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The Role of Trust and Contractual Safeguards on Cooperation in Non-equity Alliances

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Because partners may behave opportunistically in alliances, contractual safeguards or trust between partners are necessary for successful outcomes. However, it remains controversial whether safeguards and trust substitute or complement each other. Drawing on transaction cost theory, this study conceptualizes both contractual safeguards and trust as important control mechanisms in non-equity alliances, and develops a model that relates contractual safeguards and trust to cooperative outcomes. We test our hypotheses with data collected from 233 architect–contractor partnerships in Hong Kong. The results show that the relationship between contractual safeguards and cooperative outcomes depends on both the level and type of trust.

Trust and control are two fundamental managerial issues for inter-firm alliances. Uncertainties about the environment and the potential opportunism of partners make trust and control particularly important in sustaining cooperative relationships. At the same time, both trust and control have been difficult to define. They are complex, multidimensional constructs and have a variety of imprecise meanings in daily language. For example, trust has been described as "a central, superficially obvious but essentially complex concept" (Blois, 1999: 197). Similarly, control has been described as "a much more subtle phenomenon than a proxy like centralization of decision making is liable to capture" (Geringer & Hebert, 1989: 241).

Although a good deal of research has been done on these topics, there is little consensus about the relationships among trust, control, and cooperative outcomes. On the one hand, trust has been viewed as a substitute for control. Madhok (1995), for example, argues that the relation-based approach that emphasizes trust and the contractual-based approach that

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emphasizes control are two different orientations for joint venture management. Similarly, Nooteboom (1996) argues that the presence of trust economizes the specification and implementation of control and the more trust one has, the less control one needs over a partner. Faulkner (2000) also argues, on the basis of eight case studies of international cooperation, that less control is needed when trust develops well.

On the other hand, some researchers have argued that trust may not simply be a substitute for control (Das & Teng, 1998; Yan & Gray, 1994). Three recent surveys provide evidence of the complementary roles of trust and control in cooperative relationships. Fryxell, Dooley and Vryza (2002) found that social control mechanisms had a positive effect on perceptions of performance in the presence of affect-based trust for US-based international joint ventures. In a study of information service exchanges, Poppo and Zenger (2002) found that managers who combined an increasingly formal contract with a high level of relational governance achieved higher exchange performance. And Luo (2002) reported that the effect of affective cooperation on international joint venture performance in China increased if a contract was more specific and contained more contingency terms.

We believe that this ambiguity arises because previous research has focused more narrowly on the antagonism between alliance partners than on the presence of control or trust. Our main objective in this paper is to extend transaction cost theory to include trust as a form of informal control device. We develop a model to examine how two different types of trust—goodwill trust and competence trust—interact with contractual safeguards to determine the cooperative outcomes of the architect–contractor partnership. We suggest that whether trust substitutes or complements contractual safeguards depends on the particular type of trust.

We test our hypotheses using data from architect–contractor partnerships. Typically, a developer employs a contractor to source materials and to provide labor for construction, and employs an architect to design and manage the construction, provide professional opinions about contractor selection, and represent the developer on site. This study focuses on the daily interactions between the architect and the contractor, which are viewed as features of a cooperative dyad (Nicolini, 2002; Winch, 2001).

We organize the paper in three parts. In the first section we review the problem of opportunism in non-equity alliances, and discuss how both contractual safeguards and trust function as control devices based on transaction cost theory. The differences between goodwill trust and competence trust are particularly important in this discussion. In the second part of the paper, we develop hypotheses about the differential effects of these two types of trust on the relationship between contractual safeguards and cooperative outcomes. The third part of the paper presents an empirical analysis of these hypotheses using data from a survey of architect–contractor partnerships. We conclude by discussing the results of the analysis and exploring its implications for problems of trust and control in cooperative relationships.

Theoretical Development

Contractual Safeguards

The pursuit of business goals with alliances involves more risks than a single firm go-it-alone strategy (Das & Teng, 2001). When a firm invests assets in a partnership that

cannot be deployed for other uses, their partner has the opportunity to take advantage of the situation and maximize their own benefits at the expense of the focal firm. Consequently, firms have to deal with risks that arise from both an uncertain environment and potentially opportunistic partners (Parkhe, 1998). Because a certain level of confidence between partners is needed for an alliance to work, only a certain degree of perceived risk can be tolerated in any particular alliance. The perceived risk of opportunistic behavior by partners, therefore, can reduce the potential benefits of cooperation (Das & Teng, 1998, 2001).

A major tenet of transaction cost theory is that firms need to develop adequate controls to curb partner opportunism and thus reduce perceived risks (Geringer & Hebert, 1989; Parkhe, 1993; Williamson, 1985). In the transaction cost approach, the threat of opportunism is affected by the characteristics of the transaction, the partner, and the relationship. Unique governance modes and appropriate control mechanisms must be adopted to suit the characteristics of the partnership.

Contractual safeguards constitute an important component of non-equity alliances, which generally have weaker and fewer control mechanisms than equity alliances (Poppo & Zenger, 2002; Reuer & Ariño, 2002). Contractual safeguards can curb opportunism through two mechanisms. First, they can change the pay-off structure by increasing the cost of self-interest activities; it is more costly to violate contracts that clearly stipulate penalties for opportunistic behavior (Parkhe, 1993). Second, contracts can reduce monitoring cost by increasing the transparency of relationships and clarifying the objects of monitoring (Reuer & Ariño, 2002). Transaction ambiguity is reduced by clear contractual specification of what is and what is not allowed. According to a transaction cost framework, a firm should increase contractual safeguards in non-equity alliance when the partner is likely to be opportunistic.

Trust

In fact, a contract can never stipulate every potential contingency (Macaulay, 1963; Macneil, 1980). When a contract becomes excessively detailed, it will be inflexible and monitoring compliance becomes impossible (Luo, 2002; Poppo & Zenger, 2002). As a consequence, managers may rely on trust as well as contracts to regulate a partner's behavior.

Williamson (1993) argues that trust is simply a calculated risk assessment in an economic exchange. In other words, when you trust your partners, you calculate a certain probability of their acting positively toward you and reach a decision that you would take the risk of their opportunism based on this probability. In an attempt to clarify the role of trust within a transaction cost framework, Craswell (1993) draws a distinction between trust as a label for behavior and trust as an explanation of the behavior that it labels. He argues that we can describe a behavior as an act of trust (e.g., *A* loaning money to *B* is an act of trust). However, we should not use trust to explain such behavior (e.g., *A* loaned money to *B* because *A* trusted *B*). Similarly, Mayer, Davis and Schoorman (1995) separate trust as an independent constituent of perceived risk from other risk factors.

We take the view here that trust is negatively related to the calculation of perceived risk, and can function as an alternative control mechanism that is informal and adaptive (Smith, Carroll & Ashford, 1995). This approach is similar to that of Dyer (1997), who finds that Japanese auto companies use informal safeguards such as trust and financial hostages rather than legal contracts to reduce transaction costs with their suppliers. Dyer argues that while

the initial costs of developing trust are high, over a longer period trust is more effective than contracting, which requires revision for every transaction.

Two dimensions of trust, goodwill trust and competence trust (Das & Teng, 1998, 2001), are closely related to the calculation of different types of perceived risk. This distinction parallels the idea that trust is the expectation of a partner fulfilling a collaborative role in a risky situation (McAllister, 1995; Nooteboom, 1996), and relies on both the partner's intention to perform and its ability to do so. *Goodwill trust* is linked to relational risk, and refers to the expectation that a partner intends to fulfill their role in the relationship. This expectation is based on the mutual perceptions and attitudes of specific key personnel who can be seen as trust guardians (Child, 2001) or organizational boundary role persons (Currall & Judge, 1995). In this study, we measure goodwill trust as the personal trust that the architect has in the site supervisor. *Competence trust* refers to the expectation that partners have the ability to fulfill their roles. This is related to performance risk, and we measure it as the contractor's resources and reputation.

Interaction between Contractual Safeguards and Trust

As discussed above, contractual safeguards and trust are important control mechanisms that reduce risk and facilitate cooperation in a partnership. These two mechanisms may interact with each other in determining the outcomes of cooperation. To assess this, we consider and measure two outcomes of the architect–contractor partnership: completion time (i.e., whether the project has been completed as scheduled) and performance satisfaction (i.e., how the architect perceives the overall success of the project). These two outcomes represent the project performance and strategic performance of the partnership, respectively.

Building on the work of Das and Teng (1998, 2001), we argue that goodwill trust and contractual safeguards are substitutable with regard to the two cooperative outcomes. Goodwill trust reduces perceived relational risk by increasing confidence in a partner's willingness to fulfill their responsibilities (Das & Teng, 1998). As confidence in a partner's good intention increases, there is closer cooperation, a more open information exchange, and a deeper commitment between the partners (Fryxell et al., 2002). The efficiency gained through better communication and fair negotiation shortens the completion time in construction. As positive cooperation is enhanced, the architect's satisfaction with the construction project also increases.

Both goodwill trust and contractual safeguards reduce the opportunism and relational risk of partners. Goodwill trust therefore reduces the effect of installing contractual mechanisms to safeguard against opportunism (Yan & Gray, 2001). If one trusts the goodwill of one's partner, then fewer resources are needed to formulate and monitor the contractual safeguards. Conversely, if the goodwill of a partner cannot be trusted, then one is likely to install further *ex ante* contractual safeguards as monitoring devices to ensure that the required confidence level will be met. In this sense, goodwill trust offsets the effect of contractual safeguards on cooperative outcomes.

In Madhok's (1995) case studies of four joint ventures, all managers suggested that additional contractual controls would be adopted if they were dealing with partners with whom they had had little prior interaction experience. Conversely, Dyer (1997) finds that Japanese automakers reduce the use of contracts by developing goodwill trust with their suppliers.

We suggest that goodwill trust and contractual safeguards are substitutes and thus cancel each other's effect in creating positive perceptions of partners and reducing efforts to curb opportunism. It follows that contractual safeguards will have less influence on performance satisfaction and the likelihood of completing the project on time when there is a high level of goodwill trust:

Hypothesis 1a: High levels of goodwill trust will reduce the positive effects of contractual safeguards on completion time.

Hypothesis 1b: High levels of goodwill trust will reduce the positive effects of contractual safeguards on performance satisfaction.

The role of competence trust in the contractual safeguards-cooperative outcomes link is very different. Competence trust reflects confidence in a partner's ability to fulfill an agreed upon obligation, and it reduces the perceived risk of inadequate performance by a partner (Das & Teng, 2001). This is different from the effect of contractual safeguards, which reduces the risk of a partner's opportunism. The effects of competence trust and contractual safeguards on cooperative outcomes are independent of each other—if a partner is incapable of completing a task, they will remain incapable even if more stringent contractual terms are imposed.

Moreover, as competence trust increases, a firm may actually expose itself to higher risks of opportunism (Das & Teng, 2001; Madhok, 1995; Mayer et al., 1995). Consider a hypothetical example in which the focal partner is confident of the other partner's ability to perform as expected under adverse conditions. The focal party may tend to increase the scope of cooperation. This may lock the focal firm in and expose it to the risk of opportunistic behavior from the partner. High competence trust may therefore increase vulnerability to opportunism.

However, the increased vulnerability to potential opportunism that arises from high competence trust can be countered by contractual safeguards which specify the basic behavior of partners and lay down punishment for opportunism. In this sense, competence trust and contractual safeguards complement each other in reducing different types of risk and thus increase confidence in a partner, ultimately leading to more favorable cooperative outcomes. Moreover, competence trust may complement the adaptive limits of contractual safeguards in fostering mutually acceptable solutions and partnership continuity (Poppo & Zenger, 2002). The complementary effect of contractual safeguards and competence trust thus enhances cooperation in a construction partnership, leading to high efficiency and improved performance. As a consequence, we expect contractual safeguards to have more influence on an architect's satisfaction and on the likelihood of completing the project on time when there is a high level of competence trust:

Hypothesis 2a: High levels of competence trust will increase the positive effects of contractual safeguards on completion time.

Hypothesis 2b: High levels of competence trust will increase the positive effects of contractual safeguards on performance satisfaction.

Methods

Sample and Data Collection

To test the above hypotheses, we collected data using a questionnaire survey of architect–contractor partnerships in Hong Kong. Non-equity partnerships are increasingly common (Gulati, 1995), and partnerships between architects and contractors may help to shed light on relationships of that type. Architect–contractor relationships in Hong Kong also offer a good opportunity to examine the effects of both contractual safeguards and trust. The construction process involves considerable hazard and uncertainty, and different types of control devices may be required (Poppo & Zenger, 2002). At the same time, Hong Kong is a common law city with a Chinese culture that emphasizes long-term relationships. This results in strong social and legal institutions that support both types of control mechanism (Mudambi & Helper, 1998).

A questionnaire was mailed to 866 local architects in Hong Kong during November 1999. The questionnaire asked the respondents about a recently completed construction project on which they had acted as project manager. The project manager is responsible for the overall management of a construction project. He or she is the only person who interacts with the building contractor on a day-to-day basis and knows the full details of the cooperation process. There is only one project manager on a construction project, and each survey response captured the architect's view of a unique architect–contractor partnership. In common with the overwhelming majority of survey research, our study relied on single informants, and our data on cooperative relations reflect the perspective of only one side of the partnership (e.g., Artz & Brush, 2000; Parkhe, 1993; Provan & Skinner, 1989). The final sample consisted of data on 265 partnerships, which represented a response rate of 33 percent. Thirty percent of the responses involved residential projects and 23 percent involved community and institutional projects, with hotel, hospital, airport, and recreational facility projects accounting for the remainder. The median project cost was US$ 25.6 million and the average project duration was 23 months. The final regression analyses were carried out with 233 cases, which provided information for all variables.

We tested for non-response bias by comparing the respondents and non-respondents in terms of their gender, organizational rank, and size of their affiliated firms. We also compared major variables for early and late respondents. The F values ranged from .28 to 3.65, and the t-tests were not significant at the 95 percent confidence level, which suggested that non-response bias was not a serious problem.

Common method variance is always an issue with self-report measures. We approached this problem in several ways. Certain key variables were not based on opinion data, including one of the dependent variables (scheduled completion) and a number of independent variables (such as prior relationship and contractual safeguards). In addition, several questions (such as size difference and contractual safeguards) required complicated calculation that made contextual effects unlikely because respondents would have difficulty anticipating answers. We also used Harman's post hoc single-factor test for common variance (Podsakoff & Organ, 1986), and the test revealed seven factors that explained 65.51 percent of the variance, with the first factor explaining only 22.77 percent of the total variance. This suggested that no single underlying factor accounted for the majority of the variance among the variables.

Measures

Completion time. A good indicator of project performance in the construction industry is completion time. Project delays incur labor and material costs and losses of investment return for the property developer. However, early completion often indicates problems that result in a reduced scope of contract (Chan, Ho & Tam, 2001). The most clearly desirable outcome is completion on time. We operationalized completion time as a dummy variable: its value equaled 1 if the project was completed as scheduled, and 0 otherwise.

Performance satisfaction. We included a subjective measure as a second dependent variable. Perceived performance satisfaction is commonly used to measure the strategic performance of an alliance. We employed Saxton's (1997) three-item scale of perceived overall satisfaction (i.e., "overall, our firm is satisfied with this project"; "the goals of the project have been achieved"; and "this project has added to the long-term success of our firm"), and added two items that were specific to the construction industry ("this project has been completed to high professional standards", and "I am proud of the project") to measure performance satisfaction as perceived by the architect. Items were ranked on seven point scales. The alpha coefficient for this index was .92.

Goodwill trust. We measured goodwill trust between the architect and the contractor, as perceived by the architect, with a measure based on Zaheer, McEvily and Perrone's (1998) scale of interpersonal trust. Our index included four items, each rated on a seven-point scale. The items asked whether the contact person of the contractor had been fair in negotiations, whether the contact person was trustworthy, whether the contact person could be counted on to act as expected, and whether the architect had faith in the contact person. This index had an alpha coefficient of .86.

Competence trust. We used two seven-point scaled items to measure the architect's perception of competence trust between architect and contractor. We asked to what extent the contractor had been chosen for the project because of (1) a good reputation and (2) rich resources of capital and labor. The alpha coefficient for this index was .81.

Contractual safeguards. This measure was based on Parkhe's (1993) approach to measuring contractual safeguards. We departed from Parkhe's methodology in two ways: we generated six specific contractual items for the construction industry (instead of the eight items in the original scale), and we used unweighted items because their relative importance was unclear in the construction industry. This measure was developed by first creating a list of six commonly used contractual safeguards for the architect–contractor alliance based on in-depth interviews with industry experts. The six common safeguards were: (1) a Standard Form of Building Contract for Hong Kong (or the Hong Kong Government Building Contract); (2) the right to examine and audit all relevant records through a quantity surveyor; (3) the designation of certain information as confidential and subject to proprietary provisions of the contract; (4) a lawsuit clause; (5) a majority of the standard provisions of the Extension of Time Claim; and (6) loss and expense standard contractual claims. We then asked the respondents to indicate which of these safeguards were included in the contract.

This measure had a range of 0 (when none were used) to 6 (when all six terms were used). Low scores indicated limited use of safeguards, and high scores indicated greater use of safeguards. The mean for this variable was 3.70, with a standard deviation of 1.46.

Control variables. We included three other variables to further specify the model. The first was *asset specificity*. High asset specificity reflects mutual commitment and the lock-in of cooperating parties, and it has been linked to higher transaction value and favorable cooperative outcomes (Dyer, 1997; Young-Ybarra & Wiersema, 1999). We measured asset specificity with three items derived from Ganesan (1994) on a seven-point scale. These items reflect the combined level of investment in a partnership, the degree to which that investment was non-redeployable, and the degree of change that each partner made to suit the other. The alpha coefficient for this scale was weaker than the others at .60.

The second control variable was *prior relationship*, which reflected a partner-specific experience. Prior relationships may reduce the perception of opportunism, and have been shown to relate to higher alliance performance (Saxton, 1997; Zollo, Reuer & Singh, 2002). We measured prior relationship as a dummy. Its value equaled 1 if the architect and the contactor had previously worked with each other, and 0 otherwise.

Finally, we used *size difference* as proxy for dissimilarity between partners. When partners are similar in size, they have similar organization processes and administrative systems, and this may result in an organizational fit that improves performance (Saxton, 1997). Size difference was measured as the absolute difference between two scaled items. Respondents were asked for information about both the size of their firm compared to the industry average and the size of the partner contractor firm compared to the industry average, and a difference score was created for these two variables. A lower score indicated greater partner similarity. The average size difference was .96, with a standard deviation of .87.

Analysis and Results

We used hierarchical logistic regression to examine the hypothesized interaction effects of contractual safeguards and trust on completion time, and hierarchical multiple regression to examine the effects on performance satisfaction. Table 1 reports the means, standard deviations, and correlations between variables. Among the 233 partnerships studied, 31 percent of the projects were completed as scheduled, and the mean for performance satisfaction was 4.80 on a seven-point scale. The correlation between prior relationship and both goodwill trust ($r = .13$, $p < .05$) and competence trust ($r = .18$, $p < .01$) was only moderate, despite the fact that prior relationship is commonly used to indicate trust. Contrary to our expectations, high asset specificity did not lead to more contractual safeguards; asset specificity was unrelated to contractual safeguards in the sample ($r = -.05$, *ns*). However, this may have been a result of asymmetrical asset specificity (Buvik & Reve, 2001).

Table 2 reports the regression results. Models 1–3 report logistic regressions for completion time. Models 4–6 report multiple regressions for performance satisfaction. The variables were mean-centered to reduce the potential problems of multicollinearity before the creation of the interaction terms. Examination of the variance inflation factors associated with each regression coefficient showed a range from 1.02 to 1.24, which suggests that

Table 1
Means, standard deviations, and correlations among study variables

	Variable	Mean	*SD*	1	2	3	4	5	6	7
1	Completion time	.31	.46							
2	Performance satisfaction	4.80	1.14	.23***						
3	Goodwill trust	4.17	1.11	.12	.42***					
4	Competence trust	4.28	1.28	.16**	.48***	.35***				
5	Contractual safeguards	3.70	1.46	−.09	.05	−.02	.02			
6	Prior relationship	.69	.46	.15*	.15*	.13*	.18**	.04		
7	Size difference	.96	.87	−.10	−.22***	−.10	−.21***	.13*	.03	
8	Asset specificity	4.23	1.05	.08	.17**	.14*	.13*	−.05	.04	−.10

Note. $N = 233$.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

there were no serious problems of multicollinearity. Moderating effects were tested with a less stringent significance level of .10 because measurement error and shared variances make Type II error likely.

Hypotheses 1a and 2a predict that goodwill trust and competence trust will moderate the effect of contractual safeguards on completion time. We tested these two hypotheses using logistic regression. The control variables together with the main effects of trust and contractual safeguards produced a χ^2 of 14.14 in Model 2. Inclusion of the interaction terms improved the χ^2 from 14.14 to 20.55 in Model 3. The overall change in χ^2 between Model 2 and Model 3 was significant ($\Delta\chi^2 = 6.40$, $p < .05$). We also found that the interaction term of goodwill trust and contractual safeguards was significant ($\beta = -.22$, $p < .05$), and the interaction term of competence trust and contractual safeguards was marginally significant ($\beta = .18$, $p < .10$). Hypotheses 1a and 2a were thus supported.

Hypotheses 1b and 2b predict that goodwill trust and competence trust will moderate the effect of contractual safeguards on performance satisfaction. Hierarchical regression was used to test for this moderating effect. The model consisting of the control and the main effects of trust and contractual safeguards produced an R^2 of .31, as shown in Model 5. When the two interaction terms were added to Model 6, the R^2 increased to .33, showing a significant R^2 change of .02 ($p < .01$) over Model 5. As shown in Model 6, the coefficient for the interaction term of goodwill trust and contractual safeguards was significant ($\beta = -.12$, $p < .01$), while the interaction term of competence trust and contractual safeguards was marginally significant ($\beta = .06$, $p < .10$). Thus, Hypotheses 1b and 2b were supported.

Our hypotheses predict that goodwill trust and competence trust will moderate the effect of contractual safeguards on cooperative outcomes in different ways, so we plotted the interactions to understand the precise effects of these variables. Plots were made for one standard deviation above and below the mean. The above-mean value was taken as high trust and the below-mean value was treated as a low level of trust (Cohen & Cohen, 1983; Jaccard, 2001). Figures 1 and 2 show the plots of these interactions. Consistent with our expectations, Figures 1a and 2a reveal a more positive relationship between contractual safeguards and the two cooperative outcomes in situations of low goodwill trust, while Figures 1b and 2b reveal a more positive relationship in situations of high competence trust.

Table 2
Regression results on cooperative outcomes

Variable	Completion time			Performance satisfaction		
	1	2	3	4	5	6
Intercept	−1.01 (.66)	−.99 (.66)	−.91 (.68)	4.15*** (.33)	4.52*** (.29)	4.57*** (.28)
Control variables						
Prior relationship	−.74* (.33)	−.63† (.34)	−.72* (.35)	.37** (.15)	.13 (.14)	.15 (.14)
Size difference	−.25 (.17)	−.16 (.18)	−.17 (.18)	−.28*** (.08)	−.17* (.07)	−.17* (.07)
Asset specificity	.15 (.14)	.11 (.14)	.09 (.15)	.15* (.07)	.08 (.06)	.06 (.06)
Direct effects						
Goodwill trust		.11 (.15)	.11 (.15)		.28*** (.06)	.28*** (.06)
Competence trust		.20† (.13)	.18 (.13)		.30*** (.05)	.29*** (.05)
Contractual safeguards (CS)		−.13 (.10)	−.15 (.10)		.05 (.04)	.04 (.04)
Interactions						
CS × goodwill trust			−.22* (.10)			.−.12** (.04)
CS × competence trust			.18† (.09)			.06† (.03)
χ^2	8.85*	14.14*	20.55**			
$\Delta\chi^2$		5.30	6.40*			
−2 log likelihood	279.28	273.98	267.58			
Pseudo R^2	.03	.05	.07			
ΔR^2					.23	.02
ΔF					26.26***	4.14**
Adjusted R^2				.08	.31	.33
F value				7.92***	18.40***	15.22***

Notes. $N = 233$; logistic coefficients are reported in Models 1–3; unstandardized coefficients are reported in Models 4–6; standard errors are reported in parenthesis.

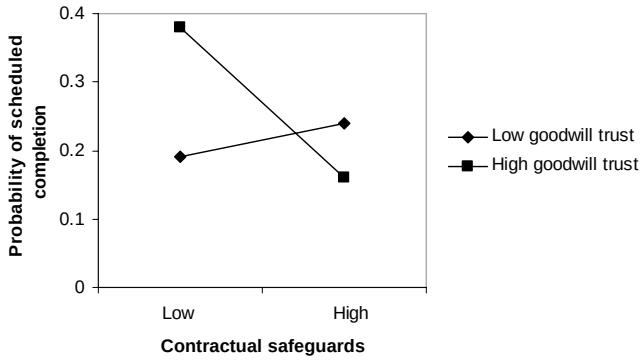
† $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

(a) Goodwill Trust



(b) Competence Trust

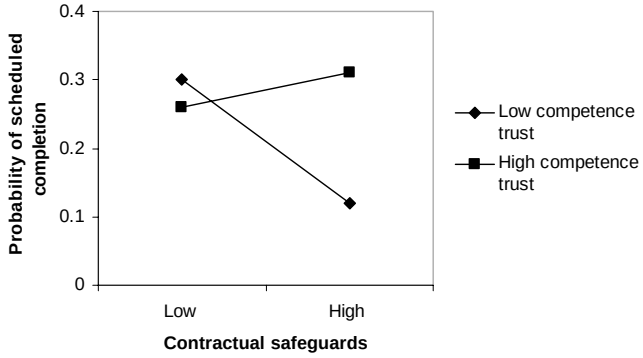


Figure 1. The moderating effect of trust on contractual safeguards and completion time. (a) Goodwill trust; (b) competence trust.

Discussion

This study examines the roles of contractual safeguards and trust on cooperative outcomes in non-equity alliances. We hypothesized that different types of trust affect the relationship between contractual safeguards and cooperative outcomes differently. The empirical results from a survey of 233 architect–contractor partnerships in Hong Kong indicate that goodwill trust and contractual safeguards serve as substitutes for each other and have similar effects on satisfaction with projects and completion of projects on time. Competence trust, in contrast, functions as a complement for contractual safeguards.

Previous studies on alliances have often treated trust as a unidimensional construct, and this has produced ambiguous conclusions about the relationship between trust and contractual safeguards. This study extends the knowledge of the subject by introducing the distinction between two different types of trust and empirically analyzing their different

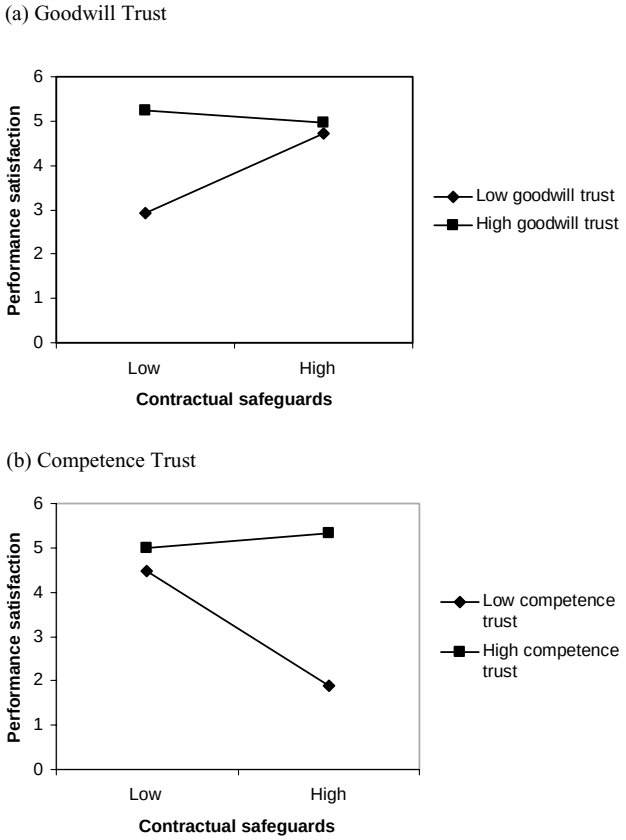


Figure 2. The moderating effect of trust on contractual safeguards and performance satisfaction. (a) Goodwill trust; (b) competence trust.

effects on the relationship between contractual safeguards and cooperative outcomes. Our findings suggest that it is important for researchers to specify the dimensions of trust that they are referring to. This finding reinforces Das and Teng's (2001) observation that it is necessary to identify specific relationships among the different dimensions of trust and control in an alliance.

This study also extends transaction cost theory by incorporating trust as a salient control mechanism in alliances. Trust is viewed as an important element in the calculation of perceived risk. We argue that goodwill trust and competence trust are linked to perceptions of different types of risk, with goodwill trust primarily affecting perceptions of relational risk, and competence trust affecting perceived performance risk. This, in turn, results in different effects on inter-firm cooperation.

It is important for managers to be aware of the need to cultivate an optimal mix of trust and contractual safeguards because these control devices interact with each other. Trust and contractual safeguards are not costless to develop (Parkhe, 1993), and our results have some

important implications for managers. First, it may be important for firms to invest in greater contractual safeguards over partners when trust is based primarily on competence. This is because competence trust has the potential to encourage opportunistic behavior and lead to less favorable cooperative outcomes. This potential, however, can be reduced by more contractual safeguards.

Second, goodwill trust can reduce the need to design and monitor contractual safeguards, because goodwill trust and contractual safeguards induce favorable cooperative outcomes through the same mechanism—reduction in the risk of opportunism. Third, after a firm has entered into a contractual relationship, managers should cultivate different types of trust to deal with the associated risks. In a regime of extensive contractual safeguards, managers should emphasize the development of competence trust, while the development of goodwill trust will be more important when there are fewer contractual safeguards.

Several caveats are appropriate in interpreting the results of this study. First, we have limited our sample to non-equity partnership within the construction industry. Our findings may not generalize to equity alliances, where trust and contractual safeguards may interact in different ways due to variations in risk tolerance associated with different equity arrangements (Das & Teng, 2001). The creation of a new entity in equity alliances also complicated the control mechanisms. Moreover, the construction industry may be unique in the sense that both contractual safeguards and trust are widely employed to reduce opportunism. One mechanism or the other may dominate in other industries and the interaction effect may be different. For example, Dyer (1997) has shown that Japanese automakers and their suppliers rely largely on trust to manage transactions, and Blumberg (2001) has found that partnering firms which are socially embedded adopt fewer contractual terms in their relationship.

This study also treats trust and contractual safeguards as static concepts that have a constant value, rather than dynamic concepts that evolve during a period of collaboration. Research has suggested that trust evolves over time, and terms of contract also change (Reuer & Ariño, 2002). Analysis of how the evolution of trust and contractual safeguards affect cooperative outcomes could be a useful extension of this research. Finally, we collected data entirely from architects, and all responses came from only one side of the partnership. This inevitably creates certain questions about the generalizability of findings and suggests interesting possibilities for future research. Although there is evidence that perceptions of exchange are consistent across partners (e.g., Anderson & Narus, 1990; Zaheer et al., 1998), future research based on a wider sample that includes multiple industries and participants from both sides of partnerships could be a valuable extension of this work.

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