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Exploring the effects of network configurations on entrepreneurial orientation and firm performance: an empirical study of new ventures and small firms

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Prior studies have suggested that networks are important for new ventures and small firms as a provider of access to entrepreneurial opportunities and as a tool to increase firm performance. Although the strategic value of networks on a general level is undisputed, one major shortcoming of prior studies has been to evaluate the effects of specific network configurations. Moreover, small firms have all too often been treated as a homogeneous group, expected to reveal similar needs and patterns of behavior. The purpose of this explorative study was therefore to examine the effects of different network configurations on entrepreneurial orientation (EO) and performance for two categories of small firms – new ventures and established small firms. The results were achieved by using empirical data from two independent samples of new ventures (n = 171) and small firms (n = 291) and show that network relationships have quite different effects in the two samples. While networking is overall positively linked to EO and performance for small firms, no positive effect from networking is evidenced for new ventures' EO and performance. For both samples, we found a strong link between EO and performance. This paper concludes with a discussion on the results and suggestions for future research.

Keywords: *resource-based view*; *network capability*; *life cycle perspective*

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The resource-based view (RBV) suggests that a firm's competitiveness is dependent on its possession of valuable, rare, imperfectly imitable, and non-substitutable (VRIN) resources. Firms holding VRIN resource characteristics can create barriers that secure economical rents and leads to profitability (cf Barney, 1991; Penrose, 1959; Wernerfeldt, 1984). However, new ventures and small firms are known to suffer from internal resource deficiencies, suggesting that these firms, as compared to older and larger firms, face problems stemming from their lack of financial and/or material resources that makes it difficult to achieve such competitive advantages (Baum, Calabrese, & Silverman, 2000; Storey, 1994). Hence, it is not surprising that a significant number of new ventures and small firms have limited scope for development and instead struggle for survival (Kirchhoff & Phillips, 1988).

Prior studies also suggest that new ventures and small firms can overcome resource-oriented challenges by engaging in collaboration or exchange with external network partners (Lee C, Lee K, & Pennings, 2001). Many new and good ideas are created in networks of heterogeneous firms (Burt, 2004), increasing firms' entrepreneurial opportunities. Through diverse relationships, a firm can obtain valuable and specialized knowledge, competencies and resources complementing or compensating their own limited in-house resources and competencies (Adler & Kwon, 2002; Baum et al., 2000). These advantages from networking can in turn enable new ventures and small firms to be more innovative, risk-taking and proactive, and thus portray an entrepreneurial orientation (EO). For instance, Wincent and Westerberg (2005) found that inter-firm networking positively influences EO. Moreover, network relationships may also

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result in unique competitive advantages that improve the firm's overall performance (Davidsson & Honig, 2003; Lee et al., 2001; Watson, 2007).

Prior studies have accordingly shown that network relations can be a source for achieving a higher degree of EO and performance. However, there is a lack of understanding of which type or kind of network configurations are most valuable for new ventures and small firms (Pittaway, Robertson, Munir, Denyer, & Neely, 2004). Although both these firms lack internal resources, they represent different phases of an organizational life cycle. New ventures are usually striving to establish a foothold in its industry and as they are new to the market, networks can be very beneficial for legitimacy building and getting access to different market segments. However, for a new firm it might be difficult to assess the value of different network opportunities, and it is therefore likely that there will be a period of trial and error before the new firm has established a fully functional network of contacts. As a contrast, a small firm already operating on the market is concerned with the challenge of sustaining its competitiveness. Here, its network is probably more established due to the trial and error process it needed to go through during its early years of establishment. Taken together, the effects from networking with different actors (e.g. customers or suppliers) can be driven by different motives and may lead to different outcomes for new ventures as compared to established small firms. In this study, we take into consideration three basic types of network configurations, namely networks with *upstream partners* (i.e. suppliers), *downstream partners* (i.e. customers), and *horizontal partners* (e.g. competitors). As a complementary approach, we also consider *network diversity* (i.e. whether the network contacts a firm has represent different categories of partners) and *network size* (i.e. the total number of network partners a firm has access to).

Based on the above background, the purpose of this explorative study was *to examine the effects of different network configurations on EO and performance for new ventures and small firms, respectively.* This purpose can be further sub-divided into two research questions:

- RQ1: How are different network configurations associated with EO for new ventures and small firms, respectively?
- RQ2: How are different network configurations associated with performance for new ventures and small firms, respectively?

The research questions will be examined based on empirical data from two independent samples addressing new ventures and small firms. The study has three main contributions. First, it provides a better understanding regarding the role a specific network relationship can have for new ventures' and small firms' competitiveness, thus contributing to a growing body of literature on *inter-organizational network research* (Kale, Dyer, & Singh, 2002; Powell, Koput, & Smith-Doerr, 1996). Second, this study contributes to the *entrepreneurship literature* by examining the antecedents of EO. Although the relationship of EO and performance has been widely studied (Wiklund & Shepherd, 2003, 2005), there still remains an empirical void related to drivers for EO in new ventures and small firms (Rauch, Wiklund, Lumpkin, & Frese, 2009). Finally, this study also makes a contribution to the *RBV* as understanding the dynamics through which new ventures and small firms can compensate for their lack of internal resources and achieve competitiveness could provide future direction for RBV studies.

The next section of this article will present the theoretical framework underpinning this article, followed by a *Method* section where we outline the methodology employed in this study. After this, results from our study are presented, followed by a *Discussion and conclusions* section including suggestions for further research.

Theoretical framework

Networking practices of new venture vs. small firms

Based on the early work of Penrose (1959), RBV provides an inward-looking perspective on firms and regards them as heterogeneous entities consisting of bundles of idiosyncratic resources. Resources are understood as 'tangible and intangible assets which are tied semi-permanently to the firm' (Wernerfeldt, 1984, p. 172). Firms with superior resources can create barriers that secure economic rents and lead to profitability. However, not all resources are sources of competitiveness, since only those resources that are VRIN compared to the competitors' resources lead to competitive advantage (Barney, 1991). Such a resource-centric competitive advantage is difficult to attain for new ventures and small firms. According to the European Commission (2006) study, the most prominent challenge for new ventures and small firms is to overcome the scarcity of resources that limits the scope of their development and reduce their access to new technologies and/or innovations.

However, the scarcity of resources can be managed or compensated through networking practices as this could provide access to external resources. Prior studies have also shown that interacting with network partners and thereby obtaining competitive advantage is highly important for new ventures (Baum et al., 2000; Deakins, 1999) and small firms (Pittaway et al., 2004; Powell et al., 1996). Moreover, numerous new and established firms are adapting an open business model where the end product is largely dependent on collaboration with customers, suppliers, third-parties, and even competitors. The benefit of such open business model is the flexibility to share

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costs and increase the revenue generation potential of the firm. This is particularly relevant for technology-based new ventures and small firms (Chesbrough, 2006).

In this context it is critical to acknowledge that new ventures and small firms due to their diverse requirements undertake networking practices for different reasons. New ventures are in a phase where their primary attention lies on securing a foothold on a market (Deakins, 1999). Small firms are instead more concerned with retaining their market and, if possible, grow into new markets. This would imply that new ventures should network with firms or actors that may contribute toward development of legitimacy, such as large well-reputed established firms. New ventures are also likely to be less selective in terms of choosing partners as they don't have prior networking experience. Despite this, networks can have a positive effect on performance through providing access to diverse knowledge and information and by collaborating with potential rivals that provide more opportunity for learning and less risk of intra-collaboration rivalry (Baum et al., 2000).

Small existing firms have already experienced some challenges of networking in their past and are more experienced in their approaches toward new and established network partners. They depend on networks for gaining complementary resources, rather than compensating for the lack of own in-house resources (Mancinelli & Mazzanti, 2008), providing them with a better control over their network partners. It can also be suggested that most new ventures that are unable to effectively gain from networks would have failed or closed their operations, implying that most existing small firms are more experienced than new ventures in employing effective networking practices. Moreover, small firms are able to attain economy of scale and/or to merge and integrate diverse skills, technologies, and competences through networking. Thus, networking holds a different value and can result in different effects for new ventures and small firms, which represents an imperative research agenda to explore further.

Impact of network configurations on entrepreneurial orientation (EO) and performance

Prior studies have also found that through networks, new ventures and small firms can access difficult-to-imitate resources (Yli-Renko, Autio, & Sapienza, 2001), achieve increased innovativeness (Ahuja, 2000; Baum et al., 2000), and a faster market entry, resulting in enhanced performance, growth, and survival (Lee et al., 2001; Walter, Auer, & Ritter, 2006). However, in this study we have focused on the effect of networks on EO and firm performance. EO refers to the strategy-making processes that provide organizations with a basis for entrepreneurial decisions and action leading to competitiveness (Wiklund & Shepherd, 2003). Prior studies have suggested that EO is revealed through an organization's innovativeness, proactiveness, and risk-taking (Lumpkin & Dess, 1996; Miller, 1983). Innovativeness reflects a firm's willingness to support and employ new ideas, creativity, and experimentation in the development of internal solutions or external offerings. Proactiveness represents a forward-looking and opportunity-seeking approach that provides an advantage above competitors' actions by anticipating and acting upon future market demands. Risk-taking is associated with a firm's readiness to make bold and daring resource commitments related to organizational initiatives with uncertain returns. Thus, an entrepreneurial new venture would act in a creative manner and strive to develop new ideas ahead of its competitors by introducing products/services and take bold actions to maximize the exploitation of opportunities in uncertain situations (Baum et al., 2000). Similarly, small entrepreneurial firms would target premium market segments and offer their products ahead of their competitors (Zahra, Nielsen, & Bogner, 1999). By rapidly developing innovative products, monitor market changes and respond quickly, these firms can capitalize on emerging opportunities leading to better performance (Zahra & Covin, 1995). Thus, having an entrepreneurial posture represents a path for competitiveness for both new ventures and small firms.

Networking activities can be a driver for how new ventures and small firms achieve a higher degree of EO. High level of EO depends on value creation through external ties as they provide scarce and valuable resources (Lee et al., 2001). Similarly, other studies have shown that small firms can positively influence EO through their networking practices (Parida & Westerberg, 2009). Thus, to fully extract the capability to identify, create and exploit entrepreneurial opportunities, new ventures and small firms benefit from joining networks and thus gaining advantages from external relationships. The effects of networking are widely studied and understood to positively affect entrepreneurial opportunities (cf. Birley, 1985; Burt, 1992; Granovetter, 1973; Uzzi, 1999; Wincent & Westerberg, 2005). Since it is time-consuming and difficult for new ventures and small firms to develop all the resources necessary to successfully commercialize a business idea alone, they normally rely on external contacts for accessing scarce and specialized resources that the firm needs in order to become established and to grow (Davidsson & Honig, 2003).

Although the benefits of networking for new ventures and small firms are acknowledged, one major shortcoming of prior studies refers to evaluating the effects of specific network configurations on EO and performance. According to Hoang and Antoncic (2003), network configuration can be defined as the pattern of relationships involving direct and indirect ties with different external actors. A literature review study by Pittaway

et al. (2004, p. 160) found that 'there is considerable ambiguity and debate within the literature regarding appropriate network configuration' for competitiveness. This research gap can be further expanded as prior studies also hold diverse views on how to capture a network configuration, for example formal vs. informal configurations, strong vs. weak ties (Granovetter, 1973), customer-oriented (Jacob, 2006) vs. supplier-oriented (Arend, 2006) configurations. Moreover, it can be expected that new ventures and small firms would differ in their preferences toward different network configurations. For example, Lee et al. (2001) suggest that new ventures more than established small firms prefer to network with actors outside the value chain such as venture capitalists, universities/research institutes, and venture associations.

Based on the study of Baum et al. (2000), we have adopted a fairly generic view on network configurations, distinguishing networks with upstream partners (e.g. suppliers), downstream partners (e.g. customers), and horizontal partners (e.g. competitors). Furthermore, as a complementary approach we also consider two additional views on network configurations, namely the diversity of the network (i.e. to what degree the network configuration is diverse in terms of consisting of many different categories of network actors), and network size (i.e. whether the configuration is simple with few actors or complex with many actors). In the following section, we will briefly address each of these aspects on network configurations and their potential effects on EO and performance for new ventures and small firms.

Networking with upstream partners mainly involves direct suppliers, which can be important for new ventures and small firms as their involvement can lead to development of more efficient processes (Bradley, Meyer, & Gao, 2006). This type of network configuration is also known to positively affect cost, quality, technology, speed, and responsiveness of a firm's production (Ragatz, Handfield, & Scannell, 1997). According to Lee et al. (2001), networking with established suppliers would increase the credibility of a new venture and a small firm among third parties, such as customers and other interested parties. Moreover networking with supplier firms can expand the scope of accessing entrepreneurial opportunities for new and small firms as they can gain from the stronger market position of their partners. In his study Arend (2006) found that upstream configuration has a positive effect on performance. However, it may also involve risks for new ventures and small firms as they can encounter a 'lock-in effect' due to increased dependency on a certain supplier. Also, if the collaborating firm is a large supplier, there is an increased probability for opportunistic behavior due to the stronger bargaining power of large firms as compared to their smaller counterparts.

Networking with downstream partners mainly involves direct customers. Customers are central actors when it comes to value creation as understanding their needs and expectations can lead to market success (Jacob, 2006). Studies have shown that downstream networks are the most common form of collaboration for driving innovativeness as firms develop products that are commercially viable (Gemunden, Heydebreck, & Herden, 1992). Close interaction with key business customers and users not only allows new ventures and small firms to learn about existing market needs, but may also lead to discovery of future needs before their competitors (Chesbrough, 2003; Von Hippel, 2005). Due to intimate relations with their customers, firms may hence exploit a flow of rich information regarding emerging opportunities which can allow them to take calculated risks and initiate proactive actions. However, mainly relying on downstream partners for inspiration can hamper the creativity or novelty of new ventures and small firms as they may get too restricted and customer-centric leading to only incremental innovation. Thus, similarly as upstream networks, downstream networks can also involve certain levels of hazard, especially regarding its impact on EO.

Networking with horizontal partners has to do with firms and organizations which are not part of a firm's value chain, such as competitors, universities, and government agencies. Compared to vertical configurations, networking with horizontal partners is initiated more carefully and willfully. Teng (2007) points out that collaboration with other firms is the most beneficial alternative for resource acquisition, since this arrangement is flexible and allows shared costs and risks. New ventures and small firms can achieve higher performance through combining forces with competing firms to share costs of development, joint market products, and for knowledge sharing and joint procurement (Pittaway et al., 2004). These configurations can also involve universities and governmental institutions as partners that can be pivotal for new ventures and small firms and where, for example, a university could be used as a prospective partner to acquire access to novel knowledge and technologies, and networking with governmental institutions may help small firms develop legitimacy and be involved in networking with a lower risk of opportunistic behavior (Chesbrough, 2003; Etzkowitz & Leydesdorff, 2000). However, it can also be argued that this type of network configuration would involve a higher degree of risks, such as a possibility that a network partner may lose its core knowledge or critical assets to its competitors (Hamel, 1991).

In addition to the above mentioned network configurations, we also examine the effects of *network diversity and network size*. Network diversity refers to the variety of actors in the firm's network and network size refers to the number of network relationships a firm holds. Powell

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and Grodal (2005) show that firms with diverse networks of partners achieve interaction with a more various range of knowledge, competencies, and experiences, creating an environment that is more likely to result in innovations and identification of new opportunities. For example, communication with people having different skills, backgrounds, and values increase the chance to foresee novel combinations of knowledge leading to radical innovation (Ritter & Gemünden, 2003). The trade-off with having several network partners could be the resources needed for maintaining these diverse and/or numerous relationships. In contrast, several network contacts may give a better and more accurate view on other firms' resources and capabilities, thus counteracting actions taken on an inaccurate or misleading basis. Moreover, a large network can also act as a buffer against unforeseeable future events which can be fatal to new ventures and threatening to small firms (Ahuja, 2000). Teng (2007) proposes that inter-organizational collaboration is used more by entrepreneurial firms, i.e. by firms employing EO characteristics. The reason is that collaboration would fill in the entrepreneurial firm's resource gaps, offer complementary fit between partners, and help to develop first-mover advantages, as well as to develop and share tacit knowledge difficult for competitors to imitate. The risk of such a complex network configuration can be the learning race phenomena in which a firm attempts to extract as much knowledge as possible from its partner while divulging as little as possible of its own competitive advantage (Khanna, Gulati, & Nohria, 1998).

Thus, after outlining the theoretical base that has guided this present study, in the following section we turn to the method employed to answer the research questions.

Method

Data collection

When we planned the data collection for this study, we faced some challenges. To begin with, it was important to get samples that were not too diverse since this would imply variance that is not possible to control. To compare young ventures and small firms, the ideal would be that both samples were as similar as possible. Delimitation to a specific industry or line of business is here an often employed strategy to achieve comparability and reduce the effects of intervening variables. As the number of new ventures in a specific industry is limited, this would however imply a sample size insufficient for robust statistical analyses. In order to still have some control, we instead chose to sample a cohort of new ventures in one region, keeping the basic institutional settings constant. For the category of small firms, it was possible to sample a single industry, which controls for industry factors. Based on these considerations data collection was undertaken during the summer of 2007 involving two independent samples of Swedish firms: (1) a cohort of generic new ventures and (2) established small firms in a specific industry.

For the first sample, we wanted to study ventures that were in their early years, but still not entirely novel. Based on this it was decided to choose a cohort of firms established in 2003 (and thus between 3.5 and 4.5 years when surveyed in mid-2007). This timeframe is in accordance with Deakins' (1999) study – a methodological approach also used by the Global Entrepreneurship Monitor (GEM) projects to define early-stage entrepreneurial activity. In addition, to be part of the final sample the firms established in 2003 should at the time of data collection be registered as a limited company, be actively operating and have a turnover of at least 1 million Swedish kronor (approximately €100,000) the preceding financial year. Based on these sampling criteria, a random sample of 1,620 new ventures was drawn using 'Affärsdata' – a Swedish business database.

The second sample focused on collecting data from existing small firms. In particular, ICT-based small firms were targeted during the data collection. ICT-related companies were chosen since they belong to a contemporary industry where firms constantly need to monitor their environment and respond to changes. This puts them in a similar situation as new ventures. Through the use of 'Affärsdata,' we sampled 'consultancy-related computer systems or computer software firms,' and used three criteria to sample the small firm category: At the time of data collection (1) firms should be a limited company with fewer than 50 employees (i.e. small firms according to the EU definition), (2) be actively operating with more than 1 million Swedish kronor in sales, and (3) be dealing with technology-related products. This resulted in the identification of 1,471 small firms, which was considered the total population.

As the purpose and research questions of this study hold the ambition to explore relations between variables, a survey method was used for data collection. For this purpose, questionnaires were developed. To enhance the study's external validity, the questionnaires were checked for any problems or irregularities and were pre-tested on chief executive officers (CEOs) of new ventures and small firms. The period of pre-testing lasted for almost one month. Any doubts, misunderstandings, or queries were noted and the questionnaires were modified. Modified versions were then further tested on new additional respondents. This process continued until no further needs for major changes were indicated. Finally, the definitive questionnaires were mailed during May to August 2007.

The questionnaires were addressed to the CEO of the new venture and small firm, with a cover letter explaining the purpose of the study. As the unit of analysis is the firm

level, and in order to gain the holistic view of firms' operations, it was deemed most appropriate to send the questionnaire to the CEO, the main (and sometimes the only) decision-maker in these kinds of firms. In the case of the new venture sample, a total of 171 usable replies were received (12% response rate) and for small firms 291 usable replies were received (21% response rate). Such relatively low response rates have often been found to be typical for this type of studies (cf Baum, Locke, & Smith, 2001; Wiklund & Shepherd, 2005). Still, it raises concern regarding the statistical generalizability of the results. Therefore, a non-response analysis addressing structural factors such as firm age (for small firms), size (number of employees), profitability, and solidity was performed. The analysis showed no significant differences between respondents and non-respondents for either sample.

Measurements

Independent variables

In this study, network contacts were captured by asking the CEO to recall those external contacts that are *recurring* and of *strategic importance* (i.e. contributing to the firm's competitiveness). Then the CEO was asked to put down the actual number of network contacts the firm currently has in 10 categories. The categories were small firms such as customers, suppliers or partners, large firms such as customers, suppliers or partners, universities such as customers or partners, and government organizations such as customers or partners. *Network diversity* was measured by how many different categories the firm had at least one contact in. Thus, this can vary from 0 (when the firm has no network contacts) to 10 (when the firm has at least one contact in each of the 10 categories described above). *Network size* was measured by the logged number of the firm's actual number of network contacts. *Upstream partners* is a dichotomous variable and is set to 1 when at least one network contact involves a supplier. Likewise, *downstream partners* is set to 1 if at least one network contact involves a customer, and *horizontal partners* is set to 1 when at least one network contact involves a partner that is neither a supplier nor a customer.

Dependent variables

New venture and small firm performance has mainly been measured based on financial aspects. This however only provides limited information regarding performance. Therefore, several studies have supported the notion of including a multiple-item scale to measure performance (Walter et al., 2006). According to Chandler and Hanks (1993), asking firms to evaluate their performance in comparison to that of their competitors leads to a higher level of reliability and validity. Based on the studies of Lichtenthaler (2009) and Walter et al. (2006), this study used a self-reported measure of five different firm performance items in relation to competitors. The questions included *internal efficiency* (e.g. the efficiency of processes) and *sales performance* (e.g. sales growth in the established markets), and were measured on a seven-point Likert scale where a 4 indicates similar performance as competitors. The Cronbach's α for the firm performance scale was found to be above the 0.70 threshold for both samples (new venture sample, $\alpha = 0.82$ and small firm sample, $\alpha = 0.73$).

As a complementary dependent variable, EO was measured based on the well-established nine-item scale developed by Covin and Slevin (1989). Recent work suggests that this scale and its various derivations represent a useful and valid means of reflectively measuring an organization's entrepreneurial decisions and actions (Rauch et al., 2009, p. 778). The scale measures three aspects constituting EO; namely *risk-taking* (e.g. when firms support a strong aptitude for high-risk projects), *pro-activeness* (e.g. when a firm initiates actions to which competitors then respond), and *innovativeness* (e.g. when the main goal is to launch many new lines of products/services). Each item was measured using a 7-point Likert scale, where higher scores indicated a more entrepreneurially oriented strategic posture. As for performance, Cronbach's α for the EO scale was also here found to be above 0.70 for both samples (new venture sample, $\alpha = 0.78$ and small firms sample, $\alpha = 0.76$).

Control variables

Different environmental conditions and firm size can be expected to affect the relationships between network relations, EO, and performance. Therefore these factors were controlled during analysis. Environmental conditions, such as the degree of hostility and dynamism have in prior studies been shown to influence new venture and small firm performance (cf Lumpkin & Dess, 1996; Wiklund & Shepherd, 2003). A 7-item scale, adapted from Miller and Friesen (1982) and Slevin and Covin (1997), was used to measure the firm's environmental circumstances. Three items assessed dynamism of the firm's environment and four items assessed its hostility. The respondents indicated to what extent each environmental characteristic corresponded to their firm's environment. The higher the index, the more dynamic and hostile is the firm's environment. Firm size, finally, was captured by the logged number of employees in the firm.

Data analysis

The analysis of the study was completed by a factor analysis and multiple regression analysis using SPSS as software. First, we made a confirmatory factor analysis to determine whether the dimensions of a firm's EO and performance represented distinct constructs. The analysis showed that all variables had good measurement

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properties. We then made two multiple regression analyses for each sample to determine how network factors influence EO and firm performance – the first with EO and the second with firm performance as dependent variable.

Results

First, we calculated the Pearson's correlation between network diversity, network size, type (downstream, upstream, and horizontal) of network contacts, EO, firm performance, and the control variables (see Table 1). Starting with the new venture sample, the correlations were positive and statistically significant between EO and down-stream relationships, horizontal relationships, network diversity, and network size. In addition, a more turbulent and competitive environment was also linked to higher EO, which is in line with prior studies (cf Covin & Slevin, 1989; Lumpkin & Dess, 1996; Wiklund & Shepherd, 2005, 2003). Regarding firm performance, firm size, and EO was related to new ventures' performance.

For the small firm sample, the correlation matrix reveals more significant bivariate results. For EO there are positive and significant correlations to upstream relations and horizontal relations, as well as to network diversity and network size. The controls firm size and dynamism are also positive and significant. For firm performance, the same network constructs that had a positive and significant relation to EO are also linked to performance. Additionally, there is a strong link to EO and to firm size (see Table 2).

Next we conducted a multiple regression analysis to test the proposed model. We primarily wanted to investigate the effects of network relationships on small and new ventures' EO, as well as their performance. The results for new ventures, presented in Table 3, show that collaboration with downstream partners, such as large suppliers, have a weak negative effect on new ventures' ability to act entrepreneurially ($\beta = 0.14$, $p < 0.1$). Thus, collaborating with suppliers seems detrimental to achieving EO for new ventures. The strongest positive effect on a new venture's EO is the environmental hostility ($\beta = 0.34$, $p < 0.01$), indicating that the tougher the competition is on a market, the more entrepreneurial a new venture will be. Considering firm performance, a new venture's EO is the only significant factor affecting its performance ($\beta = 0.25$, $p < 0.01$). This indicates that innovation, proactiveness and risk-taking are important features when a firm is new and tries to get established on a market. While the explained variance for the first regression (EO) is appropriate (about 20%), the second regression is barely significant and explains only about 5% of the variation in performance.

Turning to the results for the small firms (see Table 4), the regression equations are both strong and explain around 15% of the variation in the dependent variables,

Table 1. Correlation matrix and descriptives of the new venture sample

	Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10
1	Firm size	6.42	12.86	1									
2	Environmental dynamism	3.91	1.23	0.06	1								
3	Environmental hostility	3.40	1.17	0.02	0.47***	1							
4	Upstream relations	0.74	0.40	−0.05	−0.06	0.00	1						
5	Downstream relations	0.80	0.36	0.02	0.24***	0.16**	0.03	1					
6	Horizontal relations	0.43	0.46	0.12	0.17**	0.11	0.04	0.07	1				
7	Network diversity	3.60	1.65	0.13*	0.23***	0.19**	0.42***	0.41***	0.59***	1			
8	Network size	3.16	1.41	0.14*	0.14**	0.15**	0.34***	0.42***	0.054	0.50***	1		
9	Entrepreneurial orientation	3.97	1.42	0.12	0.27***	0.41***	−0.05	0.18**	0.20***	0.24***	0.20***	1	
10	Firm performance	4.81	0.75	0.23***	0.02	0.01	−0.03	0.02	0.10	0.04	0.14	0.24***	1

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table 2. Correlation matrix and descriptives for the small firm sample

	Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10
1	Firm size	15.81	14.65	1									
2	Environmental dynamism	4.26	0.97	−0.08	1								
3	Environmental hostility	4.87	1.15	−0.01	0.35***	1							
4	Upstream relations	0.92	0.25	0.32***	0.01	−0.05	1						
5	Downstream relations	0.96	0.18	0.08	0.09	0.08	0.01	1					
6	Horizontal relations	0.81	0.37	0.21***	0.01	0.02	0.15***	0.05	1				
7	Network diversity	5.52	1.86	0.43***	−0.01	−0.05	0.46***	0.25***	0.45***	1			
8	Network size	3.92	1.44	0.38***	−0.06	−0.10*	0.39***	0.20***	0.19***	0.61***	1		
9	Entrepreneurial orientation	4.71	1.07	0.25***	0.10*	0.07	0.20***	−0.06	0.20***	0.29***	0.23***	1	
10	Firm performance	4.62	0.71	0.24***	−0.09	−0.06	0.16***	−0.03	0.21***	0.23***	0.25***	0.34***	1

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Table 3. Regression analysis of new venture sample

Dependent variables →	Entrepreneurial orientation	Firm performance
Control and independent variables ↓		
Firm size	0.074	0.086
Environmental dynamism	0.034	−0.141
Environmental hostility	0.338***	−0.048
Upstream relations	−0.139*	−0.048
Downstream relations	0.028	−0.093
Horizontal relations	0.110	0.132
Network diversity	0.077	−0.179
Network size	0.114	0.106
Entrepreneurial orientation		0.246***
Model summary		
F-ratio	6.325	1.98
R^2	0.239	0.099
R^2 adjusted	0.201	0.048
Std. error of the estimate	1.272	0.623
Significance	<0.001	<0.049

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.
Note: $N = 171$. Regression coefficients shown are beta coefficients.

which is acceptable. For EO, downstream relations have a negative impact ($\beta = -0.16$, $p < 0.01$) indicating that having (strong) customer relations tend to hamper the

Table 4. Regression analysis of the small firm sample

Dependent variables →	Entrepreneurial orientation	Firm performance
Control and independent variables ↓		
Firm size	0.138**	0.090
Environmental dynamism	0.118**	−0.090
Environmental hostility	0.066	−0.042
Upstream relations	0.031	0.024
Downstream relations	−0.165***	−0.037
Horizontal relations	0.071	0.125**
Network diversity	0.168**	−0.036
Network size	0.102	0.142**
Entrepreneurial orientation		0.280***
Model summary		
F-ratio	6.465	7.248
R^2	0.157	0.191
R^2 adjusted	0.133	0.165
Std. error of the estimate	1.004	0.652
Significance	<0.001	<0.001

*$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.
Note: $N = 291$. Regression coefficients shown are beta coefficients.

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small firm's EO. Network diversity instead have a similar positive impact ($\beta = 0.17$, $p < 0.01$) indicating that a small firm with a wide variety is contacts is better off when it comes to being entrepreneurial. Among the controls, size, and dynamism drives EO, which is in line with earlier studies. For firm performance, the results indicate that EO is central ($\beta = 0.28$, $p < 0.01$), but that also horizontal relations ($\beta = 0.12$, $p < 0.05$) and network size ($\beta = 0.14$, $p < 0.01$) affect firm performance positively. Thus, for getting a better performance, a small firm should act entrepreneurially and work with many partners and especially those outside its value chain.

Discussion and conclusions

Our overall purpose in this explorative study was to examine the influence of different network configurations on EO and performance for new ventures and small firms, respectively. In this section we will discuss the results, suggest future research and offer conclusions. We will do this by focusing on *four themes* based on our findings. These include: (1) the apparent negative effect of networking with the value chain partners (or vertical network partners), (2) the lack of positive results of network configuration for new ventures, (3) the pattern of network configuration effects for small firms, and (4) the strong link between EO and firm performance found in both samples.

Starting with the *first theme*, networking with value chain partners (i.e. customers or suppliers) does, based on our results, not pay off in terms of better EO and firm performance. Even if the literature indicates that many positive outcomes can emerge from networking (Lee et al., 2001), it seems as if networking only in the value chain is a bumpy and hazardous way to succeed. Neither new ventures nor small firms get any positive results, and for EO there are even negative impacts noted from this type of network configurations. One reason for this may be that the focal small firm or new venture networking in its value chain does this more out of necessity and that this kind of firm may be 'locked in' in a relation that it perhaps would not has pursued otherwise. For new ventures it is often important to secure supplier relations in order to gain legitimacy on the market. Many times these will be unbalanced relations, especially if the supplier is large, which opens up for opportunistic behavior from the supplier where they dictate the terms of the collaboration. Since the negative results concern EO it is likely that many supplier relations involve restrictions on the behavior of the focal firm, perhaps by not allowing the firms to freely work with other potential partners that might come up with new influences that would drive their entrepreneurial behavior. New ventures operating under these conditions are therefore in their strategic actions prevented from acting more innovatively, proactively and, risk-taking. While new firms may be overly dependent on suppliers, small firms with down-stream collaborations run the risk of being trapped into heavily depending on customers. Previous studies (e.g. Gemunden et al., 1992; Ragatz et al., 1997) have showed that customer-oriented collaborations are highly common as they help small firms to better understand customers' needs and wants. Such information is however likely to result in only minor modifications of existing products denoting a safe road resulting in only incremental innovation (Pittaway et al., 2004). Thus, small firms in this type of collaborations would be more likely to act in a risk-averse and reactive manner in response to their powerful customers.

Turning to the *second theme*, the lack of positive relationships between networking and our chosen outcome variables, it seems puzzling since it could be argued that new ventures with very limited in-house resources and lack of established external relations should be most favored by developing access to external tangible and intangible resources, in turn having a positive effect on the entrepreneurial behavior and performance of the new firm. As noted by Johannisson (1996), however, the function of networking is dependent on where in the lifecycle a company is located:

> The new entrepreneur needs support in his endeavour. He has not experienced that dynamic confrontation of his own mental images and the provision provided by others through the network, which creates variety. He has not had a chance to develop the mature networks that will help him focus his attention, to select. He has not yet found the network members who could legitimize his selections once made. (Johannisson, 1988, p. 88)

When a firm is new, it is thus difficult to know which other firms or organizations they should develop relations with as they are the 'new kid on the block.' Still, in order to get out on new markets and to achieve legitimacy, it is important for new ventures to establish relations with other actors and to build legitimacy among other market actors. Seeking legitimacy is hence a strong driver for any new firm without a proven track record and established partnerships on a market. This search may however lead to many business relations which (through trial and error) provide little or no benefit for the firm. It is also difficult to get access to valuable contacts as the firm has not yet been able to build up a reputation and they may be limited to collaborating with unproductive partnerships. Moreover, a new venture is also expected to possess a lower level of network capability since this capability is developed based on a firm's experience of repetitive collaborations (Rothaermel & Deeds, 2006). As a result, a new firm may not be able to gain from different types of relationships due to its liability of newness.

Employing a life-cycle or dynamic perspective on the function of and impact from networking hence seems relevant and rewarding for developing a better understanding of networking, and has also been suggested in previous research (Hoang & Antoncic, 2003). In a recent study Anderson, Dodd, and Jack (2010) thus concluded that networking practices in terms of purpose/function, co-actors and whether they are primarily internal or external to the firm differ depending of the context and phase of the entrepreneurial process. Building on Pierre Bourdieu's concept of *habitus* for separating different cognitive spaces within entrepreneurial processes, Anderson and co-workers based on in-depth case studies found in-house co-actors to dominate the early phases consisting of 'liberating,' 'inspiring,' and 'visioning' an entrepreneurial endeavor, while external co-actors dominated the succeeding phases of the entrepreneurial process ('articulating' and 'implementing' an entrepreneurial idea). Adopting this kind of dynamic reasoning, it seems reasonable that the early phases described by Anderson and co-workers (implying a lower degree of dependency on external partners) are more prominent in new ventures, while the latter phases (implying a higher degree of exchange with external partners) are most common in already established small firms.

The *third theme* concerns the pattern on how networking affects the small firm. As evidenced by our results, there are positive links to both EO and firm performance from network configurations. The positive link from network diversity to EO is expected. By having access to a wider variety of partners a firm should be in a better position to attain information as well as knowledge and then act on this either by themselves or in cooperation with one or more partners (Powell & Grodal, 2005). Having many different partners also signals that the firm is in a development mode far away from 'business as usual.' The negative link from downstream partners to EO shows, as discussed earlier, that firms relying only on customers are less development-oriented and more focused on exploiting yesterday's business opportunities. Even if there are positive bivariate correlations to the other network aspects (upstream and horizontal partners and network size), these links become insignificant when controlling for size and environmental factors. For firm performance, two network variables showed significance – network size and horizontal partners. The first relationship indicates that the concern that it might cause problems to have too many contacts is not valid, and that small firms can handle and profit from having more contacts (cf. Baum et al., 2000). Since a high-performing firm becomes a more interesting partner and therefore better can attract more new partners and keep existing ones, we have a causality problem here. Probably there are both vicious and virtuous circles at play, indicating a reinforcing pattern where high-performers will attract partners and low-performers will repel partners. Longitudinal studies are needed to study this further.

The other network relation that is positive for firm performance is horizontal partnerships. It is somewhat puzzling that these relationships prove positive only for performance and not for EO. Working with partners outside the value chain seems more likely to result in novel ideas, which may lead to new products and services. However, horizontal partnerships may also include sharing of resources or joint efforts regarding procurement which is likely to affect performance directly without any effects on, for example, firm innovativeness (Teng, 2007). Moreover, horizontal partnerships are also likely to have direct effects on performance through learning effects. Getting access to how other firms in a similar situation operate (e.g. colleagues operating in the same position in the value chain) may give very clear indications on how to increase effectiveness. Examples of this can be better production processes (e.g. new equipment) or sales processes (e.g. new distribution channels). However, since our conceptualization of network configuration does not include information on what the networking is about, we can only speculate on the finer mechanisms that link horizontal networking to better performance.

Finally, our *fourth theme* considering the strong link between EO and firm performance, this was found in both samples. Although the purpose and research questions of the present study do not focus primarily on exploring this relationship, we were able to find strong agreement with prior studies which have widely supported the notion of a positive effect of EO on performance for new ventures and small firms (Lumpkin & Dess, 1996; Walter et al., 2006). In particular, EO was the only independent variable in the new venture sample which had a significant effect on performance. This could be because the new ventures that adopt an entrepreneurial strategy are able to differentiate themselves from other firms through risk-taking and proactive actions, and by developing innovative products leading to competitive advantage (Baum et al., 2000). Thus, having an entrepreneurial posture represents a path for new venture and small firm competitiveness.

To conclude, our results reveal that network configurations have different effects on EO and performance for new ventures and small firms. We find that networking with value chain partners (i.e. customers and/or suppliers) most likely lead to no effects or in certain cases negative effects on EO and performance. This represents the negative side of networking, which could happen due to lock-in effects or opportunistic behavior of the

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value chain partners. Moreover, new ventures seem to have difficulty in gaining from networks due to lack of experience (i.e. insufficient network capability). They may also find it difficult to establish links to attractive partners, and most likely end up in a network with partners who do not provide any added value. In contrast, small firms enjoy positive effects on EO and firm performance from involving themselves in networks with diverse partners and having many partners. The only common result for new ventures and small firms was the advantage of being entrepreneurially oriented for better performance.

As proposed in the introduction, the present study intends to provide three specific contributions. The primary contribution is toward the growing research on inter-organizational network research (Kale et al., 2002; Powell et al., 1996). Based on this explorative study, we are able to provide initial evidence for diverse effects of network configurations on EO and performance in the context of new ventures and small firms. Secondly, we contribute toward entrepreneurship literature by supporting the expected positive effect of EO on performance and adding different aspects of network configurations (e.g. network diversity) as potential antecedents to EO. Finally, we also contribute to the on-going discussion within RBV-based research regarding the crucial role of networks (Lane et al., 2006), as we confirm that network relationships in some cases can allow a firm to reduce their internal resource scarcity and achieve increased performance due to the access to resources that partners in the network provide (cf Jarillo, 1998).

While the results of this study are instructive in a number of ways, the theoretical implications for future studies should be interpreted in light of the study's research limitations. Firstly, the small firm sample is representative for the ICT-related industry which limits the generalization of the findings to small firms outside this industry. Secondly, the conceptualization of network contacts mainly addresses 'strong ties,' which implies that we have here disregarded the benefits of networking emanating from 'weak ties' (Granovetter, 1973). While weak ties serve as sources of new information and 'bridges to realities hitherto unattended by the entrepreneur' (Johannisson, 1988, p. 88) and strong ties 'support the selection and retention sub-processes by justifying choices made by the entrepreneur' (Johannisson, 1988), both types of network relations are important to recognize in future research. Finally, firm performance is measured based on subjective data, which has been shown to produce similar results as objective data in the past (cf. Kale et al., 2002; Walter et al., 2006). Still, integration of objective data could increase the validity of the present results. Future studies are also suggested to consider the potential moderating effects of network capability on the relationship between different types of network relationship and EO and performance. As discussed earlier, this may be one key to a better understanding of the effect network relationships can hold for new ventures.

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