




# Managing conflict and trust as coopetition within alliance partnerships in an emerging economy

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**Background:** Trust and conflict represent the critical foundation characterising the inter-firm relationship of cooperation and competition, and their co-existence as coopetition within an alliance partnership. The literature has often regarded conflict and trust as uni-dimensional variables to clarify their interactive influences. However, few studies have explicitly investigated how these two opposite forces and their sub-dimensions may interact and create synergic effects in alliance partnerships in emerging economies.

**Objectives:** This study applies a coopetition perspective to articulate the complex interactive nature of conflict and trust between partners, aiming at revealing how specific patterns of conflict (task and emotional) and trust (cognitive and affective) interact with each other in impacting the focal firm's performance within the alliance partnership.

**Method:** Using survey data collected from 490 sampled firms in China, we ran three regression models to test four hypotheses from the interactive matrix between different dimensions of conflict and trust.

**Results:** The results indicate that the coupled pattern (the interaction between emotional conflict and affective trust) and the compatible pattern (the interaction between task conflict and cognitive trust) could improve firm performance, whereas the dysfunctional pattern (the interaction between emotional conflict and cognitive trust) and the mismatched pattern (the interaction between task conflict and affective trust) could harm firm performance within alliance partnerships.

**Conclusion:** The new findings imply diverse ways to combine conflict and trust to achieve the best synergistic effect for allied firms in emerging economies, and thus extend and enrich the literature by providing contextual knowledge regarding 'conflict and trust as coopetition phenomena' in relevant fields.

**Keywords:** Coopetition; alliance partnerships; trust; conflict; emerging economy.

## Introduction

Strategic alliances are critical sustainable cooperative arrangements between two or more firms that improve the firms' competitive position and performance (Ireland, Hitt, & Vaidyanath, 2002), making alliance partnership governance a critical facilitator of firm success in emerging economies like China (Li, Jiang, Pei, & Jiang, 2017). Because of the high level of competition and the scarcity of resources in these fast-growing economies, firms pursue joint efforts to create common value and seek private actions to appropriate private value across inter-partner cooperation (Das & Teng, 2000). Thus, a firm that is involved in both cooperative and competitive relationships would experience collaboration and competition within an alliance partnership simultaneously, which is referred to as *coopetition* (Bengtsson & Kock, 1999, 2000, 2014; Brandenburger & Nalebuff, 1996; Luo, 2007). The literature on alliance governance has suggested that trust is the foundation of inter-partner cooperation as it manages tensions arising from inter-partner conflict that results from competition (De Man & Roijakkers, 2009). Accompanying the simultaneous occurrence of cooperation and competition, trust and conflict represent the critical foundation characterising the inter-firm relationship of cooperation and competition, and their co-existence as coopetition within an alliance partnership. The literature has found that trust and conflict vary considerably in their psychological or behavioural attributes across partnerships and that the paradoxical patterns resulting from their interaction created tensions and dynamic effects (Park, Srivastava, & Gnyawali, 2014; Peterson & Behfar, 2003; Rau, 2005), which have an important impact on a firm's performance (Parayitam & Dooley, 2009).

The literature has often regarded conflict and trust as uni-dimensional variables to clarify the interactive influences, which fails to reveal the complexities of conflict–trust interactions as the holistic and dynamic balance in the logic of co-competition. For example, a firm must confront the threat of conflict from its partners in alliance partnerships (De Dreu, 2006). Firms can leverage specific patterns of cooperation (e.g. trust) to reduce the negative effect of inter-partner conflict or even to strengthen its potentially positive effect (Jehn, 1997). Moreover, trust between partners can be framed as an effective mechanism that interacts with conflict to create synergy in alliance partnerships (Peterson & Behfar, 2003; Rau, 2005). Therefore, traditional approaches that focus on trust-based and conflict-based governances individually fail to reveal the complex nature of co-competition between partners and the effects of trust and conflict in co-competition on the performance. Some studies have recognised the interplay between conflict and trust in co-competition in advanced economies (Panteli & Sockalingam, 2005; Parayitam & Dooley, 2007, 2009), but they focus on the positive aspects of conflict–trust interactions, leaving their negative side and their ‘double-edged sword’ effect untouched. In addition, the previous literature was conducted mainly in the setting of advanced economies, and little has been revealed regarding whether the conclusions could be extended into emerging economies. Consequently, the theoretical gaps limit us to efficiently manage alliance partnerships by balancing conflict and trust in a synergic manner to affect firm performance in emerging economies. More importantly, previous studies (e.g. McAllister, 1995; Rose & Shoham, 2004; Rose, Shoham, Neill, & Ruvio, 2007) have conceptually divided conflict and trust into different dimensions (i.e. task conflict and emotional conflict, cognitive trust and affective trust), but few studies have explicitly investigate how these two opposite forces and their sub-dimensions may interact and create synergic effects for alliance partnerships in emerging economies.

To address these gaps, this study applies a co-competition perspective to interpret the complex interactive nature of conflict and trust between partners and explores how specific types of conflict (task and emotional) and of trust (cognitive and affective) would interact with each other and affect firms’ performance within alliance partnerships in emerging economies. Using data from 490 manufacturing firms in China, this study empirically examined the effects of different types of conflict–trust interactions on the focal firm’s performance.

Our theoretical discussion and empirical results would add to prior literature in three important ways. Firstly, different from the ‘paradox as problem’ view that previous research adopts, our research employs a ‘trans-paradox as solution’ perspective to delineate the nature, diversity and dynamics of the trust–conflict interaction, going beyond the ‘moderating role’ that trust and conflict play in affecting firm performance with the ‘positive or negative’ functional paradigm, and achieves a more holistic understanding regarding the trust–conflict issue in firm alliance. Secondly, our research, based

on the partitioning of the trust and conflict construct, illustrates how two opposite elements (i.e. conflict and trust), because of their inherent sub-dimensional nature, would be partially complementary (positive) if properly matched but partially contradictory (negative) if improperly combined, and thus highlight the duality of trust–conflict interaction as equally co-existent in unity with ‘double-edged sword’ effects contingent on their sub-dimensions. Thirdly, this study provides critical contextual knowledge about how conflict and trust interact to impact firm performance, implying that the theoretical research has to pay more attention to the recognition and management of conflict-based and trust-based co-competition within an alliance partnership in emerging economies.

## Theoretical background and framework

### Conflict and trust within an alliance partnership

Conflict and trust have been extensively addressed in different theoretical fields such as organisational behaviour, firm networking, innovation and strategic alliance (Wu, Zhao, & Zuo, 2017). The large body of literature has recognised the theoretical foundation and the sub-dimensions of trust and conflict. In the alliance literature, conflict, which refers to ‘multi-dimensional, potentially beneficial, and either functional or dysfunctional, depending on the focus of the debate and the source of the disagreement between the parties behaviours by one party that impede/inhibit the attainment of another party’s goals’ (Rose et al., 2007, p. 1), has been deemed as a complex social and psychological phenomenon during inter-partner interactions. Two dimensions of conflict have been identified: *task conflict* (or cognitive conflict) and *emotional conflict* (or affective conflict) (Jehn, 1995; Panteli & Sockalingam, 2005; Rose & Shoham, 2004; Rose et al., 2007). Task conflict arises from ‘the perception of disagreements about the content differences in viewpoints, ideas and opinions’ (Parayitam & Dooley, 2009, p. 1). Because task conflict involves mutually analysing and understanding between two partners, it may facilitate information sharing (Yang, Gao, Li, Shen, & Zheng, 2017), creativeness enhancement (Yen, Abosag, Huang, & Bang, 2017) and the implementation of team decisions (Wit, Jehn, & Scheepers, 2016), which results in a more thorough consideration of multiple factors (Hood, Cruz, & Bachrach, 2017; Rose et al., 2007). In contrast, emotional conflict arises from ‘interpersonal tensions and is largely emotional in nature’ (Parayitam & Dooley, 2009, p. 1), centring on disagreements between parties and resulting in the negative and dysfunctional impact of conflict on team and organisational functioning as it promotes inefficiency and ineffectiveness (Panteli & Sockalingam, 2005; Rose & Shoham, 2004). Although some studies have found that these two types of conflict affect different aspects of organisational performance such as decision creativity, team commitment and knowledge sharing, similar results have not been found across organisations (Rose et al., 2007). Meanwhile, a meta-analysis suggests that the results of conflict on outcomes are

equivocal (De Dreu & Weingart, 2003). These inconsistent results have prompted researchers to identify certain interactive variables (e.g. trust) involved in the different dimensions of conflict that impact firm performance within alliance partnerships (Langfred, 2004).

Inter-partner trust within an alliance partnership refers to ‘a state of a positive, confident though subjective expectation regarding the behaviour of somebody or something in a situation which entails risk to the trusting party’ (Panteli & Sockalingam, 2005, p. 600). Trust can sustain relationships between alliance members by facilitating mutually sharing and expectation (McEvily & Tortoriello, 2011; Ng & Chua, 2006; Xue, Lu, Shi, & Zheng, 2018) to reduce the transaction costs and enhance their competitiveness (Doney & Cannon, 1997; Dowell, Morrison & Heffernan, 2015; Liu, Tao, Li, & El-Ansary, 2007; Wu et al., 2017). McAllister (1995) distinguishes between *cognitive* and *affective* trust, which have been two generally accepted dimensions of trust across inter-organisational level. Cognitive trust is grounded in inter-partner reliability and competence. It is ‘an instrumental inference that one makes from information about the other’s behaviour under specific circumstances’ (Chua, Ingram, & Morris, 2008, p. 437). Cognitive trust is seen as ‘from the head’ (Chua et al., 2008), more special and less superficial in the context of cooperative activities than emotional trust. It involves a calculative and instrumental assessment, and a judgement based on the evidence of another’s competence and reliability (Dowell et al., 2015). Information exchange is the critical drivers to establish cognitive trust between partners (Williams Middleton & Nowell, 2018), such that cognitive assets are virtually determined by intensive communication, specific conflict resolution and even mutual sympathy (Akrouf & Diallo, 2017). In contrast, affective trust is grounded in mutual care and concern between alliance partners, present when firms care about ‘the welfare of their partners and believe in the intrinsic virtue of such relationships’ (Chua et al., 2008, p. 437). Affective trust involves empathy, rapport and self-disclosure, which is seen as ‘from the heart’ (Chua et al., 2008). Affective trust requires more emotional investment and is more enduring and generalisable across situations than cognition-based trust (Lewicki & Bunker, 1996). These two types of trust align with a broader distinction between two basic sets of dimensions that differ experientially in social psychology [i.e. *competence* (intentional or volitional willingness) and *warmth* (perceptual or attitudinal expectation) (Fiske, Cuddy, & Glick, 2007; McEvily & Tortoriello, 2011)]. Extant research recognises the different nature and antecedents of different types of conflicts (Akrouf & Diallo, 2017; Rezvani, Barrett, & Khosravi, 2018), and their effects at the individual level (e.g. Holste & Fields, 2005; Levin & Cross, 2004; Lucas, 2005; Ng & Chua, 2006; Webber & Klimoski, 2004; Wilson, Straus, & McEvily, 2006) as well. However, few studies have examined the effects of these two types of trust and their differences in the inter-organisational context. Just as McAllister (1995) advocates, theories about trust in an organisational context should be complemented by empirical research. Therefore, it is

imperative and would be intriguing to differentiate between these two types of trust and examine their interactions with different types of conflicts in a relatively more complex context of inter-organisational partnerships (e.g. cooperation).

### Conflict–trust interactions as competition

Within an alliance, inter-partner relationship management is vague, complex, non-routine-based and requires partner firms to interact on a decision platform. Because of the increasing importance of this relationship, conflict and trust have become the critical factors to fuel partners’ interaction-based performance in global marketplace (Celuch, Bantham, & Kasouf, 2011). Theoretical streams have made significant efforts to develop the notion of ‘co-existence of conflict–trust’. According to social exchange theory (SET), trust is ‘the fundamental principle of social exchange and the backbone of interpersonal and inter-organizational relationships’ (Khalid & Ali, 2017, p. 492), and the intense exchanges lead to the generation of the solution for the trust–conflict paradox, in that efficient enhancement of exchange would increase cooperative performance effectively (Das & Teng, 2002; Ertürk & Vurgun, 2015; Khalid & Ali, 2017). Therefore, balancing conflict and trust are increasingly important in exchange-based alliances (Celuch et al., 2011; Wu et al., 2017). Drawing on the discussion around the ‘inter-partner relationship’ theme in social exchange literature, relationship marketing theory (RMT) makes efforts to form efficient mechanisms for managing complex and dynamic partnership in relational exchange (Katsikeas, Skarmeas, & Bello, 2009), inter-partner conflict (Bai, Sheng, & Li, 2016; Yang et al., 2017) and trust-based cooperation (Akrouf & Diallo, 2017; Doney & Cannon, 1997; Jeffries & Reed, 2000; Liu, Li, Tao, & Wang, 2008). Relationship marketing theory suggests that trust and conflict cannot simply be regarded as good or bad, rather resolving the complex interactions between different dimensions of trust and conflict is critical to achieving better relationship marketing performance (Celuch et al., 2011; Ettl, Tucci, & Gianiodis, 2017). Relationship marketing scholars argue that conflict can often harm trust, whereas trust could help in resolving conflict (Yang et al., 2017). Although there is increasing attention on the investigation of the trust–conflict linkage, further assessment is needed to specify the interactions between trust and conflict, given their complexities (Bai et al., 2016). Grounding from RMT, commitment-trust theory (CTT) of Morgan and Hunt (1994) developed a key mediating variable model to reveal the complex process among exchange, trust, commitment and conflict in relationship marketing. Commitment-trust theory suggested that trust-based commitment is central in establishing, developing and maintaining a successful relational exchange between alliance partners, and the trust-driven relationship commitment may facilitate the inter-partner acquiescence, propensity to leave and stable cooperation (Morgan & Hunt, 1994). Following the CTT, trust refers to the willingness to rely on an exchange partner in whom one has confidence grounded on shared value, communication and opportunistic behaviour (Morgan & Hunt, 1994), but the firm within a partnership will have to



undertake high-risk and coordinated behaviours. In other words, conflict would often occur in cooperative actions, forming typical interrelations between them (Morgan & Hunt, 1994).

Inspired by the above critical theoretical lens, the interaction between conflict and trust needs to be further assessed in terms of their implications for value creation. Prior literature has argued that conflict and trust could be the co-existing opposites in interaction between firms that can be managed in an integrated framework to drive firm performance growth (e.g. Langfred, 2004; Parayitam & Dooley, 2009; Wu et al., 2017). For example, Parayitam and Dooley (2007) explored the moderating effect of trust (affective and cognitive) on the linkage between conflict (cognitive and affective) and decision quality, finding that cognitive trust is the key to fortifying the benefits of cognitive conflict and that affective trust is the panacea for the ills of cognitive conflict. Parayitam and Dooley (2009) examined how different dimensions of trust moderate the relationship between different conflict and strategic decision-making issues, suggesting that cognitive conflict and cognitive trust are far more important than affective conflict and affect-based trust in strategic decision-making teams. Other than these efforts, the literature has focused exclusively on how firms manage negative and dysfunctional emotion-based (or affective) conflict (e.g. Amason, 1996; Anderson & Narus, 1984; Antia, Zheng, & Frazier, 2013; Simons & Peterson, 2000), positive and functional task-based (or cognitive) trust (e.g. Zaheer, McEvily, & Perrone, 1998; Chowdhury, 2005) and dyadic effects (e.g. Wu et al., 2017) in separate domains, treating the interaction between trust and conflict as an either/or game. Because of the different dimensions of trust and conflict, interactions between them can be more holistic and dynamic with complex interactive effects acting as opposites-in-unity impacting firm performance within an alliance partnership (Chen, 2008; Li, 2008, 2012). Thus, trust and conflict should be taken as two orthogonal dimensions rather than two opposite poles of a single continuum; this is the both/and version of cooptation (Luo, 2004).

Starting from the cooptation perspective, Chen (2008) argued that the two opposites (i.e. cooperative and competitive elements) in cooptation may be 'all-inclusive' relationships, referred to as the *trans-paradox*. These paradoxical opposites always exist within alliance partnerships and lead to the holistic and dynamic interactions of cooptation (Bengtsson & Kock, 2000; Brandenburger & Nalebuff, 1996). Following this logic, trust represents the foundation of cooperation, consisting of friendliness because of common interests; conflict reflects the forces of competition, consisting of hostility because of the private interests of partners. We treat trust and conflict as complementary elements in balance with holistic multi-dimensional and comprehensive 'spatial' content creating a dynamic multi-phase and non-linear temporal process (Li, 2008). This view is 'based upon the simultaneous consideration of both sides of one thing and their possible mutual conversions and synergies'

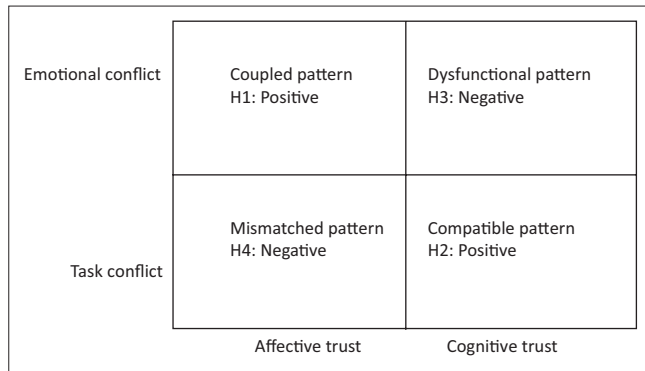
(Fang, 2012) and is therefore consistent with the true spirit of the cooptation perspective (Chen, 2008). The *trans-paradox* of cooptation provides a powerful framework to integrate conflict and trust into unity, and offers an effective way to interpret the interactions between the sub-dimensions of trust and conflict in the configuration of the proper matches between different dimensions of trust and conflict in previous firm performance within partnerships.

## Hypotheses development

As suggested by previous studies (Bai et al., 2016; Celuch et al., 2011; Ettlie et al., 2017; Wu et al., 2017), conflict and trust should be explored in-depth as co-existent in an integrated framework at the inter-organisational level. However, inter-partner relationships are often complex, dynamic and multifaceted along with the deepening of cooperation. Particularly, in different conditions or cooperative stages, not only conflict would perform differently, but also trust would change itself (Wu et al., 2017). In this situation, the trust–conflict interactions may produce heterogeneous patterns and outcomes. According to the *trans-paradox* framework of cooptation, trust and conflict could interact in both holistic and dynamic manner and generate different effects as a wholeness (Chen, 2008; Li, 2014).

In particular, trust (cognitive and affective) often plays its roles in objectively intentional willingness about competence and subjectively attitudinal expectation about emotions (Dowell et al., 2015; Williams Middleton & Nowell, 2018), whereas conflict (task and emotional) performs on the basis of its different focus on specific affairs or problems about mutual task, and uncomfortable feelings about tensions of non-expectations (Chen & Ayoko, 2012; Hood et al., 2017; Parayitam & Dooley, 2009). When different types of trust and conflict co-exist in certain stages of the cooperative process, their complex interactive patterns would generate differentiated effects (Wu et al., 2017). For example, cognitive trust and task conflict reflect the objective judgements of cooperative affairs across interactive processes between partners, whereas affective trust and emotional conflict largely arise from subjective emotional tensions between partners. Considering such a diversity of sources, the complex interaction they create would generate complex outcomes rather than the 'either positive or negative' ones (Amason, 1996; Kalkman & De Waard, 2017). In turn, there might be more possibilities to facilitate beneficial and/or harmful effects on a firm's performance, within an alliance partnership, thus a duality may enter into an integrated, harmonious trust–conflict relationship. (Chen, 2008; Li, 1998, 2014).

Thus, echoing the call that trust–conflict interaction should be explored in-depth in inter-organisational contexts (Bai et al., 2016; Langfred, 2004; Parayitam & Dooley, 2009; Wu et al., 2017), we intend to reveal the micro-nature of interactions between trust and conflict by proposing that different types of trust and conflict would interact in holistic and dynamic manners. Specifically, this study constructs a



Source: Authors' own work

FIGURE 1: Conceptual model.

matrix to break down the different dimensions of trust and conflict, and discuss the impacts of their different interacting patterns, namely *coupled*, *dysfunctional*, *mismatched* and *compatible* interactions in the firms' performance within alliance partnerships (Figure 1).

### Positive patterns of cooperation and performance

Coupled interactions refer to well-matched interactions between emotional conflict and affective trust. Emotional conflict tends to be subjectively attitudinal psychological and focuses on 'inter-personal incompatibilities or disputes and typically provokes hostility, distrust, cynicism, apathy and other negative emotions' (Panteli & Sockalingam, 2005). Independent emotional conflict can promote divides, diminish trust and weaken relationships, which decreases open communication, knowledge sharing and ultimately knowledge creation within cooperative partnerships (Amason & Schweiger, 1994). However, the co-existence of emotional conflict and affective trust may reverse the negative effects on its outcomes. Affective trust arises from the heart, involving empathy, rapport and self-disclosure in the psychological aspects (Chua et al., 2008). It is effective to coordinate emotional tensions by attitudinal warmth to build harmonious climates relevant to affection. Because of the perceptual expectation, affective trust could guide two partners to make efforts towards positive actions for their co-development. In addition, the existence of emotional conflict may make members pay more attention to the potential conflicting risks of conflict in the cooperation when partners have to increase the emotional (or affective) trust and relationship investments to balance negative conflict (Yen et al., 2017). In this dynamic co-existing status, affective trust and emotional conflict are loosely coupled, and they are interdependent and form a totality in the trans-paradox as the 'middle-way' that traditional Chinese philology has termed (Chen, 2002). Such an interactive pattern facilitates better understanding of each other's mindset between two partners to achieve agreement and a common direction that are beneficial to alliance stability, and thus creates shared values for cooperative performance, ideas exploration, open communication, intensive cooperation motivation (Parayitam & Dooley, 2009), as well as the co-development of knowledge, the acquisition and leveraging of knowledge and the generation of internal knowledge (Park et al., 2014).

Compatible interactions are well-balanced interactions between task conflict and cognitive trust. Task conflict focuses on task and judgemental differences regarding the best solutions for achieving cooperative objectives. A high level of task conflict means two partners disagree about task goals, key decision areas and the appropriate choice of action (Panteli & Sockalingam, 2005). When task conflict occurs within cooperation, partner members compete over the distribution of resources, argue about procedures and policies and disagree on the interpretation of facts regarding cooperative tasks or objectives, actions that have considerable negative effects on the development of sustainable cooperation and better performance outcomes (Wit et al., 2016). In this situation, it has been suggested that trust is the remedy to counteract the negative aspects of task conflict (Simons & Peterson, 2000). In particular, cognitive trust relies on the competence of the members and their intentional or volitional willingness. The competence-based trustworthiness could provide cues for how to process, interpret and act upon exchanged information between partners. Meanwhile, such trust may increase partners' commitment to the shared direction for task-related efforts (Morgan & Hunt, 1994), and enable partner members to use diverse skills and to be more creative in defining and solving task-related problems (Parayitam & Dooley, 2009), and thus have the potential to decrease the negative effects of conflict and facilitate cooperative task achievement (Morgan & Hunt, 1994; Parayitam & Dooley, 2007). The intentional willingness of cognitive trust could also increase firms' confidence in resolving the problems of task, while task conflict stimulates the intensive communication and ideas generation for best conflict solutions. Therefore, both task conflict and cognitive trust facilitate the equal conversation about objective and specific difficulties or troubles, and thus form well-compatible interactions:

**Hypothesis 1:** The interaction between emotional conflict and affective trust, acting as a coupled pattern of cooperation, positively impacts firm cooperative performance within alliance partnerships.

**Hypothesis 2:** The interaction between task conflict and cognitive trust, acting as a compatible pattern of cooperation, positively impacts firm cooperative performance within alliance partnerships.

### Negative patterns of cooperation and performance

A dysfunctional pattern refers to the interaction between emotional conflict and cognitive trust. As emotional conflict arises from 'interpersonal tensions and is largely emotional in nature' (Parayitam & Dooley, 2009, p. 1), it creates climates or negative attitudes that deteriorate into conflict (e.g. confronting, competition and destructive arguments) within inter-partner cooperation by concentrating on disagreements between partners (Rose et al., 2007). Emotional conflict is the emotional or psychological hostility associated with joint values, cognition and subjective judgement according to past interactive experience, whereas cognitive trust is the faith in each other's reliability and competency, and intentional willingness for resolving

emergent problems, achieving task goals and maintaining dyadic integrity under specific circumstances (McEvily & Tortoriello, 2011; Williams Middleton & Nowell, 2018). Emotional conflicts arise from divergences or disagreements among partners, and create vague and negative emotional reactions in the working environment (Rezvani et al., 2018). Such conflicts can hardly provide accurate or specific signals and/or cues about 'what needed to be resolved', and thus reduce the possibility and effectiveness of a resolution (Jehn, 1997). Although cognitive trust would strengthen commitment, increase communication and resolve objective conflicts in confidence (McAllister, 1995; Ng & Chua, 2006; Parayitam & Dooley, 2009), the rational competence-based and/or volitional actions brought about by this kind of trust could not resolve the complex emotional conflict with irrational reasoning and vague task solutions (Jehn, 1997; Thomas, 1992).

Mismatched interactions between task conflict and affective trust are the negative patterns in cooperation that hurt alliance partnerships and cooperative performance. Task conflict exists when partner members have disagreements on motivation, decisions, choices and other issues (Pelled, Eisenhardt, & Xin, 1999). As task conflict is 'micro works/problem' grounded, it facilitates divergent thinking and triggers 'multiple perspectives being brought to bear on decision making and the consideration of diverse aspects of the issue under debate' (Panteli & Sockalingam, 2005, p. 603). Based on emotional investment, affective trust, on the other hand, is more subjective and caring, and could be regarded as warmth in the cooperative process (Fiske et al., 2007; McEvily & Tortoriello, 2011). It is thus less special and more superficial in the context of partnership than cognitive trust (Chua et al., 2008).

In the cooperative process, the emergence of task conflict necessitates the resolving of difficulties and problems as the central scheme for partner members aiming to achieve cooperative goals (Jehn, 1995). In this situation, the focal firm's needs for volitions and confidence from the partner firms are increased, and both parties should act rather than provide mere affective support (e.g. empathy and rapport) and disclose an attitude of positive expectation about cooperative goals. In its essence, affective trust, combined with competence-based cognitive trust, would be more enduring and applicable to different situations in reducing emotional misconduct (Jehn, 1997; Parayitam & Dooley, 2007), yet it would be less effective in facilitating the solving of task-focused conflict (Drolet & Morris, 2000). Specifically, affective trust with an attitude of warmth could not provide compatible views, ideas and opinions of partner members' decisions on resolving task conflict (Han & Harms, 2010), which makes it hard for the focal firm to match specific objective task conflict at the same level to facilitate the task-focused resolutions.

**Hypothesis 3:** The interaction between emotional conflict and cognitive trust, acting as a dysfunctional pattern of cooperation, negatively impacts firm cooperative performance within alliance partnerships.

**Hypothesis 4:** The interaction between task conflict and affective trust, acting as a mismatched pattern of cooperation, negatively impacts firm cooperative performance within alliance partnerships.

## Methodology

### Samples and data collection

We chose Chinese data to test our research hypotheses. China is the largest emerging market (Cheung, Kong, Tan, & Wang, 2015; Hua, Teng, & Ouyang, 2018) and has a fast-growing economy (Lin & Xu, 2015), so it has the best potential to provide an ideal research setting for two or three reasons. Firstly, high competition, technological resources scarcity and immature institutional business system cause more challenges for China's firms against the globalisation background (Li & Peng, 2008; Li, Peng, & Macaulay, 2015; Peng, 2003). Strategic alliance, as typical cooperative mode, has become an important competitive strategy in China's firms to confront threats and challenges, in which consequently alliance partnership management has gradually become the critical focus to facilitate successful strategic alliance. The increasing volume of strategic alliances and the importance of alliance partnership management in China could provide a good empirical setting for this study. Secondly, given a strong culture of *guanxi* (or relationship or ties), Chinese managers handle inter-partner relationship in a more indirect yet balancing manner (Li, 2012). This 'middle-way philosophy' from the traditional Chinese culture (Chen, 2008; Li, 2014) often determines managers' behaviours and/or attitudes about managing partnership. Because trust and conflict are relative opposites across partnerships, this middle-way mindset guides managers to balance and integrate opposites as the trans-paradox (Chen, 2008). This philosophy is beneficial to reveal the complex interactions of trust-conflict, going beyond extant research treating them as the simple multiplication of two separate constructs. Therefore, in the China context, this different philosophy across firm practices is likely to provide new findings and further extend and enrich extant theoretical research. Thirdly, as growing economy of China in the world, more international firms go into the Chinese market. It is critical help from multinational firms know more about 'what is going on there' (Meyer, 2006), which would provide important knowledge for those firms to understand Chinese business philosophy, properly establish alliances and efficiently manage partnership.

This study is exploratory research with quantitative method to empirically examine the effects of different interactions of conflict and trust on the focal firm performance within partnerships. To ensure powerful empirical evidences by quantitative analysis for the issue, the questionnaire-based survey instrument could be employed in the organisational and strategic management fields (Gerbing & Anderson, 1988). In line with the approach, we conducted questionnaire-based interviews to obtain sample data related to conflict, trust and performance within alliance partnerships. The first version of the questionnaire was developed by



reviewing literature and then adapting the measurements from previous research studies. The translation and back-translation technique were used to maintain the cross-cultural equivalence of the interview questionnaire mechanisms (Yang et al., 2017). In addition, we sought modification advice from two executives and two academic scholars and polished our questionnaire to make sure that all items could be understood accurately by Chinese respondents and that the measurements reflect the Chinese business environment. A pilot study of two firms in Xi'an of Shaanxi province was conducted and the two responses were excluded from the final sample. We finalised the questionnaire based on all feedback and extensive discussion.

The survey was conducted in five provinces (Beijing, Shanghai, Shaanxi, Henan and Guangdong) which cover a broad geographic region of China, ensuring to reduce system error caused by regional economies and cultures. Of the five provinces, Beijing located in the northern region, is the capital of China as political centre, which has a high gross domestic product (GDP) growth and population of firms. Shanghai is the economic centre with a high degree of internationalisation of China, locating in the eastern coastal region. Guangdong is the largest southern provinces in China, which is the most typical reformed and open region with high GDP growth in past decades. Henan is the largest in acreage and the most populous province in the middle of China, representing the economic activity in the middle geographical region of China. Shaanxi is the most typical western provinces in China, which is treated as the most important engine driving economic development of China' western region in national long plans.

We selected China's manufacturing industry to collect our data because this industry has the largest volume of firms and is also the first large industrial type area in China where agriculture and service reigned. The sampling frame was randomly generated from local governmental departments in five regions (e.g. the committee of industrial park, the committee of economic development zone), which includes more than 1000 firms with contact information. After contacting these firms by email or telephone, 800 firms will participate in the survey. Then we filed, interviewed or emailed the questionnaire to the participants with an explanation of the objectives and requirements of this survey and a promise that all responses would be confidential and used for academic studies only. We required that the respondents filling in the questionnaire must be the senior executives such as chief executive officers (CEOs), chief operating officers (COOs) or chief financial officers (CFOs) with least 3 years' management experiences in the target firms because they are more familiar with their firm situation of cooperation and performance in order to give real and accurate information in this high-quality questionnaire. Finally, 614 firms gave back the questionnaires, of which 124 responses were excluded because of data or information deficiencies, resulting in 490 complete and valid questionnaires and an effective response rate of 76.75%. Our final sample includes firms involved in electronics,

machinery, pharmaceuticals and the processing industry. To ensure the validity of the sample, from non-response bias was checked by *t*-tests and chi-square tests according to firm size and age. Both test results were insignificant, which suggests that non-response bias is not a problem. Harman's one-factor test was also conducted for all items to prove no common method bias in this study (Podsakoff, Mackenzie, Lee, & Podsakoff, 2003).

## Measurement

All variables (see Table 1), except those stated otherwise, were measured on a five-point Likert scale, ranging from

**TABLE 1:** Construct reliability and validity.

Variable	Items	Factor loadings
Emotional conflict (AVE = 0.657; Cronbach's alpha = 0.873; C.R. = 0.883)	(1) To what frequency was friction present in your relationship with the partner firm.	0.667
	(2) How much anger is present in your relationship with the partner firm.	0.787
	(3) To what extent are there personality clashes in your relationship with the partner firm.	0.887
	(4) To what extent are there emotional tensions in your relationship with the partner firm.	0.881
Task conflict (AVE = 0.714; Cronbach's alpha = 0.892; C.R. = 0.909)	(1) To what extent are there differences of opinions between you and the partner firm regarding the tasks.	0.830
	(2) How often do people in your firm disagree with people from the partner firm about the work.	0.848
	(3) How often do you disagree with your partner firm about the tasks they perform for you.	0.878
	(4) How often do you and the partner firm disagree about ideas regarding the collaboration tasks.	0.822
Affective trust (AVE = 0.551; Cronbach's alpha = 0.856; C.R. = 0.859)	(1) We have a sharing relationship with the partner firm. We can both freely share our ideas, feelings and hopes.	0.695
	(2) We can talk freely to the partner firm about difficulties we are having at work and know that the partner firm will want to listen.	0.811
	(3) We would both feel a sense of loss if one of us was transferred and we could no longer work together.	0.713
	(4) If we shared our problems with the partner firm, we know that the partner firm would respond constructively and caringly.	0.786
	(5) We would have to say that we have both made considerable emotional investments in our working relationship.	0.699
Cognitive trust (AVE = 0.523; Cronbach's alpha = 0.873; C.R. = 0.845)	(1) The partner firm approaches its job with professionalism and dedication.	0.756
	(2) Given the partner firm's track record, we see no reason to doubt its competence and preparation for the collaboration.	0.782
	(3) We can rely on this partner firm not to make our job more difficult by careless work.	0.731
	(4) Most people of the partner firm, even those who are not my close friends, trust and respect me as a co-worker.	0.681
	(5) Other work associates of mine who must interact with the partner firm consider this partner firm to be trustworthy.	0.660
Cooperative performance (AVE = 0.621; Cronbach's alpha = 0.914; C.R. = 0.907)	(1) We are satisfied with the overall performance of the cooperation.	0.826
	(2) The long-term objectives for which the cooperation was established are being met according to the schedule.	0.839
	(3) We are satisfied with the cooperation actions of the partner firm.	0.799
	(4) We had a very pleasant cooperation relationship with the partner firm.	0.760
	(5) We expanded our market through cooperation.	0.760
	(6) We strengthened the enterprise's competitive advantage through cooperation.	0.739

AVE, average variance extracted; C.R., construct reliability.

'1' representing 'strong disagreement' to '5' representing 'strong agreement'.

Following Geringer and Hebert (1991), Kale and Singh (2007) and Luvison and De Man (2015) and the feedback from the field interviews, we measured *cooperative performance* using six items (Cronbach's alpha = 0.914) to reflect the extent of cooperation the firms achieved according to the goal, such as market performance, competitive advantage and perceived satisfaction from the cooperative relationship. We used subjective measures, rather than financial indicators, because improvements in financial performance can be caused by irrelevant reasons and do not accurately reflect the extent of cooperation; moreover, better financial performance is often not the key goal of cooperation and many alliances aim to achieve more long-term interests and are willing to make sacrifices in short-term financial benefits.

Following Rose *et al.* (2007), Wit *et al.* (2016) and Yen *et al.* (2017), we measured *emotional conflict* (Cronbach's alpha = 0.873) using four items to capture personal conflict that can happen in relationships. We measured *task conflict* (Cronbach's alpha = 0.892) that can arise from work tasks. Building on McAllister (1995), Parayitam and Dooley (2009) and Chen and Ayoko (2012), we used five items to measure *affect trust* (Cronbach's alpha = 0.856), which refers to good expectations and confidence in partners' cooperation. We used five items to measure *cognitive trust* (Cronbach's alpha = 0.873), which refers to confidence in a partner's capability and professionalism.

To account for factors outside the model, several control variables were incorporated in the regression. (1) *Firm size* refers to the scale of a firm and was measured by the number of a firm's full-time employees (coded as 1: fewer than 50; 2: 51–200; 3: 201–500; 4: 501–1000; 5: more than 1000) (Graves & Langowitz, 1993). Larger firms often have greater market power than smaller firms in alliances. (2) *Firm age* was measured by years because the firm was established (coded as 1: fewer than 3 years; 2: 3–5 years; 3: 6–10 years; 4: 11–30 years; 5: more than 30 years). Older firms often have more resources and experience, endowing them with a higher status in alliances. (3) *Form of cooperation* reflects the alliance governance that shapes preferential organisational activities and decisions in alliances. According to the degree of closeness of cooperation in shareholding, the form of cooperation was coded as 1 for joint ventures, 2 for contractual cooperation and 3 for cross shareholdings. (4) *Alliance experience*, defined as the number of years of cooperation between the core firm and its alliance partner, presents the stability of the alliance (coded as 1: less than 1 year; 2: 1–3 years; 3: 3–5 years; 4: 5–10 years; 5: more than 10 years) (Heimeriks & Duysters, 2007; Kale, Dye & Singh, 2002). (5) *Variety of cooperation*, which refers to the scope of alliance activities, was measured by asking in how many aspects (R&D, manufacture and sales) the firms cooperate.

## Reliability and validity

Reliability was assessed using the internal consistency method via Cronbach's alpha value (Cronbach, 1951; Nunnally, 1978). All constructs have a Cronbach's alpha greater than 0.856 (see Table 1), above the cut-off of 0.7, supporting the reliability of all theoretical constructs. We also computed the composite reliability (CR) to assess construct reliability. As reported in Table 1, all factors have CRs greater than 0.845, above the cut-off of 0.7, implying that the variance captured by the factor is significantly more than the variance indicated by the error components (Bagozzi & Yi, 1988).

Construct validity was established using exploratory factor analysis (EFA). All indicators loaded onto their underlying construct during EFA using the principal components method with varimax rotation. The factor loadings are above 0.660 (see Table 1) and significantly above the requisite level of 0.6 (Fornell & Larcker, 1981). The average variance extracted (AVE) was also computed and is greater than 0.50 for all constructs (see Table 1), indicating good convergent validity. We further assessed the discriminant validity of the constructs, which measures the extent to which the constructs are distinct. As suggested by Fornell and Larcker (1981), the discriminant validity of a construct can be questioned if the square root of AVE for each construct with multiple items (in bold) is significantly greater than the off-diagonal elements (see Table 2). Taken together, these results show adequate discriminant validity for the measures in this study.

## Ethical considerations

This article followed all ethical standards for carrying out research without direct contact with human or animal subjects.

## Analysis and results

To address the research question, we used moderated regression models to test the interaction effects (Aiken & West, 1991). To mitigate the potential threat of multicollinearity, we mean-centred each scale used to construct the interaction terms. The correlation matrix, means and standard deviations for the variables used in this study are given in Table 2. Table 3 reports the regression analysis results step by step.

In Table 3, Model 1 only includes the control variables. Model 2 adds the main effects of emotional conflict, task conflict, affect trust and cognitive trust. Model 2 suggests that emotional conflict, task conflict, affect trust and cognitive trust can all influence cooperative performance, which supports the assertion that alliance mechanisms of trust and conflict can influence the performance of the focal firm through cooperation within alliance partnerships. After that, Models 3–6 add the interaction between emotional conflict and affective trust, the interaction between task



**TABLE 2:** Correlation coefficients and average variance extracted values.

Variable	Mean	Standard deviation	1	2	5	6	7	8	9	10	11	12
1. Firm age	3.240	1.186	N/A	-	-	-	-	-	-	-	-	-
2. Firm size	1.790	0.808	0.148*	N/A	-	-	-	-	-	-	-	-
3. Alliance experience	3.320	1.177	0.511**	-0.1320	N/A	-	-	-	-	-	-	-
4. Forms of cooperation	2.000	0.365	0.0250	0.0340	0.1060	N/A	-	-	-	-	-	-
5. Variety of cooperation	1.290	0.619	-0.066	0.024	-0.003	0.086	N/A	-	-	-	-	-
6. Emotional conflict	-0.018	0.724	0.038	0.027	0.006	-0.131	-0.034	0.811†	-	-	-	-
7. Task conflict	0.024	0.837	0.018	0.029	0.034	0.002	0.003	0.499**	0.845†	-	-	-
8. Affective trust	0.000	0.792	-0.018	0.038	0.151*	0.052	0.108	-0.113	0.134*	0.742†	-	-
9. Cognitive trust	-0.057	0.811	0.017	-0.137	0.136	0.01	0.047	-0.214**	-0.071	0.557**	0.723†	-
10. Cooperative performance	-0.082	0.788	-0.028	-0.044	0.181*	0.061	0.064	-0.191**	-0.049	0.489**	0.600**	0.788†

†, The diagonal elements are the root of average variance extracted value (AVE).

\*,  $p < 0.05$ ; \*\*,  $p < 0.01$ ; \*\*\*,  $p < 0.001$ .

N/A, Not applicable.

Note: Number of samples is 490.

**TABLE 3:** Results of regression analysis.

Variables	Cooperative performance						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
<b>Control variables</b>							
Firm age	-0.327***	-0.126	-0.129*	-0.100	-0.095	-0.103	-0.137*
Firm size	-0.046	-0.028	-0.005	-0.048	-0.016	-0.049	0.063
Forms of cooperation	0.166**	-0.130*	-0.155**	-0.094	-0.215***	-0.089	-0.164**
Alliance experience	0.344***	0.156*	0.165**	0.166**	0.146	0.154**	0.206***
Variety of cooperation	-0.014	0.076	0.054	0.088	0.041	0.098	0.052
<b>Predictors</b>							
Emotional conflict (EC)	-	-0.286***	-0.300***	-0.275***	-0.351***	-0.275***	-0.254***
Task conflict (TC)	-	0.165**	0.208***	0.116	0.264***	0.099	-0.122
Affective trust (AT)	-	0.319***	0.358***	0.306***	0.294***	0.340***	0.419***
Cognitive trust (CT)	-	0.333***	0.336***	0.279***	0.402***	0.281***	0.235***
<b>Interactions</b>							
EC × AT	-	-	0.242***	-	-	-	0.417***
TC × AT	-	-	-	0.122	-	-	-0.244***
EC × CT	-	-	-	-	-0.215***	-	-0.359***
TC × CT	-	-	-	-	-	0.107	0.278***
<b>Test results</b>							
$R^2$	0.158	0.443	0.341	0.310	0.459	0.448	0.541
$F$ Stats	1.830*	3.673***	3.498***	3.251***	3.550***	2.966***	3.645***

Note: Number of samples is 490.

\*,  $p < 0.05$ , \*\*,  $p < 0.01$ ; \*\*\*,  $p < 0.001$ .

conflict and affective trust, the interaction between emotional conflict and cognitive trust, and the interaction between task conflict and cognitive trust, respectively.

Further, we include all variables and interaction terms in Model 7 as full model to test the four hypotheses. As shown in full model, the results indicate that the interaction (as coupled pattern) between emotional conflict and affective trust is positively associated with cooperative performance for the focal firm ( $b = 0.417$ ,  $p < 0.001$ ). The interaction (as compatible pattern) between task conflict and cognitive trust positively impacts the focal firm's cooperative performance ( $b = 0.278$ ,  $p < 0.001$ ). Therefore, H1 and H2 were supported. In addition, the full model results show that the interaction (as dysfunctional pattern) between emotional conflict and cognitive trust is negatively associated with the cooperative performance of the focal firm ( $b = -0.359$ ,  $p < 0.001$ ), as is the interaction (as mismatched pattern) between task conflict and affective trust ( $b = -0.244$ ,  $p < 0.001$ ), thus supporting H3 and H4.

To test for an increase in  $R^2$ , an  $F$ -test was used to examine significant changes (Atuahene-Gima & Li, 2006). As seen in Table 3, the increase in  $R^2$  from Model 1 to Model 7 is 0.353. This increase in  $R^2$  is significant, indicating an improvement in overall model fit.

## Discussion

Drawn on previous wisdoms of trust and conflict within partnerships (e.g. Akrouf & Diallo, 2017; Bai *et al.*, 2016; Celuch *et al.*, 2011; Das & Teng, 2000; Dowell *et al.*, 2015; Panteli & Sockalingam, 2005; Xue *et al.*, 2018; Yen *et al.*, 2017), this study attempts to provide new insight into the trust-conflict interactions by distinguishing between the sub-dimensions of trust and conflict to construct an interactive matrix of four interactive patterns. In particular, the empirical results indicate that coupled patterns (interactions between emotional conflict and affective trust) and compatible patterns (interactions between task conflict and cognitive trust) increase firm performance within alliance partnerships, whereas dysfunctional patterns (interactions between emotional

conflict and cognitive trust) and mismatched patterns (interactions between task conflict and affective trust) have negative effects.

## Theoretical implications

Based on these endeavours, this study enriches our understanding of the complex nature of conflict–trust interactions as ‘coopetition in duality’, and specifies the heterogeneities in terms of the types and the associated effects of the configurations between different sub-dimensions of these two previously isolated continuums within a certain alliance relationship, and adds to previous research in the following ways.

Primarily, previous studies mainly employ a ‘paradox as a problem’ framing when explaining the effects of conflict and trust within an alliance (Amason & Schweiger, 1994; Chen & Ayoko, 2012; Das & Teng, 2000; Rau, 2005; Wit et al., 2016), and examine their individual effects on the outcome variables or their ‘moderation effects’ on each other’s impact. Our research goes one step further by adopting a ‘trans-paradox as a solution’ framing, and provides a relatively more holistic understanding regarding the inter-play between trust and conflict and their integrated ‘coopetition’ effects on firms’ performance (Bengtsson & Kock, 2000; Luo, 2007; Park et al., 2014; Xue et al., 2018).

Based on our primary contribution, our research further enriches current understanding of the conflict–trust tensions (i.e. complex nature, diversity and dynamics). In particular, the spirit of coopetition as trans-paradox (Chen, 2002, 2008; Li, 2008) in wholeness recognises that the opposite elements (i.e. conflict and trust) are partially complementary (positive) if properly matched but partially contradictory (negative) if improperly combined. Our research validates this proposition by distinguishing the sub-dimensions of trust and conflict, specifying the four specific patterns of conflict–trust interactions, and more importantly, empirically illustrating that heterogeneities exist in their effect on firm performance. In this way, our research reveals the ‘double-edged sword’ effects of trust–conflict interactions that are contingent on the different types of configurations between their sub-dimensions, going beyond the ‘trust or conflict as moderators on the “single-edged” effects of one another’ logic that extant literature (e.g. Celuch et al., 2011; Han & Harms, 2010; Hood et al., 2017; Liu et al., 2008; Panteli & Sockalingam, 2005; Peterson & Behfar, 2003; Rezvani et al., 2018; Wu et al., 2017) has considered.

In addition, previous investigations focus exclusively on advanced economies (e.g. Parayitam & Dooley, 2007, 2009), and agree that trust always positively interacts with task-based (cognitive) conflict but usually negatively interacts with emotion-based (affective) conflict for alliance decision quality and decision commitment. Our research, based on the aforementioned shifted the framing paradigm, explores the relatively under-reached coopetition issue in

China’s emerging economy, and suggests that affective trust could interact positively with emotion-based conflict and negatively with task-based conflict to affect alliance firm performance. This novel finding provides critical contextual knowledge about how conflict and trust interact to impact firm performance in developing economies, suggesting that the theoretical research has to pay more attention to the context-specific thinking for recognising and managing conflict-based and trust-based coopetition within an alliance partnership.

## Managerial implications

This study has several important managerial implications. Firstly, our research implies that the trans-paradox thinking as middle-way philosophy is beneficial to managers to monitor the complexities and dynamics of trust–conflict interaction in alliance. In particular, trans-paradox thinking that is grounded in corporate culture and managerial cognition, embrace a synthesis of trust and conflict in specific dimensions and will be more likely to engender repertoires of syncretic rent-seeking performance than those that emphasise either isolated forces or interactive forces of trust and conflict as the uni-dimensional construct. Secondly, the nature of the conflict–trust interactions in the duality we delineate implies that managers should pay attention to balance trust and conflict in a holistic manner. Specifically, it is important for managers to cultivate emotions for inter-partner cooperation and foster skills for solving conflict in response to partners’ varieties in trust and/or conflict, and try to keep the complementariness (coupled and compatible patterns) while a voiding the conffliction (dysfunctional and mismatched patterns) based on the mindset of coopetition across long-term alliance partnership. Thirdly, several challenges such as the convergence of novel business models, emerging technologies and new customer demands in emerging economies necessitate the management of alliance partnerships. This study could provide potential implications to conduct managers’ alliance practices such as the selection of partners with joint values, and the skillful management of cooperative partnerships through more informal mechanisms (e.g. favourable ties, affective care and stress-free atmosphere) which are particularly useful for increasing the cooperative quality of firms that operate in the business context of emerging economies.

## Limitation and future research

This study has several limitations that future work should address. Firstly, we selected Chinese firms as the empirical setting to test our model, so the generalisability of our research findings should be further tested in other transitional economies and across different industries (Lin, Peng, Yang, & Sun, 2009). Furthermore, future research should consider comparing advanced and transitional economies, which would enrich our knowledge of global alliance partnership management. Secondly, the cross-sectional data used in the study do not permit causal interpretation of the empirical findings. Therefore, to increase the reliability of these empirical findings, a longitudinal approach should be used

in future research. Thirdly, how conflict and trust operate in co-competition as a duality (positive and negative) leading to both holistic and dynamic interactions might vary depending on the context. Future research needs to introduce more contingent factors, such as institutional environments, cultural features and formal alliance governance elements, into this framework.

## Conclusion

This study applies the co-competition perspective to deconstruct the complex interactive nature of conflict and trust between partners, providing a sharp focus on how specific patterns of conflict (task and emotion) and trust (cognitive and affective) interact with each other in impacting the focal firms' performance within alliance partnerships. We find that coupled patterns (interactions between emotional conflict and affective trust) and compatible patterns (interactions between task conflict and cognitive trust) positively impact the focal firm's cooperative performance, whereas dysfunctional patterns (interactions between emotional conflict and cognitive trust) and mismatched patterns (interactions between task conflict and affective trust) negatively impact the focal firm's cooperative performance. Our findings indicate that trust and conflict in the context of co-competition may combine (or balance) in both primarily negative and primarily positive ways according to their different dimensions as duality, which adds new insights into how to manage the co-existence of conflict and trust in co-competition and implies that there are diverse ways to combine conflict and trust to achieve the most synergistic effect for firms within alliance partnerships.

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## Competing interests

The authors have declared that no competing interests exist. The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

## Author's contributions

H.S. designed this study and wrote a draft. Y.G. contributed to revise the theoretical part and further polished the whole contents of the manuscript. C.Z. collected the data and conducted empirical analysis in methodology.

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## Data availability statement

Data sharing is not applicable to this article as no new data were created or analysed in this study.

## Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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