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DO MULTIPLE PARENTS HELP OR HINDER INTERNATIONAL JOINT VENTURE PERFORMANCE? THE MEDIATING ROLES OF CONTRACT COMPLETENESS AND PARTNER COOPERATION

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We develop a mediation model in which the number of partners in a joint venture affects venture performance through contract completeness and partner cooperation. In a sample of 224 international joint ventures, we find that the number of partners is negatively related to venture contract completeness and partner cooperation, both of which are positively related to joint venture performance. The number of partners is inversely related to joint venture performance and the relationship is mediated by contract completeness and partner cooperation. We discuss theoretical and managerial implications for joint venture research and practice. Copyright © 2007 John Wiley & Sons, Ltd.

INTRODUCTION

International joint ventures are a major means of global expansion for multinational enterprises (UNCTAD, 2004). In light of the high failure rate of such ventures, researchers continue to target performance as a key variable to be explained. Researchers often assume, implicitly or explicitly, that joint ventures involve two parent firms. A careful examination of the literature, however, suggests that a sizable number of joint ventures have three or more parent firms. Garcia-Canal, Valdes-Llaneza, and Arino (2003) reported that 49 percent of joint ventures had three or more parents. In Hennart and Zeng's (2002) sample of U.S.-based joint ventures, 37 percent had three or more parents. In Makino and Beamish's (1998) sample, 54.6 percent of joint ventures had three or more partners. According to the U.S.–China Business Council (1992), among the United States' 194 equity and contractual joint ventures approved by China between 1980 and 1986, 35.6 percent had three or more partners. In 2001–02, the Chinese province of Guandong had 555 joint ventures with three or more parents. These partnerships accounted for 20 percent of the total foreign investment in the province during the time period (China Chamber of International Commerce, 2002).

Keywords: number of parents; partner cooperation; contract completeness; joint venture performance; transaction cost economics; mediation
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Yet, researchers rarely examine the number of parents in a joint venture and, when they do, the number is most often designated as a control variable (e.g., Hennart and Zeng, 2002). This is surprising because the number of elements or members has fundamental importance in management as well as in other sciences from biology to economics to sociology, and a joint venture is a hybrid organization situated at the conjuncture of multiple independent organizations. Only a few researchers focus on the number of parents as a key construct, and some of them investigate governance rather than joint venture performance (e.g., Garcia-Canal, 1996). Researchers who examine the impact of parent number on joint venture performance (Griffith, Hu, and Chen, 1998; Park and Russo, 1996) often employ this variable as a static predictor and offer limited theoretical development. For instance, they do not examine joint venture dynamics including *ex ante* setup (e.g., contract completeness) and *ex post* management (e.g., partner cooperation), the analysis of which could shed light on how the number of parents influences performance.

Our research question therefore is this: Does the number of parents matter in joint venture performance? If yes, how does the effect occur? We suggest that the number of parents negatively affects joint venture performance through decreasing venture contract completeness and partner cooperation. We test the mediation hypothesis in a sample of China-based international joint ventures and discuss implications for joint venture theory and practices.

MODEL AND HYPOTHESES DEVELOPMENT

We schematically highlight the overall mediation model for the study in Figure 1. We posit that the number of parents in a joint venture negatively influences overall venture performance, defined as the venture CEO's satisfaction with various aspects of the venture's operational achievement (e.g., sales, profitability, management, reputation, and marketing). Furthermore, we suggest that this negative effect is exerted through or mediated by *ex ante* setup (e.g., contract completeness) and *ex post* management (e.g., partner cooperation). We realize that there are other potential *ex ante* setup and *ex post* management variables that may mediate the impact of parent number on joint venture performance. However, contract completeness and partner cooperation are germane to this impact because contracts set up the rules of the multi-party transactions while cooperation reflects how multiple parties interdependently interact and exchange in an evolving environment.[1]

In any joint venture, the structure and the process of the exchange are the two central constructs affecting venture development and growth. For joint ventures with multiple parents, the structure of the exchange is primarily governed by the contract that helps to obviate moral hazards and attenuate the leeway for opportunism (Arino and

[1] In this study, we interchangeably use 'parents,' 'parties,' or 'partners' to represent the parent firms of the joint venture. 'Multiple parties' denote three or more parent firms.

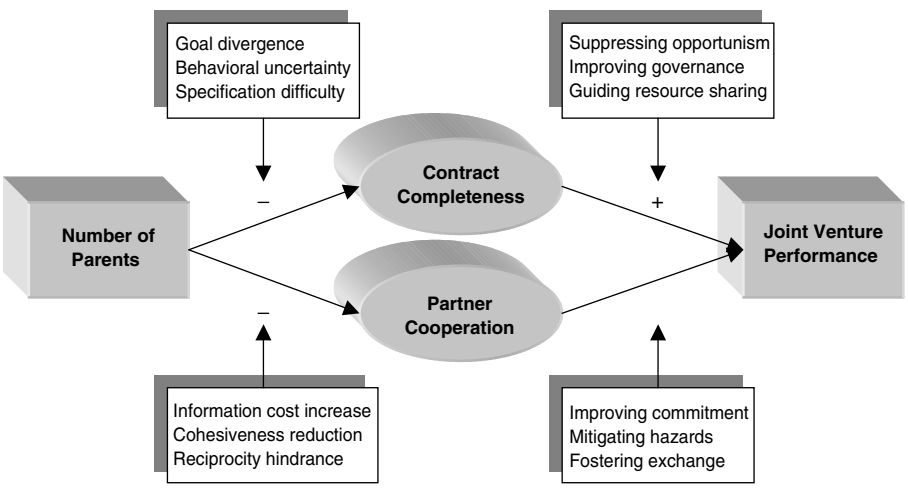

Figure 1. The number of parents–joint venture performance link: a mediation model

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Reuer, 2004; Macneil, 1978; Williamson, 1985). The contract also establishes the conditions for the process of the exchange. This process is an evolving mechanism designed to ensure reciprocal dependence and strategic flexibility, and it is largely manifested as multi-party cooperation (Gulati and Singh, 1998; Luo, 2002; Poppo and Zenger, 2002) underlined by mutual attractiveness, attachment, and reciprocal exchange (Luo, 2001; Das and Teng, 1998).

Number of parents and joint venture performance

From a resource-based perspective, a larger number of parents may imply more and possibly complementary resources that can be pooled into a focal joint venture (Contractor and Lorange, 1988; Dyer, 1997; Lane, Salk, and Lyles, 2001). These resources, however, need to be coordinated and integrated to be useful to the venture. More resources may not necessarily enhance venture performance (or may even reduce it) due to increased coordination difficulties and costs. Specifically, the transaction cost perspective suggests that having more parents may lead to reduced performance due to the greater cost and risk associated with multi-party transactions. When difficulties in integrating multi-party resources and in blending multi-party cultures impair parties' confidence in future returns, these parties may act opportunistically in a multi-party transaction (Parkhe, 1993; Williamson, 1985).

An equity joint venture is chosen as a market entry mode when the *ex ante* (negotiation, contracting) and *ex post* (execution, coordination and adaptation) costs invested in an effort to safeguard the interests of a focal party will be lesser than the benefits to be derived from the transaction, especially risk reduction (e.g., Hennart, 1988; Kogut, 1988; Williamson, 1975, 1985). This basic equation is altered based on the number of parents who own and control the venture: the greater the number, the higher the transaction costs because the probability of opportunism, free-riding, and defection rises as a function of having more interested parties and more potential conflicts among them (Garcia-Canal, 1996; Gulati and Singh, 1998). A greater number of parents is likely to erode the connectedness of venture activities and to make performance measurement and monitoring difficult, which, in turn, reduces partners' incentives to make contributions to the venture. As the number of parents increases, the stake for each will be lower on average, and the incentive to defect may increase due to a reduction in offsetting losses to mitigate opportunism (Parkhe, 1993). Mitigating opportunism using 'mutual hostage' and allocation mechanisms is more difficult in a multi-parent venture because setup and monitoring become more complex and costly.

Consistent with the transaction cost perspective, Garcia-Canal *et al*. (2003) found that partners were more likely to achieve their objectives in a two-partner venture. The explanation is that multi-party joint ventures are more conflict prone, more difficult to manage, and more likely to have greater diversity and higher communication costs. Hennart and Zeng (2002) attribute longevity decline in multi-partner joint ventures to higher coordination costs, greater conflict propensity, and greater opportunism. Park and Russo (1996) suggest that a rise in the number of parents increases the chances for *ex post* disagreements, the transaction costs to monitor contractual terms, and the probability of dysfunctional pairing (since the number of dyadic relations between partners increases geometrically with the number of parents).

In this study, we suggest that there is a mediation path that links parent number and joint venture performance, and that contract specification (*ex ante* setup) and partner cooperation (*ex post* management) are the two critical mediators. This mediation perspective suggests that the number of parents is inversely associated with joint venture performance because having multiple parties increases difficulties and related governance costs in both structure or *ex ante* setup (contract completeness) and process or *ex post* management (partner cooperation). We detail these two mediators below.

Contract completeness as a mediator

Contract completeness has to do with the extent to which relevant clauses or issues pertaining to building and managing a joint venture are clearly specified and codified in a venture's contract. Chief among these issues are (1) each parent firm's responsibilities, rights, and benefits; (2) solutions to disagreements between parent firms; (3) rules for appointing venture personnel; and (4) the goals of parent firms and the joint venture (Killing,

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1983). According to transaction cost theory, incentives for opportunism are created *ex post* once the investments are sunk in anticipation of performance (Williamson, 1985). If a mechanism cannot be devised to mitigate each party's ability to act on those incentives, a cost-minimizing transaction may become unattractive at the contract execution stage (Klein, Crawford, and Alchian, 1978). Contract completeness reduces transaction costs, contractual hazards, and operational risks, which in turn boosts business performance (Joskow, 1987). Contract completeness further gains in importance under high investment uncertainty, long duration, and nontrivial commitment (Williamson, 1985). Killing (1983) and Schaan (1983) maintain that a specific and detailed contract constitutes one of the most effective mechanisms for inhibiting opportunism and contractual hazards in the context of joint ventures. We propose that contract completeness is negatively affected by the number of parents, but it mediates and buffers the impact of the number of parents on venture performance.

First, we expect that the number of parents will be negatively associated with contract completeness. In a constantly changing environment and restricted by bounded rationality, multiple parties will find it difficult to establish needed adaptations and solutions *ex ante* to be codified in the contract. The transactional complexity caused by multiple parties further constrains the possibility of attaining a more complete contract. As the number of partners increases, governance complexity (e.g., levels of imperfect information, goal differences, and managerial complexity) geometrically increases (Park and Russo, 1996; Parkhe, 1993) for two major reasons. The first is related to the increasing divergence of interests associated with multiple partners. As the number of partners increases, the uncertainty that each partner faces rises, as does the likelihood of incongruent goals and the number of potential contingencies to be addressed. As a result, contractual governance of partner relationships and venture operations becomes more complex, and a complete contract becomes more difficult to attain. Second, the larger the number of partners, the greater the uncertainty that the focal partner faces regarding the intentions and behaviors of the other partners (Gibbons, 1992), rendering a complete contract difficult to write and enforce. Contract completeness is a function of the bounded rationality of each party, and such rationality becomes more confined when transactional complexity rises as a result of multiple partners. This is especially true in international joint ventures where cultural, legal, political, economic and ideological gaps produce managerial and behavioral differences that are difficult to bridge (Barkema and Vermeulen, 1997; Hofstede, 1980), making information asymmetry more severe and accurate information more difficult to obtain (Gong, 2003). With more partners anchored in different national environments, it becomes more difficult to assess strategic intentions, capabilities, commitment, and behaviors, and the design of contractual governance becomes more complex and difficult (Hill and Hellriegel, 1994). Bernheim and Whinston (1998) suggest that when some elements of intention or behaviors of other contracting parties are unverifiable, contracting parties may leave unspecified the verifiable aspects of the contract to reduce contracting costs.

To sum up, increased diversity of goals, capabilities, and behaviors broadens the contingencies that need to be covered in a contract, and the probability of neglecting potentially important contingencies during contract negotiation increases. It also increases the difficulty in developing complete procedures and guidelines that regulate collaboration. The contractual ramifications of international ventures are amplified in emerging economies where an interfirm network is vulnerable to heightened environmental change and the transitional legal system (Contractor and Lorange, 1988; Gatignon and Anderson, 1988; Luo, 2001), producing a 'twilight zone' characterized by heightened uncertainty.

Second, we expect that contract completeness will be positively related to joint venture performance. When full ownership is not possible, a complete contract may help minimize room for opportunistic behaviors (Anderlini and Felli, 1994). A complete contract synchronizes partners' interests, prescribes respective roles, and enhances the verifiability of behaviors, making partners more likely to fulfill obligations and behave in good faith (Eisenhardt, 1989). A complete contract specifies the joint venture's objectives and scope, prescribes the rights and obligations of each partner, and spells out the rules and procedures for making decisions on venture affairs and for resolving disputes (Luo, 2002; Poppo and Zenger, 2002). A complete contract facilitates the development of internal processes and mechanisms

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within a venture to mitigate opportunistic behaviors and reduce transaction costs (Killing, 1983; Schaan, 1983). In other words, a complete contract makes the task of establishing and operating a joint venture programmable, transparent, and verifiable. In addition, a complete contract safeguards each party's interests and regulates each party's behavior, commitment, and responsibility. This helps reduce transaction costs related to multiple parents, mitigating the negative impact of multiple parents on venture performance. Moreover, contract completeness encourages resource sharing and integration among multiple parents. Resources pooled by different parents cannot directly contribute to venture performance unless they are shared and integrated in a complementary way (Park, Chen, and Gallagher, 2002; Ring and Van de Ven, 1994). Finally, contractual completeness may facilitate the development of trust among partners so that vulnerability is both lower and less amenable to exploitation (Barney and Hansen, 1994).

Third, we expect that when contract completeness is present the negative relationship between the number of partners and joint venture performance is likely to weaken. Contract completeness curbs or buffers the negative effect of heightened opportunism led by multiple partners on venture performance. A contract is an important mechanism used to inhibit opportunism (Williamson, 1979). If all parties' behaviors are confined by contract completeness, free-riding opportunities will become more limited. Moreover, a well-specified contract already in place can mitigate the adverse effect of uncertainty in a multi-party game on venture performance. A relatively complete contract defines each party's rights and obligations (thus reducing the impact of behavioral uncertainty on venture performance), stipulates how the joint venture should be structured, governed, and administered (reducing the impact of the venture's managerial uncertainty on venture performance), and specifies how the joint venture should deal with changes in key environmental conditions (reducing the impact of external uncertainty on venture performance). Lastly, under contract completeness, the negative influence of multi-party-related complexity on joint venture performance may be curtailed. An explicitly detailed contract guides parties, individually and collectively, in responding to internal and external complexities. For instance, a well-established contract enables multiple parties to renegotiate and restructure the critical managerial or operational mandates as the joint venture encounters increased complexities (Reuer and Arino, 2002), and this renegotiation or restructuring is often important to joint venture performance in a volatile environment (Ring and Van de Ven, 1994). Based on the above discussions, we propose:

Hypothesis 1: The negative relationship between the number of parents and joint venture performance is mediated by contract completeness.

Partner cooperation as a mediator

Next, we discuss how partner cooperation is negatively affected by the number of partners, and how such cooperation mediates the impact of the number of partners on joint venture performance. We expect that as the number of partners increases partner cooperation is weakened or tougher to achieve. First, as the number of partners increases, it becomes more difficult to secure accurate and complete information about all partners' strategic intentions, capabilities, and commitments. This is particularly true when partners hail from different cultures and operate in a fast-changing and uncertain competitive environment with ample room for opportunistic behaviors. Partners may become leery of committing substantial resources to the venture or, worse, may collude with others to pursue their own interests. Indeed, Simmel (1902) suggests that a triad creates opportunities for internal coalitions that do not exist in a dyad. This means that a partner can build an internal coalition with other partners, with each coalition pursuing suboptimal gains. The possibility or fear of internal coalitions within a multi-party joint venture impairs trust building and cooperation among partners due to escalated suspicion and reduced confidence.

Second, as the number of partners increases, partners will have fewer opportunities to interact with each other to establish intimate relationships; thus, mutual attraction declines (Shaw, 1976). Cohesiveness and unity decline accordingly. This, too, is more likely to happen in a cross-border joint venture, where a large number of partners lowers the feasibility of developing common values and norms, which are necessary to facilitate socialization for cooperation (Luo, 2001).

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Third, as the number of partners rises, evaluating the contribution of each to joint venture performance becomes more challenging (Karau and Williams, 1993). Partners may engage in shirking or free-riding, and the resulting feeling of injustice and greater suspicion weakens cooperation. Finally, a greater number of partners may hinder reciprocity, a cornerstone of joint venture growth (Buckley and Casson, 1988). Inter-partner cooperation cannot last long unless each party commits time, knowledge, and resources to the venture and pays attention to other parties. Reciprocity, a stabilizing device that offsets inter-party conflicts and encourages attachment (Das and Teng, 1998; Luo, 2001), is more difficult to uphold in a multi-party joint venture because of fears regarding internal coalitions and deteriorating justice beliefs.

We expect that partner cooperation will be positively related to joint venture performance via reduced transaction costs and improved resource sharing. A joint venture is essentially a relational contract involving repeated inter-partner exchanges during a long period of time and with unanticipated contingencies (Luo, 2002; Macneil, 1978). Since a joint venture contract generally cannot specify all contingencies that arise after signing the contract (Bernheim and Whinston, 1998), cooperation becomes an important safeguarding mechanism that mitigates internal and external hazards and permits signatories to exceed the adaptive limits of contracts (Luo, 2002; Poppo and Zenger, 2002). Cooperative inter-partner relations foster a climate of openness and trust and nurture the norm of reciprocity, both of which facilitate resource or knowledge sharing (Axelrod and Keohane, 1986; Buckley and Casson, 1988). When partners are cooperative, it is easier to combine and integrate their resources into a valuable asset for the venture (Barkema and Vermeulen, 1997; Zeira and Shenkar, 1990). Research on joint ventures demonstrated that partner cooperation was positively related to joint venture performance in various types of economies (e.g., Beamish and Banks, 1987; Dyer, 1997).

Finally, we expect that partner cooperation may buffer the negative impact of parent number on joint venture performance. When superior cooperation exists, information processing becomes easier and more cost-effective. This in turn reduces the hazards of information asymmetry and misunderstanding caused by multiple parties in influencing joint venture performance. With better cooperative relations and stronger confidence among partners, organizing costs in a multi-party complex transaction also decline. Additional transaction costs (e.g., costs for monitoring) prompted by multiple parties, which hamper joint venture performance, also decline when stronger cooperation tightens collective interests and reduces the potential for opportunism among partners under unspecified contingencies. The negative effect of multi-party-related conflicts on joint venture performance may also be weakened when partner cooperation is stronger. In fact, a superior cooperative relationship can increase constructive conflict and decrease destructive conflict (Buckley and Casson, 1988). Finally, when a cooperative partner relationship is in place, the negative effect of reduced motivation to share resource and knowledge (caused by multiple parties) on joint venture performance is reduced. In light of the above reasons, we propose:

Hypothesis 2: The negative relationship between the number of parents and joint venture performance is mediated by inter-partner cooperation.

RESEARCH METHODS

Sample

We collected data in a survey of international joint venture CEOs in China in 1997–98. The primary source for the sample was the *List of Three Kinds of Foreign Investment Enterprises in China*, published by the State Statistical Bureau of China (1997b). Only equity joint ventures in the manufacturing industry were included in the sample. Among the randomly selected 720 manufacturing equity joint ventures (located in the Pearl River Delta area, Beijing, Shenyang, and eastern coastal cities), 224 returned complete data for testing the hypotheses, representing a 31 percent response rate. To check for potential nonresponse bias, we compared joint ventures that responded to our survey with those that did not in terms of investment size, foreign equity percentage, and the year of joint venture formation using information from the *China Statistical Yearbook* (State Statistical bureau of China, 1997a) and found no significant differences.

The number of parents of the sample joint ventures ranged from two to six. Twenty-nine percent

DOI: 10.1002/smj

of the sample had three or more parents (49 joint ventures had three partners, 10 had four partners, four had five partners, and two had six partners). This is similar to Griffith *et al.*'s (1998) sample of manufacturing joint ventures in China, which had about 25 percent multi-party ventures. Foreign parents of the sample joint ventures came from various countries/regions including Australia, Belgium, Canada, France, Germany, Hong Kong, Israel, Italy, Japan, Netherlands, Singapore, South Korea, Switzerland, Taiwan, the United Kingdom, and the United States. The top four investor countries/regions included Hong Kong, the United States, Japan, and Taiwan, an observation that is also quite consistent with the population at large.

Measures

We developed the instruments in English and then translated them into Chinese; two bilingual Chinese professors cross-checked both versions. We employed back-translation to test the accuracy and corrected all discrepancies identified. In a pilot test, we sent questionnaires to five senior Chinese managers of five joint ventures and asked them to identify any ambiguities in terms, concepts, meanings, and issues. A Chinese professor later conducted face-to-face interviews with each of these managers. Minor changes in wording in the Chinese version were made following the conclusion of the pilot study and interviews. In the survey, we asked the respondents to provide basic information about the parent firms (i.e., their names, countries/regions of origin, and equity ownership stake in the focal joint venture). We then counted the total number of partners for the focal joint venture.

Contract completeness

Poppo and Zenger (2002) used contract customization and the amount of legal work required as an indicator of contract complexity (a complex contract is presumably more complete). In the procurement contracting context, Crocker and Reynolds (1993) measured contract completeness as the extent to which a contract determines future prices. Both studies relied on a single-item measure of contracts in their analyses. We categorized joint venture contract terms into four dimensions: (a) the responsibility, rights, and benefits of each parent and the joint venture concerning venture operations and management; (b) the procedures for handling conflicts between the parents and the venture management as well as between the parents; (c) the rules, procedures, and policies for managing the venture; and (d) the venture's mission, objectives, scope, scale and duration. We used a multi-item measure of contract completeness because single-item measures tend to have lower reliability than multi-item measures. We therefore asked respondents to rate the degree of specification of each of the four dimensions on a five-point scale (1 = not specified, 5 = very high degree of specification). The reliability coefficient was 0.82.[2]

Partner cooperation

Similar to Luo (2002), we asked CEOs to rate separately the degree to which nine cooperative situations characterize the relationship among partners: (a) cooperation in deciding the objectives of the joint venture; (b) being ready to give in to enable the joint venture to achieve its goals as stated in the contract; (c) cooperation in distribution and execution of authority in the joint venture; (d) cooperation in establishing rules and regulations concerning the venture's operation; (e) cooperation in functional domains such as production, marketing, personnel, and budgeting; (f) reaching consensus in decision making at the board level; (g) mutual consultation in case of uncertainty; (h) cooperation in selecting senior venture staff; and (i) cooperation in the execution of new plans for product mix, new technology development, or entrance to new markets (1 = not true, 4 = very true). The reliability coefficient was 0.85.

Joint venture performance

Researchers suggest that a subjective measure of joint venture performance is appropriate (e.g., Geringer and Hebert 1991; Yan and Gray 1994). Research (e.g., Chandler and Hanks, 1993) suggests that subjective measures of performance correlate with objective measures of performance with

[2] Joint venture CEOs were appropriate informants to answer contract completeness and partner cooperation questions. According to the U.S.–China Business Council's survey (1992), most joint venture CEOs in China participated in the original joint venture negotiations and contracting process. Unlike parent executives, who are very likely to be biased in answering questions on partner cooperation from their own unilateral perspectives, joint venture CEOs are more independent and objective in responding to the questions.

DOI: 10.1002/smj

a high degree of reliability in joint ventures. Following Geringer and Hebert (1991), we adopted a multidimensional approach to the CEO's satisfaction with joint venture performance. We asked joint venture CEOs to rate their satisfaction regarding the following aspects of venture performance: (a) sales level; (b) market share; (c) profitability; (d) cost leadership; (e) management of venture; (f) technology development; (g) product design; (h) quality management; (i) labor productivity; (j) marketing; (k) distribution; (l) customer service; (m) reputation; and (n) parent involvement (1 = very low, 5 = very high). The reliability coefficient was 0.89 for the scale.

To check the accuracy of CEOs' evaluations, we sent questionnaires to the presidents of both local (Chinese version) and foreign (English version) parents of 22 joint ventures. In the 35 returned questionnaires (15 pairs from both parents and an additional five from local parents), we found a very high level of consistency in the responses to the performance aspects between foreign parents and joint venture CEOs (Pearson correlation coefficients: 0.73–0.89) and between local parents and joint venture CEOs (Pearson correlation coefficients: 0.70–0.90). These results indicated that CEOs provided valid assessments of joint venture performance. To further check the reliability of CEOs' responses, we cross-checked the consistency of responses between CEOs and other senior managers from 19 joint ventures. We conducted semi-structural interviews with 19 senior managers (one from each joint venture) who were different from those who completed our questionnaires in the first round. The consistency between CEOs and other senior managers was found to be high (Guttman reliability: 0.82–0.94).

Control variables

Parent formalization may affect venture performance because it is likely to reduce the uncertainty facing the joint venture and lower partners' opportunistic behaviors by imposing routines on what would otherwise be a free sphere of action. Venture CEOs evaluated the degree of parent formalization, defined as detailed planning, numerous rules and regulations, clear division of labor, formal job descriptions, predetermined communication, and a formal hierarchy (1 = very low, 5 = very high).

Parent dominance is a potentially important factor in joint venture operation and performance (Killing, 1983). One the one hand, parent dominance may reduce coordination costs because one party exerts a major influence on venture operations. On the other hand, it may reduce the potential pool of resources/contributions available to the venture. Parent dominance was a dummy-coded variable based on equity ownership shares in the venture. Joint ventures with a partner controlling the majority stake (>50%) were coded as '1,' otherwise as '0.'

Prior research suggests that cultural distance may affect joint venture performance. To maintain comparability with previous studies, we used Hofstede's (1980, 2001) country scores and Kogut and Singh's (1988) index to calculate cultural distance between parent firms. Respondents provided the joint venture's current capitalization and industry (classified into three categories: SIC codes starting with 2 and 3, and those unspecified). Finally, we controlled for the Chinese location (dummy coded) of the joint venture since regions vary in openness and preferential treatment of foreign investment, which may affect joint venture performance.

RESULTS

We first explored the variation in the number of parents across country/region of origin of the foreign investor, industry, and Chinese location. Among the top four investing countries/regions,[3] the United States and Japan were more likely to establish joint ventures with three or more partners than were Hong Kong and Taiwan. Of the joint ventures with three or more partners, 38.4 percent had at least one investor from the United States; 57.7 percent had at least one investor from Japan; 20 percent had at least one investor from Hong Kong; and 5.6 percent had at least one investor from Taiwan. This is consistent with prior research showing differences in investment patterns between overseas Chinese and other foreign investors in China. We further classified foreign investors into Asians and non-Asians. Joint ventures with non-Asian foreign investors were more likely to have three or more parents than were

[3] This is based on the number of joint ventures with foreign partners from the countries/regions in the sample.

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those with Asian investors. Of the joint ventures with three or more parents, 36.3 percent had at least one non-Asian foreign investor, and 23.4 percent had at least one Asian foreign investor. Among joint ventures with major Asian investors (i.e., Japan, Hong Kong, Taiwan, and South Korea), those with Japan as the foreign investor were the most likely to have three or more partners, followed by Hong Kong; and those with Taiwan and South Korea as the foreign investors were least likely to have three or more partners. There is no significant variation in the number of partners between joint ventures in the heavy and light sector of the manufacturing industry. In terms of location, joint ventures in the Shanghai area were the most likely to have three or more partners, followed by those in Beijing and the Pearl River Delta.

Table 1 provides descriptive statistics of the sample and the zero-order correlations among the major variables in this study. The relationship between the number of partners and joint venture performance was negative ($r = -0.13$, $p < 0.05$). The number of partners was negatively related to contract completeness and partner cooperation ($r = -0.13$, $p < 0.05$; $r = -0.14$, $p < 0.05$, respectively), which, in turn, were positively related to joint venture performance ($r = 0.44$, $p < 0.01$; $r = 0.27$, $p < 0.01$, respectively).

To test Hypotheses 1 and 2, we conducted mediated regression analyses following Baron and Kenny (1986). In step 1, we established the relationship between the number of parents and each individual mediator (i.e., contract completeness and partner cooperation). In step 2, we established the relationship between the number of parents and joint venture performance. In step 3, we predicted joint venture performance by adding the mediator to the equation with the number of parents (i.e., the new equation includes both the number of parents and the mediator). In step 3, the mediator should be significant, while the previously significant effect of the number of parents should be reduced or become nonsignificant.

The regression results for step 1 are presented in Table 2. Models 1 and 2 provide results for contract completeness as the dependent variable. The control variables were in Model 1, and the number of parents in Model 2. The regression coefficient for the number of parents was significant ($\beta = -0.18$, $p < 0.01$) in Model 2. Models 3 and 4 provide results for partner cooperation. The control variables were in Model 3, and the number of parents in Model 4. In Model 4, the regression coefficient for the number of parents was significant ($\beta = -0.19$, $p < 0.01$). To recap, our overall results suggest that an increase in the number of partners had a negative impact on contract completeness and partner cooperation.

Results for steps 2 and 3 are presented in Table 3. In Model 1, we entered the control variables. In Model 2, we added the number of parents to the regression equation. Results from Model 2 suggested that parent number is negatively related to joint venture performance ($\beta = -0.15$, $p < 0.05$).[4] In Model 3, we added contract completeness—the mediator—to the Model 2 equation.

[4] We checked for a potential curvilinear relationship between the number of parents and joint venture performance. We used the mean-centered approach to avoid multicollinearity in the polynomial regression. After the linear term was controlled, the quadratic term for the number of parents was insignificant, suggesting no curvilinear relationship.

Table 1. Means, standard deviations, and zero-order correlations among major variables

	Mean	S.D.	1	2	3	4	5	6	7	8
1. Current capitalization	2793.78	19343.31	—							
2. Cultural distance	1.35	1.11	−0.04	—						
3. Parent formalization	3.83	0.83	0.03	0.07	—					
4. Parent dominance	0.74	0.44	0.00	−0.06	0.06	—				
5. Number of parents	2.40	0.69	0.06	0.21**	0.01	−0.43**	—			
6. Contract completeness	14.00	2.71	0.04	0.06	0.49**	−0.05	−0.13*	0.82		
7. Partner cooperation	24.40	5.59	−0.01	0.01	0.30**	0.01	−0.14*	0.46**	0.85	
8. Joint venture performance	48.55	9.44	0.03	0.09	0.47**	0.06	−0.13*	0.44**	0.27**	0.89

$N = 224$ (listwise). Reliability coefficients are presented in the diagonal. Industry and location dummies are not included in the table.
* $p < 0.05$; ** $p < 0.01$ (two-tailed).

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Table 2. Multiple regression analyses for contract completeness and partner cooperation

	Contract completeness		Partner cooperation	
	Model 1	Model 2	Model 3	Model 4
Number of parents		−0.18 (0.27)**		−0.19 (0.60)**
Venture capitalization	0.02 (0.00)	0.03 (0.00)	−0.04 (0.00)	−0.03 (0.00)
Industry dummy 1	0.21 (0.42)**	0.20 (0.41)**	0.06 (0.94)	0.05 (0.93)
Industry dummy 2	0.01 (0.38)	0.01 (0.37)	−0.02 (0.84)	−0.03 (0.83)
Location dummy 1	0.06 (0.47)	0.09 (0.47)	0.22 (1.05)**	0.25 (1.05)**
Location dummy 2	−0.06 (0.44)	−0.02 (0.45)	−0.10 (0.99)	−0.05 (1.01)
Location dummy 3	0.00 (0.48)	0.01 (0.47)	0.07 (1.08)	0.07 (1.06)
Cultural distance	0.04 (0.15)	0.06 (0.15)	−0.01 (0.34)	−0.02 (0.34)
Parent formalization	0.50 (0.20)**	0.51 (0.19)**	0.33 (0.44)**	0.34 (0.44)**
Parent dominance	−0.08 (0.37)	−0.15 (0.40)*	−0.05 (0.84)	−0.12(0.90)†
Model R^2	0.29**	0.31**	0.12**	0.15**
Change in R^2		0.02**		0.03*
d.f.	9, 214	10, 213	9, 214	10, 213
N	224	224	224	224

The entries include standardized coefficients. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$ (two-tailed test).

Table 3. Multiple regression analyses for joint venture performance

	Joint venture performance			
	Model 1	Model 2	Model 3	Model 4
Number of parents		−0.15 (0.94)*	−0.11 (0.93)†	−0.12 (0.94)†
Contract completeness			0.25 (0.24)**	
Partner cooperation				0.17 (0.11)**
Venture capitalization	0.04 (0.00)	0.05 (0.00)	0.04 (0.00)	0.05 (0.00)
Industry dummy 1	0.10 (1.47)	0.10 (1.46)	0.05 (1.44)	0.09 (1.44)
Industry dummy 2	0.02 (1.32)	0.02 (1.31)	0.02 (1.27)	0.02 (1.29)
Location dummy 1	−0.18 (1.64)**	−0.15 (1.65)*	−0.17 (1.61)**	−0.19 (1.67)**
Location dummy 2	−0.05 (1.55)	−0.01 (1.58)	−0.01 (1.54)	−0.01 (1.56)
Location dummy 3	−0.11 (1.67)†	−0.10 (1.67)†	−0.11 (1.63)†	−0.12 (1.65)†
Cultural distance	0.09 (0.53)	0.11 (0.53)†	0.09 (0.51)	0.10 (0.52)†
Parent formalization	0.45 (0.69)**	0.46 (0.69)**	0.34 (0.78)**	0.40 (0.72)**
Parent dominance	0.05 (1.31)	−0.01 (1.41)	0.03 (1.38)	0.01 (1.40)
Model R^2	0.276**	0.293**	0.335**	0.318**
R^2 change		0.017*	0.042**	0.025**
d.f.	9, 214	10, 213	11, 212	11, 212
N	224	224	224	224

The entries include standardized coefficients. Standard errors are in parentheses.
† $p < 0.1$; * $p < 0.05$; ** $p < 0.01$ (two-tailed test).

Results indicated that contract completeness was significant ($\beta = 0.25,\ p < 0.01$), while the number of parents became marginally significant ($\beta = -0.11,\ p < 0.10$). In Model 4, we added partner cooperation—the other mediator—to the Model 2 equation. Results indicated that partner cooperation was significant ($\beta = 0.17,\ p < 0.01$), while the number of parents became marginally significant ($\beta = -0.12,\ p < 0.10$). After combining the evidence from steps 1–3, we conclude that contract completeness and partner cooperation mediate the impact of the number of parents on joint venture performance. Both Hypotheses 1 and 2 were hence supported. We checked for potential multicollinearity between parent formalization and venture contract completeness because they were moderately correlated ($r = 0.49,\ p < 0.01$). The VIF statistics for both were far below 10 (and

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very close to 1.0), indicating that multicollinearity was not a concern when they were in the same equation.

DISCUSSION

In this study, we argued that a larger number of parents will lower joint venture performance through decreased contract completeness and partner cooperation. We found that the number of parents was negatively related to contract completeness and partner cooperation in a sample of international joint ventures in China. The implication is that it is more difficult to codify a complete venture contract and secure inter-partner cooperation when the number of parents is larger. Furthermore, the number of parents was negatively related to joint venture performance, and the effect was mediated by contract completeness and partner cooperation. We provide important contributions to the literature, as discussed below.

Theoretical and practical implications

We contribute to the joint venture research by highlighting a key variable—number of parents—in joint venture operation and performance. Previous studies have rarely included this variable, and those that did tended to assign it a secondary status and hence provided relatively little in the way of theoretical development. In this study, we positioned the number of participants as a key element in the transaction involving the partner firms, and elevated the number of parents to be a central explanatory variable in joint venture performance. We developed a conceptual model of the impact path of the number of parent firms. The number of parent firms impacted both the *ex ante* contractual governance and the *ex post* cooperation, and, through them, joint venture performance.

Theoretically, we make three specific contributions to the transaction cost theory of joint ventures. This theory has generally treated the joint venture mode as a homogeneous category. Our first contribution, therefore, is to identify a major contingency affecting transaction costs *within* the joint venture governance mode—the number of partners—and to specify a mediation model explaining its impact path. While joint ventures may be utilized to reduce transaction hazards, one may need to consider the number of parents as an additional governance issue to achieve such intended effect. Our key results suggest that the number of parents is generally negatively related to collective returns; but if the number of partners must be large in the first place, then these partners must jointly arrange a more complete contract in the early stage and foster a cooperative climate in the later stage to buffer the increased hazards created by multiple parties in relation to venture performance.

Second, while the transaction cost economics approach delineated cost-related concepts, such as information processing cost, monitoring cost, and agency or opportunism cost, it did not explain whether, and how, such costs are influenced by the number of parties participating in an exchange. That the number of partners is negatively related to venture performance and this negative relationship is buffered by contract completeness and partner cooperation implies that these costs are an increasing function of the number of exchange parties within the joint venture mode, and this function can be curtailed by contract specification and inter-party cooperation.

Finally, we enrich transaction cost theory by integrating several major constructs the theory introduced within a unifying framework. This theory, for instance, articulated the role of contracts in inhibiting opportunism but did not look at the possible mediating role of contracts in affecting the relationship between the number of actors and joint pay-off. This study documents the presence of this mediating role. Similarly, the role of relational governance, such as inter-party cooperation, was not adequately addressed in the theory. This study finds that such cooperation is an important *ex post* mechanism in the process of reducing the multi-party-related hazards as the joint venture evolves.

Empirically, we offer a potential explanation for the inconsistent findings pertaining to the impact of the number of parents on joint venture performance. As noted, some studies found support for a negative impact (e.g., Garcia-Canal *et al*., 2003; Hennart and Zeng, 2002), while others did not (e.g., Park and Russo, 1996). Our model and findings suggest that the negative effect of parent number is mediated by venture contract completeness and partner cooperation. Depending on whether one controls for contractual or cooperation variables, one may obtain different results in relation to the number of parents. For example, both partner competition and the number of partners were in the same regression equation in Park and Russo

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(1996). By doing so, they may have controlled for the negative association between the number of parents and joint venture dynamics (e.g., low cooperation).

We also offer practical implications for forming joint ventures especially in emerging economies. First, as far as governance and performance are concerned, firms are better off forging alliances with a smaller number of partners when full ownership is not possible. This will facilitate the design of *ex ante* governance (e.g., more complete contracts) and foster *ex post* partner interactions and cooperation. Second, in a situation where a large number of partners is deemed necessary (e.g., to have an intermediary to bridge cultural distance or because critical resources are unavailable from a single partner), top executives should be particularly conscious of the potential negativity of a large number of partners. When three or more partners are needed, top executives are advised to form alliances with other firms with which they have had prior experience of good cooperation since strains on cooperation will be greater than in two-partner ventures. Top executives are also advised to identify and nurture *ex post* coping mechanisms after joint venture formation.

Suggestions for future research

In this study, we examined *ex ante* contract completeness and *ex post* partner cooperation. Future research may examine other *ex ante* arrangements. For example, do partners rely more on one mode of partner introduction, e.g., introduction by previous partners, than on others when a large number of partners is necessary? Such research would provide practical suggestions for firms that form multi-partner ventures. Future research may explore variables that moderate the relationship between the number of parents and joint venture performance. For example, previous experience in collaborations among partners may moderate the impact of parent number on joint venture performance by fostering trust and reducing opportunism. Additionally, this study examined the number of parents in manufacturing joint ventures, while future research should examine R&D alliances, which are more likely to be multi-party and knowledge intensive. The repercussions of parent number and governance may play an even greater role than in our study because R&D capabilities are more difficult to assess and the consequences of opportunism are potentially more serious.

Future research may examine how local and foreign parents cope with the negativity of increasing parent number. Local and foreign parents have different familiarity with the local environments and may have different access to ways of coping. The foreign and local parents are located at different geographical and institutional distances from the joint venture. The local parent is not only more familiar with the environment in which the joint venture operates, but also physically closer, which makes monitoring easier. Paradoxically, it is the foreign parent that needs to do more monitoring because it is more vulnerable to local environmental contingencies and may have greater difficulty assessing changes in the local environment. Future research may examine whether there are asymmetrical effects of parent number on foreign vs. local parents' coping activities, and how such coping activities affect foreign vs. local parents' achievement of goals.

Future research may also examine the current hypotheses in another national context to examine the possible role of China-specific idiosyncrasies. For instance, due to the fragmentation of China's political structure, local governments maintain substantial sway over foreign investors, which often necessitate bringing in local partners from both the central and local levels. Similarly, the lack of antirust enforcement makes it more feasible to bring in competitors, customers and even regulators as partners, increasing the incentive to form multi-party ventures. At the same time, contract enforcement in China is considerably more difficult than in some other developing markets such as India. These idiosyncrasies, in and of themselves, do not necessarily alter the basic model presented here, but are relevant, for instance, in the case of potential threshold effects. Finally, future research may include other means of measuring joint venture performance other than CEO satisfaction used in the current study.

In sum, our study is the first to develop and empirically test a conceptual model in which contract completeness and partner cooperation mediate the impact of parent number on joint venture performance. The study contributes to the transaction cost theory of joint ventures by highlighting that a joint venture is not a homogeneous governance mode and that the number of parents is a contingency factor affecting the costs associated with the

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joint venture mode. The number of parents affects not only contractual (i.e., contract completeness) but also relational governance (i.e., partner cooperation). Finally, while transaction cost theory articulates the roles of contract and administrative fiats in inhibiting opportunism, this study suggests that relational governance such as partner cooperation may also act as an effective governance device that improves venture performance.

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