Business partners and corporate entrepreneurship in developing countries

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Abstract: This study addresses the way small and medium enterprises in developing countries can fill their knowledge gaps to enhance their level of corporate entrepreneurship. Our observation of a sample of 126 (double-responder questionnaires) small and medium supplier firms providing products and services to the mining industry in Iran indicate that firms with more business partners have more engagement in corporate entrepreneurship. Yet, this connection is conditional to the firm’s network management capabilities. In particular, relational governance plays an important role in the effective use of business partners for corporate entrepreneurship. Our findings suggest that the increased number of business partners in tandem with network management capabilities can promote corporate entrepreneurship in developing countries.

Keywords: business partners; corporate entrepreneurship; development; management; network management capabilities.


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1 Introduction

Studies show that corporate entrepreneurship, as measured by the sum of innovation, venturing and strategic renewal (Simsek, 2007; Zahra, 1996), plays an important role in achieving higher levels of performance (Yiu and Lau, 2008; Zahra, 1995), growth...
(Zahra, 1993; Zahra and Covin, 1995) and competitive advantage in companies (Ireland and Webb, 2009). As such, researchers have increasingly sought to identify factors promoting corporate entrepreneurship (Corbett et al., 2013; Phan et al., 2009). Recently scholars have pointed to the importance of inter-firm relationships in stimulating corporate entrepreneurship (Simsek, Lubatkin and Floyd, 2003; Thorgren, Wincent and Örtqvist, 2012; Yiu and Lau, 2008; Yiu, Lau and Bruton, 2007). They argue that corporate entrepreneurship essentially builds on new knowledge for doing things differently or doing different things in the forms of innovation in products, processes, systems and markets (Teng, 2007). New knowledge, however, is not thoroughly developed within a firm’s internal boundaries. By developing partnering relationships, firms can fill their knowledge gaps in a timelier and more economic manner before proceeding to entrepreneurial outputs (Eisenhardt and Schoonhoven, 1996).

Empirical results, however, are mixed with regard to the impact of the number of business partners on corporate entrepreneurial activities, particularly in the context of developing countries and among smaller firms (Lin, Chen and Lin, 2014; Yiu and Lau, 2008; Wu, 2011). This can be because increasing the number of business partners is accompanied by higher levels of required monitoring costs and resources (Williamson, 1985). Moreover, qualitative evidence indicates that firms with the same business partners hold different innovative performance due to firm mechanisms for knowledge sharing with partners (Dyer and Hatch, 2006). In particular, institutional voids, such as weaker contract enforcement, in developing contexts (Peng, 2003) may require firm mechanisms to reduce the risk of opportunism in exchange relationships (Das and Teng, 1998) for capturing value from business partners (Wang and Rajagopalan, 2015). Yet, little attention has been given to the way small and medium enterprises (SMEs) in developing countries can more effectively use their partners for corporate entrepreneurship.

In this vein, we suggest two dimensions related to the management of business ties, relational governance and portfolio coordination, as firm mechanisms (Sarkar, Aulakh and Madhok, 2009) moderating the link between business partners and corporate entrepreneurial activities. We posit that a firm’s ability to use its business partners for corporate entrepreneurship depends on the firm’s capabilities to facilitate knowledge sharing and reduce monitoring costs through trust-building mechanisms. This is built on the premise that innovative and entrepreneurial activities are essentially based on a firm’s access to new and abundant knowledge in partnering relationships (Burt, 1992, 1997).

This research first contributes to corporate entrepreneurship by introducing two potential mechanisms enabling firms to better utilise their business partners for corporate entrepreneurship. While prior findings in this regard are contradictory in the context of developing countries, these corporate moderating mechanisms can provide a potential explanation for these inconsistencies. This study can also extend the growing body of the literature attempting to unpack pre- and post-formation networking capabilities enabling firms to better create and capture value from external knowledge flows (Sarkar, Aulakh and Madhok, 2009; Schilke and Goerzen, 2010; Wang and Rajagopalan, 2015). Testing these capabilities in the interaction of structural factors (Nahapiet and Goshal, 1998) and in the context of developing countries can examine the boundary conditions of these capabilities.
Theoretical background and hypotheses

The term corporate entrepreneurship refers to entrepreneurial activities within established firms. These entrepreneurial activities entail innovation, venturing and strategic renewal (Zahra, 1996). Innovation concerns the development of new products and services. Venturing refers to the birth of new businesses within existing companies through expanding operations in current or new markets. Firms tend to create new ventures when opportunities in new markets are not attainable with current resources and structures or they go out of the purview of their current base businesses such as by entering new technological spaces or areas (Teng, 2007; Verbeke, Chrisman and Yuan, 2007). Strategic renewal means the redefinition of the scope of a business or significant changes in its competitive strategy, leading to new positions in the market (Sharma and Chrisman, 1999; Zahra, 1996). These activities are complementary and mutually supportive (Heavey et al., 2009; Simsek, 2007; Simsek and Heavey, 2011; Simsek, Veiga and Lubatkin, 2007).

External knowledge sourcing through partnering relationships has been recently considered as a complementary source of knowledge for undertaking corporate entrepreneurship (cf. Hoang and Yi, 2015; Phillips, Tracey and Karra, 2013). This stream of research contends that corporate entrepreneurial activities are knowledge-intensive, and firms need to create new knowledge for undertaking corporate entrepreneurship (Duysters and Lokshin, 2011; Sullivan and Marvel, 2011). However, lack of internal ability, high resource and development expenses, high risk of innovative actions and timing issues often make internal development of knowledge a non-economic and competitive option (Eisenhardt and Schoonhoven, 1996; Teng, 2007). As such, firms mostly fill their knowledge gaps through developing partnering relationships with other players in the market such as suppliers, customers, research centres and competitors (Simsek, Lubatkin and Floyd, 2003; Zahra, Filatotchev and Wright, 2009).

It is widely assumed that more business partners lead to greater access to new knowledge underlying corporate entrepreneurial activities (cf. Burt, 1997; Laursen and Salter, 2006). Yet, simply forming connections without firm capabilities for capturing value from these partners may underutilise the firm’s partnering attempts (Oerlemans, Knoben and Pretorius, 2013; Wang and Rajagopalan, 2015). This can be why empirical results as to the business partners-entrepreneurial activities link are contradictory (e.g., Yiu, Lau and Bruton, 2007; Yiu and Lau, 2008). In particular, in the context of smaller firms which are accompanied by restrictions in resource stocks and attention management (Ocasio, 1997, 2011), recent qualitative evidence suggests that firms ought to focus more on their existing connections instead of expanding their weak connections (Lowik et al., 2012). This challenge for smaller firms can be resonated with institutional voids in developing markets (Peng, 2003; Shinkle and McCann, 2014), which enhance the hazard of opportunism in exchange relationships (Crosno and Dahlstrom, 2008). This may make firms act more closely in their partnering activities (Escribano, Fosfuri and Tribó, 2009). As such, firms operating in less-developed institutional contexts may need complementary mechanisms to effectively benefit from their business partners.

Scholars have recently conceptualised capabilities enabling firms to form more valuable business partners and create more value from their inter-firm connections (Hoffmann, 2005; Kale and Singh, 2009; Sarkar, Aulakh and Madhok, 2009; Schilke and Goerzen, 2010). Sarkar, Aulakh and Madhok (2009) define two capabilities related to post-formation network management: relational governance (capability) and portfolio
coordination. Relational governance concerns “the extent to which an organisation engages in behavioural routines that facilitate the development of informal self-enforcing safeguards in their relationships with various partners” [Sarkar, Aulakh and Madhok (2009), p.587]. Portfolio coordination refers to “organisational processes by which a focal firm engages in integrating and synchronising activities, strategies and knowledge flows across partners” [Sarkar, Aulakh and Madhok (2009), p.588]. In this paper, we posit that these capabilities can enable companies to more effectively use their business partners for corporate entrepreneurship in the context of developing countries facing more opportunism hazard (Peng, 2009). The theoretical framework is presented in Figure 1. The following sections elaborate mechanisms underlying the hypothesised relationships.

**Figure 1** Theoretical model

2.1 Business partners and corporate entrepreneurship

Business partners are mainly considered as conduits for knowledge (Zaheer and Bell, 2005). In his seminal work, Burt (1992) argues that the most important aspect of networking is gaining access to new and complementary knowledge at the right time. By developing inter-firm connections, firms can gain ideas for developing new products and services, entering new markets and redefining their strategies. Firms can also fill their knowledge gaps (such as technical problems) for exploiting entrepreneurial opportunities or realising their corporate entrepreneurial ideas through inter-firm relationships (Teng, 2007). In particular, firms operating in developing countries have less incentive to internally develop knowledge, for instance through R&D activities, due to institutional voids such as weak property rights protection and insufficient contract enforcement in such contexts (Shinkle and McCann, 2014; Zhao, 2006). Developing inter-firm connections should enable them to gain more options for corporate entrepreneurship and realise their entrepreneurial ideas. The literature of entrepreneurship similarly acknowledges the importance of knowledge asymmetry in recognising and exploiting entrepreneurial opportunities (Shane, 2000). Thus, it is expected that:

_Hypothesis 1: Companies with more business partners have more engagement in corporate entrepreneurship._
2.2 Moderating role of network management capabilities

We expect a firm’s capabilities for managing its business partners to moderate the relationship between the number of business partners and corporate entrepreneurship.

Firms with higher levels of relational capability actively try to minimise relational imperfections like opportunistichal behaviours or feelings of mistrust through relational governance and informal safeguards (rather than contract-based governance). These firms have commitment and flexibility in their inter-firm relationships. They also possess high levels of conflict resolution skills (Sarkar, Aulakh and Madhok, 2009).

Firms operating in contexts with less institutional development suffer from institutional voids such as weak contract enforcement (Peng, 2003; Peng and Heath, 1996). In such contexts, contract-based governance may not be sufficient for reducing the opportunism risk needed to facilitate knowledge sharing between partners (Aulakh, Kotabe and Sahay, 1996). In particular, as the number of partners increases, creating contracts that include potential contingencies becomes more difficult and requires higher levels of monitoring costs and resources (Sarkar, Aulakh and Madhok, 2009; Williamson, 1985). As such, firms may need more flexible and trust-based relational mechanisms to more effectively use the potential of their business partners for corporate entrepreneurship. Accordingly, firms with relational governance should better capture the value and knowledge embedded in the inter-firm connections for corporate entrepreneurship. Such firms can gain access to richer and more tacit knowledge and more effectively benefit from their network portfolio for corporate entrepreneurship. In contrast, in firms with low relational governance, the potential of their business partners for corporate entrepreneurship may be underutilised due to the lack of mechanisms lubricating knowledge sharing between partners. Thus, hypothesis 2 is developed:

Hypothesis 2: Relational governance positively moderates the relationship between the number of partners and corporate entrepreneurship.

Firms with portfolio coordination capability engage in activities for flowing knowledge across their network portfolio. This enables the firm to benefit from synergies among individual inter-firm relationships (Schilke and Goerzen, 2010). Sarkar, Aulakh and Madhok (2009) argue that companies may fail to optimally benefit from their inter-firm relationships if they consider individual dyads independent of one another and ignore synergies across the whole portfolio of partnering relationships.

Voluntary sharing of knowledge across partners can also be a trust-building mechanism as Kale and Singh (2009) posit that making unilateral commitments is a major mechanism for developing trust in inter-firm connections. This entices partners to reciprocate knowledge sharing and gradually develops trust among partners (Carter, 1989). This is particularly important in developing institutional contexts where firms act more protectively and cautiously to safeguard their knowledge (Escribano, Fosfuri and Tribó, 2009). Moreover, with the increase of business partners, the facilitation of knowledge sharing between partners can result in more options for corporate entrepreneurship through re-creation and re-combination of knowledge (Jansen, Van Den Bosch and Volberda, 2005; Kogut and Zander, 1992). As such, firms creating routines and processes for sharing knowledge across their partners should better use the optimal potential of their business partners for corporate entrepreneurship. These potential benefits may not be revealed in firms with low levels of portfolio coordination, and hence their network portfolio would be underutilised. Thus, it is predicted that:
Hypothesis 3: Portfolio coordination positively moderates the relationship between the number of partners and corporate entrepreneurship.

3 Methodology

3.1 Sample and data collection

The sample comprises of supplier companies providing products and services to the Iranian mining industry. We focussed on a single industry to confine the extraneous variation of heterogeneous industry factors (Davidsson, 2008; Wales, Parida and Patel, 2013). The selection of the mining industry also suits the theoretical arguments, as mining industries in developing countries like Iran are under pressure to become more entrepreneurial due to increasing attention and competition from foreign firms (Etemad and Salmasi, 2001). Moreover, networking and collaborative activities are important in this industry for creating new knowledge and undertaking innovative and entrepreneurial initiatives in a timelier and more effective manner (Dodgson and Vandermark, 2000; Upstill and Hall, 2006).

We collected quantitative data through a questionnaire survey to test the strength of relationships between the variables in the model (Davidsson, 2004). We conducted the survey because secondary data do not typically provide information related to the firms’ capabilities. Other strategies such as experiment, observation and case studies were less suitable due to timing, financial and participatory issues, non-directly observable variables and inadequate potential for estimating the strength of relationships between variables and making statistical generalisations (Robson, 2011). The survey instrument was pre-tested and modified based on feedback from a panel of 15 scholars familiar with the literature and 6 practitioners from companies, consultants and associations in the industry.

To identify the research sample, we organised a database of these firms using publicly available databases. Each database added unique entries as well as overlapped with the other databases, enhancing validity and reducing the biases based on single-source information. We first identified around 800 supplier firms in the Iranian context. Since some of the firms in the sample were not contactable and some did not exist or were irrelevant, the sample was finally reduced to 598 companies.

The survey was conducted from mid-September to mid-November, 2012. Following Dillman’s (2000) proposed introductions for boosting participation, a letter explaining the project was first sent to the firms. The letter promised the provision of a management report upon completing the survey, and indicated that the firms would be followed up by telephone. The firms were then contacted for seeking their participation and asking their preferable method of receiving the survey, that is, either by email or postal mail. In some cases, trained members of the research group were sent to firms to meet top adminstrators to explain the project and determine a date for collecting the completed questionnaires. This method is one of the most common and effective ways of boosting response rate and obtaining valid and high quality data in developing countries (cf. Luk et al., 2008; Zhou and Li, 2012).

To minimise the potential common method bias in cross-sectional studies, the questionnaire was divided into two parts, one comprised independent variables and the other, dependent variables; and two informants in each company were asked to fill out
the questionnaires, one for independent variables and the other for the dependent variables (Podsakoff et al., 2003). We finally received completed and usable double-respondent questionnaires from 126 companies, accounted for by consulting services (1.6%), contracting (18%), equipment manufacturers (63.9%), supplies and consumables (13.1%) and support and services (3.3%), and amounting to an effective response rate of 21%.

We compared early and late respondents (identified as those returning the survey after the second reminder) (cf. Simsek, Veiga and Lubatkin, 2007) in terms of size and key variables in the model. No statistically significant differences were detected, suggesting that non-response bias is not a concern in our study.

3.2 Measures

3.2.1 Corporate entrepreneurship

The extent to which companies pursue corporate entrepreneurial activities was measured based on scales developed by Zahra (1996). The scales capture the dimensions of innovation - developing new products and services; international and local venturing - the birth of new business within existing companies and entering new markets and renewal - redefining the business scope or strategy (Yiu and Lau, 2008; Yiu, Lau and Bruton, 2007). Respondents were asked to rate 15 items, based on a five-point Likert scale, with scores ranging from 1 (‘strongly disagree’) to 5 (‘strongly agree’). Following the literature (Heavey et al., 2009; Simsek, 2007; Simsek and Heavey, 2011; Simsek, Veiga and Lubatkin, 2007), we used corporate entrepreneurship as a meta-construct, as it better captures synergies between the dimensions. This model outperforms a first-order model with the individual dimensions as supported by a significant chi-square difference ($\Delta \chi^2 (4) = 117, p < 0.001$). The coefficient alpha for the overall scale was 0.83.

3.2.2 Number of business partners

To measure the number of business partners, we asked firms the number of partners they currently have, through a scale from 1 (none) to 5 (more than 11 ties). Following Gulati (1995), we defined business partners for the respondents as organisations such as suppliers, customers, universities or government agencies that the company shares or co-develops resources to achieve mutual benefits.

3.2.3 Network management capabilities

We adapted two dimensions related to the management of the capability of inter-firm connections from the scale developed by Sarkar, Aulakh and Madhok (2009). A three-item Likert scale measured a firm’s engagement in processes for creating informal self-enforcing safeguards ($\alpha = 0.77$). Portfolio coordination also captured a firm’s efforts to integrate and synchronise strategies and activities across its partnering portfolio through a three-item Likert scale ($\alpha = 0.72$).
3.2.4 Control variables

To reduce the possible confounding effects and extraneous variations, a number of variables were included in this study as control variables. Firm size is an important factor in explaining firm behaviour (Liao, Welsch and Stoica, 2003) as larger companies may have more resources, but less flexibility, for corporate entrepreneurial activities (Burgers et al., 2009). We therefore controlled for the number of full-time employees. Firm size was measured through a categorical scale such that ‘5–19’ as small, ‘20 to 199’ as medium and ‘over 200’ as large business (we excluded micro firms from analysis because it is less likely that firms with, for example, one person would undertake venturing activities. We also did not have any large firms among respondents). The literature also acknowledges that environmental dynamism affects corporate entrepreneurial activities (Heavey et al., 2009). As such, environmental dynamism, capturing the rates of changes in the competitive environment, was controlled through a four-item scale, used in the literature (Jansen, Van Den Bosch and Volberda, 2005). The coefficient alpha for this scale was 0.69. Finally, additional industry effects were controlled by using five industry dummies: consulting services, contracting, support and services, supplies and consumables and equipment and manufacturer.

3.3 Measurement validity tests

Apart from adopting the measures from the literature for increasing validity (DeVellis, 2003), the following steps were taken to minimise concerns about the common method bias. To mitigate common method bias, two respondents were asked to complete the survey instrument, one for the dependent variables and the other for independent variables (Podsakoff et al., 2003). Two post-hoc statistical tests were also conducted to assess the effect of method bias. First, Harman’s single factor test was conducted to test the presence of the common method bias among the whole sample. As multiple factors emerged from the solution, and the first factor did not account for the majority of the explained variance (it was less than 20%), it was considered that common method bias should not be a major concern in this research (Podsakoff and Organ, 1986). We also followed the partial correlation procedure proposed by Lindell and Whitney (2001) to assess the method bias more precisely in the data. We added an unrelated item to the instrument as a marker variable. We checked whether the partial correlation coefficients for all correlated variables were still statistically significant after controlling for the marker variable or not. As the original correlations between all correlated variables still remained significant while controlling for the marker variable, the method bias did not appear to pose a major issue for the data.

4 Results

Hierarchical regression analysis was used to test the hypotheses. Predictors were all mean-centred (Cohen et al., 2003). Table 1 presents the means, standard deviations and correlations for the variables in this study. Since the correlations between each pair of the variables are all below the suggested cut-off of 0.70 (Tabachnick and Fidell, 1996) and the calculated variance inflation factor (VIF) for each regression equation is well below the recommended level of 10, it was expected that multi-collinearity should not bias the results.
<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Standard deviation</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>
<th>(10)</th>
<th>(11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Corporate entrepreneurship</td>
<td>3.40</td>
<td>0.52</td>
<td>(0.83)</td>
<td></td>
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<tr>
<td>2</td>
<td>Relational governance</td>
<td>3.90</td>
<td>0.60</td>
<td>0.25*</td>
<td>(0.77)</td>
<td></td>
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<tr>
<td>3</td>
<td>Portfolio coordination</td>
<td>3.45</td>
<td>0.61</td>
<td>0.35**</td>
<td>0.50**</td>
<td>(0.72)</td>
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<tr>
<td>4</td>
<td>Partner number</td>
<td>2.12</td>
<td>1.21</td>
<td>0.11</td>
<td>-0.07</td>
<td>0.06</td>
<td>(0.69)</td>
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<td>5</td>
<td>Dynamism</td>
<td>3.59</td>
<td>0.68</td>
<td>0.08</td>
<td>0.13</td>
<td>0.13</td>
<td>0.23*</td>
<td>—</td>
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<tr>
<td>6</td>
<td>Support</td>
<td>0.04</td>
<td>0.17</td>
<td>0.04</td>
<td>0.07</td>
<td>0.005</td>
<td>-0.01</td>
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<td>—</td>
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<tr>
<td>7</td>
<td>Supplies</td>
<td>0.12</td>
<td>0.33</td>
<td>0.22***</td>
<td>0.12</td>
<td>-0.01</td>
<td>0.03</td>
<td>-0.01</td>
<td>-0.06</td>
<td>—</td>
<td></td>
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<tr>
<td>8</td>
<td>Contracting</td>
<td>0.19</td>
<td>0.38</td>
<td>0.04</td>
<td>0.10</td>
<td>0.009</td>
<td>-0.12</td>
<td>0.03</td>
<td>0.08</td>
<td>-0.18***</td>
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<td>9</td>
<td>Consulting</td>
<td>0.02</td>
<td>0.12</td>
<td>-0.3</td>
<td>-0.12</td>
<td>-0.09</td>
<td>-0.11</td>
<td>0.02</td>
<td>-0.02</td>
<td>-0.04</td>
<td>-0.06</td>
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<td>10</td>
<td>Manufacturing</td>
<td>0.63</td>
<td>0.48</td>
<td>-0.7</td>
<td>-0.16</td>
<td>0.02</td>
<td>0.11</td>
<td>-0.01</td>
<td>-0.23*</td>
<td>-0.50*</td>
<td>-0.64**</td>
<td>-0.16</td>
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<td>11</td>
<td>Small</td>
<td>0.48</td>
<td>0.50</td>
<td>IC</td>
<td>-0.01</td>
<td>0.009</td>
<td>-0.14</td>
<td>-0.17</td>
<td>0.19***</td>
<td>0.11</td>
<td>0.10</td>
<td>-0.12</td>
<td>-0.20***</td>
</tr>
<tr>
<td>12</td>
<td>Medium</td>
<td>0.52</td>
<td>0.50</td>
<td>-0.0</td>
<td>0.01</td>
<td>0.009</td>
<td>0.14</td>
<td>0.17</td>
<td>-0.19</td>
<td>-0.11</td>
<td>-0.10</td>
<td>0.12</td>
<td>0.20</td>
</tr>
</tbody>
</table>

N = 126. Numbers in parentheses on the diagonal are Cronbach’s coefficient alphas of the composite scales.

*Correlation is significant at the 0.01 level (two-tailed).

**Correlation is significant at the 0.001 level (two-tailed).

***Correlation is significant at the 0.05 level (two-tailed).
Table 2 shows regression results for corporate entrepreneurship. Model 1 tested the relationship between the control variables and corporate entrepreneurship. This model contained one of the two size dummies because medium was used as the reference group, and four of the five industry dummies because manufacturing was considered as the reference group. The number of business partners was also entered as main effect in Model 2. Model 3 included the two-way interaction of the number of business partners and relational governance and Model 4 tested the two-way interaction of the number of business partners and portfolio coordination.

### Table 2  Moderated regression results for corporate entrepreneurship

<table>
<thead>
<tr>
<th>Control variables</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
<th>Model 4</th>
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<tr>
<td>Industry dummies &lt;sup&gt;a&lt;/sup&gt;</td>
<td></td>
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<td>Consulting</td>
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<td>−0.279</td>
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<tr>
<td>Contracting</td>
<td>0.095</td>
<td>0.117</td>
<td>0.108</td>
<td>0.095</td>
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<tr>
<td>Supplies and consumables</td>
<td>0.352*</td>
<td>0.344*</td>
<td>0.331*</td>
<td>0.324*</td>
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<tr>
<td>Support and service</td>
<td>0.162</td>
<td>0.157</td>
<td>0.172</td>
<td>0.144</td>
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<tr>
<td>Organisational size dummies &lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
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<tr>
<td>Small</td>
<td>0.059</td>
<td>0.076</td>
<td>0.092</td>
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<tr>
<td>Environmental dynamism</td>
<td>0.039</td>
<td>0.012</td>
<td>0.041</td>
<td>0.022</td>
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<td>Relational governance</td>
<td>0.035</td>
<td>0.045</td>
<td>0.076</td>
<td>0.050</td>
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<tr>
<td>Coordination portfolio</td>
<td>0.271***</td>
<td>0.279***</td>
<td>0.259**</td>
<td>0.271***</td>
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<table>
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<th>Main effect</th>
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<td>Number of partners</td>
<td>0.063&lt;sup&gt;+&lt;/sup&gt;</td>
<td>0.060&lt;sup&gt;+&lt;/sup&gt;</td>
<td>0.058</td>
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<table>
<thead>
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<th>Moderating effects</th>
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<tr>
<td>Number of partners × relational governance</td>
<td>0.141&lt;sup&gt;*&lt;/sup&gt;</td>
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<td>Number of partners × portfolio coordination</td>
<td>0.084</td>
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| F-Change                   | 3.604***| 2.839<sup>+</sup> | 5.575*  | 2.190   |
| Adjusted R<sup>2</sup>     | 0.143***| 0.156<sup>+</sup>| 0.188*  | 0.165   |

<sup>N</sup> = 126. Unstandardised regression coefficients are displayed in the table.

*<sup>p</sup> < 0.05, **<sup>p</sup> < 0.01, ***<sup>p</sup> < 0.001, <sup>+</sup><sup>p</sup> < 0.10.

<sup>a</sup>Manufacturing served as reference group in regression analyses.

<sup>b</sup>Medium size served as reference group in regression analyses.

Considering hypothesis 1, Model 1 in Table 2 indicates that the impact of a firm’s number of business partners on corporate entrepreneurship is marginally significant (β = 0.063, <sup>p</sup> < 0.10), providing support for hypothesis 1.

With regard to hypothesis 2, the interaction term of the number of business partners and relational governance in Model 3 is significant (β = 0.141, <sup>p</sup> < .01), indicating that the variance explained by this two-way interaction is significant (see Table 2). To interpret the significant interaction effect, Aiken and West’s (1991) plotting technique was used, in
which the effects of independent variables on the dependent variable in the low (one standard deviation below the mean) and high (one standard deviation above the mean) levels of moderator variables are depicted. As shown in Figure 2, the relationship between the number of business partners and corporate entrepreneurship is much stronger for firms with higher levels of relational governance, thus supporting hypothesis 2 (see Fig. 2).

Finally, the data in Model 4 show that the interaction term of the number of business partners and portfolio coordination is not significant; and hence hypothesis 3 is not supported by the data.

**Figure 2** Interaction of the number of partners and relational governance

5 **Discussion**

The main purpose of this study was to investigate organisational mechanisms moderating the impact of a firm’s number of business partners on corporate entrepreneurship. More recent research has reached mixed results with regard to the way a firm’s number of partners may affect the firm’s corporate entrepreneurial activities, particularly among SMEs in developing countries. To provide a better understanding of this relationship, we suggested a firm’s network management capabilities, namely relational governance and portfolio coordination, as two mechanisms moderating this connection.

The data marginally support the hypothesis that the number of business partners enhances a firm’s engagement in corporate entrepreneurship. This is consistent with prior literature positing that business partners, as channels for knowledge access, provide firms with new knowledge underlying corporate entrepreneurial activities (Burt, 1992; Teng, 2007; Yiu, Lau and Bruton, 2007). Developing partnering connections can be a knowledge gap-filling mechanism for SMEs (Stam, Arzlanian and Elfring, 2014). In particular, those operating in developing countries may have less incentives to fully develop the new knowledge needed for corporate entrepreneurship internally (Luo, Sun and Wang, 2011). As such, business partners can complement their efforts of knowledge creation for undertaking innovative activities. These results contribute to the literature of corporate entrepreneurship by empirically confirming the link between the number of business partners and the corporate entrepreneurship in a developing country. This means
that firms in such contexts may need to expand their business partners for proceeding to their entrepreneurial purposes.

Our findings, however, indicate that this connection is much stronger for firms with higher levels of relational governance, thus supporting hypothesis 2. This means that as the number of business partners increases, firms may need a relational governance to effectively use their business partners for corporate entrepreneurship. Relational governance is a trust-building mechanism leading to richer and more tacit knowledge without engaging in high monitoring costs accompanied by contract-based mechanisms (Aulakh, Kotabe and Sahay, 1996; Das and Teng, 1998). In particular, firms operating in developing countries may need to adopt a relational governance approach to mitigate voids in their institutional contexts (Peng, 2003; Shinkle and McCann, 2014). This contributes to the literature of corporate entrepreneurship by showing the way the impact of the number of business partners on corporate entrepreneurship is contingent on the firm’s capability to adopt a relational governance approach in managing its inter-firm connections. Indeed, increasing the number of business partners along with the adoption of a relational governance can make the firm more entrepreneurial. The findings can also provide a potential explanation for the inconclusive results in the business partners-organisational outputs (e.g., innovation) connection (Lin, Chen and Lin, 2014; Yiu and Lau, 2008) by introducing a firm mechanism moderating this link.

The data, however, did not support hypothesis 3 that suggested the moderating effect of portfolio coordination on the relationship between the number of business partners and corporate entrepreneurship. Yet, portfolio coordination holds a direct impact on corporate entrepreneurship, which means that coordinating and knowledge sharing across business partners enhance the level of corporate entrepreneurship. Further research seems needed to investigate this link more deeply. Other factors such as the diversity of business partners (cf. Schilke and Goerzen, 2010) may be important while adopting a coordination approach.

These results also echo the general proposition in the institution-based theory that a relation-based approach is more prevalent among companies in developing countries due to the institutional voids in such contexts (Peng, 2003; Peng and Heath, 1996; Peng et al., 2009). In seminal articles, Peng and Heath (1996) and Peng (2003) contend that in transitioning economies or less market-oriented economies, where formal institutions, including rules and regulations supporting free-market policies, are underdeveloped, institutional voids restrain companies from effectively benefiting from their capabilities. They propose that a relation-based approach emphasising the creation of informal safeguards works better in such contexts. Our findings echo this notion by showing that companies with more relational governance exploit their business partners for entrepreneurial activities more effectively.

For managers aiming to enhance corporate entrepreneurial outputs, this research suggests that firms should search for partnering opportunities and increase their number of business partners. Yet, firms should adopt a relational approach to better use their business partners for corporate entrepreneurship. Practically speaking, the number of business partners in tandem with relational governance can lead to higher levels of corporate entrepreneurship.

As most research in social science and management spheres, this study is also accompanied by limitations warranting future research. First, our results did not support the moderating impact of portfolio coordination on the business partner numbers-corporate entrepreneurship connection. Portfolio coordination should be more important
for firms with more diverse network portfolio (cf. Schilke and Goerzen, 2010). Yet, we did not address the diversity of business partners in the firm’s network portfolio, which can be a compelling path for future research. Connecting network management capabilities with the literature on structural factors such as centrality (Powell, Koput and Smith-Doerr, 1996) and structural holes (Ahuja, 2000) is also another avenue for extending this research. For instance, do firms with similar structural positions have different corporate entrepreneurship performance due to heterogeneity in these capabilities (Dyer and Hatch, 2006)? Finally, all business partners do not have the same value for firms to enhance their levels of corporate entrepreneurship. In particular, partners with novel and complementary knowledge are rarer in contexts with less institutional development (cf. Zhao, 2006). Linking pre-formation network capabilities such as partnering proactiveness (Sarkar, Echambadi and Harrison, 2001) to corporate entrepreneurship, and the mechanisms explaining and mediating this link can also be worthwhile avenues for future research.

Overall, this study can open a worthwhile avenue for future research to connect a firm’s networking capability management to structural factors, including the number of business partners, position in the networks and so on. This can enhance our understanding of how and why some firms are better at using partnering opportunities for corporate entrepreneurial and innovative activities, specifically in developing countries.

References


