Interactive effects of information exchange, relationship capital and environmental uncertainty on international joint venture (IJV) performance: An emerging markets perspective

ABSTRACT

Prior research on the role of international joint ventures (IJV) in the emerging markets generally ignores the impact of information exchange on IJV performance as well as the mediating role of relationship capital (a key measure of competitive dynamics and co-evolution) and the moderating impact of environmental uncertainty in this process. This paper addresses these important research gaps by exploring the direct effect of information exchange on IJV performance as well as indirect (mediated) effect through mutual trust and reciprocal commitment, two key components of relationship capital. In addition, this paper investigates the role of environmental uncertainty as a moderator of these mediating effects. Results from a study of 205 contractual IJVs in China, a highly competitive and dynamic emerging market, show that foreign and local partners collaborate and co-evolve through regular information exchange that helps them build relationship capital with each other in the form of mutual trust and reciprocal commitment, which in turn leads to better IJV performance. In addition, environmental uncertainty negatively moderates (weakens) the positive effects of information exchange on mutual trust and reciprocal commitment but not their impact on IJV performance. The authors discuss the implications of these findings for future research on the role of relationship capital in the successful formation and management of IJVs in the emerging markets.

Keywords: contractual; environmental uncertainty; information exchange; international; joint venture; mutual trust; reciprocal commitment; relationship capital

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1. Introduction

Early research on internationalization of firms identified International Joint Ventures (IJVs) as important means to gain access to international markets and to achieve product diversification (e.g., Gulati, 1998; Johanson & Vahlne, 1990; Kogut, 1988; Shenkar 1990; Yan & Zeng, 1999). IJVs help partner firms gain financial and operational synergies by sharing complementary resources which each of them may not be able to develop internally otherwise (Luo, 2007; Gaur, Ma, & Ding, 2018). IJVs are recognized as a preferred mode to enter into emerging economies because they allow the costs and risks associated with the uncertain global business environment to be shared with other parties (Beamish, 1993; Malhotra & Gaur, 2014; Yan & Gray, 1994). Therefore, it is not surprising to see growing research on the important role of IJVs in the internationalization of firms from the emerging markets, such as Mexico, Poland, and Romania (Hitt et al., 2000), China (Isobe, Makino, & Montgomery, 2000; Luo, 2002), Russia (Hitt et al., 2004) and other European countries (Brouthers & Bamossy, 1997), and Ghana (Acquaah, 2009), by forming strategic alliances with multinational corporations (MNCs) from the developed markets.

IJVs may involve high governance costs since each party has its own agenda to deploy its own contribution and commitment, and at the same time, maintain its parental identity (Reuer et al., 2011). Also, both parties in an IJV may well be trapped with huge sunk costs, while, in addition, the foreign partner may also face enormous exit costs should the strategic alliance not work out (Kale & Singh, 2009; Roy, 2012). Moreover, under continuous exposure from environmental uncertainty and competitive dynamics, both parties may tend to behave opportunistically rather than co-evolve in a mutually beneficial manner (Das & Teng, 2000a, b). For example, IJV partners may not exchange relevant information with each other (Luo, 2002) and this could cause information asymmetry (Reuer & Koza, 2000) that would hamper the development of mutual trust and understanding with each other (Kwon, 2008;

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Lane, Salk, & Lyles, 2001), which in turn may restrict optimal utilization of their combined resources (Zhang, Li, & Zheng, 2017; Zhang, Shu, Jiang, & Malter, 2010; Zhou & Li, 2008).

Past researchers have expressed concerns that such opportunistic behaviors may have a particularly stronger negative impact on the performance of IJVs between the firms from the developed and emerging markets due to the differences between their organizational cultures and socio-economic conditions in their countries of origin (e.g., Das & Teng, 2000a; Inkpen & Beamish, 1997; Yan & Zeng, 1999). In addition, the adverse impact of the lack of information exchange, mutual trust and reciprocal commitment is likely to worsen during periods of environmental uncertainty (Luo, 2007; Meschi, 2005). However, despite the growing importance of these factors for the performance of IJVs in the emerging markets, there is little research on the impact of information exchange (Mohr, Fisher & Nevin, 1996; Robertson, 1980) on relationship capital (Chen, Liu, & Hsieh, 2009; Sarkar et al., 2001) and its components, mutual trust (Boersma, Buckley, & Ghauri, 2003; Das & Teng, 2001) and reciprocal commitment (Morgan & Hunt, 1994), and the moderating effect of environmental uncertainty (Meschi & Riccio, 2008), on the performance of IJVs in the emerging markets.

This paper addresses these important research gaps by exploring the direct and indirect effects of information exchange on IJV performance, with two elements of relationship capital (mutual trust and reciprocal commitment) acting as mediators and environmental uncertainty as a moderator in this process. Results from a study of 205 international joint ventures (IJVs) in China show that foreign and local partners collaborate and co-evolve by exchanging relevant information to build relationship capital (mutual trust and reciprocal commitment) with each other, which in turn helps them achieve better performance in a highly competitive and dynamic market. Moreover, environmental uncertainty negatively moderates (weakens) the positive effects of information exchange on mutual trust and reciprocal commitment but not their impact on IJV performance.

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These findings have important implication for the competitive dynamics between MNCs and local companies in the emerging markets and their co-evolution as partners in IJVs, as the emerging economies undergo fundamental changes in their macroeconomic environment as well as in the roles of institutions underlying the business activities. For example, this study shows that mutual organizational learning facilitated by information sharing between MNCs and their local partners has both direct and indirect effects on IJV performance, which helps them deal with the ever-changing competitive dynamics and undergo mutual transformation via innovative business models and processes. In addition, this paper highlights the role of a critical contextual factor (i.e., relationship capital) through its components (mutual trust and reciprocal commitment), which could further trigger, facilitate or inhibit the competitive dynamics and mutual transformation process. Overall, this paper underlines the role of active cooperation through regular information exchange and mutual trust between MNCs and their local partners in managing their strategic relationships with each other, especially in an increasingly uncertain global business environment.

2. Theoretical background

Strategic alliances are characterized by shared goals and objectives with mutual benefits for the partners and are geared towards realizing an improved product-market combination for the firms involved (Malhotra & Gaur, 2014). Thus, strategic alliances are entered into by two or more business organizations in order to improve their competitive position and performance by sharing resources in contexts involving uncertainty over outcomes, while maintaining their own corporate identities (Contractor and Lorange, 1988; Contractor, Yong, & Gaur, 2016; Hitt et al., 2000; Parkhe, 1993). Strategic alliances come in a variety of structures, including joint ventures, minority equity alliances, buyer-supplier partnerships, joint production, joint bidding, and code-sharing. They all offer a choice for firms to pursue opportunities that would otherwise be beyond an individual firm's reach.

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Scholars have been keen to understand the motivations behind the formation as well as the reasons for the success and failure of strategic alliances (e.g., IJVs), which vary widely based on the theoretical perspective adopted by the researchers (Wright et al., 2005). For example, transaction cost perspective (e.g., Hwang & Gaur, 2009; Parkhe, 1993; Rindfleisch & Heide, 1997) suggests cost minimization as the primary motivation for strategic alliances, while resource dependence theorists (e.g., Davis & Cobb, 2009; Gulati & Sytch, 2007) see the dependence of partner firms' on each other's resources as the driver of their alliance behavior. Similarly, studies using resource-based view (e.g., Chisholm & Nielsen, 2009; Das & Teng, 2000b) emphasize the role of synergy between alliance partners, and organizational learning theorists focus on knowledge acquisition (e.g., Fang, 2011; Szulanski, Cappeta, & Jensen, 2004; Suseno & Ratten, 2007; Tsai, 2002). Finally, relationship marketing researchers highlight the creation of superior customer value (e.g., Steensma et al., 2005; Tsai & Ghoshal, 1998), whereas strategic behavioral researchers focus on the role of profit maximization (e.g., Peng et al., 2008; Wang & Nicholas, 2007).

Due to such a complex array of motivations behind the formation of strategic alliances, no single theory has been able to fully explain the rapid rise of IJVs in the last few decades between MNCs and their local partners in the emerging markets and the unique characteristics of these IJVs compared to those among firms from the developed markets. Next, the authors provide a review of extant work (Gaur & Kumar, 2018) to look beyond the traditional resource-based view of firms and the transaction cost economics perspective (e.g., Das & Teng 2000a, b) to explain the factors driving IJV performance, by using *resource dependency theory* and *social capital theory*, as the theoretical underpinnings of the conceptual framework used in this paper.

2.1. *Resource dependency theory (RDT)*

RDT characterizes the links among organizations as a set of power relations based on

the exchange of resources (Pfeffer and Salancik, 1978). There are three core ideas of the theory: (1) social context matters; (2) organization have strategies to enhance their autonomy and pursue interests; and (3) power is important for understanding internal and external actions of organizations (Davis and Cobb, 2009). According to RDT, organizations are comprised of internal and external coalitions, which emerge from social exchanges that are formed to influence and control behavior. The environment contains limited resources which are vital to an organization's existence. However, the environment also contains other organizations; hence, organizations face difficulties and uncertainty in resource acquisition as many of the resources needed by them are often in the hand of other organizations.

In this view, resources are the main basis of organizational power; hence, organizations work toward two related objectives; 1) acquiring control over resources that minimize their dependence on other organizations, and 2) control over resources that maximize the dependence of other organizations on themselves, because accomplishing either objective will affect the exchange between organizations, and hence an organization's power will be changed. Power is thus relational, situational, and potentially mutual. According to resource dependence theorists, the motive for strategic alliance formations is to acquire resources; at the same time, a partner firm's focus remains on curtailing inter-organizational dependencies while conserving the firm's own independence.

The resource-based perspective suggests that the firm is a collection of heterogeneous resources, and valuable firm resources are usually scarce, imperfectly imitable, and lacking in direct substitutes (Wernerfelt, 1984). While transaction cost economists stress cost minimization, resource-based view theorists give emphasis to value maximization by bringing together of different firms and utilizing valuable resources, and suggest that firms attempt to find the optimal resource boundary through which the value of their resources is better realized than through other resource combinations. Since resources are heterogeneous,

trading and accumulation of resources are essential for a firm to maintain competitive superiority. Resource-based view indicates that both strategic alliances and mergers/acquisitions are tactics for accessing other firms' resources that a firm cannot create independently, to maximize existing resources by merging them with other firms' resources.

In the context of IJVs between MNCs and their local partners in the emerging markets, MNCs bring in resources such as capital (Beamish & Banks, 1987; Isobe et al., 2000); brands and product knowledge (Luo, 2002; Nuruzzaman, Gaur, & Sambharya, 2018), whereas local partners have resources such as close local business relationships (Lee, Pae & Wong, 2001) and institutional knowledge (Hitt et al., 2004) coupled with local managerial ties and market knowledge (Kotabe, Jiang, & Murray, 2011). Early research on the IJVs between MNCs and their local partners in the emerging markets, cautioned against the instability of these IJVs (e.g., Das & Teng, 2000a; Inkpen & Beamish, 1997; Madhok, 1995; Shenkar, 1990; Yan & Zeng, 1999) and highlighted the role of bargaining power and management control (Gaur & Lu, 2007; Yan & Gray, 1994). In contrast, recent studies in this area emphasize the importance of relatively more positive aspects of IJVs, such as cooperation (Zhang, Shu, Jiang, & Malter, 2010); knowledge complementarity (Fang, 2011), and tolerance (Madhok, 2006).

Notwithstanding the invaluable contributions made by all these studies, there is still no clear understanding about the process by which firms involved in IJVs in the emerging markets develop their relationship capital (e.g., mutual trust and reciprocal commitment) with each other and how this affects the performance of their IJVs. Moreover, the boundary conditions for the relationships among these constructs are also not very clear. This paper addresses these research gaps by exploring the role of information exchange as a driver of relationship capital and it's direct as well as indirect influence on IJV performance. In addition, this paper investigates the moderating effects of environmental uncertainty in order

to establish some boundary conditions on these relationships.

2.2. *Social capital theory (SCT)*

Early research on social capital conceptualized it as a set of social resources embedded in interpersonal relationships and as a resource for social action (Coleman, 1988, 1990; Bourdieu, 1985). Subsequently, the concept of social capital evolved to include the norms and values related with social relationships (Tsai & Ghoshal, 1998; Coleman, 1990). Hence, social capital is now recognized as an asset, which is embedded in the relationship of individuals, communities, networks, or societies (Nahapiet & Ghoshal, 1998; Walker, Kogut, & Shan, 1997). The theory of social capital can be applied to entrepreneurship studies to enhance the understanding about how firms create and manage networks, and the outcomes of this process. Firms, in their course of business activities, create a variety of inter-organizational connections such as buyer-supplier collaborations, strategic alliances, and joint membership in industry associations. These connections enable firms to exchange a variety of resources including information, knowledge as well as financial and other forms of capital.

Accordingly to Koka and Prescott (2002), inter-organizational relationship characterizes social capital in two aspects. First, it provides an information channel, while possession of key information and control of information flow create entrepreneurial opportunities. Second, inter-organizational exchanges establish norms of reciprocity and equity, which in return form a pattern of obligations and expectations. Social capital theory can also be applied at the individual level, since an entrepreneur's personal network provides access to the resources which are otherwise internally unavailable (Ostgaard and Birley, 1994). At the individual level, social capital is built on good reputation, relevant previous experience, and direct personal contact. High level of social capital enables business managers to approach venture capitalists, crucial information sources, potential customers, and others. The availability of such resources is also crucial for the survival and growth

potential of new businesses (Florin, Lubatkin, & Schulze, 2003).

Firms from emerging markets with strong social networks can leverage their social capital to cooperate with their MNC partners, to develop knowledge and transfer it to their IJVs, if they are in exploration mode (Koka & Prescott, 2002); however, social capital may hamper such cooperation and creation of new knowledge if the firms focus on exploitation (Nahapiet & Ghoshal, 1998). For example, Lin and Si (2010) argue that the unique nature of Chinese social capital may have led to unfavorable consequences (e.g., market fragmentation, state intervention, and rent-seeking), which in turn may have hurt the relationships between Chinese firms and their international partners. Similarly, depth and nature of social capital of emerging markets firms may affect the direction and magnitude of their resource exchanges with IJV partners and hamper the accumulation of critical resources (Li, Lin, & Arya, 2008).

Based on the above discussion, it seems that the social capital of emerging markets firms may have both positive and negative effects on the development of shared knowledge and relationship capital, and the performance of their IJVs (Wright et al., 2005). Others have highlighted the role of relational embeddedness in managing tacit and explicit knowledge transfer in IJVs and their impact on IJV performance (Dhanaraj et al., 2004). In this paper, the authors extend this growing research stream by exploring the key role of information exchange in the process by which firms from emerging markets develop their relationship capital with their MNC partners, and their combined impact on IJV performance. They also examine the moderating effect of environmental uncertainty on these relationships.

3. Conceptual framework and hypotheses

Several factors affect the performance of IJVs (Reus & Rottig, 2009; Robson, Leonidou & Katsikeas, 2002), including uneven equity shares and contract renegotiation (Gaur & Lu, 2007), bargaining power and management control (Yan and Gray, 1994), strategic marketing (Luo, 1995), agency costs (Reuer & Miller, 1997), role of key

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stakeholders (Brouthers & Bamossy, 1997) and leadership teams (Li, Xin, Tsui, & Hambrick, 1999), and multiple commitments and conflicting loyalties (Chaturvedi & Gaur, 2009; Johnson, 1999). More recent studies highlight other factors that affect IJVs particularly in the emerging markets, such as autonomy (Newburry, Zeira, & Yeheskel, 2003), R&D intensity, market focus and ownership structure (Zhang, Li, Hitt, & Cui, 2007), product innovation (Zhou & Li, 2008), country risk and national cultural differences between partners (Meschi & Riccio, 2008), institutions, resources, and entry strategies (Gaur, Kumar, & Singh, 2014; Meyer et al., 2009), knowledge transfer (Khan, Shenkar, & Lew, 2015; Park, Vertinsky, & Lee, 2012), performance measurement choices (Larimo, Nguyen, & Ali, 2016) and partner coopetition (Shu, Jin, & Zhou, 2017).

3.1. Information exchange and IJV performance

Many scholars suggest that IJVs operating in emerging markets (e.g., China) tend to face greater levels of opportunism than the local firms do (Luo, 2002; May, Stewart, & Sweo, 2000), because of not just underdeveloped commercial laws and immaturity of government policies, but also a lack of information exchange among the IJV partners (Malhotra & Gaur, 2014). Williamson (1985; p.47) defines opportunism as "self-interest seeking with guile" as reflected in acts, such as "incomplete or distorted disclosure of information, especially in calculated efforts to mislead, distort, disguise, obfuscate, or otherwise confuse." In emerging economies, IJV decision makers often observe that information about macro- and micro-business environment is difficult to attain, analyze and confirm (Luo 2007). It discourages the development of trust, reciprocity, and forbearance between alliance partners. This, together with goal incongruence, which IJVs often confront (Beamish & Banks, 1987; Chaturvedi & Gaur, 2007), encourages opportunism to arise. Opportunism seriously undercuts trust building and commitment development. Useful information exchange eliminates the incentive of opportunism, and builds up mutual trust as well as reciprocal commitment.

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Therefore, information exchange between IJV partners is likely to be a key driver of IJV performance in the emerging markets, as hypothesized below:

H1. The greater the information exchange between IJV partners, the better will be IJV performance, and vice versa.

3.2. *Information exchange and mutual trust*

Information exchange and mutual trust have been thoroughly examined by social capital theorists. For example, Coleman (1988) argues that information-flow capacity is an integral part of social capital, along with trustworthiness and norms accompanied by sanctions. Social capital researchers also maintain that trust is cultivated from previous experiences and existing collaboration. In the course of repeated interactions, particularized and even generalized trust may develop between the partners (Chisholm & Nielsen, 2009). In this context, Butler (1991; 1995) suggests that building of trust and commitment in business interactions not only depends on the partners' signaling to each other but is also a result of the interpretation, perception, and reaction to the given signaling. In other words, trust is often created under a feedback pattern known as 'trust-cycle' in relationships (Butler, 1995; Zand 1972). Strategic partners are likely to feel suspicious about their relationship and even doubt each other's motives in the beginning (Neale & Bazerman, 1992). Partners can set up a positive trust-cycle if, through their behaviors and interactions in the relationship, they can signal trust to each other as well as receive and perceive trust from each other.

From the resource dependence theory perspective, if firms are able to focus on highly dependent ties, they will be able to extend their information coverage into the relationship, and will also care about the quality of information exchange (Gulati & Sytch, 2007). Higher normative support makes parties more open to communication and less inclined to withhold critical information, which not only improves the scope of information exchange (Zand, 1972), but also encourages the exchange of unique fine-grained information, providing

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greater accuracy and detail information exchange (Uzzi, 1997). In an interdependent relationship, enhanced bilateral information exchange will strengthen the development of behavioral norms. Based on this discussion, the following hypothesis is proposed:

H2a. The greater the information exchange between IJV partners, the better will be mutual trust between them, and vice versa.

3.3. Mutual trust and IJV performance

Resource dependence theorists argue that a high level of interdependence creates a kind of environment that cultivates trust and commitment by making it prohibitively expensive for partners to engage in opportunistic behavior. Social capital theorists also identify positive effects of mutual trust on interfirm exchanges. Dwyer et al. (1987) suggest that mutual trust can be an alternative to hierarchical governance and it is particularly important if an alliance becomes deficient in formal ownership-based governance. Heide (1994) views the impact of mutual trust from governance perspectives such that it allows for bilateral governance through joint accomplishments, shared beliefs and mutual concern. Mutual trust deters opportunistic behavior and encourages alliance partners to focus on long-term benefits (Gaur, Mukherjee, Gaur, & Schmid, 2011). Trust also helps increase efficiency, reduce problems and enhance value (Madhok 1995) and it can have a significant impact on market performance and efficiency (Aulakh et al., 1996). Mutual trust in an interfirm relationship allows partners to spend fewer resources on monitoring each other and focus more on the complex process of utilizing their unique resources and tacit capabilities (Dyer & Singh, 1998), which in turn leads to improved performance. Hence, as follows:

H2b. The greater the mutual trust between IJV partners, the better will be IJV performance, and vice versa.

3.4. Information exchange and reciprocal commitment

Corporate social capital involves social structures, which include networks and ties

and their related norms and values because all these elements help shape the organization and its performance. Chisholm and Nielsen (2009) claim that to maintain long-term business connections, organizations tend to use social structures that are filled with behavioral norms, such as reciprocity, mutual recognition, implicit social sanctions against opportunism, and the recognition of mutual needs. Social capital theorists believe that to build trust and commitment in business interactions rests on the partners' signaling to each other, as well as the interpretation, perception, and reaction to these signals. Relationships allow members of alliance organization's members to speak a common dialect, which cultivates the organization's social capital (Butler, 1991, 1995; Nahapiet & Ghoshal, 1998).

Resource dependence theorists argue that high level of interdependence creates an environment that cultivates and perpetuates trust and commitment by making it prohibitively expensive for partners to engage in opportunistic behavior (Mukherjee, Guar, Gaur & Schmid, 2013). Moreover, a relationship characterized by a high joint dependence fosters a culture of "mutual reliance" in which exchange partners exhibit a decreased tendency for opportunistic behavior (Williamson, 1985) because the cost associated with such behavior is likely to be passed back to the initiator as a result of its own dependence on the other party (Chisholm & Nielsen, 2009). Information about partners' plans, expectations, motives, programs, goals and evaluation criteria are valuable to other partners if they are made known on a timely basis (Mohr & Nevin, 1990). Mohr et al. (1996) propose that open communication, information sharing, accessibility, availability, a sense of participation and involvement in an alliance relationship enhance productive interfirm collaborations because such actions indicate that the partners are transparent and there is no hidden agenda, which is viewed as an indication of mutual acceptance of interdependence (Chen et al., 2009). Open communication reduces misunderstanding, conflict and uncertainty (Dwyer et al., 1987; Mohr & Nevin, 1990), which can help bring about a voluntary reciprocal commitment

between alliance partners (Heide & John, 1992). Hence, the following hypothesis:

H3a. The greater the information exchange between IJV partners, the better will be their reciprocal commitment to each other, and vice versa.

3.5. Reciprocal commitment and IJV performance

Resource dependence theory suggests that actors who are highly dependent on others may strive to alleviate their anxiety by treating their partners as more trustworthy and committed. Such actors are positively biased in evaluating their counterparts' trustworthiness and commitment; hence, they are likely to engage in activities that can induce reciprocity from their partners and foster higher levels of mutual commitment in the relationship (Weber, Malhotra, & Murnighan, 2005). If the actors are eager to stay committed to a limited set of exchanges with high levels of dependence, they will signal their dedication to committed behavior, and will have similar expectations and behaviors from their partners, helping establish a culture of reciprocal commitment (Zand, 1972; Subramani & Venkatraman, 2003).

Social capital theory, on the other hand, indicates that there is a 'lock-in' effect of reciprocal commitment which could promote behavior that ensures the continuance of the interfirm relationship (Katz, 1989; Mukherjee et al., 2013). This observation is in line with Williamson's (1985) suggestion that reciprocal commitment of inputs leads to a stable long-term relationship through aligning incentive structures and enhancing confidence in each other. Gulati, Khanna, and Nohria (1994) contend that bilateral commitment of resources moves alliances from win-lose situations to win-win situations, suggesting that reciprocal commitment has a significant effect on collaborative performance. Mutual commitment reduces the likelihood of opportunistic behavior, and therefore, reduces the cost of setting up formal and complex governance structure. Mutual commitment also promotes a long-term relationship, and thus cutting down the frequency of setting up new coalitions, which in return avoids costly search and start-up exercises. Hence, the following hypothesis:

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H3b. The greater the reciprocal commitment between IJV partners, the better will be IJV performance, and vice versa.

3.6. *Moderating effects of environmental uncertainty*

Prior research on strategic alliances shows that inter-organizational trust can be used to predict the partner firms' behaviors toward their alliance (Chisholm & Nielson, 2009). For example, if one partner is able to meet the expectations of the other partner, both firms will develop greater confidence toward their alliance, and this confidence in turn would mitigate future concern about opportunism (Gulati, 1995; Parkhe, 1993). Further, if partner firms within a coalition are highly interdependent, they tend to share valuable knowledge-intensive resource and expose them to each other (Kumar & Seth, 1998; Nooteboom, 2002). If the partners trust each other, they would not suspect each other or indulge in opportunistic behaviors such as seeking new partners or hiding information from each other, which will further enhance interdependence because the partners will have to rely on each other to a greater extent to fulfill the objectives of not only their strategic alliance but their own business aspirations as well (Gaur et al., 2011). High level of mutual trust also leads to high level of interdependence, which require a great deal of flexibility that may be difficult during periods of high environmental uncertainty because uncertainty leads to variability and calls for mutual adjustment, which in turn makes coordination highly demanding and difficult in terms of communication and decision-making effort (Dyer & Singh, 1998; Thomson, 1967).

Due to the relatively lower levels of standardization in the emerging markets, high interdependence between partners is likely to result in any changes from one partner to affect the other in unplanned ways and mistakes by partners would lead to more immediate and severe adverse impact on each other (Nooteboom, 2002). Scholars have integrated resource dependence theory with other theories such as game theory to study partner power showing that when uncertainty about the future emerges, social actors tend to weigh private benefits

higher (Parkhe 1993). Alliance partners are also more likely to violate an agreement during an uncertain environment because their tendency to seek private benefits may increase at such times (Zhang et al., 2010). Hence, it may be argued that even if the partners continue to exchange the same levels of information under high environmental uncertainty as they did under normal circumstances, they are less likely to trust this information due to the uncertain environment. Therefore, the following hypothesis:

H4a. The greater the environmental uncertainty, the weaker will be the positive effect of information exchange between IJV partners on their mutual trust, and vice versa.

When the environment is more uncertain, it demands quick and responsive decision-making (Huber, Miller, & Glick, 1990; Srinivasan, Mukherjee, & Gaur, 2011). To meet this need, firms have to acquire significantly more accurate and reliable information so that they can respond to threats and opportunities associated with uncertain environment (Meschi, 2005). This also implies that partner firms need to adjust the alliance's strategy accordingly to monitor changes in the environment (Harrigan, 1985). To better cope with the uncertainty, partner firms need to process a large amount of information. However, the problem of information overload may lead to bottlenecks, which could be further worsened by information unfamiliarity (Robertson, 1980).

Consequently, a highly uncertain environment will result in difficulties of making a decision based on accurate and reliable information by imposing considerable limitations and introducing biases in the decision-making process (Meschi, 2005). Under such circumstances, alliance partners are likely to act opportunistically and reduce their reciprocal commitment (Wang, Yeung & Zhang, 2011) rather than strengthen it as suggested by Morgan and Hunt (1994, p. 23), "an exchange partner believing that an ongoing relationship with another is so important as to warrant maximum efforts at maintaining it... to ensure that it endures indefinitely". Thus, under high environmental uncertainty, the more information IJV partners

share with each other, the more it is likely to have a negative effect on their commitment to each other and their performance. Therefore, the following hypotheses are put forth:

H4b. The greater the environmental uncertainty, the weaker will be the positive impact of information exchange between IJV partners on their reciprocal commitment, and vice versa.

H4c. The greater the environmental uncertainty, the weaker will be the positive impact of information exchange between IJV partners on IJV performance, and vice versa.

In an uncertain environment, firms need to act fast and more efficiently (Mukherjee et al., 2013). Alliances are required to gain immediate access to resources that they need to remain competitive in the market. Partner firms need to further expose their resources and core competencies. Wang et al. (2011) contend that flexibility enables firms to adapt to unforeseeable technological and market changes. However, resource dependence theory suggests that development of resource exposure may cause unequal dependence and create power imbalance, which could be viewed by the partners as detrimental and make them become less flexible. In this context, mutual trust may help overcome the inflexibility disadvantages in a turbulent environment. For example, Dyer and Singh (1998) see trust as a self-enforcing safeguard and as the main control mechanism used to manage uncertainties that due to surface in a long-term exchange. Zhou, Li, Zhao, and Cai (2003) also posit that the high uncertainty characteristic of transitional economies such as China is likely to make them rely more on mutual trust between business partners. Hence, as follows:

H4d. The greater the environmental uncertainty, the stronger will be the positive impact of mutual trust between IJV partners on IJV performance, and vice versa.

Alliance partners with a strong reciprocal commitment tend to avoid any action that may damage the relationship, whereas responding to high environmental uncertainty may require drastic actions, such as bringing in a new partner or terminating an alliance. Partners are reluctant to establish a new and unknown relationship with others and are apprehensive

about having to face the uncertainty alone (Krishnan, Martin, Noorderhaven, 2006). While trying to balance the losses and the gains from actions necessary to cope with environmental uncertainty, partners with strong reciprocal commitment tend to weigh losses more than the gains (Nooteboom, 2002). In other words, partners may prefer "inaction over action and status quo over alternatives" (Kahneman & Lovallo, 1993, p. 18), which means that under high environmental uncertainty, IJV partners may rely on their reciprocal commitment to a greater extent than in normal circumstances. Based on this, the final hypothesis follows:

H4e. The greater the environmental uncertainty, the stronger will be the positive impact of reciprocal commitment between IJV partners on IJV performance, and vice versa.

Fig. 1 summarizes all the hypotheses.

< Insert Fig. 1 about here >

4.   Methodology

4.1.   Research setting

IJVs are typically either equity-based (EJV) or contractual (CJV) in nature (Beamish & Lupton, 2016; Gaur & Lu, 2007). EJVs involve the creation of a new corporate entity with each partner owning a share of the equity capital or the redistribution of shares of an existing company among the partners. Typically, the local investors contribute cash, land development or clearance fees and land use rights, while the foreign investors contribute cash, materials, technology, equipment and machinery. In contrast, CJVs involve no equity participation by the partners and their relations, rights and obligations, risks and liabilities, management and ownership of properties, as well as shares of profit and loss are governed by a contractual agreement, which needs to be negotiated and agreed upon by both the partners.

Past research on IJVs in the emerging markets mostly focuses on IEJVs and ignores CJVs, possibly due to their dwindling contribution to the overall foreign direct investment (FDI) in countries like China. For example, CJVs contributed only 2% of the total FDI in

China in 2012 compared to 18% by EJVs, as a result of many structural changes in the Chinese economy in recent years (Gaur, Malhotra, & Zhu, 2013). While CJVs were introduced in the early 1980s to allow foreign participation in the Chinese economy to not allow them to control local businesses, EJVs became popular over the next few decades, as foreign investors were allowed to invest up to 25% equity in their Chinese joint ventures, although most of these still remained in the fast-growing export-oriented manufacturing industry. However, with the rise in income levels and growing domestic consumer demand, especially in the services sector, wholly-foreign-owned enterprises have become the dominant form of inward FDI in China (Davies, 2013; Gaur et al., 2018). All this provides a very useful background for the other emerging economies to learn from because many of them are still using CJVs as their primary means of inbound FDI into their markets (Beamish & Lupton, 2016). Therefore, this paper tests its conceptual model and all the hypotheses in the context of CJVs in China so as to provide useful learning for other emerging economies that are embarking on their internationalization journey.

4.2. Sample and procedure

A combination of mail and online surveys were used to collect data from senior managers (e.g., managing directors and general managers) working for IJVs in China. A printed version of the questionnaire was posted to 800 IJVs (between local Chinese firms and foreign MNC partners) that were randomly selected from those listed in a trade directory published by the China Association of Enterprises with Foreign Investment (CAEFI) with mailing addresses. Most of these IJVs operate in the Yangtze River Delta Region and Pearl River Delta regions of China, which together account for over half of the total inbound FDI in China (China Statistical Yearbook, 2012). A follow-up call was made in about two weeks to improve response rate. An internet survey was also conducted by sending links to an online survey to about 400 potential participants, including senior executives of IJVs identified

through the Austrian Trade Commissioner for Hong Kong, Macao and South China; the mailing list of the electronic newsletter of the Austrian Consulate General of Shanghai; and the alumni of two business schools in Europe who were working for IJVs in China.

205 usable responses were obtained, with 119 cases (58%) collected through the online survey and the rest 86 cases (42%) via the mail survey, giving us an overall response rate of about 17% with a better response from the online (30%) than the mail (11%) survey. An independent sample t-test shows no differences in the mean scores of all the study variables between these two groups; hence, the survey method does not have any effect on the results. All the foreign partner firms are MNCs with most of them from the United States (53, 25.9%) followed by those with headquarters in Hong Kong (47, 22.9%). Accordingly, 51 (24.9%) respondents are from Hong Kong, 46 (22.4%) from the United States, 37 (18.0%) are local Chinese and the remaining from other countries. About half the participants are managing directors or general managers in IJVs (99, 48.3%) and 87 (42.4%) have worked for their current IJV between five to ten years. Most common industry for the IJVs in this sample is manufacturing (70, 34.1%) followed by IT (35, 17.1%). More than half the IJVs (109, 53.2%) have been operating for 5-10 years. 44 (21.5%) of the IJVs in the sample have 51-100 employees. 50 (24.4%) IJVs spend 2-5% of their turnover on R&D. 41 (20.0%) IJVs generate more than half of their turnover in the international markets. Most IJVs (169, 82.4%) have an annual turnover above RMB30 million. Table 1 summarizes the sample characteristics.

< Insert Table 1 about here >

4.3. Questionnaire design

Although the questionnaire was administered at one point of time, the participants were asked to answer questions based on three different stages of the operations of the sampled IJV, to eliminate the possibility of reverse causality via a chronological separation of the participants' frame of reference. Specifically, participants were asked to respond to the

questions about information exchange based on their experience in the initial stages of the alliance formation; trust and reciprocal commitment after the initial stages, with IJV performance and environmental uncertainty based on the current situation. The initial English language version of the questionnaire was subjected to a back-translation process (Brislin, 1970) being first translated into Chinese and then back into English. Pilot interviews were arranged with managers working in China to test their understanding of the questionnaire wordings and it was further revised based upon their feedback. A cover letter and bilingual (English and simplified Chinese) version of the questionnaire were used to collect the data.

All the constructs were measured using average scores on well-established scales. Information exchange (IE) was measured using a five-item scale originally developed by Morgan and Hunt (1994) and then modified by Spralls, Hunt and Wilcox (2011), reflecting the extent to which IJV partners exchanged and shared important information. Mutual trust (MT) was measured with a five-item scale modified from Krishnan et al. (2006), covering faith on relationship, understanding and trust among alliance partners. Reciprocal commitment (RC) was gauged by Sarkar et al.'s (2001) 3-item scale, which is based on the original work by Anderson and Weitz (1992) and captures the degree of mutual willingness of each partner to invest required resource to build and develop the relationship.

Environmental uncertainty (EU) was measured with eight items that capture the difficulty and inability to forecast changes in market and technological environment, consisting of environmental volatility with four items from Wang et al. (2011), technological volatility with two items from Jaworski and Kohli (1993), and market turbulence with two items from Ganesan (1994) that were modified by Matanda and Freeman (2009). Finally, IJV performance (IP) was gauged using a five-item scale adapted from Krishnan et al. (2006), which reflects the partner's perceptions about the extent to which the original IJV objectives are being achieved and their own as well as the perceived level of satisfaction of their IJV

partners, with the financial and overall performance of the IJV. All the scales used seven-point Likert-type response format (1 = strongly disagree to 7 = strongly agree). Table 2 shows all the scale items and their descriptives.

< Insert Table 2 about here >

To rule out alternative explanations, seven firm and alliance characteristics that could affect IJV performance, were included as control variables, namely firm size, IJV age (Gaur & Lu, 2007), IJV industry (Steensma et al., 2005), cultural distance between the partner firms' countries-of-origin (Hitt et al., 2000), resource complementarity (Choi & Beamish, 2013), organizational compatibility (Sarkar et al., 2001) and interfirm competition (Zhang et al., 2010).

5. Data analysis and results

5.1 Measurement model and scale validation

Confirmatory factor analysis using structural equation modeling with AMOS 23 shows a poor fit (Bentler, 1990) for the full measurement model (χ^2 = 814.77; df = 280; χ^2/df = 2.91; NFI = 0.80; CFI = 0.86; RMSEA = 0.097; SRMR = 0.098). After correlating the error terms based on modification indices and dropping four unreliable items (IE4, IE5R, MT3 and EU6R) with communalities below .40, the reduced measurement model shows a closer fit (χ^2 = 464.61; df = 199; χ^2/df = 2.33; NFI = 0.90; CFI = 0.95; RMSEA = 0.057; SRMR = 0.066). As shown in Table 2, all the standardized parameter estimates are greater than .70 with no major cross factor loadings. Table 3 shows the correlations and psychometric properties of all the scales. All the scales are reliable with composite reliabilities (CR) higher than .80. Average variance extracted (AVE) values for all the constructs are higher than .50, which shows convergent validity. Finally, the square root of AVE for each construct is higher than its correlations with each of the other constructs, which shows discriminant validity. Based on these results, the data seems appropriate for further analysis to test all the hypotheses.

< Insert Table 3 about here >

5.2   *Testing of hypothesized relationships*

To test all the hypotheses we used PROCESS Model 58 (Hayes, 2012) with mean-centered scores of independent variable (IE), mediators (MT and RC), moderator (EU), and their interactions (IE*EU, MT*EU and RC*EU) as predictors and the dependent variable (IP). As shown in Table 4, among the control variables, organizational compatibility (OC) has significant positive effects on both the mediators (MT and RC) and the dependent variable (IP); while resource complementarity (RE) has a positive effect only on RC and interfirm competition (IC) has a positive effect on IP.

< Insert Table 4 & 5 about here >

Next, information exchange has significant positive effects on mutual trust (H2a: β = 0.10, p < .05), reciprocal commitment (H3a: β = 0.44, p < .001) and IJV performance (H1: β = 0.40, p < .001); hence, all these hypotheses are supported. Mutual trust has no significant effect (H2b: β = 0.07, p > .05) but reciprocal commitment has a positive effect (H3b: β = 0.30, p < .001) on IJV performance; hence, H3b is supported but H2b is not supported. Next, the interaction between information exchange and environmental uncertainty (IE*EU) has significant negative effects on both mutual trust (H4a: β = -0.14, p < .01) and reciprocal commitment (H4b: β = -0.08, p < .05); hence both these hypotheses also find support. Next, the interaction term IE*EU has a negative effect (H4c: β = -0.08, p < .05), MT*EU has no significant effect (H4d: β = -0.02, p > .05) and RC*EU has a positive effect (H4e: β = 0.09, p < .05) on IJV performance. Hence, H4c and H4e are supported but H4d is not supported.

Finally, a look at Table 5 shows strong support for the direct effect of information exchange on IJV performance being moderated by environmental uncertainty at its mean value as well as $\pm$ 1 SD (standard deviation) levels. However, there is only partial support for the moderated mediated effects of information exchange on IJV performance via the first

mediator, mutual trust (only at mean value of the moderator environmental uncertainty) and also via the second mediator, reciprocal commitment (only at mean and + 1 SD levels of the moderator environmental uncertainty). All these results are discussed in the next section.

6.   Discussion

This study tests the influence of information exchange on the performance of contractual IJVs in an emerging market (China) along with the mediating role of relationship capital (mutual trust and reciprocal commitment) and the moderating effects of environmental uncertainty in this process. Results show that information exchange has both direct and indirect (through mutual trust and reciprocal commitment) positive effects on IJV performance. In addition, the positive effects of information exchange on mutual trust and reciprocal commitment are significantly reduced under high environmental uncertainty. In addition, environmental uncertainty has a significant negative moderating impact on the positive impact of information exchange on IJV performance and a positive moderating effect on the positive influence of reciprocal commitment on IJV performance. However, it has no significant moderating impact on the positive effect of mutual trust on IJV performance. The theoretical insights and managerial implications of these findings are discussed next.

6.1.   Theoretical insights

Strategic alliance formation and governance structure have received much attention from researchers in particular the characteristics of cooperative firms such as resource complementarity and organizational compatibility (Lunnan & Haugland, 2008; Sarkar et al., 2001). Previous research indicates that IJV performance can be enhanced by relationship capital. In this study, relationship capital, as represented by its two key components - mutual trust and reciprocal commitment, is a key to IJV performance, especially under a competitive and dynamic environment, as evident in a rapidly growing emerging market like China.

To realize strong performance in a strategic alliance (e.g., IJV), information exchange

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between the partners has to be established first, during the initial stage of IJV, which then helps mutual trust and reciprocal commitment to develop gradually as the relationship between the IJV partners continues to evolve. Over time both mutual trust and reciprocal commitment would allow the partners to work harmoniously and synergistically, which in turn would have a positive influence on IJV performance. Hence, mutual trust and reciprocal commitment would serve as partial mediators between information exchange and IJV performance. This study contributes to the research on contractual IJVs by highlighting the focal role played by relationship capital (through its components, mutual trust and reciprocal commitment) in translating the benefits of information exchange to improve performance.

To address the rapidly changing business, political and social environments, common in most emerging markets, this paper also explores the moderating effect of environmental uncertainty on the hypothesized linkages among information exchange (antecedent), the two components of relationship capital (mediators) and IJV performance (outcome). The findings show that under an environment of high uncertainty in emerging economies like China, the alliance partners may resort to opportunistic behaviors and shirk from their responsibilities. More specifically, the effects of information exchange on mutual trust, reciprocal commitment and IJV performance are significantly weaker under higher environmental uncertainty. Moreover, there is no significant difference in the positive impact of mutual trust on IJV performance under high environmental uncertainty but the positive effect of reciprocal commitment on IJV performance is stronger under higher environmental uncertainty. From these results, it seems that under high environmental uncertainty, information exchange may not be enough to leverage mutual trust and they would need reciprocal commitment to be able to maintain or even improve their performance levels during such. Clearly this is an area that requires more research to explore what other factors may be used besides information exchange, in order to continue to build mutual trust and reciprocal commitment between IJV

partners even during periods of high environmental uncertainty.

Interestingly, there is no significant difference in the positive effect of mutual trust on IJV performance under lower versus higher levels of environmental uncertainty. This result may be explained by Krishnan et al.'s (2006) suggestion that trust encourages alliance partners to avoid redundancies in the search process. In an alliance with strong mutual trust, partners tend to accept the information provided by each other at face value and not question its accuracy (McEvily, Perrone, & Zaheer, 2003; Szulanski et al., 2004; Uzzi, 1997). With trust in force, alliance partners may still rely on each other's knowledge and opinions, and suffer from what McEvily et al. (2003) call "strategic blindness", wherein alliance partners become less sensitive to environmental changes. Besides, trust is interpreted differently in the Chinese context. As noted by Wang, Siu and Barnes (2008), trust itself is insufficient to contribute to a long-term business relationship and it may need reciprocal commitment, the other element of relationship capital used in this study. This may explain why environmental uncertainty has no impact on the link between mutual trust and IJV performance in this study.

Finally, as expected, results show that the positive effect of reciprocal commitment on IJV performance is enhanced under an environment of high uncertainty. This result may also be explained by *guanxi*, an important aspect of Chinese culture that is highly prevalent in business-to-business relationships. As suggested by Lee et al. (2001) and confirmed by Wang et al. (2008), Chinese managers tend to develop more personal and particularistic relationship with business partners that helps them overcome the problems faced by them during periods of high environmental uncertainty. In sum, *guanxi* seems to be the Chinese equivalent of the Western concept of reciprocal commitment, in terms of its ability to help sustain relationships and rely on this commitment to deliver better performance during tough times.

Overall, the findings of this study not only address the paucity of research on the process driving the performance of non-equity (e.g., contractual or cooperative) IJVs in

China (Wang & Nicholas, 2007) but also substantiate the observations By Yang, Tipon and Li (2011) and Davies (2013) that foreign investors have started to get local partners involved in many strategic areas where there was little or no collaboration earlier such as channel design, R&D, CRM and other services. This ongoing transformation of IJVs in China shows how MNCs can overcome the competitive dynamics in the emerging economies and co-evolve with local players, to build relationship capital in order to achieve a better IJV performance.

6.2. Managerial implications

Findings of this study are highly relevant to managers in IJVs in China. First, it shows that a good IJV performance is the result of development and evolution of relationship capital among alliance partners to cooperate smoothly. Managers have to be aware of that bilateral information exchange will initiate a positive relationship cycle and translate into relationship capital. As information exchange helps initiate the relationship to foster mutual trust and reciprocal commitment. It implies that there is a strong practical need for IJV partners to proactively exchange information to promote a multi-dimensional relationship. In IJVs, cultural differences are expected and have to be respected. Foreign partners have to alert the role expectation of Chinese managers on people they trust. In the same vein, Chinese partners have to realize the implications of relational exchange in the West.

It is held that an interdependent relationship or governance structure alone is not sufficient for IJVs to do business successfully in the emerging economies like China. The highly volatile economic and political environment in China renders the behavior of IJV partners to be more opportunistic. Both foreign and local parties have to make concrete efforts to promote mutual trust and foster reciprocal commitment in growing alliance relationship. In the emerging economies, impacts of environmental uncertainty on relationship capital and IJV performance must not be overlooked. To avoid the risk of

entering a biased decision, IJV managers have to be very careful to process information under uncertainty. Especially where mutual trust is high in an IJV, managers need to be alert the dangerous of "strategic blindness" that makes them less sensitive to environmental changes. For instance, IJV managers may not even see the change of alliance structure necessary due to mutual trust among the parties.

As revealed in this study, relationships under strategic alliances are dynamic and evolving all the time, therefore establishing an IJV relationship in the emerging markets may consist of several stages, ranging from developing and nurturing a relationship to managing its decline and possible revival. For contractual IJVs that exhibit a high level of mutual trust but a limited level of reciprocal commitment, managers may have to consider alternatives such as restructure the alliance, renegotiate the terms or even terminate the collaboration. For alliances with a strong foundation of reciprocal commitment, IJV managers can count on the interdependence to help them ride over the periods of high environmental uncertainty.

6.3. *Limitations and further research*

This study has a few limitations that may warrant for further research. First, it focuses on contractual (CJV) joint ventures in China, hence it would be useful to test the model with other forms such as equity-based (EJV) joint ventures to understand how relationship capital affects their performance. Second, the participants in this study are mainly from IJVs in five major economic regions in China (i.e., Shanghai, Shenzhen, Guangdong, Beijing and Guangzhou), hence future research with more data from other regions would help investigate the influence of geographical, socio-economic and political differences among different regions in China. Third, this is a cross-sectional study that relies on the participants' recall of their experiences in the past, hence a longitudinal study can help trace the development and evolution of relationship capital within IJVs, especially in other emerging economies that are growing at different rates under the influence of ever-changing levels of environmental

uncertainty. Finally, this study uses the Western concept of relationship capital, hence it will be useful to study the impact of local cultural factors (e.g., *guanxi* in China) on the formation of relationship capital in IJVs involving partners with diverse socio-cultural backgrounds.

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Fig. 1. Research model and hypotheses.
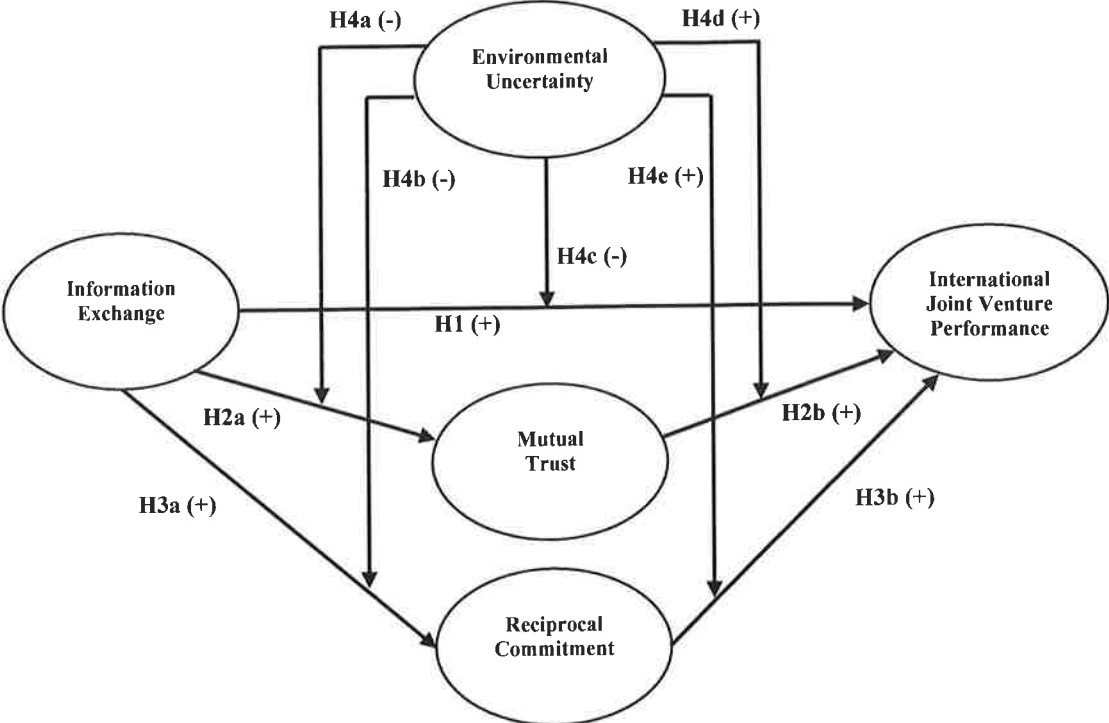
Table 1 - Respondent demographics (N=205)

	Frequency	Percentage
Foreign partner HQ country		
United States	53	25.9%
Hong Kong	47	22.9%
Austria	23	11.2%
Others	82	40.0%
IJV Industry		
Manufacturing	70	34.1%
Information technology	35	17.1%
Business services	17	8.3%
Others	83	40.5%
IJV Location		
Shanghai	48	23.4%
Shenzhen	35	17.1%
Guangdong	28	13.7%
Beijing	21	10.2%
Guangzhou	17	8.3%
Others	56	27.3%
IJV age		
< 5 years	23	11.2%
5 – 10 years	109	53.2%
11 – 15 years	50	24.4%
> 15 years	23	11.2%
Firm size (Number of employees)		
≤ 50	40	19.5%
51-100	44	21.5%
101-500	34	16.6%
501-1000	25	12.2%
> 1000	34	16.6%
Participant role		
Chairman/CEO	12	5.9%
President	8	3.9%
Vice President	10	4.9%
Managing Director/General Manager	99	48.3%
Functional Director	66	32.2%
Others	10	4.9%

Table 2. Scale items and descriptives

	Scale items	λ	M	SD
	Information exchange (IE)			
IE1	We informed our IJV partner in advance of changing needs.	0.85	5.39	1.00
IE2	Any information which could help our IJV partner was provided.	0.75	5.25	1.07
IE3	Both IJV partners kept each other informed about events or changes that could affect the others.	0.80	5.04	1.04
IE4	*We shared proprietary information with our IJV partner.*	0.60	4.76	1.15
IE5R	*Both IJV partners only provided information according to pre-specified agreements.* *	0.16	4.14	1.60
	Mutual trust (MT)	0.75	3.63	1.40
MT1R	Sometimes our IJV partner changed facts slightly in order to get what they wanted.*	0.88	3.98	1.29
MT2R	Our IJV partner promised to do things without actually doing them later.*	0.49	4.42	1.26
MT3	*Our IJV partner gave us truthful information even when it did not form part of the contract.*	0.82	4.13	1.32
MT4R	Our firm was generally doubtful of the information provided to us by our IJV partner.*	0.74	4.35	1.29
MT5R	Our IJV partner firm was generally doubtful of the information we provided them.*	0.65	5.00	1.07
	Reciprocal commitment (RC)	0.88	5.21	1.13
RC1	Both IJV partners were willing to dedicate whatever resources it took to make the project a success.	0.87	5.47	1.11
RC2	Both IJV partners provided experienced people to the projects.	0.82	4.88	1.11
RC3	Both IJV partners were committed to making the projects a success.	0.82	4.70	1.26
	IJV performance (IP)	0.85	4.82	1.19
IP1	The objectives for which this IJV was established are being met.	0.91	4.79	1.14
IP2	Our firm is satisfied with the financial performance of this IJV	0.88	4.88	1.18
IP3	Our IJV partner seems to be satisfied with the financial performance of this IJV.	0.77	4.36	1.61
IP4	Our firm is satisfied with the overall performance of this IJV.	0.78	4.56	1.63
IP5	Our IJV partner seems to be satisfied with the overall performance of this IJV.	0.76	4.03	1.57
	Environmental uncertainty (EU)	0.75	3.73	1.65
EU1	The customers of this IJV regularly change their expectations.	0.81	3.66	1.62
EU2	This IJV's industry has high uncertainty about competitive situation.	0.53	3.74	1.70
EU3	Failure rate of firms in this IJV's industry is very high.	0.80	3.58	1.65
EU4	Products become outdated very quickly in this IJV's market.	0.83	3.99	1.58
EU5	It is very difficult to forecast where the technology in this IJV's industry will be in the next few years.	0.85	5.39	1.00
EU6R	*Technological developments in this IJV's industry are rather minor.* *	0.75	5.25	1.07
EU7	Demand for the products of this IJV is unpredictable.	0.80	5.04	1.04
EU8	It is difficult to monitor price changes for this IJV's products.	0.60	4.76	1.15

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* Reverse-coded items.

Table 3. Correlations table

	IE	MT	RC	IP	EU
Information exchange (IE)	*0.80*				
Mutual trust (MT)	0.23***	*0.80*			
Reciprocal commitment (RC)	0.66***	0.39***	*0.81*		
IJV performance (IP)	0.72***	0.42***	0.71***	*0.85*	
Environmental uncertainty (EU)	-0.14**	-0.59***	-0.28***	-0.24***	**0.79**
Mean (M)	4.92	4.10	5.23	4.81	3.96
Standard deviation (SD)	0.80	1.04	0.96	1.03	1.26
Average Variance Extracted (AVE)	0.64	0.64	0.65	0.73	0.62
Composite Reliability (CR)	0.84	0.87	0.84	0.91	0.82

Note: Figures on the diagonal in bold italics are the square-roots of AVE

$** p \leq .01, *** p \leq .001$

Table 4. PROCESS Model 59 – Main output

| | Outcome variables | | |
	Mutual Trust	Reciprocal Commitment	IJV Performance
Constant	-1.04*	-1.63***	3.87***
Control variables			
Firm size (FS)	0.02	-0.02	-0.02
IJV age (AA)	0.00	0.00	0.00
IJV industry (AI)	-0.01	0.00	-0.01
Cultural distance (CD)	0.01	0.00	0.00
Resource Complementarity (RE)	0.10	0.26***	-0.09
Organizational Compatibility (OC)	0.16**	0.09*	0.26***
Inter-firm Competition (IC)	-0.03	-0.03	0.10*
Main effects			
Information Exchange (IE)	0.10*	0.44***	0.40***
Mutual Trust (MT)	-	-	0.07
Reciprocal Commitment (RC)	-	-	0.30***
Environmental Uncertainty (EU)	-0.40***	-0.11**	-0.10*
Interaction effects			
IE*EU	-0.14**	-0.08*	-0.08*
MT*EU	-	-	-0.02
RC*EU	-	-	0.09*
Model fit statistics			
F-Value	11.52	14.00	27.15
R^2	.37	.42	.67

*$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

Table 5. PROCESS Model 59 – Direct and indirect effects

Conditional direct effect of information exchange on IJV performance at M ± 1 SD values of the moderator (Environmental Uncertainty)

Environmental Uncertainty	Effect	SE	t	p	LLCI	ULCI
-1.39	0.51	0.1	5.28	0	0.32	0.71
0	0.4	0.07	6.07	0	0.27	0.53
1.39	0.28	0.07	3.84	0	0.14	0.43

Conditional indirect effect of information exchange on IJV performance through the mediator (Mutual Trust) at M ± 1 SD values of the moderator (Environmental Uncertainty)

UC_EFA	Effect	SE	BootLLCI	BootULCI
-1.39	0.03	0.03	-0.01	0.11
0	0.01	0.01	0	0.04
1.39	0	0.01	-0.04	0.01

Conditional indirect effect of information exchange on IJV performance through the mediator (Reciprocal Commitment) at M ± 1 SD values of the moderator (Environmental uncertainty)

UC_EFA	Effect	SE	BootLLCI	BootULCI
-1.39	0.09	0.07	-0.02	0.24
0	0.13	0.05	0.05	0.24
1.39	0.14	0.06	0.05	0.27