventures, two lines of literature have emerged. Social network theory posits that network connections and structures can assist and impact new ventures in gaining needed information, control, and solidarity (Adler and Kwon, 2002; Nahapiet and Ghoshal, 1998). As such, interfirm connections or ties between new ventures’ entrepreneurs and executives in other institutions play as an important conduit for resource acquisition (Geletkanycz and Hambrick, 1997; Granovetter, 1973; Lin, Ensel, and Vaughn, 1981). On the other hand, human capital theory focuses on entrepreneurs’ experience gained through investments in education and training as well as practical learning, because experienced entrepreneurs are more capable of identifying, assimilating, and transforming external resources (Schultz, 1959; Davidsson and Honig, 2003). In general, there exists a facilitating role of social network ties (Birley, 1985; Hoang and Antoncic, 2003) and entrepreneurs’ human capital (Robinson and Sexton, 1994; Unger, Rauch, Frese, and Rosenbusch, 2011) in resource acquisition in new ventures. Recent studies start to simultaneously examine the effects of social networks and human capital in new ventures (Davidsson and Honig, 2003; Florin, Lubatkin, and Shulze, 2003; Bhagavatula, Elfring, Tilburg, and van de Bunt, 2010).

However, our understanding of how new ventures’ social network ties and their entrepreneurs’ employment experience collectively impact resource acquisition is still limited because of several reasons. First, new ventures’ network ties vary both in degree and in nature, but prior studies emphasize more the strength of ties (e.g., strong ties versus weak ties,
bonding ties versus bridging ties, Davidsson and Honig, 2003; Hoang and Antoncic, 2003; Leung, Zhang, Wong, and Foo, 2006) but not the different types of ties. Network ties can take the forms of personal ties, business ties, and brokerage ties (Nguyen, Claire, and Bryant, 2003), business ties and political ties (Li and Zhang, 2007), and intra-industry ties and extra-industry ties (Geletkanycz and Hambrick, 1997; Stam and Elfring, 2008). For new ventures, the most direct and important environment is the industry they are embedded in (Yao, 2014), but research on intra-industry ties and extra-industry ties in new ventures are few. New ventures’ _intra-industry ties_ refer to social connections that entrepreneurs and managers in the ventures have built with executives of other firms operating within the same industry, whereas _extra-industry ties_ reflect social connections that entrepreneurs and managers have built with executives of firms outside their own industry (Geletkanycz and Hambrick, 1997; Stam and Elfring, 2008). New ventures’ intra-industry ties and extra-industry ties differ in meaningful aspects, such as strategic conformity versus nonconformity, similar versus diverse resources and opportunities, and task versus general environment scanning (Abebe, Angriawan, and Tran, 2010; Atuahene-Gima, Li, and De Luca, 2006; Geletkanycz and Hambrick, 1997; Land, Engelen, and Brettel, 2012). Intra-industry ties and extra-industry ties also have their differing bright sides and dark sides (Bellavitis, Filatotchev, and Kamuriwo, 2014; Zhou and Li, 2012). It is, thus, inappropriate to regard them as an unidimensional concept—business ties—when examining their role in resource acquisition in new ventures.

Second, entrepreneurs’ employment experience also varies in degree and nature, but their potential differing roles in resource acquisition in new ventures have not been sufficiently recognized and examined. Entrepreneurs’ employment experience increases their cognitive abilities, knowledge, and skills (Becker, 1964; Shultz, 1959), which make them more likely to identify viable opportunities and take more quickly efficient actions (Baron and Ensley, 2006). Entrepreneurs’ employment experience has been examined along two
different dimensions—experience breadth and experience depth (Marvel and Lumpkin, 2007). Experience breadth describes the number of different employers that an entrepreneur has worked for, whereas experience depth reflects the duration that an entrepreneur has worked in the current industry. Both experience breadth and experience depth have their bright sides and dark sides. Experience depth facilitates the accumulation of a deeper understanding of customers, ways to serve markets, and technology in the focal industry (Marvel and Lumpkin, 2007), but a long tenure in the same industry would limit entrepreneurs’ insights into familiar circumstance and framework, mitigating the formation and utilization of innovative strategy in new ventures (Haynes and Hillman, 2010). Experience breadth provides access to diverse knowledge and skills that benefit new ventures (Useem, 1982) and supplies a wide array of strategic information, decision options, and business philosophies. Experience breadth, however, may lead entrepreneurs to be overly optimistic or overconfident about certain strategies (Sirmon et al., 2008). Because entrepreneurs’ experience breadth and experience depth may function as double-edged swords, a more nuanced investigation is needed to uncover their specific roles in resource acquisition in new ventures.

Third, similar to other emerging economies, China is in the process of economic, societal, and political transitions (Hoskisson et al., 2000; Xin and Pearce, 1996). The lack of stable institutions and mature factor markets along with the rapid changes and uncertainties of industrial environments make social networking and experienced entrepreneurs prominently important (Peng, 2003). As such, Chinese entrepreneurs have well acknowledged and practiced the widely-accepted business philosophy of “Who you know is more important than what you know” (Yeung and Tung, 1996: 54). However, such business philosophy emphasizes the important of social capital but downplays human capital. As such, we argue that it is more meaningful for entrepreneurs and managers to understand how “who you know” and “what you know” work together to benefit their ventures.
Drawing on social network theory and human capital theory, this paper aims to provide a framework of how new ventures’ intra-industry ties and extra-industry ties work in a synergic way with entrepreneurs’ employment experience breadth and experience depth, given that intra-industry ties, extra-industry ties, experience breadth, and experience depth can individually benefit or harm new ventures. Results from analyzing survey data collected from 165 new ventures located in a high-tech park of Xi’an, China, supported our synergic framework of new ventures’ industry ties and entrepreneurs’ employment experience. We fund that when new ventures’ industry ties and entrepreneurs’ employment experience were synergic, resource acquisition in new ventures was enhanced; otherwise, resource acquisition was hurt. Specifically, resource acquisition was positively influenced by the interaction between intra-industry ties and experience breadth or between extra-industry ties and experience depth. On the contrary, resource acquisition in new ventures was negatively impacted by the interaction between intra-industry ties and experience depth or between extra-industry ties and experience breadth.

Our research contributes to the entrepreneurship literature in several ways. First, we provide a synergic framework to examine new ventures’ social ties and entrepreneurs’ employment experience, which complements the prior research that simultaneously examines social capital and human capital in ventures. Second, our research enriches the understanding of the paradox of resource acquisition in new ventures by explicating how different types of new ventures’ industry ties and the major characteristics of entrepreneurs’ employment experience work in a nuanced manner to facilitate or hinder resource acquisition. This study helps disentangle the debate between social network theory and social capital theory in terms of how new ventures should acquire needed resources: network ties and employment experience. Finally, our research expands prior studies on social capital and human capital in new ventures to an important but underresearched context—China in its economic, societal,
and political transition. The findings from there may provide pertinent implications for entrepreneurs and managers in other emerging economies to develop their venture.

THEORIES AND HYPOTHESES

Social network theory and new venture resource acquisition

New ventures are embedded in a kaleidoscope of social networks which play important roles in their entrepreneurial processes (Aldrich and Zimmer, 1986), such as opportunity identification, resource mobilization, and new venture creation (Shane and Venkataraman, 2000). The gist of social network theory states that network ties and network structure assist connected organizations to access and acquire resources such as information, capital, skills, and labor (Adler and Kwon, 2002; Birley, 1985; Hoang and Antoncic, 2003).

Social capital embedded in social networks such as resources, control, and solidarity can be gained in different quantity and with differing amount of effort, depending on the characteristics of entrepreneurs’ and managers’ personal ties with executives outside of the venture boundary. For instance, as for network positions, Stam and Elfring (2008) argue that firms in a central position of their networks are more likely to access resources than peripheral firms because of the abundant information flows and credibility. With respective to network size, Raz and Gloor (2007) show that the size of interfirm ties has a positive impact on new venture survival. When considering social capital created by social networks, it is somewhat incomplete not to mention the effects of weak ties and structural holes. The former is evident in Granovetter’s (1973) work which reveals the extent to which actors can obtain new information and ideas from ties that lie outside of their immediate contacts. The latter is evident by Burt (2009), which showed that structural holes in networks increase the opportunity to approach diverse, novel, and nonredundant information and resources that facilitate entrepreneurial activities (Robins, 2003).

In a pioneering study, Geletkanycz and Hambrick (1997) investigate industry
background of ties and distinguish two types of industry ties— intra-industry ties and extra-industry ties. Intra-industry ties, or linkages with managers within the same industry, allow new ventures to obtain a deeper understanding and thorough knowledge about competitors’ strategy. Normally, firms are more likely to associate with others with similar background and interests (Kim and Aldrich, 2005), because these firms usually possess shared industry rules and common interpretation of the industrial environment (Land, Engelen, and Brettel, 2012). Tsai and Ghoshal (1998) showed that intra-industry ties provide industry legitimacy and increase trust between resource holders and demanders, activating a cooperative logic of exchange. However, because intra-industry ties convey homogeneous information and insights, they may decrease the ability of entrepreneurs to engage in exploratory activities (Atuahene-Gima and Murray, 2007). Moreover, intra-industry ties push new ventures to adopt strategic conformity (Geletkanyecz and Hambrick, 1997), further decreasing their entrepreneurial intentions and activities. Therefore, new ventures have to simultaneously acknowledge the upsides and downsides of intra-industry ties.

Extra-industry ties—linkages with managers outside a venture’s industry—promote venture performance through supplying multiple and heterogenous resources and information. Since entrepreneurs and managers outside the industry in which a focal new venture operates are confronted with different industrial environments, they are likely to encounter distinctive customer problems, solutions to the problems, and industrial rivalries. As a result, extra-industry ties are more likely to generate strategic nonconformity (Geletkanyecz and Hambrick, 1997). Further, extra-industry ties assign new ventures with opportunities to occupy a bridging position among social networks, which broaden their avenues to acquire diverse resources (Bellavitis, Filatotchev, and Kamuriwo, 2014). However, the diversity of information and resources acquired through new ventures’ extra-industry ties may decrease the new ventures’ decision-making efficiency and request high knowledge integration ability.
(Zhou and Li, 2012). In sum, extra-industry ties differ significantly from intra-industry ties and both types of industry ties can enhance and hinder resource acquisition in new ventures.

**Human capital theory and entrepreneurs’ employment experience**

Human capital theory posits that investments in individuals’ education and training as well as employment experience accumulated through past practical learning may enhance their knowledge, abilities, and skills (Becker, 1964), resulting in more productive and efficient in work (Schultz, 1959). Entrepreneurs’ employment experience shows that the entrepreneurs have already accumulated valuable and ample entrepreneurial resources for new ventures. More experienced entrepreneurs are, by themselves, important channels to import their resources into the new venture. Moreover, entrepreneurs’ employment experience consists of an important signal of credibility and legitimacy which resource suppliers rely on to decide whether and how many resources they are willing to provide to the new venture. As such, entrepreneurs’ employment experience can enhance resource acquisition in new ventures directly and/or indirectly.

Entrepreneurs’ employment experience can be approached by two related angles: experience breadth and experience depth (Marvel and Lumpkin, 2007). Entrepreneurs’ experience breadth reflects the number of different employers that the entrepreneurs have worked for, whereas experience depth represents the time duration that the entrepreneurs have worked in the current industry. Hambrick et al. (1993: 402) contend that experience depth is associated with entrepreneurs’ commitment into the “status quo” that is defined as “belief in the enduring correctness of current organizational strategies and profiles.” As experience depth increases, the growth of new ventures is more likely to happen when they have the chance to understand industry-specific strategy approaches and managerial skills which help frame the acquired diverse information (Sullivan and Marvel, 2011). Besides, the timely feedback from industry experts is also imperative for rectifying the entrepreneurs’
optimism bias. Hitt et al. (1997) posit that diversity needs to be managed effectively, or else, it may reduce rather than increase firm performance. Entrepreneurs’ employment experience depth reflects how long the managers have worked in the current industry. When entrepreneurs’ experience depth is high, success is most likely to happen when the entrepreneurs have opportunities to access diverse external information and innovative problem-solving approaches.

**A synergic framework of new ventures’ industry ties and entrepreneurs’ employment experience**

As aforementioned, new ventures’ intra-industry ties and extra-industry ties differ and can benefit as well as hinder resource acquisition, whereas entrepreneurs’ employment experience breadth and experience depth also have their bright sides and dark sides. Our research aims to propose and develop research hypotheses concerning the synergy between different types of industry ties and two experience characteristics. Figure 1 shows the circumstances that synergies or contradictions take place between new ventures’ industry ties and entrepreneurs’ employment experience.

[Insert Figure 1 about here]

**Cell A: Intra-industry ties and experience breadth**

Cell A in Figure 1 describes the circumstance that new ventures’ intra-industry ties meet entrepreneurs’ employment experience breadth. As the dark sides of intra-industry ties can be remedied by the bright sides of experience breadth and as the dark sides of experience breadth can be coped with by the bright sides of intra-industry ties, we suggest that there is a synergic effect between intra-industry ties and experience breadth. As a result, resource acquisition in new ventures would be positively influenced by the interaction between new ventures’ intra-industry ties and entrepreneurs’ experience breadth.

First, entrepreneurs’ experience breadth provides new ventures with access to diverse
information and knowledge across multiple employers. Such diverse information and knowledge can effectively reduce the negative impacts of information redundancy and strategic conformity on resource acquisition in new ventures. Sullivan and Marvel (2011) note that when entrepreneurs possess relatively comprehensive business experience, intra-industry ties enhance their ability to focus on the appropriate knowledge set. As such, firms connected through intra-industry ties perceive that the entrepreneurs are trustworthy and credibility. As a result, resource providers are more willing to provide the new ventures with necessary resources when the entrepreneurs’ experience is broad and diverse (Tsai and Ghoshal, 1998).

Second, entrepreneurs with a broad employment experience may occupy a desirable network position in their social networks, and such characteristic may also increase the willingness of partners connected by intra-industry ties to provide resources. Bellavitis et al. (2014) point out that entrepreneurs with broad employment experience are likely to have established wide personal connections and ties from different domains, which help entrepreneurial ventures gain power and potential brokerage opportunities. In this situation, partnering firms through intra-industry ties have strong motivation to establish and strengthen relationships with entrepreneurs with broad experience to enlarge their networks, to access diverse knowledge and heterogeneous resources, and finally to facilitate building their own competitive advantage. In this case, resource acquisition in new ventures will be enhanced.

Finally, entrepreneurs’ optimism and overconfidence can be mitigated by high industry legitimacy brought by intra-industry ties. When closely connected with other firms in the same industry, entrepreneurs can more thoroughly understand their customers and competitors as well as their new ventures’ strengths and weaknesses. Being highly recognized by industry partners and strategic conformity push the new ventures to follow the industrial roles and strategic logic, which decrease the entrepreneurs’ optimism and
overconfidence.

**Hypothesis A.** The interaction between a new venture’s intra-industry ties and its entrepreneur’s employment experience breadth is positively related to resource acquisition in the new venture.

**Cell B: Intra-industry ties and experience depth**

Cell B in Figure 1 describes the scenario where new ventures’ intra-industry ties coexist with entrepreneurs’ employment experience depth. As intra-industry ties and experience depth create redundant benefits but cannot remedy their individual drawbacks, a contradiction scenario may happen between them. The contradiction between intra-industry ties and experience depth further makes the interaction between these two negatively affect resource acquisition in new ventures.

First, both intra-industry ties and experience depth provide new ventures with deep understandings of their industry and more likely make the new venture deeply embedded in the current social network and business realm. As Skarmeas *et al.* (2002) show, firms operating within the same value chain, and with similar financial interests and strategic priorities may undermine mutual commitments and discontinue support to other network members. In addition, Tortoriello and Krackhardt (2010) contend that because of direct competition, firms in the same industry may hesitate to share their knowledge and disclose information to others. As a result, firms in the same industry may not provide and share resources with each other even though they have close connections.

Second, as entrepreneurs with deep experience in their industry may create pressure and stress to their peers, willingness of their connected partners to supply resources will be mitigated. Prolonged industry experience is associated with restricted information processing, reliance on habits and routines, and reduced willingness to take risks (Katz 1982), which ultimately limit new ventures’ potential to initiate novel strategic endeavors (Geletkanycz and Hambrick, 1997). Without innovation, new ventures’ head-to-head competition with peer
firms by using traditional ways of doing business is doom to failure due to resource scarcity and scale diseconomies (Lee, Lee, and Pennings, 2001). Different from extra-industry ties that can provide novel and heterogeneous information and knowledge, intra-industry ties bring shared industry visions and insights that may lead to the groupthinking tendency (Janis, 1982) and deprive functional task conflicts that are good for effective governance (Sundaramurthy and Lewis, 2003). Therefore, we propose,

**Hypothesis B.** The interaction between a new venture’s intra-industry ties and its entrepreneur’s employment experience depth is negatively related to resource acquisition in the new venture.

**Cell C: Extra-industry ties and experience breadth**

Cell C in Figure 1 reflects the situation that new ventures’ extra-industry ties coexist with entrepreneurs’ employment experience breadth. Similar to Cell B, as the drawbacks of extra-industry ties and experience breadth cannot be remedied by their counterpart’s benefits, a contradiction will happen between them and thus resource acquisition in new ventures will be negatively influenced.

First, broad employment experience of entrepreneurs in the past may hardly be valuable in the unfamiliar entrepreneurial contexts which are accessed by the new ventures’ extra-industry ties (Eesley and Roberts, 2012). Because unexpected challenges often arise in unknown areas and entrepreneurs only have a superficial understanding of multiple employer contexts, the new ventures may have low levels of decision-making efficiency and the entrepreneurs may be too optimistic and overconfident over their strategic choice. Resource acquisition in this type of ventures will be finally hurt.

Second, just as too much information acquisition can lead to information overload because of firm’s limited cognitive attention, too many extra-industry ties established by entrepreneurs through previous multiple employment experience may produce the same phenomena. Watson (2007) argued that while some level of networking is beneficial, but
excessive networking is likely to be counter-productive. One drawback from this is that the entrepreneurs don’t have a clear idea about what resources a particular type of ties can provide for them. Moreover, the complexity of managing a variety of networks and their relationships makes it difficult to utilize diverse networks resources. Without sufficient understanding and full utilization of established ties, new venture cannot obtain required resources. In other words, it does not matter how many network ties that entrepreneurs have, what matters is how the entrepreneurs utilize these network connections. Thus, we propose, 

**Hypothesis C.** The interaction between a new venture’s extra-industry ties and its entrepreneur’s employment experience breadth is negatively related to resource acquisition in the new venture.

**Cell D: Extra-industry ties and experience depth**

Cell D in Figure 1 represents the circumstance that new ventures’ extra-industry ties meet with entrepreneurs’ employment experience depth. Since the dark sides of extra-industry ties and experience depth can be mitigated by the bright sides of experience depth and extra-industry ties respectively, a synergic effect can emerge and, as a result, resource acquisition in new ventures will be positively influenced.

First, entrepreneurs with deep employment experience have already accumulated various industry skills and knowledge including how to satisfy customer demand, how to respond to competitive activities, and what resources should be configured to evaluate and implement strategies (Hmieleski, Carr, and Baron, 2015). All the tacit knowledge accumulated from prior careers can be transferred to the current new ventures (Ripsas, 1998; Shepherd *et al.*, 2000) and the tacit knowledge can in turn reduce the uncertainty and increase the probability of entrepreneurship success. In this situation, partnering firms connected by extra-industry ties have strong motivation to contribute their resources to the new ventures whose entrepreneurs have deep experience. Similarly, investors in new ventures often contend that they “bet on the jockey, not on the horse” when choosing which ventures to back up (Delmar
and Shane, 2006). Especially, when other firms connected by extra-industry ties lack essential knowledge of the venture industry, how long the entrepreneurs have worked in the industry becomes an important signal which resource suppliers rely on to make their decisions. Entrepreneurs with more industry experience become good at organizing firms, attracting customers and suppliers, and hiring employees (Delmar and Shane, 2006). These characteristics and quality provide legitimacy in the eyes of other firms connected by extra-industry ties and promote resource providers to supply resources.

Further, because extra-industry ties facilitate access to complementary and heterogeneous insights that are not readily available within the industry boundaries (Stam and Elfring, 2008), the liability of familiarity of experience depth can be remedied. These insights, including novel and nonredundant information and knowledge of market conditions, competitors’ strategies, and operation modes, may rectify the industry inertia caused by experience depth, which help entrepreneurs adopt operation and management patterns different from their prior practice. Therefore, complementary skills or abilities between entrepreneurs and extra-industry ties relieve the drawbacks and increase the probability of creating resource returns, which make other firms connected through extra-industry ties more willing to provide resources. In addition, firms in different industries may not face direct resource competition. The non-competitive nature between new ventures and other firms connected by extra-industry ties can remove the obstacles for resource sharing and exchange. Thus, we propose,

**Hypothesis D.** The interaction between a new venture’s extra-industry ties and its entrepreneur’s employment experience depth is positively related to resource acquisition in the new venture.

**METHOD**

**Sample and data collection**

From a high-tech park located in Xi’an, China, we draw a random sample of 300 firms. The
executive bureau of the high-tech park provided the list of firms founded here, and information such as firm industry, firm products, name of firm leader, and contact information (address and phone number). We randomly sampled responding firms based on the list. Further, we selected firms that were eight years old or younger to ensure their nature of new ventures.

Based on an extensive review of previous studies, we designed an English version questionnaire. A back-translation procedure was then performed by two independent translators to ensure translation accuracy (Brislin, 1970). Next, we conducted interviews with entrepreneurs and managers in 10 new ventures and finalized our survey questionnaire based on their feedback regarding the clarity and suitability of the questions. To enhance the quality of data collected, we employed professional interviewers to conduct on-site interviews. We first contacted the selected new ventures and requested for their participation by informing the confidentiality and research nature of our study. Once they agreed to participate, we sent out trained professional reviewers with the structured questionnaire to visit them at the scheduled time and place. The interviews, on average, took about 40 minutes to finish.

Overall, we obtained 165 usable responses, which represented a response rate of 55%. To assess the potential nonresponse bias, a t-test was performed to compare the responding and nonresponding ventures along key firm characteristics such as age, size, and sales. All t-statistics were not significant, indicating nonresponse bias did not appear to be a concern. Among these respondents, 81.2% entrepreneurs was male, their age distribution was: 20-30 years old (15%), 30-40 years old (58.20%), 40-50 years old (15.80%), and the rest ranging from 50 to 60. The distribution of their highest degree is: high school (8.48%), two-year college (9.09%), four-year college (43.03%), and graduate (39.39%). Table 1 shows the profile of the sampled ventures.

[Insert Table 1 about here]
Measures

The measures for our variables were adapted from previous studies and they were presented in Table 2. All the scales were in a Likert scale format ranging from 1 (“strongly disagree”) and 5 (“strongly agree”). Table 2 also includes the results from factor analyses.

[Insert Table 2 about here]

Intra-industry and extra-industry ties. Intra-industry ties and extra-industry were measured by three items respectively and the items were adapted from Atuahene-Gima et al. (2006).

Resource acquisition. Following previous research (Pfeffer and Salancik, 2003), we measured resource acquisition by using a four-item scale.

Entrepreneurs’ employment experience. Usually, owing to the different number of careers, individuals may possess distinctive employment experience (Marvel and Lumpkin, 2007). Experience depth was measured by one item: “How many years have you worked in your current industry?” Experience breadth was measured by another question: “Before establishing your current venture, how many different employers have you worked for?” Among the respondents, about 52% entrepreneurs reported that they had been employed by two or more than two different firms.

Control variables. We controlled both firm-level and individual-level factors. Firm-level control variables included the development stage of industry, firm age, and firm type. Industry development stage includes four different options: (1) introduction stage; (2) growth stage; (3) mature stage; and (4) decline stage. We measure firm age by using the natural logarithm of the number of years since a firm’s initiate operation. Firm type was measured by a dummy variable, where 1 represents high-tech industry, and 0 others. Entrepreneurs’ age (in years) was selected as an individual-level control variable.

Reliability and validity
We conducted an exploratory factor analysis on scale items by the principal component method rotated with Varimax. The results showed three extracted factors: intra-industry ties, extra-industry ties, and resource acquisition. These three factors explained 67.75% of the overall item variance. Composite reliability assesses inter-item consistency, which was operationalized with the internal consistency method estimated by Cronbach’s alpha. Typically, reliability coefficients of 0.70 or above are considered adequate. From Table 2, Cronbach’s alpha values of all factors were well above 0.70, which indicates adequate reliability. Additionally, all critical ratios obtained from the confirmatory factor analysis are greater than the 0.7 cutoff value, ensuring adequate reliability. Testing of construct validity concentrates not only on finding out whether an item loads significantly on the factor (i.e., convergent validity) but also on ensuring that it captures no other factors (i.e., discriminant validity). Specifically, Table 2 shows that factor loadings of all items were above 0.7, and the values of average value extracted (AVE) of all variables were above 0.5, indicating high convergent validity (Fornell and Larcker, 1981). We examined discriminant validity by comparing the square roots of the values of AVE with correlation coefficients. Table 3 showed support to discriminant validity as the square roots represented by the diagonal elements were greater than the off-diagonal correlation coefficients in the corresponding line and row.

Common method bias

Because we measured the dependent and independent variables by responses from the same respondent, we tested the potential common method variance by using the marker variable method (Lindell and Whitney, 2001). We used a scale which is theoretically unrelated to at least one construct in the model as the marker variable. We used the entrepreneur’s gender to adjust the construct correlations and statistical significance by the lowest positive correlation (r = 0.007) between gender and other variables. From Table 3, none of the significant
correlations turned into insignificant after this adjustment. Therefore, common method bias is unlikely to be a serious concern.

**RESULTS**

The descriptive statistics were shown in Table 3 including information of means, standard deviations, and correlations of the variables. There was no correlation above the 0.6 threshold, suggesting that our estimations were unlikely to be biased by multicollinearity problems (Tabachnick and Fidell, 1996).

We tested hypotheses with the optimal scaling regression model, using two-step regression. To reduce the multi-collinearity threat we mean-centered the variables to create interaction terms (Aiken and West, 1991). Table 4 presents the steps performed to test hypotheses (Baron and Kenny, 1986). In Model 1, we first regressed resources acquisition against the control variables, then we added intra-industry ties and extra-industry ties into Model 1 to get Model 2 and in Model 3 we further added two moderators: experience breadth and experience depth. Finally, we added all variables and four interaction terms into Model 4 to conduct a full model estimation.

The results in Table 4 showed support to Hypothesis A as the regression coefficient of the interaction term between intra-industry ties and experience breadth was positive and significant ($b = 0.19, p < 0.001$). Hypothesis B was supported given that the interaction term of intra-industry ties and experience depth showed a negative and significant regression coefficient ($b = -0.14, p < 0.05$). The results in Table 4 also supported Hypothesis C in that the interaction term of extra-industry ties and experience breadth showed a negative and significant regression coefficient with resource acquisition ($b = -0.17, p < 0.05$). Finally, our Hypothesis D was supported by a significant and positive effect of the interaction term
between extra-industry ties and experience depth on resource acquisition in new ventures ($b = 0.19, p < 0.001$).

To gain a further insight into the synergic and contradictory effects, we plotted the relationships by using the Aiken and West’s (1991) technique and the results were shown in Figure 2 and Figure 3. The Panel (a) and Panel (b) in Figure 2 showed the synergic effects of industry ties and experience on resource acquisition, whereas the Panel (a) and Panel (b) in Figure 3 demonstrated the contradictory effects between industry ties and experience.

DISCUSSION

Theoretical contributions

This study investigates the paradox of resource acquisition in new ventures by focusing on the collective roles of new ventures’ industry ties and entrepreneurs’ employment experience in affecting resource acquisition. As intra-industry ties, extra-industry ties, experience breadth, and experience depth have their bright sides and dark sides on resource acquisition, we propose a framework to reflect the synergy or contradiction between industry ties and employment experience. The results showed support to our framework: synergy occurred under the coexistence of intra-industry ties and experience breadth or extra-industry ties and experience depth, whereas contradiction emerged in the coexistence of intra-industry ties and experience depth or extra-industry ties and experience breadth. Our framework and empirical findings allow us to make several theoretical contributions.

First, we contribute to the entrepreneurship literature by supplying a framework which demonstrates whether new ventures’ industry ties and entrepreneurs’ employment experience work in a synergic or contradictory manner to influence resource acquisition in the new ventures. When examining resource acquisition, previous studies rely on social network theory, human capital theory, or the combination of these two, but they fail to clarify how
social ties and experience work together to influence resource acquisition. Our study moves one step further to uncover when new ventures’ industry ties and entrepreneurs’ employment experience complement or substitute with each other. By doing so, our research helps disentangle the debate between social network theory and social capital theory in that which conduit that new ventures should rely on to acquire resources: external industry ties or entrepreneurs’ experience.

Second, we enriched social network theory by explicating the differences between intra-industry ties and extra-industry ties. As for intra-industry ties and extra-industry ties, previous literature has most often argued that both types of ties promote resource flows equally because network contacts create the obligation of help and reciprocity (Uzzi, 1997). But a post-hoc observation of the results in Table 4 showed that intra-industry ties, as compared to extra-industry ties, had a weaker positive effect on resource acquisition ($b = 0.19$, $p < 0.05$ versus $b = 0.41$, $p < 0.001$). In the full model (Model 4), the regression coefficient of intra-industry ties even turned into insignificant, further supporting their weaker effect.

Moreover, our research showed that both intra-industry ties and extra-industry ties can facilitate and harm resource acquisition under different conditions. New ventures’ intra-industry ties facilitate resource acquisition under conditions of experience breadth but harm resource acquisition when experience depth is high. On the contrary, extra-industry ties facilitate resource acquisition when experience depth is high while hurt resource acquisition when experience breadth is high. These results suggest that every type of industry ties may be helpful, but new ventures need to figure out the appropriate conditions to release their potential for resource acquisition.

Third, our study expanded social capital theory by demonstrating the differing roles play by the breadth and depth of employment experience in resource acquisition. The results in Table 4 also show that experience depth as opposed to experience breadth is more meaningful.
in terms of their direct effect on resource acquisition, as experience depth related to resource acquisition positively and significantly \((b = 0.26, p < 0.001)\) but not for experience breadth \((b = -0.08, p > 0.10)\). However, as we discussed in the above, both experience breadth and experience depth can contribute positively to resource acquisition in new ventures when they work with appropriate industry ties. Specially, experience breadth helped generate a positive effect on resource acquisition with intra-industry ties while experience depth facilitated resource acquisition with extra-industry ties.

Third, our finding also provide implications for research on social network and human capital in China’ economic transition. Guthrie (1998) suggests that social ties show a diminishing role in China’ economy as the economic transition progresses. Similarly, based on a two-phase model of market-oriented institutional transitions, Peng (2003) posits that the benefits of relationship-based strategy will show an inverted “U” shape, that is, networks and relationships no longer seem as important as before for both incumbent firms and entrepreneurial start-ups as emerging economies become more competitive. Our study showed that ties are still meaningful in current China and their values on resource acquisition are dependent on how skillful and knowledgeable entrepreneurs are. Therefore, when doing business in emerging economies like China, both “who you know” and “what you know” are important.

**Practical implications**

In view of the intense resource competition for new ventures, our study also provides entrepreneurs with managerial implications about how to acquire resource efficiently. First, in order to promote the survival and development of new ventures, nascent entrepreneurs need to establish intra-industry ties and extra-industry ties to obtain required resources such as technology, information, capital, and labor. These industry ties overcome the information asymmetry between new ventures and resource holders, since most value resources and
information cannot be acquired through arm-length mechanisms.

Second, entrepreneurs should acknowledge that industry ties are important but not without boundaries. Entrepreneurs should be better to examine their experience attributes before they consider which type of ties to rely on to acquire resources. We suggest that entrepreneurs with multiply industries experience should seek resources from intra-industry ties; whereas entrepreneurs with experience depth should pay more attention to extra-industry networks to search for resources.

Limitations and future research

This paper also has some limitations that future work can address. First, our sample was restricted to the new ventures located in a particular high-tech park in Xi’an, which might constrain the generalizability of our findings. There is a need for further research to extend our study to other geographical regions across the China and outside of China. For instance, because of economic differences across regions in China and across different emerging economies, social ties may have different working mechanisms in differing contexts. Thus, whether experience breadth and depth have the same synergic effects with industry ties needs to be further tested in other contexts. Second, our measure of resource acquisition is based on respondents’ perceptions. It may involve a psychological bias. For example, the respondents may tend to overestimate or underestimate their performance of resource acquisition. Further research can adopt objective measures to validate our findings. Third, our research relied on a comprehensive definition of resources including knowledge, technology, human capital, and financial capital, which may cover the potential different effects on which industry ties and experience had. Future research can consider whether new ventures’ social ties (e.g., intra-industry ties and extra-industry ties) and entrepreneurs’ employment experience (depth and breadth) affect resource acquisition when the types of resources been acquired are considered.
Conclusion

This research aims to enrich our understanding of the paradox of resource acquisition in new ventures by proposing and investigating a framework which shows when new ventures’ intra-industry ties and extra-industry ties are synergic or contradictory with entrepreneurs’ employment experience breadth and depth. Our results show that synergic effects occur when intra-industry ties work with experience breadth or when extra-industry ties meet with experience depth but contradictory effects happen under the conditions of intra-industry ties coexisting with experience depth or extra-industry ties coexisting with experience breadth.


401-418.


<table>
<thead>
<tr>
<th>Entrepreneurs’ employment experience</th>
<th>New ventures’ industry ties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experience breadth</td>
<td>Intra-industry ties</td>
</tr>
<tr>
<td>Bright sides</td>
<td>Bright sides</td>
</tr>
<tr>
<td>Diverse understandings</td>
<td>Industry legitimacy</td>
</tr>
<tr>
<td>Dark sides</td>
<td>Strategic conformity</td>
</tr>
<tr>
<td>Entrepreneurs’ optimism and overconfidence</td>
<td>Information redundancy</td>
</tr>
<tr>
<td>Experience depth</td>
<td>Extra-industry ties</td>
</tr>
<tr>
<td>Bright sides</td>
<td>Bright sides</td>
</tr>
<tr>
<td>Diverse information</td>
<td>Industry legitimacy</td>
</tr>
<tr>
<td>Dark sides</td>
<td>Strategic conformity</td>
</tr>
<tr>
<td>Decision-making inefficiency</td>
<td>Information redundancy</td>
</tr>
<tr>
<td>Drain cognitive capability</td>
<td>Diverse information</td>
</tr>
<tr>
<td>Strategic nonconformity</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 1. A synergic framework of new ventures’ industry ties and entrepreneurs’ employment experience**
Figure 2. The synergic effects between industry ties and experience
Figure 3. The contradictory effects between industry ties and experience
### Table 1: Sample profile

<table>
<thead>
<tr>
<th>Sample characteristics</th>
<th>Frequency</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Firm age (years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;3</td>
<td>68</td>
<td>41.21</td>
</tr>
<tr>
<td>4-6</td>
<td>45</td>
<td>27.27</td>
</tr>
<tr>
<td>7-8</td>
<td>52</td>
<td>31.52</td>
</tr>
<tr>
<td><strong>2. Firm size (number of employees)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;10</td>
<td>43</td>
<td>26.06</td>
</tr>
<tr>
<td>10-20</td>
<td>38</td>
<td>23.03</td>
</tr>
<tr>
<td>20-50</td>
<td>39</td>
<td>23.64</td>
</tr>
<tr>
<td>50-100</td>
<td>19</td>
<td>11.52</td>
</tr>
<tr>
<td>&gt;100</td>
<td>26</td>
<td>15.76</td>
</tr>
<tr>
<td><strong>3. Industry</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New energy technology</td>
<td>16</td>
<td>9.70</td>
</tr>
<tr>
<td>Biology and pharmaceutical</td>
<td>6</td>
<td>3.64</td>
</tr>
<tr>
<td>Optoelectronics</td>
<td>13</td>
<td>7.88</td>
</tr>
<tr>
<td>Integrated circuit</td>
<td>24</td>
<td>14.55</td>
</tr>
<tr>
<td>Advanced manufacturing</td>
<td>36</td>
<td>21.82</td>
</tr>
<tr>
<td>Modern service</td>
<td>17</td>
<td>10.30</td>
</tr>
<tr>
<td>Other</td>
<td>53</td>
<td>32.12</td>
</tr>
<tr>
<td><strong>4. High-tech industry</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-tech</td>
<td>86</td>
<td>52.12</td>
</tr>
<tr>
<td>Other</td>
<td>79</td>
<td>47.88</td>
</tr>
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</table>
### Table 2: Measures and the results of factor analysis

<table>
<thead>
<tr>
<th>Factor</th>
<th>Items</th>
<th>Loadings</th>
<th>Alpha</th>
<th>Cum%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Intra-industry ties</strong></td>
<td>has maintained close contact with top managers and founders of other firms in our industry</td>
<td>0.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(CR=0.88</td>
<td>has learnt a lot from our interactions with executives in our industry</td>
<td>0.90</td>
<td>0.78</td>
<td>70.10%</td>
</tr>
<tr>
<td>AVE=0.70</td>
<td>has social interactions with other founders of new ventures with knowledge of our industry</td>
<td>0.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Extra-industry ties</strong></td>
<td>has put a lot of effort into building relationships with executives of firms outside our industry</td>
<td>0.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(CR=0.89</td>
<td>has developed strong relationships with executives of firms outside our industry</td>
<td>0.86</td>
<td>0.81</td>
<td>72.19%</td>
</tr>
<tr>
<td>AVE=0.73</td>
<td>has consulted with executives who have experience in firms not operating in our industry</td>
<td>0.87</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Resources</strong></td>
<td>can obtain the required number of technology</td>
<td>0.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>acquisition</td>
<td>can obtain the required amount of fund</td>
<td>0.84</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(CR=0.86</td>
<td>can obtain the required number of talents</td>
<td>0.77</td>
<td>0.78</td>
<td>59.97%</td>
</tr>
<tr>
<td>AVE=0.60</td>
<td>can get the required information and knowledge</td>
<td>0.74</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3: Descriptive statistics and correlations

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean</th>
<th>S.D</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Firm age</td>
<td>1.45</td>
<td>0.70</td>
<td>N/A</td>
<td>0.12</td>
<td>0.24**</td>
<td>0.53***</td>
<td>-0.29***</td>
<td>-0.14</td>
<td>-0.04</td>
<td>0.23**</td>
<td>-0.04</td>
</tr>
<tr>
<td>2. Firm type</td>
<td>0.51</td>
<td>0.50</td>
<td>0.13</td>
<td>N/A</td>
<td>-0.04</td>
<td>0.11</td>
<td>-0.10</td>
<td>0.01</td>
<td>0.003</td>
<td>0.12</td>
<td>0.23**</td>
</tr>
<tr>
<td>3. Entrepreneur age</td>
<td>3.12</td>
<td>0.74</td>
<td>0.25**</td>
<td>-0.03</td>
<td>N/A</td>
<td>0.21**</td>
<td>-0.12</td>
<td>-0.03</td>
<td>0.03</td>
<td>0.58***</td>
<td>-0.07</td>
</tr>
<tr>
<td>4. Development stage</td>
<td>2.09</td>
<td>0.61</td>
<td>0.53***</td>
<td>0.12</td>
<td>0.22**</td>
<td>N/A</td>
<td>-0.10</td>
<td>-0.13</td>
<td>0.003</td>
<td>0.16*</td>
<td>0.08</td>
</tr>
<tr>
<td>5. Intra-industry ties</td>
<td>3.74</td>
<td>0.67</td>
<td>-0.28***</td>
<td>-0.10</td>
<td>-0.11</td>
<td>-0.09</td>
<td>(0.84)</td>
<td>0.486***</td>
<td>-0.05</td>
<td>-0.06</td>
<td>0.21**</td>
</tr>
<tr>
<td>6. Extra-industry ties</td>
<td>3.51</td>
<td>0.74</td>
<td>-0.13</td>
<td>0.02</td>
<td>-0.02</td>
<td>-0.12</td>
<td>0.49***</td>
<td>(0.85)</td>
<td>0.02</td>
<td>0.01</td>
<td>0.375***</td>
</tr>
<tr>
<td>7. Experience breadth</td>
<td>1.38</td>
<td>0.78</td>
<td>-0.03</td>
<td>0.01</td>
<td>0.04</td>
<td>0.01</td>
<td>-0.04</td>
<td>0.03</td>
<td>N/A</td>
<td>-0.08</td>
<td>-0.07</td>
</tr>
<tr>
<td>8. Experience depth</td>
<td>9.10</td>
<td>6.96</td>
<td>0.24**</td>
<td>0.13</td>
<td>0.58***</td>
<td>0.17*</td>
<td>-0.05</td>
<td>0.02</td>
<td>-0.07</td>
<td>N/A</td>
<td>0.11</td>
</tr>
<tr>
<td>9. Resource acquisition</td>
<td>3.41</td>
<td>0.69</td>
<td>-0.03</td>
<td>0.24**</td>
<td>-0.06</td>
<td>0.09</td>
<td>0.22**</td>
<td>0.38***</td>
<td>-0.06</td>
<td>0.12</td>
<td>(0.77)</td>
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<tr>
<td>10. Gender (MV)</td>
<td>0.19</td>
<td>0.397</td>
<td>0.047</td>
<td>0.048</td>
<td>-0.119</td>
<td>0.110</td>
<td>-0.074</td>
<td>0.007</td>
<td>0.012</td>
<td>-0.088</td>
<td>0.137</td>
</tr>
</tbody>
</table>

Adjusted correlations for the potential common method variance (Lindell and Whitney, 2001) are located above the diagonal

*p< 0.05, **p< 0.01, ***p< 0.001 (two-tailed)

The diagonal elements in bold are the square roots of the average variance extracted (SRAVE) for the constructs measured according to multiple items

N/A refers to an item unsuitable for analysis
Table 4: The results of regression analyses

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Control variables</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firm age</td>
<td>- 0.08</td>
<td>0.04</td>
<td>0.01</td>
<td>0.07</td>
</tr>
<tr>
<td>Firm type</td>
<td>0.28***</td>
<td>0.16*</td>
<td>0.15*</td>
<td>0.13+</td>
</tr>
<tr>
<td>Entrepreneur age</td>
<td>- 0.06</td>
<td>- 0.09</td>
<td>- 0.23**</td>
<td>- 0.23**</td>
</tr>
<tr>
<td>Development stage</td>
<td>0.10</td>
<td>0.22***</td>
<td>0.26***</td>
<td>0.22**</td>
</tr>
<tr>
<td><strong>Predictors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intra-industry ties</td>
<td>0.19*</td>
<td>0.18*</td>
<td>0.13</td>
<td></td>
</tr>
<tr>
<td>Extra-industry ties</td>
<td>0.41***</td>
<td>0.47***</td>
<td>0.46***</td>
<td></td>
</tr>
<tr>
<td><strong>Moderators</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience breadth</td>
<td>- 0.08</td>
<td>- 0.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experience depth</td>
<td></td>
<td>0.26***</td>
<td>0.26***</td>
<td></td>
</tr>
<tr>
<td><strong>Interaction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intra-industry ties × Experience breadth</td>
<td></td>
<td></td>
<td>0.19***</td>
<td></td>
</tr>
<tr>
<td>Intra-industry ties × Experience depth</td>
<td></td>
<td></td>
<td>- 0.14*</td>
<td></td>
</tr>
<tr>
<td>Extra-industry ties × Experience breadth</td>
<td></td>
<td></td>
<td>-0.17*</td>
<td></td>
</tr>
<tr>
<td>Extra-industry ties × Experience depth</td>
<td></td>
<td></td>
<td>0.19***</td>
<td></td>
</tr>
<tr>
<td>R²</td>
<td>0.09</td>
<td>0.33</td>
<td>0.42</td>
<td>0.48</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.06</td>
<td>0.28</td>
<td>0.36</td>
<td>0.36</td>
</tr>
<tr>
<td>F value</td>
<td>2.81*</td>
<td>6.50***</td>
<td>6.25***</td>
<td>4.04***</td>
</tr>
</tbody>
</table>

†p < 0.10, *p < 0.05, **p < 0.01, ***p < 0.001