



Entrepreneurial orientation and strategic alliance success: The contingency role of relational factors



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ABSTRACT

This study extends entrepreneurship research into the domain of strategic alliances by hypothesizing a positive relationship between entrepreneurial orientation (EO) and firm-level alliance success. Drawing on a relational view, we further examine the focal relationship within a contingency framework, building on the distinction between cooperation (joint action and bonding) and conflict. Findings from a study of 197 partner firms suggest that a high level of joint action strengthens the positive relationship between EO and alliance success. Bonding moderates the relationship in an inverted U-shape manner such that the effect of EO on alliance success will be greatest when bonding exists at the moderate level. However, conflict has no significant moderating effect on the EO–alliance success relationship. Overall, this study provides novel insights into *whether* and *when* partner firms can translate an EO into final alliance outcomes.

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1. Introduction

Although prior studies show that almost half of strategic alliances fail, some firms have indeed enjoyed great success with their alliances (Anand & Khanna, 2000; Kale & Singh, 2007; Zhang, Shu, Jiang, & Malter, 2010). What, then, drives strategic alliance success? This crucial question has attracted various explanations, among which the firm-level factors have gradually gained prominence. For example, Kale, Dyer, and Singh (2002) find that firm-level alliance capability (a firm's alliance experience and its investment in a dedicated alliance function) leads to alliance success. In a follow-up study, Kale and Singh (2007) provide evidence that a firm's alliance learning process is positively linked to its overall alliance success. Despite this prevalence in examining determinants of alliance success, less scholarly attention has been given to a very crucial firm-level variable—entrepreneurial orientation (EO), which refers to a firm's strategic posture that is characterized by acting innovatively, taking risks, and being proactive towards the market (Covin & Slevin, 1989; Miller, 1983). While studies have suggested that linking EO to explaining alliance variables in an effort to better understand its role in alliance phenomena represents a crucial research agenda (Slevin & Terjesen, 2011), the question remains: Do firms that can more extensively enact their EO achieve greater alliance success?

Two motivations fuel our study. First, recent entrepreneurship research has acknowledged the importance of strategic alliances for the implementation of entrepreneurial activities (Teng, 2007). For example,

firms can better enact their EO in achieving higher performance when participating in research or marketing alliances (Brouthers, Nakos, & Dimitratos, 2015). Meanwhile, as EO is a vital organizational characteristic that impacts individual firms' activities (Miller, 1983), it is assumed that when firms enter into a specific alliance, an EO might also guide their alliance activities such as helping them grasp the learning and resource-seeking opportunities in the collaboration (Sarkar, Echambadi, & Harrison, 2001; Teng, 2007). Indeed, studies have extended the consequences of EO into the realm of strategic alliances, but have yielded few significant implications for alliance formation such as alliance use (Dickson & Weaver, 1997) and alliance processes such as knowledge spillovers (Shu, Liu, Gao, & Shanley, 2014), leaving the effect of EO on final alliance outcomes underexplored. To fill this gap, this study leverages the resource-based view (RBV) to investigate the role of EO in firm-level alliance success, i.e., the extent to which a firm attains its main strategic goals in a given alliance (Kale et al., 2002; Schreiner, Kale, & Corsten, 2009). By doing so, we hope to extend and bridge the two research streams that usually develop independently: that on entrepreneurship and that on strategic alliances.

Second, it may be better to consider a firm's relationships with alliance partners when exploring the EO–alliance success linkage. Research suggests that a high EO alliance firm is not the same atomistic as a high EO individual firm because an alliance firm's enactment of entrepreneurial posture is likely to be bounded by its relationships with partners (Yang, Lin, & Peng, 2011). In this study, we deem relationships between partners (cooperation and conflict) as critical contingencies that shape the EO–alliance success linkage. Specifically, we ask: How do an alliance firm's implementation of EO and its relationships with partners *jointly*

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affect its alliance performance? This unanswered question prompts a contingent examination of the EO–alliance success relationship for two reasons. First, the relational view suggests that relationships between partners may direct firms' motivations and expectations to enact their entrepreneurial postures in alliances (Jiang, Yang, Pei, & Wang, 2016; Simsek, Lubatkin, & Floyd, 2003). Second, these relationships may influence the effectiveness of firms' entrepreneurial strategies (De Carolis & Saporito, 2006; Welter, 2011).

Traditional studies have often presented cooperation and conflict as the extremes of a single interorganizational relationship or the two ends of a continuum describing relationships between organizations (Alter, 1990; Gillespie & Mileti, 1979). In the alliance context, the literature also indicates that alliance partnerships are associated not only with cooperative behaviors but also with non-cooperative or competitive behaviors (Kumar, 2010; Zhang, Shu, et al., 2010). Specifically, cooperation is the result of a dyad's common interests, while conflict arises due to their pursuit of private benefits (Khanna, Gulati, & Nohria, 1998). Broadly referring to a relational view (Borgatti & Cross, 2003; Dyer & Singh, 1998), cooperation and conflict, inherent and conceptually distinct, characterize two key aspects of an alliance partnership. Here, we take the view that a relationship that a firm believes will help it achieve common strategic goals with alliance partners is seen as cooperative (Zhang, Shu, et al., 2010). By responding to calls by White and Lui (2005) for more analyses of the distinction between the behavioral and affective dimensions of an alliance relationship, we further view cooperation as a two-dimensional construct. It has a behavioral component, i.e., joint action, which reflects how closely partners work together to accomplish various tasks or activities (Schreiner et al., 2009), and an affective component, i.e., bonding, which reflects the extent to which partners are fused together through formal and informal links (Rodríguez & Wilson, 2002; Sarkar, Aulakh, & Cavusgil, 1998). In the meantime, conflict is an awareness on the part of one alliance partner of another partner's incompatibilities (Jehn & Mannix, 2001), possibly arising from the other partner's opportunism or from goal incongruence between the partners (Kale, Singh, & Perlmutter, 2000).

Our study makes several contributions to the literature. First, we extend the range of research on the role of EO in alliances, echoing recent calls by Teng (2007) and Ariño, Ragozzino, and Reuer (2008) to channel research on entrepreneurship and strategic alliances, previously two separately evolving streams of research, into a single stream. Second, we highlight a contingent view of EO by associating it with relational factors, enriching our understanding of a relational view on strategic alliances. Especially, by defining cooperation as a multidimensional construct in terms of a behavioral dimension (joint action) and an affective dimension (bonding), and comparing their relative values in shaping the EO–alliance success linkage, we extend prior research on the cooperation aspect of an alliance relationship. Fig. 1 illustrates the conceptual model.

2. Literature review and hypotheses

2.1. A resource-based view of entrepreneurial orientation

The term “EO” applies when the concept of entrepreneurship is extended from the individual level to the firm level (Covin & Slevin,

1991). EO, by far the most popular construct in the entrepreneurship literature, is defined as a sort of strategic posture of a firm that exhibits innovativeness, risk-taking, and proactiveness (Miller, 1983; Covin & Slevin, 1989). Specifically, innovativeness is the tendency to create and introduce new products, production processes, and organizational systems. Risk-taking is the propensity to accept higher levels of risk by venturing into the unknown with relatively strong commitments. Proactiveness is engagement in opportunistic expansion by seizing market opportunities in the process of new market entry ahead of competing firms.

The RBV literature posits that firms' idiosyncratic internal resources are fundamental sources of competitive advantage (Barney, 1991). As suggested by some recent studies, there is a potential fit between EO and RBV since EO can be regarded as an intangible resource which is embedded in organizational routines and dispersed among organization members (Hughes & Morgan, 2007; Lisboa, Skarmees, & Saridakis, 2016). In some sense, “firms cannot buy a high level of EO from the market and should invest a great deal of time to cultivate such a culture and thus EO can be a source of sustainable competitive advantage” (Lee, Lee, & Pennings, 2001: 617). In addition, the three dimensions of EO can also be viewed as crucial strategic resources that guide a firm's business strategy and approach to competing in a marketplace (Hughes & Morgan, 2007).

As to the consequences of EO, recent studies suggest that its most significant consequence is improved firm performance (Semrau, Ambos, & Kraus, 2016; Shan, Song, & Ju, 2016; see Anderson, Kreiser, Kuratko, Hornsby, & Eshima, 2015, for a critical review). Additional consequences also include organizational learning (Kreiser, 2011), strategic learning (Anderson, Covin, & Slevin, 2009), and variability in firm performance (Patel, Kohtamäki, Parida, & Wincet, 2014). In short, these studies are all conducted at the firm level but should be expanded to the alliance context as in the present study.

2.2. Linking EO to strategic alliance research

Compared with fruitful explanations of EO that focus on factors or processes at the individual organization level in extant literature (see, Rauch, Wiklund, Lumpkin, & Frese, 2009; Anderson et al., 2015, for recent reviews), relatively little research attention to date has been paid to extending EO research into the more macroscopic field of strategic alliances. In our broadened view, which integrates entrepreneurship with alliance research, entrepreneurship theory and its central principles that an EO guides an individual firm's activities within the organization are potentially applicable to the strategic alliance context. The fundamental reason is that deeply rooted values and beliefs may define partner firms' entrepreneurial philosophies regarding how to conduct alliance activities such as joint resource sharing deployment. Indeed, without a certain level of EO, each alliance party may not be sufficiently motivated to make necessary investments and commit sufficient resources to make the alliance succeed.

Some studies have already hinted at a potential role for entrepreneurship in alliances through examining issues such as how alliance proactiveness affects firm market performance (Sarkar et al., 2001) and how alliance-driven corporate technological entrepreneurship affects organizational performance (Antoncica & Prodan, 2008). Still others have built a direct link between EO and alliance-related issues during alliance formation or evolutionary processes. For example, Dickson and Weaver (1997) document that an EO adopted by a firm's key managers will affect its decision on alliance use when facing environmental uncertainty. Shu et al. (2014) find that a focal firm's EO is positively related to its knowledge spillovers in an alliance. These studies have covered only some aspects of the linkage between EO and alliances, for example by focusing on particular stages of alliance formation or evolution. However, this line of research has seldom touched alliance outcomes, leaving an important question underexplored: How does a firm's adoption of EO affect its alliance outcomes? Filling this gap

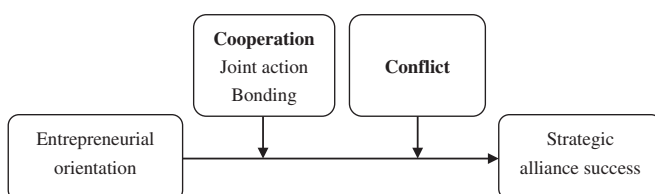


Fig. 1. Conceptual model.

requires a focus on relating EO to a critical alliance outcome such as alliance success.

To achieve this purpose, the present study refers to both the RBV and the relational view, two major perspectives about how competitive advantage is achieved (Mesquita, Anand, & Brush, 2008). The RBV of alliances is concerned with the synergy of pooled resources (Lin, Yang, & Arya, 2009). This logic essentially suggests that the competitive advantage of alliances is influenced by the effective integration of unique resources the dyad contributes (Das & Teng, 2000; Wittmann, Hunt, & Arnett, 2009). In the following, we postulate from this view that EO may help partner firms to earn competitive advantage not only through facilitating their resource integration efforts but also by encouraging the development of superior resource management capability.

The relational view, from another standpoint, focuses on the value of interpartner relationships (Dyer & Singh, 1998). In the context of alliances, relationships between partners may affect entrepreneurs' motivations and behaviors in achieving collaborative objectives (Kreiser, 2011; Stam & Elfring, 2008). That is, a firm's enactment of EO cannot be separated from its relationships with partners. Thus, a relational view seems to be necessary when predicting the alliance performance effect of EO (Yang et al., 2011).

2.3. Entrepreneurial orientation and strategic alliance success

The resource-based logic emphasizes that the extent to which an alliance creates new resources is the crucial determinant of the alliance's performance (Wittmann et al., 2009). An EO can motivate a firm to fully contribute its resources to the alliance for the joint generation of new resources, while at the same time the firm may even acquire additionally needed resources beyond the alliance domain. This may broaden and deepen the value of further integration with its partners' resources within the alliance (Nielsen & Nielsen, 2009), thereby increasing the potential for innovation and competitive advantage. But the RBV also posits that not all new resources can translate into competitive advantage (Barney, 1991). For example, Nielsen and Nielsen (2009) argue that merely the generation of new resources is not enough for innovation to occur in alliances: the novel resources must make a real difference when being put into action. We believe that this will not be a concern for an alliance firm with a high EO because such firm is more prone to focus on breaking through the old routines and procedures (Kreiser, 2011). This firm may also experiment with diverse alternatives to make a genuine difference for the synergy of pooled resources, thus providing ways for alliance success.

Compared with conservative firms, high EO firms may have a better understanding of the importance of those resources contributed by all alliance partners. Such firms might be more likely to identify effective entrepreneurial processes and procedures to manage complex resource integration activities with uncertain outcomes. Via this, they may also develop superior resource management capability through an entrepreneurial learning process (Politis, 2005; Ravasia & Turati, 2005), improving the overall alliance outcome. On the contrary, when those firms with a low EO get involved in an alliance, they may be more concerned with protecting their own valuable resources from being appropriated rather than providing sufficient resources for sharing (Teng, 2007). This may in turn impede emerging resource integration opportunities within the alliance, which may eventually destroy alliance success. Based on these resource-based arguments, we propose that a strong EO is positively related to alliance success.

Just as research on EO has benefited from the abundant organizational-level entrepreneurship research, different dimensions of EO including innovativeness, risk-taking, and proactiveness will help firms generate greater alliance value and success. Specifically, partner firms with innovative ideas may have more creative insights and may generate promising ideas and new ways of thinking (Avlonitis & Salavou, 2007). Innovative firms tend to support renewing, creating, and introducing appropriate cooperative mechanisms in the alliance, which

facilitates more effective monitoring of the resource integration processes. In this way, innovation achieves a competitive advantage for both the alliance and the partner firms (Lambe, Spekman, & Hunt, 2002; Schilke & Goerzen, 2010).

Although there is considerable uncertainty regarding the potential applications of the newly combined resources within an alliance, bigger rewards are usually associated with these new bundles (Barrett & Weinstein, 1998). Risk-taking partner firms are willing to accept risks involved in resource integration activities to generate stronger innovation and joint value. In addition, they are more likely to invest relation-specific assets to the alliance (Teng, 2007), which will potentially enhance the alliance's performance (Lavie, Haunschild, & Khanna, 2012).

Proactive firms may help to create first-mover advantages for an alliance through early domination of distribution channels or creating products ahead of competitors (Wiklund & Shepherd, 2003). Also, they are more prone to focus attention and effort towards potentially valuable resource generation opportunities, which sets the foundation for future alliance success (Kale et al., 2002). All these considerations lead to our first hypothesis:

H1. A high level of EO has a positive effect on alliance success.

2.4. Relational factors as moderators

Based on the relational view, firms in alliances are not atomistic players but are influenced by their relationships with partners (Dyer & Singh, 1998; Yang et al., 2011). The relational view posits that firms are able to develop key relationships as relational assets to achieve competitive advantage (Dyer & Singh, 1998; Yli-Renko, Autio, & Sapienza, 2001). With regard to firms with a high EO, these relational assets are more beneficial because of high EO firms' resource-consuming nature (Stam & Elfring, 2008). The amount and quality of relationships that a high EO firm develops with partners in part determine the extent of its resource base and opportunities for learning, which in turn affects the efficiency of its innovative, risk-taking, and proactive behaviors in alliances.

Prior research on partnerships has implicitly assumed that alliances are cooperative in nature because partner firms need to collaborate with each other to promote common interests (e.g., joint value creation), yet the existence of private benefits (i.e., self-interest) may lead to relational tension or conflict (Kale et al., 2000; Zaheer, McEvily, & Perrone, 1998). In this regard, studies examining either side of the dyadic relationship provide only a partial look at the reality of the alliance situation. In particular, cooperation and conflict are not contradictory but merely distinct and separate facets in a given partnership (Li, Liu, & Liu, 2011). This implies that varying levels of cooperation and varying levels of conflict may coexist. It is thus valuable to examine the separate roles of cooperation and conflict in understanding alliance-related issues.

Cooperation here is viewed as a two-dimensional construct with the following components: (1) joint action, reflecting the *behavioral* dimension of an alliance relationship, emphasizes partner firms' collective activities aimed at achieving cooperative goals (Heide & John, 1990; Schreiner et al., 2009); and (2) bonding, reflecting the *affective* dimension of the alliance relationship, is the connection that holds partner firms together through interpersonal exchange (Rodríguez & Wilson, 2002; Sarkar et al., 1998). Thus, although joint action and bonding are closely related as they are based on partners' interaction and common interests (Schreiner et al., 2009), they are distinct constructs and may vary independently of each other. Joint action is achieved through partners' collective activities, whereas bonding is nurtured by repeated contacts and communication between the concerned partners. Meanwhile, conflict may emerge when either party emphasizes its own gains from specific cooperative projects in which the partners' respective needs are not compatible (Kale et al., 2000). Such conflict is dysfunctional

and may trigger motivations to conduct negative activities in the alliance. Below, we examine how joint action, bonding, and conflict influence the EO–alliance success relationship.

2.4.1. The moderating role of joint action

Joint action is viewed as the extent of dyadic cooperation across a wide array of alliance activities, such as sales activities, product improvement, and project implementation (Gulati & Sytch, 2007). Joint action safeguards against opportunism because of the transaction-specific commitments partner firms invest in the alliance due to their joint responsibilities for cooperative activities (Zaheer & Venkatraman, 1995). Given this definition, we argue that the extent to which firms successfully implement entrepreneurial tasks in their alliance depends on the extent to which they engage in joint action with their partners.

A low degree of joint action is similar to market exchange (Heide & John, 1990), in which case partner firms may invest limited resources to the alliance and execute their entrepreneurial tasks separately with little mutual communication and interaction. They may thus have little incentive to make full efforts to achieve alliance success without understanding each other's entrepreneurial behavior and strategy. Apparently, this situation may not be favored by firms having a strong EO because such firms prefer interacting with their partners openly and extensively when conducting cooperative tasks (Zhao, Li, Lee, & Chen, 2011). Therefore, when an alliance relationship exhibits a low degree of joint action, partner firms' entrepreneurial propensity in achieving desired collaborative objectives may be lowered.

In contrast, a high degree of joint action will make it easier for partner firms to enact their EO in achieving alliance success. First, high degrees of joint action effectively turn firms into “good” partners in a given alliance (Heide & John, 1990), which motivates them to make their information and resources available (Zhang, Soh, & Wong, 2010). These efforts thus expand each party's original resource domain. This is particularly beneficial for those firms with a strong EO because implementing an EO is a resource-consuming strategic behavior (Wiklund & Shepherd, 2005). Thus, higher levels of EO allow partner firms to better utilize these novel resources and new perspectives to which they have not been exposed under the circumstance of lower degrees of joint action. Second, joint action lowers the possibility of the interests of any party being jeopardized no matter how risky the cooperative project is (De Clercq, Dimov, & Thongpapanl, 2013). It thus adds confidence to those firms with a high EO and stimulates them to commit more to their alliances, even if the outcome is uncertain or they can not succeed immediately. Third, mutual interactions and resource-sharing activities created by joint action are the most required when partner firms enact an entrepreneurial posture such as introducing novel incentive or appraisal systems in their alliance. Without alliance partners' support and joint activities, this strategic posture cannot be translated into successful performance. In other words, joint action guarantees adherence to an EO in achieving alliance success.

H2. The relationship between EO and alliance success is stronger when the degree of joint action is strong in an alliance.

2.4.2. The moderating role of bonding

Different from joint action, we suggest a nonlinear moderating effect on the EO–alliance success relationship for bonding, in an inverted U-shape. Since EO is fundamentally a resource-consuming posture, a significant existing or a potential resource endowment in alliances is crucial for high EO firms (Anderson & Eshima, 2013). At a relatively low level of bonding between partners, each party is reluctant to devote resources to alliances, making an EO loses its effect on alliance success.

An extremely high level of bonding, on the other hand, signals a surfeit of trust between partners. Although it may provide access to ample resources, we propose that such kind of bonding poses considerable inertia problems that may decrease the effectiveness of an EO. First, firms

that overly bond with partners may get complacent with their current relationship blindly (Anderson & Jap, 2005). Such complacency may bring about so-called “lock-in” problems, which reduce these firms' entrepreneurial tendency and efforts to identify new market information, acquire new technological knowledge, and contribute to novel but risky projects (Ernst, Lichtenthaler, & Vogt, 2011; Kaplan & Henderson, 2005). Second, opportunism may arise as bonding becomes too strong (Li, Eden, Hitt, & Ireland, 2008; Zhou, Zhang, Sheng, Xie, & Bao, 2014). With a strong bonding relationship, the firm may reduce its monitoring of the trusted partner. Once it is sensed by the trusted partner, it may take advantage of the firm's trust and cut down its commitments to the alliance. Then, these resulting constrained resources are not preferred by firms with high EO to conduct activities in alliances. For example, limited access to information constrains the firm's capacity to combine knowledge in a narrow. As a result, alliance success will be threatened.

At an intermediate level of bonding, finally, we expect an amplifying effect on the EO–alliance success link. It is because that, first, it facilitates the exchange of mutual resources and breaks down barriers to resource integration, which allows firms to implement an EO in executing collaborative activities with partners smoothly. Second, the presence of moderate bonding reduces the perceived risk of partners' opportunism, and in turn, the need to hide their respective sensitive information and knowledge (Jiang, Bao, Xie, & Gao, 2016). This, then, facilitates the enactment of EO by enhancing the creativity and diversity of ideas exchanged across partners (Stam & Elfring, 2008). This also allows them to find new external information and detect environmental changes and entrepreneurial opportunities rapidly (Kreiser, 2011).

In addition, three traits of EO—innovationness, risk-taking, and proactiveness—are also facilitated as a result of a moderate level of bonding. In particular, bonding can serve as an informal conduit through which firms can acquire both tacit and explicit knowledge from partners (Li et al., 2011). Thus, a relatively high level of bonding facilitates partner firms' experimentations with new practices, demonstrating their stimulative role in the process of incorporating an EO in firm strategy. Because in a trustworthy and smooth bonding relationship “no party to an exchange will exploit others even if there is an opportunity to do so” (Kale et al., 2000, p. 222), neither party needs to fear losing the return on their investments as a result of partner opportunism. Because of such mutual confidence, partner firms will prefer to act more boldly (e.g., committing more resources to the alliance without knowing whether the alliance will be successful), stimulating their risk-taking propensity in pursuing alliance success. Such a smooth relationship also stimulates partner firms to be more proactive in alliance activities because it provides them with more time to identify market opportunities due to decreased worries about each other's opportunism, granting the alliance a first-mover advantage and strong prospects for success.

H3. Bonding moderates the relationship between EO and alliance success such that the slope of the curve is increasingly positive when bonding increases from a low to a moderate level but decreases when bonding increases beyond the moderate point.

2.4.3. The moderating role of conflict

Conflict, arising from partner opportunism, behavioral uncertainty, or goal divergence, is inherent in any partnership (Kale et al., 2000). As conflict often brings negative effects on both partners (Zaheer et al., 1998), it is reasonable to expect that conflict hinders the positive effect of EO on alliance outcomes.

When conflict is frequent, firms may try to maximize their private interests at the expense of the alliance or their partners' interests when they conduct entrepreneurial activities aiming at achieving high alliance success. Thus, they tend to provide few usable resources to the alliance for sharing. Instead, they have strong incentives to

appropriate each other's knowledge and resources (Jiang, Li, Gao, Bao, & Jiang, 2013; Khanna et al., 1998; Oxley & Sampson, 2004). Because the most fundamental goal of a high EO firm in forming alliances is to acquire novel and valuable resources from partners, the firm will boldly and proactively break up an alliance that is undermined by conflict if its entrepreneurial resource synergy planning is affected.

In addition, intense conflict is likely to erode partner firms' commitment to an EO and, accordingly, the value they expect to gain from the alliance. Specifically, given the redundancy and wasted time and effort spent in focusing on conflict and conflict resolution, they may be unaware of R&D tendency and market changes, which will reduce the effectiveness of their entrepreneurial activities. Serious conflict also makes partner firms suspicious of each other (Li et al., 2011). Consequently, they may lose patience when implementing EO to achieve the planned cooperative objectives, especially when the future is uncertain. Instead, they tend to stop contributing more to the alliance, reducing their willingness to take risk for the sake of cooperation. In contrast, in an alliance with low potential for conflict, the appropriation of knowledge and resources is less likely to pose strategic concerns, which seems to favor the enactment of entrepreneurial posture and increase the prospects for alliance success.

H4. The relationship between EO and alliance success is weaker when the degree of conflict is strong in an alliance.

3. Methodology

3.1. Sample and data collection

We examined those relationships using data collected in a survey of 197 Chinese firms engaged in strategic alliances. We choose China as the research context for three reasons. First, as the largest emerging market in the world, it is now commonly agreed that China has become fertile soil for entrepreneurship (Li, Guo, Liu, & Li, 2008). This phenomenon deserves continuous investigation (Ciravegna, Majano, & Zhan, 2014). Second, a growing number of Chinese firms tend to fill knowledge and resource gaps through entering into strategic alliances (Fang, 2009). Despite the prevalence of alliances in China, however, most of them fail to meet desired collaborative objectives. It is intriguing to investigate how Chinese firms achieve alliance success. Third, compared with other emerging economies, the Chinese market is dominated by social relations (such as close bonding) that intensively shape business activities (Boso, Story, & Cadogan, 2013). This provides a rich social context to examine the entrepreneurial behavior of Chinese firms from a relational view.

Based on prior studies (e.g., Covin & Slevin, 1989; Schreiner et al., 2009) and in-depth interviews, we developed the questionnaire in English. Two scholars in this research field translated it into Chinese, and then two other scholars back-translated it into English to ensure accuracy and compliance (Berry, 1980). Next, we conducted a pilot test of the Chinese questionnaire to check its interpretability and utility. Twenty top managers from local firms that were engaged in alliances volunteered to review the Chinese version. Their comments prompted us to modify it for clarity and accuracy, finalizing the questionnaire. We randomly selected 1500 firms from Mainland China using provincial governments' directories. We collected the data through on-site interviews from August 2010 to January 2011. The sampled firms were mainly in energy, chemicals, machinery, electronics, and IT, among other manufacturing industries.

Using provincial governments' directories, we randomly selected 500 firms from each of the three regions in mainland China: the eastern and coastal region (ten provinces), the middle region (seven provinces), and the western region (six provinces). These sample firms represented the four-digit Chinese Industrial Classification codes 1311–4190 and 6311–6591, which include manufacturing activities or R&D activities

covering diverse industries (e.g., mechanical, chemical, electronics, software, and textiles). With the help of local governments, for which we have provided training courses for senior officials and local research assistants, we obtained the names, telephone numbers, and e-mail addresses of top managers from the sampled firms. Then, we contacted the managers from the sampled firms. Then, we contacted managers by e-mail letters or telephone to describe the purpose of the study and asked whether they would like to assist with the study. To motivate their participation, the managers were informed of the academic nature of the study and the confidentiality of their responses, and were offered an incentive in the form of a summary report. In the cases in which a top manager reported that his or her firm had been involved in one or more alliances and was also willing to participate in the survey, we asked him or her to invite another manager who was familiar with the content of our survey to participate. Therefore, two managers were invited complete the survey noted his or her contact information.

After setting an appointment, we arranged for interviewers to visit the two managers in their offices, independently. Before formally interviewing, both managers were asked to choose the same partner that had been an ally for at least one year. Focusing on alliances that had been in place for at least a year ensured more reasonable and effective research findings (Jiang & Li, 2008). Interviewers presented the same survey, clarified any questions, and collected the survey after completion. Before formally interviewing, both managers were asked to choose the same partner that had been an ally for at least one year. Focusing on alliances that had been in place for at least a year ensured more reasonable and effective research findings (Jiang & Li, 2008). To ensure that the respondents were knowledgeable, we called the manager asked the top manager to invite another manager who was familiar with the content of our survey to participate the survey. To limit common method bias, we collected data for the variables from two informants in each firm (such as chairman, CEO, general manager, and vice general manager responsible for alliance affairs), carefully chosen for their formal organizational positions and their knowledge about the core issues being studied. We asked the two informants to randomly choose a partner from an alliance and to focus on that case in answering the questionnaire. Although they chose the same partner and the same alliance, they finished their surveys separately. We asked that they focus on alliances that were at least a year old to ensure reasonable and effective research findings regarding alliance activities and outcomes. The final sample consists of 197 partner firms (394 respondents).

We assess nonresponse bias by testing possible differences between respondents and nonrespondents after the data were collected (Armstrong & Overton, 1977). We compared the characteristics such as firm age, size, and ownership. The results of one-way analysis of ANOVA show no statistically significant differences between respondents and nonrespondents on any of the subsidiary information ($F = 0.600, p > 0.10$; $F = 1.419, p > 0.10$; $F = 1.059, p > 0.10$, respectively). Thus, nonresponse bias was not a significant concern.

Of the 394 informants, 61.2% were chairmen or CEOs (241 informants), and 38.8% were general managers, vice general managers or others (153 informants). We also tested the position distributions of the respondents. We conducted a two-sample Kolmogorov-Smirnov test regarding Informant A and Informant B ($Z = 0.211$, Asymp. Sig. = 1.05). The results of the test show no significant difference in their positions. Table 1 shows the profile of the sample firms.

3.2. Variables measurement

The independent, dependent, and moderator variables were all measured with a multi-item scale, and all items were randomly ordered to minimize any bias from the survey method. Each of the scale items used a 7-point Likert scale from 1, "strongly disagree", to 7, "strongly agree". The first informant (mean firm experience = 8.12 years; mean alliance experience = 4.02 years) provided information about EO, joint action, bonding, conflicts, and control variables. The second

Table 1
Sample profile.

Firm attributes	Percentage (%)
Locations	
Eastern and coastal region (Guangdong, Shandong, Jiangsu, Zhejiang, Henan, Hebei, Liaoning, Sichuan, and Hubei Provinces, as well as Shanghai City)	41.6
Middle region (Hunan, Fujian, Anhui, Inner Mongolia, Heilongjiang, Guangxi, Shaanxi, and Jilin Provinces as well as Beijing and Tianjin Cities)	48.2
Western region (Shanxi, Jiangxi, Yunnan, Xinjiang, Guizhou, Gansu, Hainan, Ningxia, Qinghai, and Tibet Provinces, as well as Chongqing City)	10.2
Firm size (number of employees)	
<50	8.1
50–299	28.4
300–1999	33.5
>2000	30.0
Partner size (number of employees)	
<50	15.7
50–299	25.4
300–1999	31.5
>2000	27.4
Type of ownership	
State-owned	34.7
Privately owned	50.2
Others (e.g., collective enterprises)	15.1
Type of industry	
Textiles	6.1
Electrical machinery and equipment	10.2
Chemical and pharmaceutical	12.7
Computer and communications equipment	16.2
Software and information technology services	13.2
Mechanical and special equipment manufacturing	25.9
Others	15.7
Positions of respondents (Informant A)	
Chairman and CEO	68.5
General and vice general managers	29
Others (e.g., head of R&D)	2.5
Positions of respondents (Informant B)	
Chairman and CEO	53.8
General and vice general managers	40.2
Others (e.g., head of R&D)	6

informant (mean firm experience = 6.97 years; mean alliance experience = 3.92 years) provided information about alliance success. We provide full scale items in the Appendix.

3.2.1. Entrepreneurial orientation

EO is a 9-item 7-point Likert type of scale, among which, the first three, the middle three, and the last three items are used to assess innovativeness, proactiveness, and risk-taking dimension separately. The items were adapted from Covin and Slevin (1989) and Miller (1983).

3.2.2. Joint action

It represents the behavioral dimension of cooperation, reflecting the extent to which the focal firm and the partner work together to accomplish the collaborative tasks. Adapted from Schreiner et al. (2009), we rely on four activities where joint action of both parties was typical.

3.2.3. Bonding

It represents the affective dimension of cooperation, reflecting how closely the focal firm and the partner are fused together. Consistent with Wilson (1995) and Rodríguez and Wilson (2002), we operationalized bonding with three items that reflect the strength of a partnership.

3.2.4. Conflict

Conflict has three types: task, process, and relationship conflict (Jehn & Mannix, 2001). Given our focus on relational characteristics and their potential negative effect in alliances implied by the relational view (Chirico & Salvato, 2016), in this paper we concentrate especially on the relationship dimension. The measure of conflict was adapted from Barden, Steensma, and Lyles (2005) with a 4-item scale that reflects the degree of the relational tensions between the focal firm and the partner.

3.2.5. Alliance success

We relied on a subjective assessment to measure firm-level alliance success through a 4-item scale. Some scholars use alliance survival as a measure of alliance success (Harrigan, 1988), which allows abrupt termination after an alliance failed included. Other scholars suggest the objective assessment of financial performance or profitability to measure alliance success (Ariño, 2003). However, the majority of alliances seldom report objective financial performance figures (Krishnan, Martin, & Noorderhaven, 2006). Given the strong correlation between objective and subjective criteria (Geringer & Hebert, 1991), we based our measure of alliance success on Kale et al. (2002), relying on managerial evaluations of the focal firm's fulfillment of its strategic goals after joining the alliance.

3.2.6. Control variables

To account for the effects of extraneous variables, we included six control variables. *Focal firm type* was operationalized as a dummy variable with "1" for state-owned enterprises (SOEs) and "0" for non-SOEs. We controlled for focal firm type because the focal firm's ownership structure may influence its propensity to innovate, take risks, and grasp the proactive opportunity (Peng, Tan, & Tong, 2004). More severe challenges in exploiting opportunities may be expected to be more likely for smaller firms because such firms often lack resources (Ariño et al., 2008; Sarkar et al., 2001). We thus controlled for *focal firm size*, measured as the logarithm of the number of the focal firm's employees, and *partner firm size*, measured as the logarithm of the number of the partner's employees. We controlled for *alliance structure* which is a dummy variable with "1" presenting an equity-based alliance and "0" for a non-equity-based alliance. Compared with non-equity-based alliances, the mutual hostage provided by the dyad allows equity-based alliances to have a potential to be successful (Shu et al., 2014). Given that narrower alliances generally involve few resource sharing activities (Oxley & Sampson, 2004), which may in turn constrain the parent firms' entrepreneurial activities, *alliance scope* was controlled. It was set to "0" when the alliance involves only one activity in the value-chain operation (R&D, manufacturing, or marketing), and "1" for two or more activities. Last, prior research suggests that firms with more alliance experience might enjoy superior performance (Anand & Khanna, 2000; Jiang & Li, 2009), we controlled for *prior alliance experience*, which was set to "1" when collaborative experience exists between the focal firm and the partner and "0" otherwise.

4. Analysis and results

4.1. Construct validity

We assessed the construct validity of multiple-item measures following Anderson and Gerbing (1988). First, we ran exploratory factor analysis for each multi-item scale (i.e., EO, joint action, bonding, conflict, and alliance success), the factor solutions of which were in accordance with theoretical expectation. Second, we estimated an overall, five-factor confirmatory measurement model (that is, each measurement item was linked to its corresponding construct, and the covariance among the constructs was freely estimated). The results of confirmatory factor analysis indicated that the measurement model fitted the data reasonably well ($\chi^2/df = 2.25$, CFI = 0.95, NNFI = 0.94, SRMR = 0.049, RMSEA = 0.079). And tests on factor loadings, *t*-values, composite reliabilities (CR), and average variance extracted (AVE) suggest that our

constructs have satisfactory convergent validity (Anderson & Gerbing, 1988; Fornell & Larcker, 1981).

In order to assess the discriminant validity, we did a series of chi-square difference tests for every pair of latent variables to compare the values obtained from the constrained model, in which the correlation between the paired constructs was fixed to 1.0, and the value obtained from the unconstrained model, in which the correlation between the paired constructs was fixed to be free. Results indicate that all chi-square difference tests were significant (e.g., joint action vs. bonding, $\Delta\chi^2(1) = 7.98, p = 0.000$), demonstrating sufficient discriminant validity (Anderson & Gerbing, 1988). Discriminant validity can also be obtained when shared variance between all possible pairs of constructs is lower than the AVE for the individual constructs (Fornell & Larcker, 1981). As shown in Table 2, the diagonal elements representing the square roots of the average variance–extracted values for each of the constructs are greater than the off-diagonal elements, in additional support of discriminant validity. Table 2 also provides descriptive statistics and correlations between variables involved in this study.

4.2. Results

To minimize the multicollinearity, we created the interaction terms by multiplying the relevant mean-centered scales (Aiken & West, 1991). The largest VIF was 1.37, well below the 10.0 benchmark, suggesting that multicollinearity was not a significant concern.

Results of regression models are summarized in Table 3. Model 1 reports the baseline specification with controls only. Model 2 presents the main effect of EO on alliance success. Model 3 presents the direct effects of EO and all the moderating variables on alliance success. All variables and interaction terms are included in Model 4.

As Table 3 shows, among the control variables only prior alliance experience has consistently significant effects on alliance success, suggesting that more prior alliance experience is associated with lower alliance success (Model 1: $\beta = -0.207, p < 0.01$; Model 2: $\beta = -0.219, p < 0.001$; Model 3: $\beta = -0.179, p < 0.01$; Model 4: $\beta = -0.149, p < 0.05$). It is possible that, based on having a certain amount of specific alliance experience between them, the dyad may have the same ideas, trends, and ways to conduct alliance affairs. They may rely on established routines and procedures that allow for fewer additional learning opportunities (Hoang & Rothaermel, 2005). As such, when partner firms possess more prior alliance experience, the knowledge and skills that they devote to the alliance cannot be updated to fit the changing environment (Goerzen, 2007). Therefore, prior alliance experience with the specific partner would have a negative effect on alliance success.

With H1, we consider a positive relationship between EO and alliance success. The results provide support for H1 (Model 2: $\beta = 0.265, p < 0.001$; Model 3: $\beta = 0.181, p < 0.001$; Model 4: $\beta = 0.307, p < 0.001$).

Table 2 Descriptive statistics and correlations.

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11
1 EO	4.995	0.909	0.742										
2 Joint action	4.846	1.158	0.285**	0.781									
3 Bonding	4.702	1.108	0.278**	0.400**	0.849								
4 Conflict	3.324	1.367	-0.050	-0.091	-0.007	0.877							
5 Alliance success	5.209	1.060	0.268**	0.408**	0.303**	-0.094	0.872						
6 Focal firm type	0.347	0.477	-0.035	-0.071	-0.021	0.129	-0.080	1					
7 Focal firm size ^a	2.842	0.931	0.107	0.092	0.163*	0.005	-0.067	0.153*	1				
8 Partner firm size ^a	2.530	1.088	0.180*	0.121	0.197*	-0.070	0.091	0.007	0.333**	1			
9 Alliance structure	0.518	0.501	0.271	0.081	0.108	0.017	0.121	-0.130	0.103	0.074	1		
10 Alliance scope	0.498	0.501	0.522**	0.152*	0.130	0.112	0.189**	-0.057	-0.009	0.068	0.188**	1	
11 Prior alliance experience	0.487	0.501	-0.039	-0.194**	-0.120	0.053	-0.251**	0.087	-0.119	-0.177*	0.026	-0.056	1

n = 197.

^a Log-transformed.

* p < 0.05.

** p < 0.01.

Table 3 Results of moderated regression analysis.

Variables	Alliance success			
	Model 1	Model 2	Model 3	Model 4
Control variables				
Focal firm type	-0.057	-0.058	-0.006	-0.024
Focal firm size	0.034	-0.092	-0.113 ⁺	-0.142*
Partner firm size	0.154*	0.095	-0.129 ⁺	-0.126 ⁺
Alliance structure	0.085	0.075	0.048	0.052
Alliance scope	0.161*	0.097	0.030	0.009
Prior alliance experience	-0.207**	-0.219***	-0.179**	-0.149*
Direct effects				
EO		0.265***	0.181***	0.307***
Joint action			0.342***	0.301***
Bonding			0.225***	0.252***
Bonding ²			0.140*	0.160 ⁺
Conflict			-0.065	-0.092
Interaction effects				
EO × joint action				0.153*
EO × bonding				-0.334***
EO × bonding ²				-0.262**
EO × conflict				0.022
Model summary				
R ²	0.130	0.193	0.395	0.470
ΔR ²		0.063	0.265	0.340
Adjusted R ²	0.072	0.110	0.293	0.316
Model F-value	2.232*	2.312**	3.884***	3.058***

n = 197.

⁺ p < 0.1.

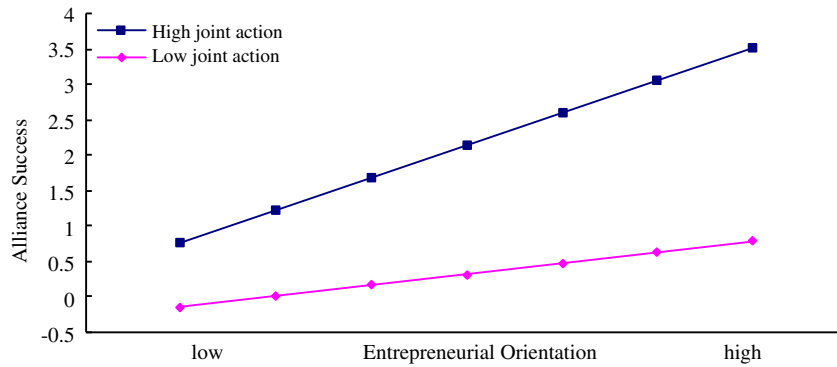
* p < 0.05.

** p < 0.01.

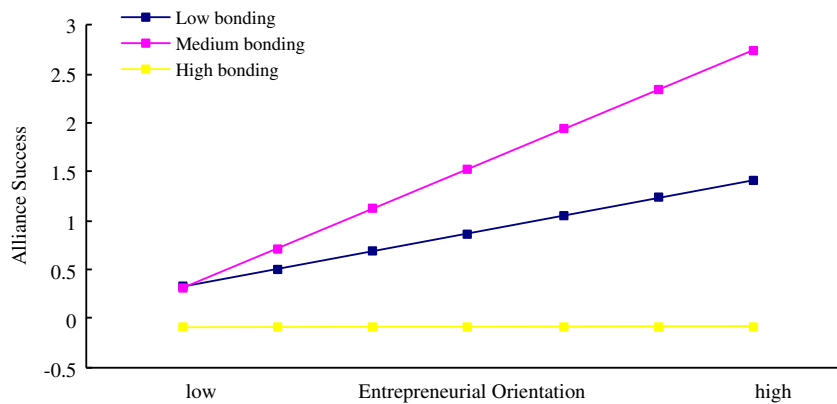
*** p < 0.001.

With H2, we deal with the positive and linear moderating effect of joint action. The coefficient of the interaction is positive and significant (Model 4: $\beta = 0.153, p < 0.05$), in support of H2. To gain more insights into these interactions, we follow Aiken and West (1991) and decompose the interaction terms, which are shown in Fig. 2a. We conducted a simple slope tests for each regression line to test whether its slope was significantly different from zero. The simple slope test reveals that the magnitude of the slope of alliance success regressed on EO for high joint action (b = 0.460) is higher than that for low joint action (b = 0.154), consistent with H2.

With H3, we consider a curvilinear, inverted U-shaped moderating effect of bonding. The results provide support for H3 (Model 4: $\beta = -0.262, p < 0.01$). Similarly, we plotted the effects of EO on alliance success for the low (one standard deviation below the medium), medium, and high (one standard deviation above the medium) levels of bonding. As Fig. 2b shows, the slope of the mean level (b = 0.407) is



(a). The interaction of EO and joint action on alliance success



(b). The interaction of EO and bonding on alliance success

Fig. 2. The interaction of EO and dimensions of cooperation.

greater than the slopes of the low level ($b = 0.182$) and the high level ($b = 0.002$).

With H4, we consider a negative moderating effect of conflict. The coefficient of the interaction is non-significant (Model 4: $\beta = 0.022$, $p > 0.1$), failing to support H4. One explanation is that various approaches, perspectives, and ideas brought about by interpartner conflict represent important sources for firms to identify entrepreneurial opportunities with alliance partners. These sources may help to achieve first-mover advantages for the alliance and the partner firms in a way. The simultaneous function of positive and negative effects of conflict, implying that the positive and negative effects may counteract each other, makes this moderation effect non-significant.

5. Discussion

Following the emerging research stream that emphasizes the confluence of entrepreneurship research with the strategic alliance literature, this study represents a first attempt to explore how the adoption of an EO by partner firms affects alliance outcomes. More importantly, we also base our analysis on a relational view and examine how relational characteristics in terms of cooperation (joint action and bonding) and conflict condition the EO–alliance success relationship. Overall, the analysis of 197 Chinese partner firms provides general support for our hypotheses, with the exception of the hypothesis that there is a moderating effect of conflict.

5.1. Theoretical contributions

Our study contributes to the literature by integrating two separate streams of research—on entrepreneurship and on strategic alliances—into one research framework. It responds to calls for more

research on the intersection of these two research topics (Ariño et al., 2008). Specifically, this study examines the role of EO in the alliance context, extending existing entrepreneurship research from the microscopic organizational level to the macroscopic alliance level. Especially, this study offers a unique perspective for understanding firm-level alliance success by focusing on EO drivers, which have rarely been examined in extant literature. The present study shows that EO is an important organizational-level determinant of alliance success, as few if any studies have investigated the nature of EO as an antecedent to alliance success. That is, our study contributes to alliance success research by broadening it beyond the more conventional drivers to highlight the important role that EO plays in achieving firm-level alliance success.

Second, our study extends the current literature relating to the importance of the contextual analysis of EO (Welter, 2011) by demonstrating that alliance-context relational factors condition the relationship between EO and alliance success. In this regard, our results enrich our understanding of the relational view of alliances by focusing on the relational characteristics of alliance partnerships as contingencies. We suggest that the value of EO in alliances may be relationally determined, supporting the notion that relational capital has contingent value (Ahuja, 2000; Stam & Elfring, 2008). In this regard, our results demonstrate the utility of the relational view for examining relational characteristics of alliance partnerships, such as cooperation and conflict, as contingencies.

Here, we differentiate two dimensions of cooperation in terms of the behavioral aspect (joint action) and the affective aspect (bonding) and highlight their distinct roles in the EO–alliance success link. This distinction provides the crucial insight that joint action and bonding (as aspects of cooperation) do matter and have differential contingent effects on how EO affects firm-level alliance success. Our study contributes to a better understanding of these constructs and shows that it is

important to differentiate them theoretically and empirically, which warrants future research in this direction.

In addition, Mesquita et al. (2008) suggest that "... both the RBV and relational view perspectives offer distinct, yet complementary contributions, and where combined, allow for richer analysis of competitive advantages than it first appears" (p. 935). This study supports their work insofar as we find that the relational view helps partner firms, particularly those with a high EO, better understand, as implied by the RBV, how to manage valuable resources in alliances so as to achieve superior competitive advantage.

5.2. Managerial implications

Our findings also provide useful implications for alliance managers regarding how they can best utilize their EO and their relationships with partners to maximize alliance performance. First, our findings suggest that firms can achieve alliance success by adopting an EO. Practitioners should recognize the importance of EO in managing alliances. Our results reinforce this belief: firms having a stronger EO are better positioned to find entrepreneurial alliance opportunities and to collaborate in exploiting those opportunities. Therefore, to achieve superior alliance performance, managers need to take steps that encourage efforts to take entrepreneurial posture into account and develop EO capabilities such as encouraging firms' routine-breaking actions and enhancing their truly innovative abilities. Also, emerging market governments may endeavor to encourage the breeding of EO through promoting some education and training programs for firms. As a result, the possibility of long-term alliance success increases.

Second, attempting to understand the contingent value of relationships between alliance partners should help managers better understand how to implement entrepreneurial behaviors in their alliance partnerships. Specifically, joint action may be necessary for any firm, but especially those with a high EO to realize alliance success because the diverse ideas, resources, and information provided by collective activities are crucial for firms to enact their EO. This implies that alliance firms should strengthen the degree of joint action with each other. For example, they can foster an atmosphere that inspires higher joint action through breeding greater continuity expectation of future exchange and encouraging more specific investments (Heide & John, 1990). Despite the prevalence of embedded bonding relationships in China, firms must be very careful about relying too heavily on alliance bonding because the intense level of bonding makes it more difficult for an EO to take effect in achieving alliance success. Overly close bonding may lead to overembeddedness and lock-in problems. As a result, a relationship characterized by a high level of joint action and moderate bonding provides an appropriate context in which firms can benefit most from their pursuit of entrepreneurial opportunities in alliances.

5.3. Limitations and future research directions

This study is subject to several limitations. First, given that we take innovativeness, risk-taking, and proactiveness together to represent the EO scale, it is important to acknowledge that each dimension has its own unique and individual effects. For example, being highly risk taking is also likely to lead to alliance failure out of not choosing properly partners. Being highly proactive may cause severe bounded rationality problems that may negatively affect alliance success. Therefore, future research should examine how these dimensions operate independently in alliances and explore the role of each individual dimension in order to achieve a more comprehensive understanding of the role of EO in alliances. In addition, Wiklund and Shepherd (2011: 295) question whether EO is a normative strategic posture that increases competitiveness. They thus propose an EO-as-experimentation view which contrasts with the traditional EO-as-advantage view. The related empirical evidence on the EO-as-experimentation view is growing but remains sparse. Future research can adopt this emerging view to explain

more deeply the mechanisms behind which type of EO affects alliance outcomes.

Second, measurement of alliance success could be improved by considering more specific measures. In our study, we measure alliance success through the subjective response of one party. As suggested by Ariño (2003), there exist objective ways to test alliance success. Future research could examine whether differences in the influence of EO on alliance success exist between these two measures. We need to know, if such differences exist, which measure is more reliable. If no difference exists, does that mean these two measures will have the same effect?

Third, although the matter of *whether* EO affects alliance success has been addressed in this study, *why* the EO-alliance success relationship is possible still remains largely unknown. Future research should consider possible intermediate mechanisms such as mediators to resolve this question, and develop a clearer understanding of the specific mechanism through which EO may improve alliance outcomes.

Fourth, our sample is limited to partner firms in China. China represents a very unique economy that is also heavily influenced by guanxi-based culture. This begs the question whether relationships between partners (such as joint action, bonding, and conflict) would predict the same effects in a more open economy with a tradition of meritocracy (e.g., the USA and Germany). Therefore, we advise caution in generalizing the results of this study to other economies. In addition, each construct in this study was collected from only one party rather than from the dyad, which means we missed an opportunity to control for differences in respondents' replies. In the future, all data should be collected from multiple sources so as to generate more reliable conclusions.

Finally, in common with most alliance studies, we measure our main research variables by relying on survey data, which carries the potential for self-serving bias. Future research could use longitudinal data to further validate the results with respect to our research question. Moreover, all responses were taken from only one side of a partnership, reducing their robustness. Future research based on objective data and participants from both sides of an alliance would be a meaningful extension of this work.

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Appendix A. Appendix

Measurement scales.

Construct	Description	Loadings
Entrepreneurial orientation (CR = 0.91; AVE = 0.54)	1. In general, our company favors a strong emphasis on R&D, technological leadership, and innovations	0.72
	2. Our company favors "tried-and-true" procedures, systems, and methods	0.75
	3. Our company is willing to try new ways of doing things and seeks unusual, novel solutions	0.71
	4. Our company is among the first in the industry to introduce new products or services	0.79
	5. Our company is the first to initiate actions to competitors, for which the competitors then respond	0.76
	6. Under uncertainty, our company always adopts an adventurous and active attitude.	0.70
	7. Our company has a strong preference	0.68

(continued)

Construct	Description	Loadings
	for high-risk projects (with chances of very high return)	
	8. Because of the nature of the environment, our company always takes bold, wide-ranging strategic actions rather than making minor tactical changes	0.76
	9. When confronted with decisions involving uncertainty, our company always adopts a bold posture to maximize the probability of exploiting opportunities	0.75
Joint action (CR = 0.86; AVE = 0.61)	We work closely together with the partner in the following areas:	
	1. product development/improvement	0.72
	2. project implementation	0.84
	3. sales activities	0.90
	4. maintenance and support	0.67
Bonding (CR = 0.89; AVE = 0.72)	1. We tie closely with the partner.	0.82
	2. If we were to drop this partner, we would lose a good business friend.	0.90
	3. We have excellent social relations with this partner.	0.83
Conflict (CR = 0.92; AVE = 0.74)	1. The extent we have to deal with personality conflicts with the partner is high.	0.76
	2. The extent we have to deal with conflicting goals of the partner is high.	0.85
	3. The extent we have to deal with mistrust between us and the partner is very high.	0.92
	4. The extent we have to deal with conflict over the original agreement is very high.	0.91
Alliance success (CR = 0.93; AVE = 0.76)	1. Our company has achieved the primary objective(s) in forming this alliance.	0.86
	2. Our company's competitive position has been greatly enhanced due to entering the alliance.	0.91
	3. Our company has been successful in learning some critical skill(s) or capabilities from the partner.	0.90
	4. Our company is satisfied with the performance of the alliance.	0.82

References

- Ahuja, G. (2000). Collaboration networks, structural holes, and innovation: A longitudinal study. *Administrative Science Quarterly*, 45(3), 425–455.
- Aiken, L., & West, S. G. (1991). *Multiple regression: Testing and interpreting interactions*. Newbury Park, CA: Sage.
- Alter, C. (1990). An exploratory study of conflict and coordination in interorganizational service delivery system. *Academy of Management Journal*, 33(3), 478–502.
- Anand, B. N., & Khanna, T. (2000). Do firms learn to create value? The case of alliances. *Strategic Management Journal*, 21(3), 295–315.
- Anderson, B. S., & Eshima, Y. (2013). The influence of firm age and intangible resources on the relationship between entrepreneurial orientation and firm growth among Japanese SMEs. *Journal of Business Venturing*, 28(3), 413–429.
- Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin*, 103(3), 411–423.
- Anderson, E., & Jap, S. D. (2005). The dark side of close relationships. *MIT Sloan Management Review*, 46(3), 75–82.
- Anderson, B. S., Covin, J. G., & Slevin, D. P. (2009). Understanding the relationship between entrepreneurial orientation and strategic learning: An empirical investigation. *Strategic Entrepreneurship Journal*, 3(3), 219–241.
- Anderson, B. S., Kreiser, P. M., Kuratko, D. F., Hornsby, J. S., & Eshima, Y. (2015). Reconceptualizing entrepreneurial orientation. *Strategic Management Journal*, 36(10), 1579–1596.
- Antoncica, B., & Prodan, I. (2008). Alliances, corporate technological entrepreneurship and firm performance: Testing a model on manufacturing firms. *Technovation*, 28(5), 257–265.
- Ariño, A. (2003). Measures of strategic alliance performance: An analysis of construct validity. *Journal of International Business Studies*, 34(1), 66–79.
- Ariño, A., Ragozzino, R., & Reuer, J. J. (2008). Alliance dynamics for entrepreneurial firms. *Journal of Management Studies*, 45(1), 147–168.
- Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail. *Journal of Marketing Research*, 14(3), 396–402.
- Avlonitis, G., & Salavou, H. (2007). Entrepreneurial orientation of SMEs, product innovativeness, and performance. *Journal of Business Research*, 60(5), 566–575.
- Barden, J. Q., Steensma, H. K., & Lyles, M. A. (2005). The influence of parent control structure on parent conflict in Vietnamese international joint ventures: An organizational justice-based contingency approach. *Journal of International Business Studies*, 36(2), 156–174.
- Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120.
- Barrett, H., & Weinstein, A. (1998). The effect of market orientation and organizational flexibility on corporate entrepreneurship. *Entrepreneurship Theory and Practice*, 23(1), 57–70.
- Berry, J. (1980). Introduction to methodology. In H. Triandis, & J. Berry (Eds.), *The handbook of cross-cultural psychology*. 2. (pp. 1–29). Boston, MA: Allyn and Bacon, Inc.
- Borgatti, S. P., & Cross, R. (2003). A relational view of information seeking and learning in social networks. *Management Science*, 49(4), 432–445.
- Boso, N., Story, V. M., & Cadogan, J. W. (2013). Entrepreneurial orientation, market orientation, network ties, and performance: Study of entrepreneurial firms in a developing economy. *Journal of Business Venturing*, 28(6), 708–727.
- Brouthers, K. D., Nakos, G., & Dimitratos, P. (2015). SME entrepreneurial orientation, international performance, and the moderating role of strategic alliances. *Entrepreneurship Theory and Practice*, 39(5), 1161–1187.
- Chirico, F., & Salvato, C. (2016). Knowledge internalization and product development in family firms: When relational and affective factors matter. *Entrepreneurship Theory and Practice*, 40(1), 201–229.
- Ciravegna, L., Majano, S. B., & Zhan, G. (2014). The inception of internationalization of small and medium enterprises: The role of activeness and networks. *Journal of Business Research*, 67(6), 1081–1089.
- Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10(1), 75–87.
- Covin, J. G., & Slevin, D. P. (1991). A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship Theory and Practice*, 16(1), 7–25.
- Das, T. K., & Teng, B. (2000). A resource-based theory of strategic alliances. *Journal of Management*, 26(1), 31–61.
- De Carolis, D. M., & Saporito, P. (2006). Social capital, cognition, and entrepreneurial opportunities: A theoretical framework. *Entrepreneurship Theory and Practice*, 30(1), 41–56.
- De Clercq, D., Dimov, D., & Thongpapanl, N. T. (2013). Organizational social capital, formalization, and internal knowledge sharing in entrepreneurial orientation formation. *Entrepreneurship Theory and Practice*, 37(3), 505–537.
- Dickson, P. H., & Weaver, K. M. (1997). Environmental determinants and individual-level moderators of alliance use. *Academy of Management Journal*, 40(2), 404–425.
- Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of inter-organizational competitive advantage. *Academy of Management Review*, 23(4), 660–679.
- Ernst, H., Lichtenthaler, U., & Vogt, C. (2011). The impact of accumulating and reactivating technological experience on R&D alliance performance. *Journal of Management Studies*, 48(6), 1194–1216.
- Fang, E. (2009). The effect of strategic alliance knowledge complementarity on new product innovativeness in China. *Organization Science*, 22(1), 158–172.
- Fornell, C., & Larcker, D. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18(1), 39–50.
- Geringer, J. M., & Hebert, L. (1991). Measuring performance of international joint ventures. *Journal of International Business Studies*, 22(2), 249–263.
- Gillespie, D. F., & Mileti, D. S. (1979). *Technostructures and interorganizational relations*. Lexington, Mass: Lexington Books.
- Goerzen, A. (2007). Alliance networks and firm performance: The impact of repeated partnerships. *Strategic Management Journal*, 28(5), 487–509.
- Gulati, R., & Sytch, M. (2007). Dependence asymmetry and joint dependence in interorganizational relationship: Effects of embeddedness on a manufacturer's performance in procurement relationships. *Administrative Science Quarterly*, 52(1), 32–69.
- Harrigan, K. R. (1988). Joint ventures and competitive strategy. *Strategic Management Journal*, 9(2), 141–158.
- Heide, J. B., & John, G. (1990). Alliances in industrial purchasing: The determinants of joint action in buyer-supplier relationships. *Journal of Marketing Research*, 27(1), 24–36.
- Hoang, H., & Rothaermel, F. T. (2005). The effect of general and partner-specific alliance experience on joint R&D project performance. *Academy of Management Journal*, 48(2), 332–345.
- Hughes, M., & Morgan, R. E. (2007). Deconstructing the relationship between entrepreneurial orientation and business performance at the embryonic stage of firm growth. *Industrial Marketing Management*, 36(5), 651–661.
- Jehn, K. A., & Mannix, E. A. (2001). The dynamic nature of conflict: A longitudinal study of intragroup conflict and group performance. *Academy of Management Journal*, 44(2), 238–251.
- Jiang, X., & Li, Y. (2008). The relationship between organizational learning and firms' financial performance in strategic alliances: A contingency approach. *Journal of World Business*, 43(3), 365–379.
- Jiang, X., & Li, Y. (2009). An empirical investigation of knowledge management and innovative performance: The case of alliances. *Research Policy*, 38(2), 358–368.
- Jiang, X., Li, M., Gao, S., Bao, Y., & Jiang, F. (2013). Managing knowledge leakage in strategic alliances: The effects of trust and formal contracts. *Industrial Marketing Management*, 42(6), 983–991.
- Jiang, X., Yang, Y., Pei, Y., & Wang, G. (2016). Entrepreneurial orientation, strategic alliances, and firm performance: Inside the black box. *Long Range Planning*, 49(1), 103–116.
- Jiang, X., Bao, Y., Xie, Y., & Gao, S. (2016). Partner trustworthiness, knowledge flow in strategic alliances, and firm competitiveness: A contingency perspective. *Journal of Business Research*, 69(2), 804–814.
- Kale, P., & Singh, H. (2007). Building firm capabilities through learning: The role of the alliance learning process in alliance capability and firm-level alliance success. *Strategic Management Journal*, 28(10), 981–1000.
- Kale, P., Singh, H., & Perlmutter, H. (2000). Learning and protection of proprietary assets in strategic alliances: Building relational capital. *Strategic Management Journal*, 21(3), 217–231.

- Kale, P., Dyer, J. H., & Singh, H. (2002). Alliance capability, stock market response, and long-term alliance success: The role of the alliance function. *Strategic Management Journal*, 23(8), 747–767.
- Kaplan, S., & Henderson, R. (2005). Inertia and incentives: Bridging organizational economics and organizational theory. *Organization Science*, 16(5), 509–521.
- Khanna, T., Gulati, R., & Nohria, N. (1998). The dynamics of learning alliances: Competition, cooperation, and relative scope. *Strategic Management Journal*, 9(13), 193–210.
- Kreiser, P. M. (2011). Entrepreneurial orientation and organizational learning: The impact of network range and network closure. *Entrepreneurship Theory and Practice*, 35(5), 1025–1050.
- Krishnan, R., Martin, X., & Noorderhaven, N. G. (2006). When does trust matter to alliance performance. *Academy of Management Journal*, 49(5), 894–917.
- Kumar, M. V. S. (2010). Are joint ventures positive sum games? The relative effects of cooperative and noncooperative behavior. *Strategic Management Journal*, 32(1), 32–54.
- Lambe, C. J., Spekman, R. E., & Hunt, S. D. (2002). Alliance competence, resources, and alliance successes: Conceptualization, measurement, and initial test. *Journal of the Academy of Marketing Science*, 30(2), 141–158.
- Lavie, D., Haunschild, P. R., & Khanna, P. (2012). Organizational differences, relational mechanisms, and alliance performance. *Strategic Management Journal*, 33(13), 1453–1479.
- Lee, C., Lee, K., & Pennings, J. (2001). Internal capabilities, external networks, and performance: A study on technology-based ventures. *Strategic Management Journal*, 22(6–7), 615–640.
- Li, D., Eden, L., Hitt, M. A., & Ireland, R. D. (2008). Friends, acquaintances, or strangers? Partner selection in R&D alliances. *Academy of Management Journal*, 51(2), 315–334.
- Li, Y., Guo, H., Liu, Y., & Li, M. (2008). Incentive mechanisms, entrepreneurial orientation, and technology commercialization: Evidence from China's transitional economy. *Journal of Product Innovation Management*, 25(1), 63–78.
- Li, Y., Liu, Y., & Liu, H. (2011). Co-opetition, distributor's entrepreneurial orientation and manufacturer's knowledge acquisition: Evidence from China. *Journal of Operations Management*, 29(1/2), 128–142.
- Lin, Z., Yang, H., & Arya, B. (2009). Alliance partners and firm performance: Resource complementarity and status association. *Strategic Management Journal*, 30(9), 921–940.
- Lisboa, A., Skarmeas, D., & Saridakis, C. (2016). Entrepreneurial orientation pathways to performance: A fuzzy-set analysis. *Journal of Business Research*, 69(4), 1319–1324.
- Mesquita, L. F., Anand, J., & Brush, T. H. (2008). Comparing the resource-based and relational views: Knowledge transfer and spillover in vertical alliances. *Strategic Management Journal*, 29(9), 913–941.
- Miller, D. (1983). The correlates of entrepreneurship in three types of firm. *Management Studies*, 29(7), 770–791.
- Nielsen, B. B., & Nielsen, S. (2009). Learning and innovation in international strategic alliances: An empirical test of the role of trust and tacitness. *Journal of Management Studies*, 46(6), 1031–1056.
- Oxley, J. E., & Sampson, R. C. (2004). The scope and governance of international R&D alliances. *Strategic Management Journal*, 25(8–9), 723–749.
- Patel, P. C., Kohtamäki, M., Parida, V., & Wincent, J. (2014). Entrepreneurial orientation-as-experimentation and firm performance: The enabling role of absorptive capacity. *Strategic Management Journal*, 36(11), 1739–1749.
- Peng, M. W., Tan, J. J., & Tong, T. W. (2004). Ownership types and strategic groups in an emerging economy. *Journal of Management Studies*, 41(7), 1105–1129.
- Politis, D. (2005). The process of entrepreneurial learning: A conceptual framework. *Entrepreneurship Theory and Practice*, 29(4), 399–424.
- Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, 33(3), 761–787.
- Ravasia, D., & Turati, C. (2005). Exploring entrepreneurial learning: A comparative study of technology development projects. *Journal of Business Venturing*, 20(1), 137–164.
- Rodríguez, C. M., & Wilson, D. T. (2002). Relationship bonding and trust as a foundation for commitment in U.S.-Mexican strategic alliances: A structural equation modeling approach. *Journal of International Marketing*, 10(4), 53–76.
- Sarkar, M., Aulakh, P. S., & Cavusgil, S. T. (1998). The strategic role of relational bonding in inter-organizational collaborations: An empirical study of the global construction industry. *Journal of International Management*, 4(2), 85–107.
- Sarkar, M., Echambadi, R., & Harrison, J. S. (2001). Alliance entrepreneurship and firm market performance. *Strategic Management Journal*, 22(6/7), 701–711.
- Schilke, O., & Goerzen, A. (2010). Alliance management capability: An investigation of the construct and its measurement. *Journal of Management*, 36(5), 1–28.
- Schreiner, M., Kale, P., & Corsten, D. (2009). What really is alliance management capability and how does it impact alliance outcomes and success. *Strategic Management Journal*, 30(13), 1395–1419.
- Semrau, T., Ambos, T., & Kraus, S. (2016). Entrepreneurial orientation and SME performance across societal cultures: An international study. *Journal of Business Research*, 69(5), 1928–1932.
- Shan, P., Song, M., & Ju, X. (2016). Entrepreneurial orientation and performance: Is innovation speed a missing link? *Journal of Business Research*, 69(2), 683–690.
- Shu, C., Liu, C., Gao, S., & Shanley, M. (2014). The knowledge spillovers theory of entrepreneurship in alliances. *Entrepreneurship Theory and Practice*, 38(4), 913–940.
- Simsek, Z., Lubatkin, M., & Floyd, S. (2003). Inter-firm networks and entrepreneurial behavior: A structural embeddedness perspective. *Journal of Management*, 29(3), 427–442.
- Slevin, D. P., & Terjesen, S. A. (2011). Entrepreneurial orientation: Reviewing three papers and implications for further theoretical and methodological development. *Entrepreneurship Theory and Practice*, 35(5), 973–987.
- Stam, W., & Elfring, T. (2008). Entrepreneurial orientation and new venture performance: The moderating role of intra- and extraindustry social capital. *Academy of Management Journal*, 51(1), 97–111.
- Teng, B. S. (2007). Corporate entrepreneurship activities through strategic alliances: A resource-based approach toward competitive advantage. *Journal of Management Studies*, 44(1), 119–142.
- Welter, F. (2011). Contextualizing entrepreneurship—Conceptual challenges and ways forward. *Entrepreneurship Theory and Practice*, 35(1), 165–184.
- White, S., & Lui, S. S. (2005). Distinguishing costs of cooperation and control in alliances. *Strategic Management Journal*, 26(10), 913–932.
- Wiklund, J., & Shepherd, D. (2003). Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic Management Journal*, 24(13), 1307–1314.
- Wiklund, J., & Shepherd, D. (2005). Entrepreneurial orientation and small business performance: A configuration approach. *Journal of Business Venturing*, 20(1), 71–91.
- Wiklund, J., & Shepherd, D. A. (2011). Where to from here? EO-as-experimentation, failure, and distribution of outcomes. *Entrepreneurship Theory and Practice*, 35(5), 925–946.
- Wilson, D. T. (1995). An integrated model of buyer-seller relationships. *Journal of the Academy of Marketing Science*, 23(4), 335–345.
- Wittmann, C. M., Hunt, S. D., & Arnett, D. B. (2009). Explaining alliance success: Competences, resources, relational factors, and resource-advantage theory. *Industrial Marketing Management*, 38(7), 743–756.
- Yang, H., Lin, Z., & Peng, M. W. (2011). Behind acquisitions of alliance partners: Exploratory learning and network embeddedness. *Academy of Management Journal*, 54(5), 1069–1080.
- Yli-Renko, H., Autio, E., & Sapienza, H. J. (2001). Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms. *Strategic Management Journal*, 22(6–7), 587–613.
- Zaheer, A., & Venkatraman, N. (1995). Relational governance as an interorganizational strategy: An empirical test of the role of trust in economic exchange. *Strategic Management Journal*, 16(5), 373–392.
- Zaheer, A., McEvily, B., & Perrone, V. (1998). Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance. *Organization Science*, 9(2), 141–159.
- Zhang, H., Shu, C., Jiang, X., & Malter, A. J. (2010). Managing knowledge for innovation: The role of cooperation, competition, and alliance nationality. *Journal of International Marketing*, 18(4), 74–94.
- Zhang, J., Soh, P., & Wong, P. (2010). Entrepreneurial resource acquisition through indirect ties: Compensatory effects of prior knowledge. *Journal of Management*, 36(2), 511–536.
- Zhao, Y., Li, Y., Lee, S. H., & Chen, L. B. (2011). Entrepreneurial orientation, organizational learning, and performance: Evidence from China. *Entrepreneurship Theory and Practice*, 35(2), 293–317.
- Zhou, K. Z., Zhang, Q., Sheng, S., Xie, E., & Bao, Y. (2014). Are relational ties always good for knowledge acquisition? Buyer-supplier exchanges in China. *Journal of Operations Management*, 32(3), 88–98.