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# Facilitating dynamic marketing capabilities development for domestic and foreign firms in an emerging economy☆

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ABSTRACT

While the strategy literature has long advocated the impact of strong firm dynamic capabilities on new product development, scant research has discussed how to build dynamic marketing capabilities (DMCs), a key component of dynamic capabilities, to improve innovation performance. Focusing on emerging economies, this study develops a framework for exploring the mechanisms of building strong DMCs from the perspective of both external (inter-organizational relationships) and internal (entrepreneurial orientation) factors. Using survey data from firms in China, the authors find that both vertical and horizontal relationship can facilitate the development of DMCs. Moreover, the impact of vertical relationship is stronger than that of horizontal relationships for domestic firms but weaker for foreign firms, because foreign and domestic firms have different levels of resource dependence on their partners. Furthermore, entrepreneurial orientation influences firms' willingness and ability to leverage the benefits from relationships, thus strengthening the impact of vertical relationships but weakening that of horizontal relationships. The study extends DMCs research into the area of international business by suggesting different approaches for firms to develop DMCs in domestic versus overseas markets.

## 1. Introduction

The past couple of decades have witnessed a large number of failures of once-innovative and successful companies, such as Kodak and Nokia. These companies failed not because they stopped introducing new products, but because their new products did not meet the changing demands of customers, thus generating low financial returns and weak competitive advantages (Binns, Harreld, O'Reilly, & Tushman, 2014). Theoretically, these failures highlight the importance of dynamic capabilities, that is, the "ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece, Pisano, & Shuen, 1997, p. 516). Among the functional dimensions of dynamic capabilities, dynamic marketing capabilities (DMCs) are important, because they guide the innovation process to meet customers' needs (Fang & Zou, 2009). Strong DMCs are particularly important for firms operating overseas. Because of distinctly different marketing environments in the host country from those in the home country (Luo, 2007a) and the liability of foreignness (Zaheer, 1995), most foreign managers have difficulty in sensing and responding to the rapid changes in local customers' demands. Therefore, it is imperative to answer the question: How can firms, particularly those operating overseas, build strong DMCs to improve innovation performance?

Although scholars have examined dynamic capabilities for more than a decade (e.g., Eisenhardt & Martin, 2000; Rindfleisch & Moorman, 2001; Teece, 2007; Wang & Ahmed, 2007; Yalcinkaya, Calantone, & Griffith, 2007), only recently have scholars begun conceptualizing and operationalizing DMCs and assessing their direct effects on firm performance (e.g., Bruni & Verona, 2009; Day, 2011; Fang & Zou, 2009). As a result, the understanding of how to build DMCs in domestic and foreign markets is limited.

To fill these gaps in the literature, we investigate the antecedents of building strong DMCs from the perspectives of both external (inter-organizational relationships) and internal factors (entrepreneurial orientation). Because this study focuses on the impact of DMCs on innovation performance and superior innovation performance requires instant and high-quality information and knowledge inputs, the information and knowledge conveyed from inter-organizational

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relationships are critical (Hoppner, Griffith, & White, 2015). Prior studies suggest that high-quality inter-organizational relationships with vertical partners (i.e., customers and suppliers) and horizontal partners (i.e., competitors) are essential for firms to obtain relevant and trustworthy information and resources in a timely manner (Lages, Silva, & Styles, 2009; McEvily & Marcus, 2005; Uzzi, 1996).

The impact of inter-organizational relationships on DMCs building, however, should not be examined in isolation of firm internal variables, because influences of relationships are contextually or culturally specific rather than universal (Li, Poppo, & Zhou, 2008). We carefully examine the moderating effect of internal factors. In particular, we focus on entrepreneurial orientation, an important cultural variable that indicates managers' willingness and ability to take risks, be proactive, and try innovative methods (e.g., Richard, Barnett, Dwyer, & Chadwick, 2004; Wiklund & Shepherd, 2005). The literature has suggested that entrepreneurial orientation has a significant impact on how organizational leaders interpret and respond to environmental uncertainty by forming inter-organizational relationships (Dickson & Weaver, 1997). We posit that the different levels of managers' entrepreneurial orientation may restrict their dependence on partners and consequently the levels of integrating and synergizing information and resources from their partners. Whereas some firms will trust and share information or knowledge with partners, others may hesitate to do so because of concerns about potential competition among partners.

Our research contributes to both marketing research and practice. First, extending DMCs studies, we propose a theoretical framework for developing DMCs from both vertical and horizontal relationship perspectives (see Fig. 1). Unlike prior studies focusing on either vertical (Dyer, 1997) or horizontal relationships (Gulati, 1999), we compare and contrast the mechanisms through which vertical and horizontal relationships foster DMCs. Our argument provides a sophisticated and complete framework of competitive coordination because it reveals how firms cooperate with not only the partners in the value chain (i.e., vertical relationship) but also potential competitors (i.e., horizontal relationship) to cope with market changes.

Second, this study extends the literature on inter-organizational relationship to the study of DMCs in an international business context. We argue that while both vertical and horizontal relationships can facilitate DMCs, their relative importance may differ for foreign versus domestic firms, because these firms may demand different information and resources from their partners, especially when foreign firms enter an emerging economy such as China. This study compares the impact of vertical and horizontal relationships and posits that for foreign firms horizontal relationships foster DMCs to a greater extent than vertical relationships; whereas for domestic firms vertical relationships may show stronger effects than horizontal ones. This comparison study not only enhances the limited literature on co-opetition (collaboration while competing) in horizontal relationships (Brandenburger & Nalebuff, 1996) but also deepens understanding of the conditions under which each type of relationship takes effect. Future research on DMCs should differentiate DMCs development in domestic markets from that in foreign markets. These findings also offer important suggestions for domestic and foreign firm managers on how to allocate their time and efforts in managing alliance portfolios.

Third, we examine the moderating role of entrepreneurial orientation regarding the influence of inter-organizational relationships on DMCs development. We argue that entrepreneurial orientation strengthens the positive effects of vertical relationships on DMCs development but weakens the positive effects of horizontal relationships. By examining both facilitative and prohibitive effects of entrepreneurial orientation on relationship benefits, this study reveals potential constraints on using inter-organizational relationships to build firm DMCs.

## 2. Theoretical background and hypothesis development

### 2.1. Dynamic marketing capabilities (DMCs)

The concept of DMCs emerged from dynamic capabilities theory (Teece et al., 1997). In contrast to operational capabilities, which pertain to the *current* operations of an organization, dynamic capabilities refer to "the capacity of an organization to create new products and processes and respond to *changing* market conditions" (Helfat, 1997, p. 339). Fang and Zou (2009) focus on the critical role of the marketing function in dynamic capabilities research. They define DMCs as the *responsiveness* and *efficiency* of cross-functional business processes, which include product development management, supply chain management, and customer relationship management (Srivastava, Shervani, & Fahey, 1999), for creating and delivering customer value in response to market changes. Product development management is the cross-functional process of designing, developing, and launching new products to satisfy customer needs. By including this element, DMCs can help managers ascertain customer needs, identify new product ideas, design new product protocols, and manufacture and launch new products (e.g., Day, 2011; Fang & Zou, 2009). The supply chain management process includes designing, managing, and integrating the firm's supply chain with those of its suppliers and customers. By doing so, the firm may improve cost-structure and acceptance of new products (Graves & Willems, 2005). The customer relationship management process manages relationships with customers and channel members to learn about their needs and find ways to satisfy them. Successful firms not only respond to their current customer needs but also anticipate future trends and develop an idea, product, or service to meet future demands rapidly and effectively (Day, 2011; Day & Schoemaker, 2008). The firms can therefore stay ahead of their competitors in a dynamic market.

DMCs are different from market orientation, although the market orientation literature has also suggested that responsiveness to market changes, particularly customer and competitor changes is critical for

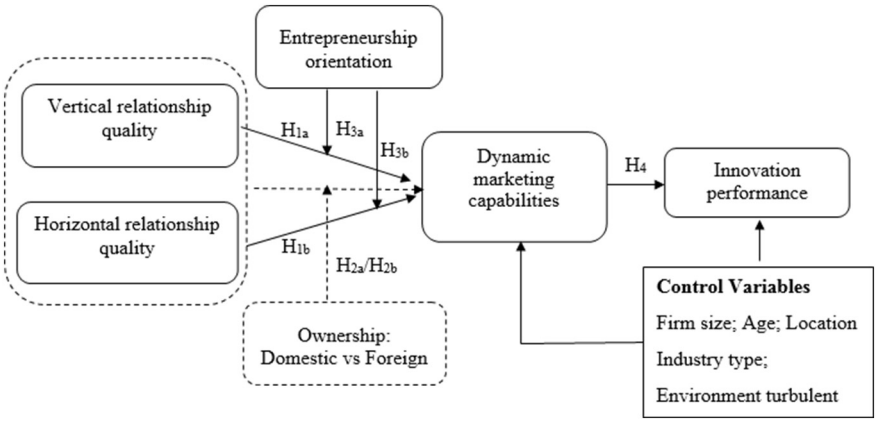


**Fig. 1.** Theoretical framework.

organizations to achieve competitive advantage (Slater & Narver, 1994). Fang and Zou (2009, p.744) state that "market orientation is related to a firm's overall value and business philosophy about the importance of serving customers' needs, while DMCs are about a firm's capabilities in specific functional areas of marketing to respond to market changes, and are reflected through the speed and efficiency of the firm's cross-functional business processes". Therefore, as a key component of firm dynamic capabilities and behavioral representative of market orientation, the essential function of DMCs is to help a firm quickly adjusts its internal resources configuration to align marketing management processes with market demand after receiving clear market change signals (Morgan, Katsikeas, & Vorhies, 2012).

### 2.2. Resource dependence theory (RDT) and relationship quality

Resource dependence theory (RDT) has become a dominant theoretical rationale for explaining why firms engage in long-term relationships with other firms (Hillman, Withers, & Collins, 2009). Organizations form long-term relationships with other organizations as a governance mechanism to reduce uncertainty and manage dependences (Drees & Heugens, 2013). According to Pfeffer and Salancik (1978, p.40), interdependence is a phenomenon that "exists whenever one actor does not entirely control all of the conditions necessary for the achievement of an action or for obtaining the outcome desired from the action." Demands between partners determine the interdependence of firms and thus the relationship between them.

To examine how inter-organizational relationships foster DMCs, we follow prior studies and focus on relationship quality, which is defined as a higher-order construct reflecting the relationship intensity of trust, information sharing and joint problem solving with their business partners (e.g., Dorsch, Swanson, & Kelley, 1998; McEvily & Marcus, 2005; Mohr & Spekman, 1994). Specifically, firm relationships are separated into two types: vertical relationships and horizontal relationships. *Vertical relationship quality* refers to the extent to which firms cooperate with their suppliers and customers, while *horizontal relationship quality* refers to the extent to which firms cooperate with their direct competitors (e.g., Gulati & Gargiulo, 1999; Swaminathan & Moorman, 2009).

According to RDT, because of different demands from their vertical versus horizontal partners, firms collaborate for some common as well as unique motivations. While vertical and horizontal relationships share common benefits — trust reduces transaction costs, information sharing fosters knowledge production, and joint problem solving eliminates conflict (McEvily & Marcus, 2005) — the two types of relationships may also generate distinct benefits. A high-quality vertical relationship may help firms obtain raw materials, production, and distribution to maximize profits (Sheng, Hartmann, Chen, & Chen, 2015), but a high-quality horizontal relationship may help managers sense potential market opportunities, obtain complementary resources and reduce the intensity of competition (Gulati, Nohria, & Zaheer, 2000; Zaheer & Zaheer, 1999).

While it is easy to understand the motivations behind forming vertical relationships, it merits articulating why firms enter horizontal relationships with their competitors. Prior literature on co-opetition found that companies ally with their competitors to co-develop new products through accessing or acquiring resources from partners (Lavie, 2007; Park, Srivastava, & Gnyawali, 2014). For instance, Sony Ericsson, an international joint venture formed in 2001, generated satisfactory output for both parent firms by presenting a range of products far more technologically innovative than any others during that time (Buckley, Glaister, Klijn, & Tan, 2009). Another example is LG Electronics and Philips TV, which formed an alliance in 2012 to create a non-proprietary ecosystem for application developers to create new services that are platform-independent. Both of the equity-based (Sony-Ericsson) and non-equity-based (LG-Philips) cases demonstrate that forming horizontal partnerships with rival firms may result in firm innovation benefits (Luo, Rindfleisch, & Tse, 2007).

### 2.3. The main effects of relationship quality on DMCs

High-quality vertical relationships may improve firm DMCs through the mechanisms of facilitating trust, information sharing and joint problem solving. First, trustworthy relationships with upstream and downstream partners will help firm develop its capabilities to swiftly adjust the supply chain process (e.g., changing the inventory locations and shipping schedule). Without trust, the partners may not support the adjustments because they may believe that those adjustments will only benefit the firm but not themselves (Day, 2011); consequently, the firm will not have a responsive and efficient supply chain management process in response to market changes. Second, constant and open information sharing helps the firm stay updated on rapid market and technological changes, so that it can swiftly adjust the new product development process as needed (Fang, 2008). Third, through joint problem solving with customers and retailers who have direct contacts with customers, the firm can quickly identify the root of the customers' problems. Consequently, it may obtain deeper insights about how to create value for the customer and react faster than if the firm searches for the solutions by itself. Briefly, by building high-quality vertical relationships, the firm can develop effective and fast responding marketing processes to create superior value for its customers. Thus:

**H1a.** Vertical relationship quality has a positive effect on the development of DMCs.

High-quality horizontal relationships with competitors may also improve firm DMCs. First, the literature on co-opetition suggests that intense competition will be mitigated if firms are tied to each other (Gulati et al., 2000; Zaheer & Zaheer, 1999). That is, with a trustworthy relationship, firms will likely believe that their partners will not engage in aggressively competitive practices (e.g., competing at an overly low price) (Morris, Koçak, & Özer, 2007). Thus, instead of spending time and efforts to respond to the competitors' actions (e.g., monitoring the competitors closely and also lowering prices), firms can focus their limited resources on improving customer relationship management and developing new products or services. It helps firms create true value for their customers and thus keep pace with dynamic market changes.

Second, although firms in the same industry face the same market forces, the knowledge and experience possessed by each firm are different. Besides gaining knowledge about the external environment, like in vertical relationships, firms share their experiences and the corresponding strategies with trustworthy horizontal partners in dealing with dynamic environment (Garcia-Canal, Duarte, Criado, & Llaneza, 2002). The shared information can help firms quickly identify alternative strategies to respond to abrupt changes in the market (Oke, Idiagbon-Oke, & Walumbwa, 2008). Third, when unexpected events happen in the market, there may not be sufficient resources for firms to deal with them in a timely manner even when appropriate strategies have been determined. With high-quality horizontal relationships firms will not only gain new perspectives in solving the problem but also access critically additional resources to solve it (Luo, 2007b). Thus, it is hypothesized that high-quality horizontal relationships are associated with high level DMCs:

**H1b.** Horizontal relationship quality has a positive effect on the development of DMCs.

### 2.4. The relative effects of relationship quality on DMCs

H1 predicts positive impacts of both vertical and horizontal relationships on firm DMCs development; in this subsection we further posits that the magnitude of each impact may vary for foreign versus domestic firms. Unlike domestic firms, foreign firms have special demands from their local partners. The international business literature

has widely acknowledged that foreign firms must address tremendous challenges stemming from cultural, administrative, geographic, and economic distances between the host and home countries (e.g., Chao & Kumar, 2010; Leonidou, Katsikeas, & Hadjimarcou, 2002; Treviño & Mixon Jr, 2004). To overcome the liability of foreignness, foreign firms collaborate with local partners in emerging economies to acquire critical resources, including tangible ones such as cheaper labor and raw materials and intangible ones such as legitimacy and access to local markets (Bae & Insead, 2004). As RDT suggests, because foreign firms may demand different resources from their host-country partners compared with their domestic counterparts, their dependence on the two types of relationships may differ from that of domestic firms.

For foreign firms, we predict that though they benefit from both vertical and horizontal relationships, horizontal relationships may outperform vertical ones. The reasons are two-fold. First, international business scholars have found that one of the most effective ways to overcome the liability of foreignness is to imitate the practice of other firms in the same industry (Zaheer, 1995). Through information sharing with competitors, particularly with local rivals, foreign firms may learn and then follow the strategy that many other firms may apply. Such mimicking practice will help foreign firms gain legitimacy in local markets (Chan & Makino, 2007). For example, a study of chain affiliation of Manhattan hotels during 1896–1985 suggests that a hotel that joins a high-status hotel chain signals its high status. In contrast, firms affiliated with a premium supply chain (e.g., an online booking system) or a customer chain (e.g., a global tourist club) may gain some but not as strong legitimacy as in the former case (Ingram & Baum, 1997).

Second, for foreign firms it is more difficult to transform information into DMCs if the information is collected from vertical partners rather than from horizontal ones. In general, due to cultural and language barriers, foreign firms cannot easily incorporate the information collected from their partners into their strategic decision making. This difficulty arises particularly when the information is pertinent to rules or regulations that the host country government imposes on the particular industry of the foreign firms. Because the regulations in emerging economies tend to be vague and highly dynamic, foreign firms are neither fully aware of these changes, nor easily understand the implications of the new policies (Peng, Wang, & Jiang, 2008). Through information sharing with their competitors, foreign firms are able to understand the regulations better (Hoskisson, Eden, Lau, & Wright, 2000). In comparison, vertical partners such as customers and suppliers may not be aware of or care about the regulations that are not directly associated with their own industries; thus they may not provide valuable information for the foreign firms.

One most recent case illustrates the benefits of horizontal relationship in improving foreign firm operation. In August 2016, Uber (China) merged with Didi Chuxing, its biggest and most formidable rival in China, at $35 billion. One major motivation for Uber is to overcome regulatory obstacles that have failed most foreign companies in the market. Through this merger, Uber (China) not only ended the severe batter against Didi Chuxing, but also enlarged market size. In addition, after the megamerger, Chinese officials announced that ride-hailing apps were legal and laid out a framework to license drivers (Paul & Mike, 2016). In sum, we posit that horizontal relationships are more important for foreign firms than are vertical relationships:

**H2a.** For foreign firms, high-quality horizontal relationships have stronger positive effects on DMCs development than high-quality vertical relationships.

The relative importance of vertical versus horizontal relationships is reversed for domestic firms. There are two reasons for this tendency. First, unlike foreign firms which usually have established brands or competitive products/services before expanding into overseas markets, domestic firms in emerging economies are often limited by low-skilled labors and technology (Görg & Greenaway, 2004); thus they usually build competitive advantage not on novel and sophisticated products, but on closed and agile relationships with customers (McDougall, 1989). To maintain competitive advantage, domestic firms are usually willing to apply customer specialization strategies and introduce infrequently-consumed products (McDougall, 1989). Therefore, constant communication through information sharing and joint problem solving with customers and other vertical partners becomes crucial. In the long run such good communication with vertical partners will improve the efficiency with which partners' inputs are utilized and consequently support domestic firms to build strong DMCs.

Second, high-quality vertical partners are critical for domestic firms because of the challenges these firms face in the process of DMCs development. In contrast to foreign firms, domestic firms in emerging economies usually lack marketing skills and international experience, and their business scale is usually small (Luo, 2001). These disadvantages imply that domestic firms' DMCs development in product development, supply chain, and customer relationship management processes is subject to high levels of uncertainty (Skarmeas, Zeriti, & Baltas, 2016). Since suppliers and customers can help reduce uncertainty and transaction costs (Sheng et al., 2015), as previously outlined, domestic firms will focus on trustworthy and long-term relationships with vertical partners. Integrating all of the foregoing arguments, we predict that domestic firms in emerging economics will benefit more from high-quality vertical relationships than from horizontal ones.

**H2b.** For domestic firms, high-quality vertical relationships have stronger positive effects on DMCs development than high-quality horizontal relationships.

### 2.5. The moderating effects of entrepreneurial orientation (EO)

Entrepreneurial orientation is “a firm's strategic orientation, capturing specific entrepreneurial aspects of decision-making styles, methods, and practices” (Wiklund & Shepherd, 2005, p. 74). EO is a combination of three dimensions: innovativeness, proactiveness, and risk taking (Lumpkin & Dess, 1996). Previous research has argued that EO determines the extent to which firms use their resources to exploit potential opportunities (Wiklund & Shepherd, 2005). Compared with their conservative and risk-averse counterparts, firms that are innovative, proactive, and risk-taking are more likely to take potential, albeit risky, opportunities from their environment. The literature has suggested that entrepreneurial orientation influences how managers interpret and respond to environment by forming alliances (Dickson & Weaver, 1997). We propose that the firm's strong desire to pursue business opportunities may or may not be in line with the interests of its business partners, and thus the firm may have varying levels of willingness and abilities to leverage value from partners. Therefore, firm's EO will have different moderating effects on the relationship between two types of relationships and DMCs – whereas EO will strengthen the effect of vertical relationships on DMCs, it will weaken the effect of horizontal relationships on DMCs. In the following, we will articulate the argument for each type of relationships.

Regarding vertical relationships, firms with higher EO can utilize the benefits gained from their vertical relationships to a greater extent compared with lower EO firms, thus the effects of vertical relationships on DMCs development will be more pronounced. First of all, raw information shared from their vertical partners about the dynamic market may not be apparently valuable and usable. Being more innovative and forward looking, higher EO firms are more likely to recognize the potential value of the information and take advantage of it (Keh, Nguyen, & Ng, 2007). As a result, they tend to integrate the new information and knowledge into their existing knowledge base to develop new products (Knight, 2000). Additionally, although joint problem solving with customers and suppliers may help firms obtain new and unique solutions to deal with the changing customer demands, implementing these

solutions may be costly, and the outcomes are typically uncertain. Since higher EO firms are more risk-taking, they are more willing to commit resources to these unknown solutions (Wiklund & Shepherd, 2005). Hence such firms are likely to take advantage of the opportunities from the joint problem solving solution and develop DMCs. Because there are no clear theoretical reasons to predict different moderating effects of EO for domestic versus foreign firms, we propose that in general EO will boost the positive relationship between high-quality vertical relationship and DMCs for both groups of firms.

**H3a.** The positive effect of high-quality vertical relationships on DMCs development is stronger when firm EO is higher.

Meanwhile, we argue that EO will weaken the effect of horizontal relationship quality on DMCs. Although firms collaborating with competitors may share information and engage in joint problem solving to facilitate certain new product development and launch (Miotti & Sachwald, 2003), higher EO firms will rely less on the shared information and solutions to build DMCs. Particularly, innovative and forward looking firms always desire to develop novel products, from which they expect to achieve first-mover advantages (Lumpkin & Dess, 1996). Therefore, higher EO firms are less willing to share critical and novel information and knowledge with competitor-partners. Moreover, because firms with higher levels of EO are more innovative and risk-taking oriented, they are more likely to implement their own ideas rather than relying solely on solutions developed from joint problem solving with horizontal partners when responding to market changes (Dickson & Weaver, 1997). In contrast, for lower EO firms, utilizing solutions shared by competitors seems a satisfactory choice in developing DMCs. Especially, joint problem solving can help lower EO firms save time and cost in finding solutions. When implementing the solutions, lower EO firms may also tend to ask for help from their competitors. As a result, the benefits from horizontal relationship on building DMCs will be higher for lower EO firms. Again, because there are no clear theoretical reasons to predict different moderating effects of EO for domestic versus foreign firms, we expect that when EO is higher, the effects of horizontal relationships on DMCs development will be less pronounced in general.

**H3b.** The positive effect of high-quality horizontal relationships on DMCs development is weaker when firm EO is higher.

### 2.6. The effects of DMCs on innovation performance

In line with prior studies, innovation performance in this study measures the frequency and speed of new product development and the positive financial and market outcomes generated by new products (e.g., Atuahene-Gima, 2005; Fang, 2008; Ritter & Gemünden, 2004). Note that this measure is different from innovation input measures, such as research-and-development (R&D) expenditure, or intermediate outcome variables, such as patents. We focus on the financial and market outcomes generated by new products, because large innovation inputs and intermediate outcomes may not necessarily produce large outputs of new products and financial and market returns. A good example is Nokia, which spent approximately five times as much on mobile R&D as Apple in 2010, with an R&D/sales ratio of 10% compared with Apple's 2.7% (Srivastava & Ben-Aaron, 2011). However, the return to Nokia was visibly disappointing.

We argue that because DMCs are the critical capabilities that translate innovation inputs into new products and services that meet new market demands, they will enhance innovation performance. The impacts may manifest along the three cross-functional business processes of DMCs: product development management, supply chain management, and customer relationship management (Srivastava et al., 1999). First, as we discussed previously, DMCs can foster firm market sensing of customer requirements, offer rich insights into anticipating and responding to external environment changes, facilitate frequent interaction with customers, and eventually improve the market acceptance of new products (Day, 2011; Mu, 2015; Teece, 2007). In addition, previous research consistently suggests that supply chain management enables the firm to establish and manage inbound and outbound logistics (Frohlich & Westbrook, 2001; Mentzer et al., 2001). By designing, managing, and integrating own supple chain with that of suppliers and customers, the firms may improve the cost-structure and market acceptance of new products (Graves & Willems, 2005; Savaskan, Bhattacharya, & Van Wassenhove, 2004). By doing so, the innovation helps the firm stay ahead of its competitors in a dynamic market. All of these arguments suggest that DMCs are essential for firms to improve innovation performance. Thus,

**H4.** The development of DMCs has a positive effect on firm innovation performance.

## 3. Methodology

### 3.1. Sample and data collection procedure

We collected primary data through a cross-sectional survey in China, with a focus on business-to-business manufacturing industries (i.e., the customers in the vertical relationships are organizations instead of individuals). China became the world's largest recipient of foreign direct investment in 2014, with inflows reaching $129 billion (The State Council of People's Republic of China 2015). Thus, research comparing foreign and domestic firms in China may generate significant empirical meaning. In addition, given China's weak formal institutional governance, informal intuitional arrangements in relationships at the individual and organizational levels play a critical role in the Chinese business world (Luo, 2005). Therefore, China serves as a rich context for testing these hypotheses involving inter-organizational relationships. The sample firms are located in three East Coast provinces (Zhejiang, Guangdong, and Fujian), where the private sectors are most active. Because these provinces have highly dense clusters of a variety of manufacturing firms, it is possible to observe the effects of inter-organizational relationships in a competitive market setting.

After pretesting and double-checking the face validity of the questionnaire items with three marketing professors and six marketing doctoral students, we collected data following Roy, Walters, and Luk (2001), and Fang and Zou (2009) applied procedure. We began by randomly selecting sample firms from a list of firms registered with the local governments. Then, we called and e-mailed the general managers or sales and marketing directors of the firms to explain the purpose of the study and request their participation. In total, 750 firms agreed to participate in the survey. We then delivered the questionnaires in person to the general managers or sales and marketing directors. Among the 750 firms visited, 225 completed the questionnaire, for a 30% response rate (see Table 1 for a sample description); we included their data in our final data set. To assess nonresponse bias, *t*-tests were conducted to compare the early and late respondents with regards to major constructs in the model and found there were not significantly different for vertical relationship quality ($t = 1.13$, $p = .26$), horizontal relationship quality ($t = .72$, $p = .40$) or entrepreneurial orientation ($t = .67$, $p = .50$); thus, nonresponse bias is not a concern in this study (Armstrong & Overton, 1977).

### 3.2. Measures

We adapted all the measures from previous studies. Because all questions were originally developed in English, we created a Chinese version following the commonly used translation–back-translation procedure (Brislin, 1970). Table 2 shows all measurement items and results of the reliability analysis.

**Table 1**
Descriptive statistics of the sample firms (N = 225).

| Sample characteristics | Frequency | % |
|---|---|---|
| Ownership | | |
| State owned | 16 | 7.1 |
| Private | 89 | 39.6 |
| International joint venture | 76 | 33.8 |
| Foreign wholly owned | 44 | 19.6 |
| Number of employees (Firm size) | | |
| < 100 | 66 | 29.3 |
| 101–300 | 68 | 30.2 |
| 301–500 | 27 | 12.0 |
| 501–1000 | 27 | 12.0 |
| 1001–10,000 | 31 | 13.8 |
| > 10,000 | 6 | 2.7 |
| Years of operation (Firm age) | | |
| < 1 year | 2 | .9 |
| 1–5 year | 32 | 14.2 |
| 5–10 year | 81 | 36.0 |
| 10–20 year | 77 | 34.2 |
| 20–30 year | 23 | 10.2 |
| > 30 year | 10 | 4.4 |
| Location | | |
| Fujian Province | 72 | 32.0 |
| Zhejiang Province | 67 | 29.8 |
| Guangdong Province | 86 | 38.2 |
| Industry | | |
| A: Computer and electronic product manufacturing; electrical equipment, appliance, and component manufacturing | 53 | 23.6 |
| B: Machinery manufacturing; | 32 | 14.2 |
| C: Chemical manufacturing | 23 | 10.2 |
| D: Transportation equipment manufacturing | 11 | 5.0 |
| E: Textile product mills; leather and allied product manufacturing | 43 | 19.1 |
| F: Furniture and related product manufacturing; paper manufacturing; wood product manufacturing | 27 | 12.0 |
| G: Beverage and tobacco product manufacturing; food manufacturing | 10 | 4.4 |
| H: Arts, entertainment, and recreation | 26 | 11.6 |

#### 3.2.1. Innovation Performance

We adapted the measures of innovation performance from Atuahene-Gima (2005), Fang (2008), and Ritter and Gemünden (2004). The measure is a seven-item seven-point scale (α = .95).

#### 3.2.2. Vertical and Horizontal Relationship Quality

We adapted the measures of vertical and horizontal relationship quality from previous research (e.g., Fang, 2008; McEvily & Marcus, 2005; Mohr & Spekman, 1994). We asked the managers to rate their firms' situation ("strongly disagree/strongly agree"). Each measure is a five-item seven-point scale (α = .94 for vertical relationship quality; α = .94 for horizontal relationship quality).

#### 3.2.3. Dynamic marketing capabilities (DMCs)

We adapted the three-item seven-point measure of DMCs from Fang and Zou (2009). The three items capture the responsiveness and efficiency of cross-functional business processes (α = .91).

#### 3.2.4. Entrepreneurial orientation (EO)

We adapted the measure of EO from previous research (e.g., Barringer & Bluedorn, 1999; Covin & Slevin, 1989; Zahra & Garvis, 2000). Entrepreneurial orientation has three dimensions (innovation, risk taking, and proactiveness), and each dimension includes three-item seven-point scale. The reliability index alpha for each dimension is .90, .85, and .92, respectively. Acknowledging the entrepreneurial orientation dimensionality debate (Lumpkin & Dess, 1996; Rauch, Wiklund, Lumpkin, & Frese, 2009), we factor-analyzed the items and found that all of them loaded above 0.81 on a single factor with an eigenvalue of 4.14. Hence, we combined the nine items into a single scale (α = .85). To assess the validity of this measure, we examined its correlation with objective indicators that are associated with entrepreneurial orientation, following the work of Stam and Elfring (2008). Our measure was significantly correlated with log (firm size) (r = .13, $p < .10$) and with the environmental turbulence (r = .17, $p < 05$). The findings are in line with the literature that suggests small firms and dynamic environment is associated with entrepreneurial strategies (Lumpkin & Dess, 1996).

#### 3.2.5. Control Variables

We controlled for the effects of firm size, firm age, and industry type. We measured *firm size* by the natural log of the number of full-time employees and *firm age* by the number of years in operation. To control for industry difference, we used the International Standard Industrial Classification of All Economic Activities to classify the firms into three main industrial categories (electronic product manufacturing; machinery, chemical & transportation equipment manufacturing; and other industrial categories). Two dummy variables were created to represent electronic product manufacturing and chemical & transportation equipment manufacturing with other industrial categories being the benchmark. Because our sample firms came from three provinces in China, we also created two location dummy variables to represent Fujian province and Guangdong province with Zhejiang province being the benchmark. Finally, to control for the environmental turbulence, we adapted the twelve items suggested by Jaworski and Kohli (1993) and included the average value in models.

#### 3.2.6. Construct Validity

Using Amos 22.0, we conducted confirmatory factor analyses to assess the fitness of the model. The fit indexes ($\chi^2(220) = 433.00$, $p < .01$; CFI = .95; NFI = .90; TLI = .94; IFI = .95; RMSEA = .06) revealed that the measurement model fit the data well (e.g., Bentler & Bonett, 1980; Cheung & Rensvold, 2002). All loadings were statistically significant and sufficiently high, indicating satisfactory convergent validity (Anderson & Gerbing, 1988). To examine discriminant validity, we calculated the individual average variance extracted for each latent variable and found that all exceeded the squared correlation between both latent variables. Thus, discriminant validity was confirmed.

#### 3.2.7. Common method variance

To assess the potential common method bias, we conducted the analysis suggested by Podsakoff, MacKenzie, Lee, and Podsakoff (2003). The confirmatory factor analyses result was re-assessed with all variables loading on one general method factor. The one-factor model yielded a $\chi^2(230) = 3034.29$ compared with a $\chi^2(220) = 433.00$ for the five-factor model. The fit was considerably worse for the one-dimensional model than for the five-factor model ($\Delta\chi^2 = 2606.29$, $p < .001$) suggesting that common method variance is not a serious threat in the study. To further assess this possibility, we employed the marker variable approach, which adopted the marker variable theoretically unrelated to any other variables used in this study (Lindell & Whitney, 2001). In this study, a single-item scale for the marker variable was incorporated into the questionnaire to capture the level of competition. Respondents were asked to answer the following question: "Please indicate the level of competition that your firm faces" (1 = very low, 5 = very high). Following the procedure proposed by Malhotra, Kim, and Patil (2006), our results indicate that there is no notable differences between the two models (the model without additional marker variable vs. the model with additional marker variable): $\chi^2(220) = 433.00$ vs. $\chi^2(219) = 432.44$, CFI = .950 vs. .950, NFI = .904 vs. .904; TLI = .943 vs. .942; IFI = .951 vs. .950; RMSEA = .059 vs. .059. Overall, the results from this set of analyses provided adequate support that common method bias is not a serious concern in this study.

**Table 2**
Construct measures and reliability index.

| Constructs and measures | | Factor Loading | CITC | α |
|---|---|---|---|---|
| Innovation Performance: Compared with your major competitors, your firm's innovation performance over the past three year was ("far below/far above the competitors") in terms of … (CR = .95; AVE = .72) | | | | |
| 1. The frequency of launching new products. | | .84 | .82 | .95 |
| 2. The speed of developing new products. | | .88 | .84 | |
| 3. The success of developing new products. | | .92 | .87 | |
| 4. The ratio of new product sales relative to total sales. | | .88 | .85 | |
| 5. Our new products have a better market response. | | .82 | .78 | |
| 6. Our new products help us to improve sales. | | .80 | .80 | |
| 7. Our new products help us to create competitive advantage. | | .80 | .79 | |
| Vertical Relationship Quality: How do you rate your firm's situation? ("strong disagree/strong agree") (CR = .94; AVE = .76) | | | | |
| 1. We have already created a trust relationship with our customers and suppliers. | | .83 | .81 | |
| 2. Our main customers and suppliers frequently share their information with us. | | .87 | .83 | .94 |
| 3. Our main customers and suppliers share proprietary and sensitive information with us. | | .94 | .89 | |
| 4. We work with our main customers and suppliers to help solve each other's problems. | | .91 | .88 | |
| 5. Our main customers and suppliers work with us to overcome difficulties. | | .80 | .77 | |
| Horizontal Relationship Quality: How do you rate your firm's situation? ("strong disagree/strong agree") (CR = .94; AVE = .75) | | | | |
| 1. We have already created a trust relationship with our main competitors. | | .77 | .76 | .94 |
| 2. Our main competitors frequently share their information with us. | | .84 | .82 | |
| 3. Our main competitors share proprietary and sensitive information with us. | | .91 | .87 | |
| 4. We work with our main competitors to help solve each other's problems. | | .95 | .90 | |
| 5. Our main competitors work with us to overcome difficulties. | | .86 | .82 | |
| EO: Please indicate which response most closely matches the management style of your businesses key managers: ("strong disagree/strong agree") (CR = .92; AVE = .80) | | | | |
| Innovation | 1. A strong emphasis on R&D, technological leadership, and innovation. | .82 | .74 | .90 |
| | 2. Having many new lines of products or services. | .91 | .85 | |
| | 3. Changes in product or service lines have usually been quite dramatic. | .89 | .84 | |
| Risk-taking | 1. A strong emphasis on high-risk projects with chances of very high returns. | .89 | .77 | .85 |
| | 2. A bold and aggressive posture to maximizing the probability of exploiting potentials when faced with uncertainty. | .81 | .65 | |
| | 3. Owing to the environment, bold and a wide-range of actions are necessary to achieve the firm's objectives. | .86 | .76 | |
| Proactive-ness | 1. Usually initiating actions to which competitors will respond. | .86 | .81 | .92 |
| | 2. Very often being the first firm to introduce new products/services technologies. | .87 | .88 | |
| | 3. Usually adopting a very competitive and "undo-the competitor" posture. | .87 | .86 | |
| DMCs: Compared with your major competitors, how do you rate your firm's capabilities in the following areas? ("far below/far above the competitors") (CR = .91; AVE = .78) | | | | |
| 1. The cross-functional process across areas of ascertaining customer needs, designing tentative new product solutions and prototypes, manufacturing, and coordinating departmental relationships, with the objective of developing and producing products that enable the customers to experience maximum value and benefits. | | .86 | .81 | .91 |
| 2. The cross-functional process across areas of acquiring and leveraging customer information, establishing and maintaining relationships with customers and channel members, and providing after-sales service and support of managing relationships with customers, with the objective of learning about their needs and how to best satisfy them. | | .89 | .83 | |
| 3. The cross-functional process across areas of selecting and qualifying desired suppliers, establishing and managing inbound and outbound logistics, and designing work flows in product/solution assembly, with the objective of designing, managing, and integrating own supply chain with that of suppliers and customers. | | .90 | .83 | |

**Table 3**
Means, standard deviation, and correlations.

| Variables | Mean | SD | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. Log (firm size) | .78 | .60 | 1 | | | | | | | | | | | |
| 2. Firm age | 3.52 | 1.03 | −.07 | 1 | | | | | | | | | | |
| 3. Industry type 1 | .22 | .41 | .14** | .13* | 1 | | | | | | | | | |
| 4. Industry type 2 | .28 | .44 | .01 | .17** | −.33*** | 1 | | | | | | | | |
| 5. Location_1 | .33 | .47 | −.03 | .07 | .08 | −.02 | 1 | | | | | | | |
| 6. Location_2 | .31 | .46 | .10 | .22*** | .26*** | .11* | −.48*** | 1 | | | | | | |
| 7. Environment turbulence | 4.60 | 1.01 | .06 | −.11 | −.03 | −.08 | −.02 | .06 | 1 | | | | | |
| 8. Vertical relationship quality | 5.34 | .85 | −.29*** | −.06 | −.09 | .03 | .01 | −.00 | .10 | 1 | | | | |
| 9. Horizontal relationship quality | 4.67 | 1.13 | .08 | −.01 | .14** | .04 | −.10 | .21*** | .06 | −.03 | 1 | | | |
| 10. EO | 4.35 | .88 | −.13* | −.08 | .08 | −.19*** | .03 | .00 | .17** | .35*** | −.05 | 1 | | |
| 11. DMCs | 5.04 | .93 | −.08 | −.13* | −.03 | −.03 | −.12* | .07 | .18** | .24*** | .18*** | .22*** | 1 | |
| 12. Innovation performance | 5.04 | 1.13 | −.20*** | −.01 | −.15** | −.09 | −.00 | −.10 | .15** | .17** | .11* | .19*** | .31*** | 1 |

Notes: Sample size = 225.
* $p < .10$.
** $p < .05$.
*** $p < .01$.

## 4. Data analysis and results

Table 3 shows the descriptive statistics and correlation matrix of the variables. While there are several statistically significant relationships among the explanatory variables, none of them exceeded .48. Moreover, each variance inflation factor (VIF) did not show significant multicollinearity (VIF < 1.29). Thus, multicollinearity is not a serious concern. Nevertheless, to mitigate the potential threat of multicollinearity, we standardized all independent variables and created interaction terms based on these standardized variables (Aiken & West, 1991).

### 4.1. Results of hypotheses tests

We used hierarchical multiple regression analysis to test the hypotheses and reported the results in Tables 4 and 5. In the first step, we included all control variables in the model; then, we added the two relationship variables in the second step to test H1a and H1b, EO in the third step, and the interaction terms in the fourth step to test the moderator hypotheses H3a and H3b. To test H4, we used innovation performance as the dependent variable; we first regressed it on the control variables and then added DMCs as the independent variable. As we are interested in the differences between foreign and domestic firms, we split the sample into the two groups to test H2a and H2b.[2]

H1a predicts that vertical relationship quality has a positive effect on the development of DMCs. Model 2 in Table 4 confirms the result ($\beta = .22$, $p < .01$). Thus, H1a is supported. H1b predicts that horizontal relationship quality has a positive effect on the development of DMCs. Model 2 in Table 4 also confirms the result ($\beta = .17$, $p < .05$). Therefore, H1b is also supported.

H3a predicts that for both foreign and domestic firms, the positive effect of vertical relationship quality on DMCs development will be stronger when firm EO is higher. As Model 4 in Table 4 shows, EO strengthens the effect of vertical relationship quality ($\beta = .24$, $p < .01$). Therefore, H3a is supported. H3b predicts that the positive effect of horizontal relationship quality on DMCs development will be weaker when firm EO is higher. Model 4 in Table 4 shows that EO weakens the effect of horizontal relationship quality ($\beta = -.17$, $p < .05$). Thus, H3b is also supported. H4predicts that DMCs have a positive effect on innovation performance. Model 6 in Table 4 confirms the result ($\beta = .29$, $p < .01$). Thus, H4 is supported.

H2a predicts that for foreign firms, horizontal relationship quality has a stronger positive effect on DMCs than vertical relationship quality. Model 2 in Table 5 suggests that for foreign firms, both horizontal relationship quality ($\beta = .25$, $p < .01$) and vertical relationship quality ($\beta = .19$, $p < .05$) have a significantly positive effect on DMCs; moreover, the effect of horizontal relationship quality is relatively stronger (β: .25 > .19). To further test this hypothesis, we employed a Wald test to examine whether the difference between the two coefficients is statistically significant. The results confirmed that the difference is statistically significant ($\chi^2 = 3.748$, $p < .10$). Thus, H2a is marginal supported. H2b predicts that for domestic firms, vertical relationship quality has a stronger positive effect on DMCs than horizontal relationship quality. Model 4 in Table 5 shows that vertical relationship quality has a significantly positive effect ($\beta = .23$, $p < .05$), while the effect of horizontal relationship quality is non-significant ($\beta = .10$, n.s.). The results of the Wald test also extend support for H2b ($\chi^2 = 6.193$, $p < .01$). Table 6 summarizes the results of the hypotheses tests.

[2] Following Li et al.'s (2008) procedures, we also conducted subgroup analysis for joint ventures and foreign-owned firms. The results are similar for both types, so we combined them in the subsequent analysis on foreign firms.

**Table 4**
Regressions on building DMCs and innovation performance (H1, H3 and H4).

| Variables | DV = DMCs | | | | DV = Innovation performance | |
|---|---|---|---|---|---|---|
| | M1 | M2 | M3 | M4 | M5 | M6 |
| Control variables | | | | | | |
| Log (firm size) | −.09 | −.03 | −.03 | −.02 | −.18** | −.15** |
| Firm age | −.12* | −.09 | −.09 | −.09 | .06 | .10 |
| Industry_1 | −.00 | −.02 | −.02 | −.03 | −.16** | −.16** |
| Industry_2 | −.01 | −.03 | −.00 | −.02 | −.13* | −.13* |
| Location_1 | −.10 | −.10 | −.11 | −.08 | −.03 | −.00 |
| Location_2 | .05 | .00 | .01 | .04 | −.06 | −.07 |
| Environment turbulence | .17** | .14** | .12* | .14** | .16** | .11* |
| Independent variables | | | | | | |
| Vertical RQ (H1a) | | .22*** | .18** | .21** | | |
| Horizontal RQ (H1b) | | .17** | .17** | .18** | | |
| DMCs (H4) | | | | | | .29*** |
| Moderator | | | | | | |
| EO | | | .14** | .08** | | |
| Moderating effect | | | | | | |
| Vertical RQ × EO (H3a) | | | | .24*** | | |
| Horizontal RQ × EO (H3b) | | | | −.17** | | |
| $R^2$ | .07 | .14 | .16 | .26 | .10 | .18 |
| ΔF | 2.25** | 8.97*** | 3.91 | 14.58*** | 3.37** | 20.15*** |

Notes: Sample size = 225. Standardized coefficient estimates are reported. Horizontal RQ: Horizontal relationship quality; Vertical RQ: Vertical relationship quality.
* $p < .10$.
** $p < .05$.
*** $p < .01$.

**Table 5**
Multiple regressions on building DMCs (H2).

| Variables | DV = DMCs | | | |
|---|---|---|---|---|
| | Foreign Firms (n = 120) (H2a) | | Domestic Firm (n = 105) (H2b) | |
| | M1 | M2 | M3 | M4 |
| Control variables | | | | |
| Log (firm size) | −.12 | −.05 | −.06 | −.02 |
| Firm age | −.12 | −.18 | −.25** | −.22** |
| Industry_1 | −.20* | −.22** | .22** | .22** |
| Industry_2 | −.23** | −.24** | .26** | .22** |
| Location_1 | −.17 | −.20* | −.09 | −.08 |
| Location_2 | .00 | −.06 | .05 | −.01 |
| Environment turbulence | .06 | −.01 | .28*** | .28*** |
| Independent variables | | | | |
| Vertical RQ | | .19** | | .23** |
| Horizontal RQ | | .25*** | | .10 |
| $R^2$ | .12 | .22 | .18 | .24 |
| ΔF | 2.14** | 7.06*** | 3.15** | 3.26** |

Notes: Sample size = 225. Standardized coefficient estimates are reported. Horizontal RQ: Horizontal relationship quality; Vertical RQ: Vertical relationship quality.
* $p < .10$.
** $p < .05$.
*** $p < .01$.

### 4.2. Post-hoc analysis

First, as DMCs constitute three dimensions (i.e., product development management, supply chain management and customer relationship management), it would be useful to check the effects of relationship quality on each of the three dimensions. As for foreign firms, the results show that both horizontal relationship quality (β = .25,

**Table 6**
Summary results of hypotheses testing.

| Hypotheses | Relationships | Findings |
|---|---|---|
| H1a | Vertical relationship quality →DMCs | Supported |
| H1b | Horizontal relationship quality → DMCs | Supported |
| H2a | For foreign firms, relationship quality (horizontal > vertical) → DMCs | Marginal Supported |
| H2b | For domestic firms, relationship quality (vertical > horizontal) → DMCs | Supported |
| H3a | Vertical relationship quality × EO → DMCs | Supported |
| H3b | Horizontal relationship quality × EO → DMCs | Supported |
| H4 | DMCs → innovation performance | Supported |

$p < .01$) and vertical relationship quality ($\beta = .20$, $p < .05$) have a significantly positive effect on supply chain management capability; moreover, the effect of horizontal relationship quality is relatively stronger (β: .25 > .20). We also find similar result regarding the customer relationship management capability – horizontal relationship quality has a significantly positive effect ($\beta = .24$, $p < .05$), while the effect of vertical relationship quality is nonsignificant ($\beta = .15$, n.s.). Interestingly, we find a conflicting result regarding the dimension of product development management capability, as both horizontal relationship quality ($\beta = .22$, $p < .05$) and vertical relationship quality ($\beta = .26$, $p < .01$) have a significantly positive effect on product development management capability, but the effect of vertical relationship quality is relatively stronger (β: .26 > .22). It highlights the important roles that vertical relationship partners play in the product development process.

As for the domestic firms, our original findings remain when we examine each of the three dimensions of DMCs individually. In particular, the effect of vertical relationship quality is relatively stronger than that of horizontal relationship quality (supply chain management capability, β: $.23^{**} > .08^{n.s.}$; customer relationship management capability, β: $.19^{**} > .13^{n.s.}$; product development management capability, β: $.19^{*} > .07^{n.s.}$).

In this study, we obtained data through a survey asking the same respondents about firm DMCs development and innovation performance over the past three years; however, prior research (Katsikeas, Leonidou, & Morgan, 2000; Katsikeas, Morgan, Leonidou, & Hult, 2016) suggested that researchers should avoid collecting dependent and independent variables at one point in time. To address this issue, we collected the second wave of survey data on innovation performance in 2016, two years after the first survey. Among the 225 sample firms, 49 (12 foreign firms and 37 domestic firms) agreed to participate in this follow-up survey. We rerun the regressions to test the relationship between DMCs and innovation performance. Overall the positive effect of DMCs was confirmed ($\beta = .69$, $p < .01$).

## 5. Discussion

Using data for 225 firms operating in China, this study fills significant gaps in the literature by providing unequivocal empirical support for the important effect of DMCs on innovation performance and, more importantly, by exploring how foreign and domestic firms foster the development of DMCs. In particular, we find that both vertical and horizontal relationship quality have positive effects on the development of DMCs. In addition, we find that whereas EO weakens the effect of horizontal relationships on DMCs, it strengthens the positive effect of vertical relationships on DMCs. We also find that foreign firms enjoy more benefits from using high-quality horizontal partners than vertical partners in building DMCs, but domestic firms enjoy more benefits from vertical partners instead. Overall, these findings offer a refined picture of how foreign and domestic firms build strong DMCs differently.

### 5.1. Theoretical implications

This study contributes to the literature in several notable ways. First, this study examines the DMCs development from both vertical and horizontal relationship perspectives, which extends the dynamic capabilities literature. Whereas prior studies focused on either vertical (Dyer, 1997) or horizontal relationships (Gulati, 1999), our finding that both horizontal and vertical relationships promote DMCs development for foreign firms suggests that collaboration with both suppliers/customers and competitors should be incorporated into future international business research on dynamic capabilities. Hence, the current paper opens a new and holistic avenue for future work to study the antecedents of DMCs. Specifically, when studying how to develop strong DMCs, researchers should consider not only the partners in the value chain (i.e., vertical relationship) but also potential competitors (i.e., horizontal relationship).

Second, our study contributes to the international business literature by suggesting that how firms utilize inter-organizational relationships to build DMCs may depend on whether the firms operate in domestic or foreign markets. One of the most novel findings of this study is that foreign firms gain more benefits from horizontal relationships, but domestic firms gain more benefits from vertical relationships. This finding highlights the contingent nature of RDT and extends the theory to the international business literature. The idea of extension is complex and important. The complexity arises because, in contrast to domestic firms, foreign firms must address the liability of foreignness and their resource dependence on local partners and their extant internal resources. Therefore, the nature of resource dependence on partners may differ for foreign firms relative to domestic firms, because of their relative importance for different types of partners (in this study, we focus on vertical versus horizontal partners). Accordingly, our study suggests that resources requested for building DMCs for domestic firms may be different from those requested for foreign firms. Future research should take great caution when applying antecedent variables of DMCs for domestic firms into the foreign market context.

Third, this study extends the literature regarding the impact of strategic orientations on DMCs. Previous research posits that strategic orientations such as market orientation and technology orientation enhance firm dynamic capabilities (Lisboa, Skarmeas, & Lages, 2011; Zhou & Li, 2010). Whereas the effects of strategic orientations tend to be unidimensional in earlier studies, our paper shows that their effects can be either favorable or unfavorable contingent on the type of resources used to build DMCs. In our study, entrepreneurial orientation, an important dimension of strategic orientation, strengthens the impact of vertical relationships, while weakens the impact of horizontal relationships on the development of DMCs. This new insight regarding the role of strategic orientations on DMCs building suggests that future research should look into the diverse effects of strategic orientations.

Finally, this research also contributes to the innovation literature. The limited studies on DMCs either are conceptual pieces (Day, 2011) or are based on a few cases (Bruni & Verona, 2009); scant research has examined the effect of DMCs on firm innovation performance. Using a sample of 225 firms operating in China, we offer systematic evidence of the important influence of DMCs on firm innovation performance. Compared with prior studies exploring the impact of DMCs on ultimate financial or market performance (e.g., return on assets, market share growth) (Fang & Zou, 2009), this study investigates firm innovation performance (measured by indicators such as the ratio of new product sales to total sales), a key mechanism that bridges DMCs and firm ultimate financial or market performance.

### 5.2. Managerial implications

Our findings offer important implications for managers attempting to achieve superior innovation performance. Above all, this study offers fresh suggestions on how to build DMCs. Although both horizontal and

vertical relationships are costly and time consuming to build, the former one tends to be more challenging. In particular, when developing relationships with competitors, firms are expected to share valuable information with these partners. Additionally, competitors are usually motivated to steal secret know-how and customers, firms have to design governance mechanisms such as equity holdings to prevent opportunism (Drees & Heugens, 2013). Therefore, given limited resources, firms should invest on these relationships only when the benefits outweigh the risk and its associated costs. Based on our findings, when firms operate their businesses in their home country, since they are familiar with the home countries' institutional environments, they can concentrate on nurturing their vertical relationships when developing their DMCs. However, if firms decide to go overseas, quality horizontal relationships are worth the effort because the relationships may reduce the firms' liability of foreignness. The joint venture between DuPont and its leading local competitors, Shanghai Hua Yi and Asia Pacific Agricultural Chemical Company, is a good example of how a firm achieves successes in a host country by using the strengths of its partners. The joint venture not only reduces competition but also allows DuPont to leverage the partners' industrial network, customer base, and distribution channels to sense market opportunity (Luo, 2007b). The example illustrates the importance of viewing local competitors in the host country as partners instead of enemies.

In addition, our findings indicate that managers should pay attention to the impact of their strategic orientation such as their EO level. For firms with high levels of EO (i.e., they are innovative, proactive, and risk-taking), managers should take advantage of vertical relationships with their suppliers or customers, because a high EO will strengthen the positive impacts of vertical relationships on DMCs. However, these firms, particularly foreign ones, should not rely excessively on horizontal relationships, because their high EO will weaken the positive impacts of the horizontal relationships. In sum, without taking EO into consideration, managers may fail to identify the reasons behind their success or failure in building DMCs.

### 5.3. Limitations and further research

Some limitations of this study could be addressed in future research. First, despite significant personal involvement and efforts dedicated to data collection, we obtained data from only 225 valid sample firms. The limited sample might have reduced the statistical power required to generate more significant findings. Further research could test our hypotheses by using larger samples.

Second, this study only examined firms in China, the largest emerging economy. Our data are cross-sectional and it may be subject to endogeneity issue. We therefore urge future studies to look into the lagged effect of relationship quality on the development of DMCs. Future studies should also examine such an effect in different countries to enhance the generalizability of our findings.

Third, although this study suggests tension between forming relationships and sharing benefits with partners, particularly in the coopetition with horizontal relationships, we did not measure cooperation and competition explicitly to test the tension, which goes beyond the research focus of this study. Future studies could examine the two mechanisms directly and compare them within the vertical versus horizontal relationships and within the scope of domestic and foreign firms. Such inquiries could further extend the study of inter-organizational relationships and DMCs development.

Finally, we focused on EO as the moderating variable in this study. Future studies could examine other important moderators, such as cultural and institutional distance between the home and host countries (e.g., Chao & Kumar, 2010; Treviño & Mixon Jr, 2004), because distance may influence the resource dependence of foreign firms on their local partners and thus affect relationship utilization. For example, if regulations in the home country are similar to those in the host country, foreign firms may be able to adapt themselves easily to the host countries. Accordingly, they may be less dependent on their competitors when developing DMCs. Therefore, home-and-host country distance effects warrant future research effort. Another moderator worthy exploring is firm brand equities. Foreign firms with strong brand equities are generally welcomed with more privileged incentives than other foreign firms (Sethi & Judge, 2009). So the effects of brand equities should also be examined in the future.

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