

Trust formation in Korean new product alliances: How important are pre-existing social ties?

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Abstract The focus of this study is on the nature and influence of social connections versus other relational mechanisms on trust formation in an emerging Asian economy. We examine the role of communication quality, perceived fairness, and pre-existing social relationships for the formation of trust in 47 vertical new product development alliances in South Korea. The empirical results indicate a relatively minor importance of pre-existing social ties vis-à-vis communication quality and fairness for the development of trust. Contrary to widespread perceptions, pre-existing social ties do not appear to directly contribute to establishing trust with external alliance partners in Korea. Multiple explanations are offered for this unexpected finding. Instead, existing social relationships moderate the importance of fairness for trust formation. When conducting partnerships with Korean firms, managers should focus more on a quality communication and fair behavior when trust formation is the objective, than on social connections.

Keywords Product development · Alliances · Trust formation · Social ties · Korea

Background

This research examined trust formation in vertical new product development alliances between independent (non-*chaebol*) firms in the South Korean machinery industry and the role concrete social relations play in this process. Given the

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reportedly widespread networks of social relationships in Korea (Yee, 2000) and their perceived importance for effectively conducting business, it is crucial to understand how such social relationships affect the development of trust in R&D partnerships between domestic or with foreign firms.

A vertical product development alliance is a project-based working relationship between a manufacturer and a customer or a supplier involved in the conception, testing, production, or marketing of a new product (Anderson & Narus, 1990). In relationships where the outcome depends on the intent and behavior of others, trust is a crucial component for a successful cooperation in these often vulnerable relationships (Morgan & Hunt, 1994). Trust is defined as one partner's confidence that the other partner will not exploit its vulnerabilities, but act competently and dutifully (Ring & Van de Ven, 1994). Given the importance of trust for the development of inter-firm relationships, the question becomes how trust develops in cultures different from the Western context (Huff & Kelley, 2003), especially since this process may be affected by cultural contrasts, such as individualism vs. collectivism (Triandis, 1995) or high context vs. low context (Hall, 1976).

Most previous research on inter-firm collaboration in South Korea (subsequently: Korea) has been conducted on relationships between companies within the same business groups (*chaebols*), as these groups have played a central role in the country's rapid economic development over the past decades (e.g., Shin & Kwon, 1999; Chang, 2003; Kim, Hoskisson, Tihanyi, & Hong, 2004). The relationships between *chaebol* member firms can be characterized as very close and hierarchical (Chang, 2003). Trust has received little notice in the study of inter-firm relations within *chaebols*, because hierarchical power renders trust formation obsolete. Trust is simply not regarded as an issue of high relevance for business relations within *chaebols*.

In recent years, however, technological collaboration with outsiders (i.e., companies which do not belong to the same *chaebol*) has been increasing in Korea (Eom, Choi, & Lee, 2005), indicating that nowadays even large firms cannot access all resources essential for successfully developing new products from within the boundaries of their business groups. When Korean companies enter inter-firm relationships outside their business group, whether domestic or foreign, the establishment of trust is pivotal for building successful alliances, but also difficult to achieve because of the predominance of acquired social ties that confine trust to the boundaries of the family or the group (Fukuyama, 1995). Because individuals from "low-trust" societies, including Korea, are acculturated to have less trusting attitudes toward out-group than in-group members, relationship building with outsiders requires much more time and patience (Huff & Kelley, 2003). Recent research even suggests that in contemporary Korea there is a widespread distrust of political, social, and economic institutions, including the legal system, law enforcement, or large companies (Lee, 2003). This situation may be an outcome of the imperfections of formal institutional rules and frameworks, when compared to the most developed countries, including excessive or unpredictable government regulation of business activities or laws that are not well codified or ineffectively enforced (Peng, 2003; Peng, Lee, & Wang, 2005; Peng & Zhou, 2005).

To deal with the uncertainties resulting from such imperfections, individuals often rely on exclusive relationships with people they know (Podolny, 1994). Like individuals from other emerging countries in East Asia and elsewhere, Koreans

establish and nurture personal friendships and acquaintances with individuals in organizations or institutions they consider as instrumental to their own long-term interests and “activate” them whenever necessary. As a consequence, kin and non-kin ties, originating in alumni networks, regional networks, or personal friendships are widespread in Korea and are important modes of social exchange for emotional support, problem solving, and conflict resolution. These networks of ties (*inmaek*) characterize Korean society and play a critical role on trustworthiness (Yee, 2000), particularly because these affiliations imply certain standards of behavior, whether deserved or not. In this sense, social ties in Korea are similar to *guanxi* relationships in China that are also often based on kinship, common regional or school backgrounds, or joint membership in a business community (Gold, Guthrie, & Wank, 2002; Chen & Chen, 2004).

Surprisingly, prior research has paid little attention to the actual impact of such relationships on trust formation. Thus, we seek to contribute to a better understanding of trust-formation processes between *independent* firms conducting product development alliances in Korea and the leverage that pre-existing social relations have in these processes. Through existing social ties alliance partners may have overcome many of the tensions inherent to new cooperation with other firms. Such ties are surrogates for behavioral predictability and thus are likely to involve higher levels of trust.

However, trust also can be created through other behavioral mechanisms, absent of established social ties. In particular, prior research has highlighted the centrality of communication quality (Ring & Van de Ven, 1994; Dyer & Chu, 2000, 2003) and fairness perceptions (Dwyer, Schurr, & Oh, 1987; Bhattacharya, Devinney, & Pillutla, 1998) for inter-organizational trust. These two factors appear to be particularly crucial for trust formation between previously unknown partners in a collectivistic East Asian country. When the partners communicate well with each other and exhibit fair behavior through the establishment of reciprocity in informal “give-and-take” relationships, which are widespread in East Asia, they can concentrate on their actual tasks instead of worrying about the partner’s intentions or actions, potentially resulting in higher trust. This behavior will also facilitate bringing external partners into the in-group and overcoming behavioral uncertainty.

In short, this study addresses the research question of the relative importance of pre-existing social ties vs. relational mechanisms for the formation of trust in new product development alliances. We attempt to clarify how kin and non-kin ties leverage or twist trust formation in such inter-firm collaborations.

The study contributes to prior research on the nature and influence of social connections on business activities when institutional and economic structure change in emerging economies. Some argue that the need for social connections to conduct business is fading as institutions improve (Guthrie, 1998, 2002; Peng, 2003), while others claim that these ties are essential to successfully conduct business despite changing environments (Wank, 1996, 2002; Chuang & Lin, 2008). We extend this research by examining the role of social connections and relational mechanisms for trust formation in inter-firm collaborations in a generally “low trust” East Asian country. This study also contributes to the literature on the management of alliances between independent firms that are used to conduct business within their established networks of ties. It identifies trust building mechanisms which help cultivating relationships with firms outside these networks and thereby provide novel resources

and opportunities needed for survival or growth in an emerging and highly competitive Korean economy.

Conceptual framework

There is general agreement that trust is a central element of many types of inter-organizational relationships. Empirical research suggests that trust is a strong proponent for achieving coordination and cooperation in close inter-organizational relations (Morgan & Hunt, 1994; Jap, 1999). More recently, Krishnan, Martin and Noorderhaven (2006) found that in knowledge-intensive contexts such as R&D trust reduces behavioral uncertainty. Trust also serves as a mechanism to decrease search costs when seeking trustworthy alliance partners (Gulati, 1995), reduces the cost of interpartner conflict (Dyer & Chu, 2003), is a counterbalance to opportunistic behavior (Spekman & Celly, 1995) and a strong determinant of relationship continuity (Anderson & Weitz, 1989), and generally has a positive effect on alliance performance (Zaheer, McEvily, & Perrone, 1998).

New product development alliances can be greatly beneficial for both partners, as they potentially allow them to share cost and risks while combining technological expertise. However, research has also shown that many R&D alliances fail or break down prematurely and inflict financial damage on both partners (Dyer, Kale, & Singh, 2004), suggesting that it is very challenging to make these arrangements work. In such collaborations, there is a mutual transfer of proprietary technological knowledge, but incentives to prevent misappropriation are relatively weak (Dutta & Weiss, 1997). Successful alliance management appears to be particularly difficult in collectivistic societies like Korea, where in-group interaction tends to be strongly favored over collaboration with out-groups (Fukuyama, 1995).

We argue that in such a context where people who must problem solve come from very different backgrounds, hold different perspectives, and lack a generally shared belief in organizational practices and processes, certain relational processes and pre-existing social connections are crucial to establish trust between partners. Specifically, we propose that (1) a quality communication increases the confidence in the partner's positive intentions, reduces the psychological distance between alliance partners and facilitates emotional integration of out-group members into the in-group, essentially increasing trust (Yang, 2006); (2) fairness between partners will positively influence attitudes and behaviors towards the other party and nurture expectations that benefits will be shared evenly in the future, thereby reducing the fear of opportunistic behavior of the partner and increasing trust formation (Lambe, Spekman, & Hunt, 2000); and (3) existing social ties between the firms' representatives are a potential source of shared understanding, mitigate uncertainty about partner behavior, and facilitate mutual trust (Hung, 2004; Krishnan et al., 2006).

The absence of pre-existing social ties between the partners' representatives may necessitate different efforts to achieve a high level of trust as such ties are expected to moderate the relationship between communication quality, fairness perceptions, and trust formation. We propose that the hypothesized relationships between these relational factors and trust formation are contingent upon varying degrees of kin and non-kin ties as parties which have strong personal relationships are more committed

to maintaining the relationships than less socially bonded partners (Wilson, 1995), particularly in Korea. In other words, alliance partners may become less sensitive to lower communication quality and more tolerant of asymmetric fairness perceptions when there are pre-existing social ties between them, as the existence of social ties makes them more likely to expect that such a situation will balance out in the long run. Surprisingly, prior research has not examined this potential moderating effect of social ties. Figure 1 outlines the different relationships among the factors that we are studying.

Quality of communication

One potential advantage of new product alliances is the integration of unique knowledge from all partners into a collective knowledge that no individual company had to begin with. However, this advantage depends on appropriate interaction and the quality of communication. Koreans tend to build strong social relationships within their respective groups. They bond emotionally with other group members by showing affection for or empathy with each other, as expressed by the Korean word “*jeong*.” Thereby, a shared feeling of “*woori*” (we-ness) is established among group members (Yang, 2006). Such *woori* collectives constitute strong psychological hurdles for the creation of inter-organizational trust. The challenge alliance partners are facing is the creation of a common *woori* which embraces the representatives of both sides of the alliance by establishing *jeong* between them. *Jeong* is primarily built up through frequent personal interaction and broad and unrestricted exchange of information (Yang, 2006). Through the sharing of relevant information on task-related or even private matters, personal bonds and common group awareness can be facilitated, resulting eventually in a higher amount of trust, as the alliance partners are increasingly perceived as members of the in-group.

The quality of communication offers important cues to interpret the partner’s behavior and motivations and is thus instrumental for the development of trust in the general context of alliance management (Dyer & Chu, 2000). Over the course of a development project, there will be many opportunities to judge the honesty and integrity of one another. Transparent communication is an essential ingredient in the efficacy of warnings and explanations on the meaning of differences concerning

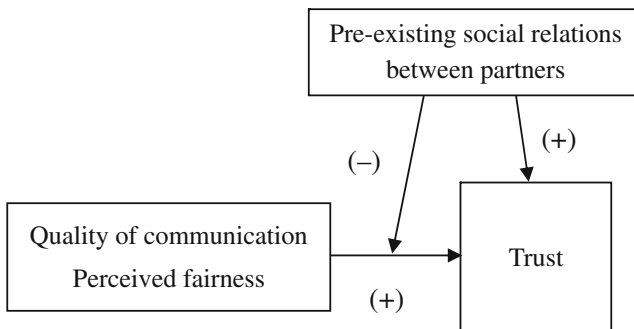


Figure 1 Conceptual framework

expected and actual outcomes (Ariño, de la Torre, & Ring, 2001). Communication also allows partners to learn more about synergistically combining resources and finding solutions to development problems.

A quality communication between alliance partners that is characterized by the timeliness, reliability, adequacy, and completeness of information exchange will be interpreted as a signal of trustworthiness and facilitates trust development. It creates the perception that the partner acts out of care and concern and thus fosters positive attributions about the benevolence and goodwill of the partner (Ring & Van de Ven, 1994). For instance, Dyer and Chu (2003) found a positive correlation between information sharing and supplier trust in its automotive customers. Bruce, Leverick, Littler and Wilson (1995) reported that timely, accurate, open, and adequate information helps develop a shared understanding and fosters commitment to a relationship. Taken together, communication quality appears to be essential in overcoming group boundaries and creating trusted relationships between alliance partners in Korea.

Hypothesis 1 The quality of communication between partners is positively related to trust formation in Korean new product alliances.

Perceived fairness

Another way to facilitate the creation of trust between alliance partners is to establish a mutual expectation that efforts invested into the relationship will be appreciated and eventually rewarded by the partner. Fairness refers to the perception of how a partner and its contributions are treated during a project, and whether benefits and burdens are shared proportionally to the amount of tangible or intangible investments made to an alliance with another firm (Kumar, Scheer, & Steenkamp, 1995). Most humans who receive a favor from somebody have a tendency to establish reciprocity by returning it sooner or later (Cialdini, 2001)—in other words, to display fair behavior. Through a repetition of this “give and take,” both sides become increasingly confident that such behavior will also prevail in the future and will gradually trust each other more. This practice of establishing close and trusted relationships with other parties through repeated exchange of favors over an extended time period is particularly widespread in emerging East Asian countries (Joy, 2001). As the institutional framework for enforcing reciprocity is not well developed in these countries, including the legal protection of intellectual property rights, individuals rely on informal “give and take” interaction instead (Wank, 1996; Peng, 2003). In general, reciprocation is not anticipated immediately, but there is an implicit expectation among East Asians that such favors will be rewarded at some point, i.e., “paid back.” Positive expectations will foster the cultivation of trust.

This observation also applies to the specific context of business alliances. The perception of fairness may be expected to enhance relationship quality in general and trust development in particular (Dwyer et al., 1987). For instance, manufacturers with a reputation for fairness engendered greater trust (Anderson & Weitz, 1989). However, fairness perceptions are not only relevant for the selection of alliance partners, but also for the cultivation or maintenance of trust during the course of an ongoing collaboration (Bstieler, 2006). Fair dealing provides not only an important

signal that the partner can be trusted, but also that the partner will do what is necessary to make the working relationship successful (Lambe et al., 2000). Thus, through fair treatment of the partner positive expectations about future behavior can be raised (Bhattacharya et al., 1998). In contrast, valuable information tends to be withheld by those who feel not fairly treated (Culnan & Armstrong, 1999). Perceived violations of fairness are likely to be detrimental to the development of trust in new product alliances. Consequently we expect that perceived fairness will reinforce trust in new product alliances.

Hypothesis 2 Perceived fairness between partners is positively related to trust formation in Korean new product alliances.

Pre-existing social relations

When a prior relationship between partner firms exists, a partner's behavior is more predictable, as more is known about each partner's objectives and attitudes, compared to partnerships between firms with no prior relationships (Ring & Van de Ven, 1994). In high-context societies, such as East Asian countries (Hall, 1976), a particularly high value is placed on kin and non-kin relationships. Such bonds reduce behavioral uncertainty and provide more security inside partner relationships. These relations also appear to be essential in building closer collaboration between firms.

East Asians tend to devote time to assess contextual factors, such as social status, professional background, or personal preferences and attitudes of a partner (Nguyen, 2005). They get to know each other by constantly exchanging expectations to allow both partners to become more closely related to one another. These expectations include emotional elements, so it takes additional time and opportunities to demonstrate trustworthiness (Teng & Newell, 2004).

Cross-cultural research also suggests that members of collectivist cultures regard it as normal that a considerable amount of time needs to be spent on building personal relationships. Once such relationships have been established, however, they are accompanied by a high amount of trust (Hofstede, 2001). These considerations suggest that in a new product alliance, pre-existing kin and non-kin relations between representatives of the partner firms come with a trust bonus.

Hypothesis 3 Pre-existing social relations between representatives of the partners are positively related to trust formation in Korean new product alliances.

We also expect that existing social relationships among partners can change the importance of communication quality and fairness on trust and expect a moderating effect from such pre-existing relationships. Alliance partners use information drawn from their pre-existing relationships to make inferences about the nature of their current alliance interaction. Partners with pre-existing social ties may place less importance on communication quality and perceived fairness in the short run, because they expect or believe that any asymmetries will be balanced out in the long run. This tendency can be expected to be particularly strong in East Asian countries where individuals place higher value on perseverance rather than on short-term returns on their efforts and investments (Hofstede, 2001). Therefore, existing relations may require reduced information exchange and analysis. We also expect

fairness to become somewhat less important for trust when social relations exist. If there is little relationship experience, fairness transgressions will have a more marked effect. However, in existing kin and non-kin relations, a partner will be more tolerant of deviations from expectations (Ariño et al., 2001). In such cases, the partners may indeed anticipate that their efforts will be reciprocally rewarded in the long term, reducing the sensitivity to fairness in the short run.

In contrast, alliance partners without prior social ties may be less forgiving and assign greater importance to immediate communication quality and perceived fairness. Communication quality and fairness in a relationship are mechanisms to swiftly increase or reinforce the predictability of future behavior and build a perception of trustworthiness between partners. These mechanisms appear to be particularly critical when dealing with an unknown partner.

Hypothesis 4 Pre-existing social ties between representatives of the partners reduce (a) the influence of communication quality and (b) the influence of perceived fairness on trust formation in Korean new product alliances.

The empirical study

Sample

The study addressed firms with fifty or more employees listed in the “Korean Machinery Directory.” In total, 541 firms were identified. After initial phone contact or attempted contact, 83 firms were eliminated since they were not manufacturing firms, did not exist anymore, or could not be reached. Another 293 firms indicated they were not developing any new products or did not have any external partnerships regarding such activities. As a result, 165 firms with external partnerships in new product development remained.

Next, we identified a key informant in each firm, who had to be intimately involved in the co-development effort and in many cases was the engineering or R&D department head. This informant was assessed in terms of role and responsibility, and knowledge of and involvement with the development project. All key informants were carefully instructed about the survey content and asked to respond regarding their most recent collaborative product development project. In total, we received 47 complete responses to the survey, or 28.5% of the firm population with external new product alliances.

We tested for a possible non-response bias regarding our sample data in two ways, as suggested by Armstrong and Overton (1977). First, we compared the company size (number of employees and annual sales) of the responding firms with those of the non-responding firms, but found no significant differences between the two groups ($p > 0.15$ for both variables). Second, we compared early and late responses and observed that none of the correlations between the key variables of our study significantly changed when controlling for response time ($p > 0.50$), suggesting that there is no serious non-response bias in our sample.

The firms in the sample covered a wide range of sub-classifications within the machinery industry, including plastic working machinery, power machinery and

equipment, or machine tools. Most of the participating firms were small to medium size with an average of 627 employees and annual sales of 100 billion KRW (roughly equivalent to US\$100 million). Most of the alliances were conducted with domestic partners (85%). For 64% of the projects, at least one pre-existing relationship was reported, and the majority of these relationships (74%) were related to industry networks. Follow-up phone calls with respondents confirmed that all alliances were in fact between independent (non-*chaebol*) partner firms.

Measures

The measures tapped into the focal manufacturer's perceptions of the relationship with its alliance partner. Most of the items were measured on 11-point Likert scales (see [Appendix](#)).

Dependent variable Trust was measured using five items based on a scale adapted from Ganesan (1994). To reduce social desirability, the word "trust" was avoided. The items measured perceived honesty, caring, or reliability of promises made (Cronbach alpha of 0.90).

Independent variables Communication quality was measured using four items that addressed the timeliness, adequacy, or reliability of the communication between the alliance partners. The items were adapted from Mohr and Spekman (1994); the reliability of this composite measure was 0.93. *Perceived fairness* was measured by five items inspired by the studies of Kumar et al. (1995) and LaBahn and Krapfel (1994) and had a Cronbach alpha of 0.87. *Social relationships* were measured using five categorical variables partially adapted from Yee (2000) and measuring the existence of prior kin and non-kin relationships: Whether there were any (1) family relationships, (2) school network relationships, (3) regionally based relationships, (4) industry network-based relationships, or (5) other personal relationships between representatives of the firms prior to the formation of the partnership. To reduce social desirability, these questions were presented using very neutral wording, avoiding terms such as "*inmaek*" or "*yeonjul*." The total of the kin and non-kin relationships was approximated by adding up the number of prior relationships identified in each alliance. A count of "0" indicated that no prior social ties existed between the partners.

Control variables It was critical to assess the extent to which the effects of relational trust formation went beyond what could be achieved through *contractual safeguards*. Such contractual provisions can be seen as an initial substitute for trust, as these possibly make the behavior of the partner more predictable (Doney, Cannon, & Mullen, 1998). Three items related to "contracting for handling unexpected events" (Lusch & Brown, 1996) were measured on a three-point scale. These items addressed how clearly spelled out different issues were at the beginning of the alliance, for instance, what would happen in case of a (non) fulfillment of performance obligations or the handling and resolving of disagreements (Cronbach alpha of 0.70).

We also included a control variable for *prior successful alliance experience* (in general, not with a specific partner). Successful experience with alliances decreases the uncertainty associated with managing alliances, increases the likelihood of using

future alliances, and reduces the possibilities of susceptibility to opportunistic behavior (Robertson & Gatignon, 1998). We used the product term of two single items “degree of prior alliances” and “success of prior alliances” to account for this potential effect.

Previous research suggests that prior *relationship length* may facilitate trust formation between external partners and influence the way in which trust is developed (Ring & Van de Ven, 1994). Relationship length was measured by the years of a prior business relationship between the alliance partners.

Research on international non-equity alliances suggests that due to different cultures and mental models, trust formation and knowledge transfer is more difficult in international partnerships than in domestic partnerships (Mowery, Oxley, & Silverman, 1996). Thus, the *location of the partner* was included (1=domestic partner; 2=otherwise).

Finally, *company size* was included to account for any company specific effects and measured by the number of employees for the firms.

All composite variables (three independent variables and trust) were subjected to principal component factor analysis (see [Appendix](#)). Using varimax rotation, the analysis for the independent variables settled on a three-factor solution that explained 78% of the variance. The constructed trust variable was found to be one-dimensional with 72% of the variance explained.

Overall, the results of the factor analysis show the uni-dimensionality of each composite variable with eigenvalues for each factor greater than one and all items loading on the appropriate respective factor at greater than 0.66 and most at greater than 0.75, with item cross-loadings no greater than 0.35. On average, the communalities were 0.75 for the independent variables and 0.72 for trust. They did not vary over a wide range. For small sample sizes, the mean level of communality should be at least 0.70; communalities should not vary widely, and factors must be well determined. Under such conditions, sample size will have relatively little impact on the quality of the solution (MacCallum, Widaman, Zhang, & Hong, 1999).

To control for common method variance and social desirability effects, we employed a number of methodological and statistical remedies, as suggested by Podsakoff, MacKenzie, Lee and Podsakoff (2003). First, the survey was split into two parts, which were sent out separately to prevent the application of implicit theories by the respondents. Second, our data were collected as a part of a larger survey on success factors in collaborative product development, meaning that both parts of the survey also contained other items unrelated to this paper that produced a psychological separation between the independent and dependent variables. An application of Harman’s single factor test on all survey items revealed that no single dominant factor existed. As mentioned earlier, we also tried to avoid words or phrases in our questions that could trigger a socially desired response, such as “trust,” “*inmaek*,” etc. Finally, we checked for a social desirability bias, using a marker variable for project success (“was the project overall a success or not”). The correlation between the independent and dependent variables was not altered significantly, when controlled for this variable. Based on these analyses we concluded that common method variance and social desirability may not be a serious problem in this study.

Analyses and results

The descriptive statistics for the study are provided in Table 1. In Table 2, the results of the moderated OLS regression are reported. To test for multi-collinearity, the variance inflation factors were calculated. All values were within the normal range, and none were higher than 1.94, suggesting that multi-collinearity was not a serious problem.

In the first step, the influence of the control variables on trust was examined (Model 1). As seen in Table 2, prior successful alliance experience and contractual safeguards exerted a significant and positive influence on trust, while relationship length between the partners did not contribute to trust formation. The influence of partner location and firm size was insignificant, indicating that neither factor affected how trust evolved.

Next, the independent variables were entered into the regression (Model 2). As predicted, communication quality and perceived fairness exerted a significant and positive influence on trust, thus supporting Hypotheses 1 and 2. Both relational mechanisms are strongly related to the cultivation of trust in such alliances. In contrast, Hypothesis 3 was not supported, indicating that pre-existing social relationships do not necessarily exhibit a significant influence on the development of trust. We expected that existing social ties provide a trust advance in these alliances as these ties should reduce behavioral uncertainty. However, no such direct effect of pre-existing relationships on trust could be observed.

In the third regression model, the interaction terms of social relationships with communication quality and fairness were included. The interaction between social relationships and communication quality was not significant. Thus, Hypothesis 4a, which predicted a diminishing effect of such ties on the positive influence of communication on trust, was not supported. This finding emphasizes the importance

Table 1 Correlations, means and standard deviations of key variables.

	1	2	3	4	5	6	7	8	9
1 Location of partner									
2 Firm size	-0.047								
3 Successful alliance experience	-0.147	0.122							
4 Relationship length	-0.086	-0.017	0.485***						
5 Contractual safeguards	0.018	-0.025	0.197	0.055					
6 Communication quality	0.032	0.193	0.317**	-0.106	0.262*				
7 Fairness	-0.092	0.220	0.360**	-0.109	0.101	0.441***			
8 Social ties	-0.007	-0.172	0.177	0.187	0.111	0.028	-0.123		
9 Trust	-0.157	0.212	0.371**	-0.069	0.286*	0.666***	0.723***	-0.027	
Mean	1.150	626.573	48.111	6.863	2.122	7.134	7.343	.723	6.722
SD	0.036	2.837	24.972	5.780	0.531	2.021	1.703	0.579	1.951

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$, $n = 47$.

Table 2 Regression analysis for trust.

Variables	Model 1	Model 2	Model 3
Controls			
Location of partner	-0.12 (0.26)	-0.12 (0.18)	-0.07 (0.18)
Firm size	0.15 (0.26)	0.02 (0.18)	-0.02 (0.18)
Successful alliance experience	0.44*** (0.30)	0.01 (0.24)	0.04 (0.23)
Relationship length	-0.30* (0.29)	0.01 (0.22)	-0.05 (0.22)
Contractual safeguards	0.22* (0.26)	0.13 (0.18)	0.13 (0.17)
Main effects			
Communication quality		0.40*** (0.10)	0.43*** (0.10)
Perceived fairness		0.52*** (0.12)	0.47*** (0.12)
Social ties		0.01 (0.32)	0.02 (0.30)
Interaction effects			
Social ties \times communication quality			0.13 (0.21)
Social ties \times perceived fairness			-0.23** (0.22)
R^2	0.30	0.70	0.74
ΔR^2 (p)		0.40***	0.04*
F -value (p)	3.47**	11.28***	10.28***

Standardized beta coefficients (standard errors); $n=47$.

* $p<0.1$, ** $p<0.05$, *** $p<0.01$.

of a quality communication behavior in joint R&D projects independent of the existence of prior ties between alliance partners. However, the interaction between social relationships and fairness was negative and significant, lending support to Hypothesis 4b. We expected that alliance partners with pre-existing social ties would be more accepting of fairness asymmetries because of these ties and the expectation of reciprocity in the long run. The result also indicates that this tolerance may not apply to new alliances.

We also conducted some additional statistical analyses to validate our findings. First, we ran regression models with dummy variables for the different types of pre-existing social relationships to examine whether a specific type of relationship would directly influence or moderate any of the hypothesized relations. This procedure also accounts for potential differences in the importance of these relationships. The results did not significantly deviate from those reported in Table 2, indicating that individual types of pre-existing ties did not influence trust formation in our sample. Second, we tested for potential interaction effects between partner location and our main variables (communication, fairness, and social ties), but found these effects to be close to zero and statistically insignificant. This suggests that the importance of communication quality and fairness apply to both domestic and international new product alliances with Korean firms. Third, given the relatively small sample size we ran additional regression models to test the robustness of the findings with a reduced set of predictor variables. A general rule is that the ratio of observations to independent variables should not fall below 5:1 as this ratio may affect the generalizability of the results (Hair, Anderson, Tatham, & Black, 1998). In the first set of additional regression analyses we excluded two insignificant control variables in Table 2, resulting in a ratio of 5.88:1 for Model 3; in the second set of analyses we excluded all control variables, resulting in a ratio of 9.40:1 for Model 3. In both situations there was no material

loss of effect size or critical information as evidenced by similar beta coefficients, stable directions and significance, and by only a small, but expected, loss to R^2 as compared to the full model in Table 2. This procedure also frees up degrees of freedom for precision and power (Cohen, Cohen, West, & Aiken, 2003). In sum, the results in the regression models with higher ratios of observations to predictors did not change significantly compared to our original model, suggesting the findings, as reported, are robust even at a lower observation to variable ratio.

Discussion and implications

The results of this empirical study highlight the importance of relational mechanisms for trust formation in Korean alliances. Trust grows as people interact, interpret each other's behavior, and reciprocate. Prior alliance experience, if successful, decreases the uncertainty associated with further alliances and contributes to trust formation. This finding is consistent with prior research (Robertson & Gatignon, 1998). Firms with a history of successful alliances are experienced with managing these close relationships and have developed a higher confidence in the development of future alliances—even when they involve partnering with sometimes unknown firms. The results also suggest that contractual safeguards act as an initial surrogate for trust between partners by reducing perceived vulnerability and making behavior more predictable. Perceived vulnerability can be decreased by working out performance expectations and procedures on how to deal with unexpected events at the beginning of the alliance (Reuer & Ariño, 2007).

Another result suggests that partners with longer relationships are not necessarily more trusting of each other. One explanation is that increasing relationship length presents more opportunities to observe one another's behavior, opportunities that may lead one partner to conclude that the other is or is not trustworthy. Interestingly, a meta-analysis of 106 independent samples found that the average effect of relationship length on trust in leadership was close to zero (Dirks & Ferrin, 2002). Although the context of that study was not exactly the same as ours, its results also suggest that a lack of a prior business relationship does not necessarily act as a deterrent to trust formation in new product alliances.

Hypothesis 1, predicting that communication quality is positively related to trust formation in Korean new product alliances, is supported by our data. The same applies to Hypothesis 2 which proposed that perceived fairness is positively associated with trust. These findings suggest that it is difficult to achieve high levels of trust without quality communication between the partners or when one partner gains the perception that it is not being fairly treated. The results parallel recent research in a European industry (Bstieler, 2006) that found that both communication quality and fairness are crucial determinants of trust development and highlight the centrality of these relational mechanisms for trust formation in new product development alliances.

In Hypothesis 3, we suggested that in Korean new product alliances social ties are positively related to trust. Conventional wisdom among South Koreans and foreigners holds that in Korea ties are absolutely essential to successfully conduct business. The hypothesis was not supported, however, as the influence of social ties

on trust is weak and statistically insignificant in our sample. This finding is very noteworthy and indicates that pre-existing social relationships may not necessarily exhibit a significant influence on the development of trust in the context of R&D and new product development. A possible explanation for this result is the strengthening of formal institutional rules in Korean economic life in recent years (OECD, 2005) which have diminished the role social ties play for establishing trustful business relationships (Peng, 2003). Similar trends have been observed in other East Asian countries (Guthrie, 1998; Butler, Brown, & Chamornmarn, 2003).

Our finding directly relates to the mini-controversy about the nature and influence of social connections on business activities and society when institutional and economic structure change in emerging economies. On the one hand, Guthrie (1998, 2002), Peng (2003), and others argue that as institutions improve, the need for social connections to conduct business is fading. To illustrate, Guthrie (1998, 2002) finds that as economic reform progresses in emerging markets, emerging institutions erode the importance of idiosyncratic cultural behavior (e.g., *guanxi* practice), as increasing competition in these markets prefers efficiency over indebtedness and emerging legal systems delegitimize personal ties to subvert procedures. In a similar vein, Peng (2003) and Peng and Zhou (2005) suggest that as emerging economies evolve, networks and personal connections decline vis-à-vis competitive resources and capabilities. They attribute this decline to the rise of formal rules supportive of market systems.

On the other hand, some argue that the impact of social networks and tie-based business relationships remain salient in Asian countries, including China and South Korea, due to cultural heritage and institutional voids and despite changing influences. Wank (1996, 2002), for instance, counterpoints that patron-client ties are active elements of transitional economies shaping the course and future of a transition toward a market economy that are unlikely to decline in significance. Rather, new networks and social ties emerge and become an integral element of a marketization by facilitating resource allocation, providing stable expectations and information flows. Furthermore, there is some evidence that key connections provide a way for private firms to act while minimizing interference in those activities—to bypass institutional hurdles, i.e., they rely more on their contacts than on regulations or abstract principles (Ahlstrom, Bruton, & Lui, 2000).

In Hypotheses 4a and 4b we predicted that pre-existing social relationships moderate the association of communication quality and perceived fairness with trust. This moderating effect was found for fairness, but not for communication quality. The existence of pre-existing social ties appears to reduce the impact of fairness on trust formation. Fairness perceptions become somewhat less important when the partners know each other through kin or non-kin relationships. In such cases, the partners may have already expectations that their efforts will be fairly reciprocated in the long term. These expectations may reduce partner sensitivity to perceived inequities in the short term. In contrast, the importance of communication quality is not diminished by such relationships, indicating that independent of kin or non-kin ties, communication quality is essential in collaborative new product development.

Taken together, the level of trust achieved in recent new product alliances is predominantly determined by behaviors taking place during an alliance such as those

studied here. Pre-existing social relationships, in contrast, have no direct, but only a moderating effect on trust. These findings are partially different from what was expected, particularly when considering that the alliances were with Korean firms. In fact, even contractual safeguards appear to exert a stronger influence on initial trust than kin and non-kin relationships, indicating a potential transition to a more rule-based system. These results contrast the widespread perception that such relationships are crucial to establish trust in East Asian countries (Wank, 1996; Kiong & Kee, 1998; Hung, 2004) and contribute to the perspective taken by Peng (2003) and others that claim as institutions improve, the need for idiosyncratic cultural behavior may decline, i.e., contracts substitute for social ties.

The relatively minor influence of pre-existing kin and non-kin relationships warrants further explanation. Cooperative R&D relations are different from other business relationships because they are more uncertain and risky. In addition to their proprietary nature, information exchange in partnerships includes strategic and tacit know-how acquired through learning by doing. As a consequence, collaborative product development brings with its positive aspect also a certain degree of vulnerability on both sides, possibly even with those firms that have prior kin or non-kin relations.

At the same time, the management of Korean firms has been described as strongly hierarchical (Chung, Lee, & Jung, 1997; Yang, 2006). When alliances are established and maintained by senior managers in a top-down approach, subordinate managers may find it difficult to develop trust on the operational level in a relationship with an external partner. Thus, it is important that those carrying out the alliances in the partnering companies must be well informed and convinced of the benefits of and the need for cooperation, and they must be capable of implementing the cooperation (Wucherer, 2006).

Another possible explanation for our finding is the fact that social ties are often also hierarchical in Korea. For instance, alumni networks exhibit hierarchical relationships between individuals based on the time of graduation from school or university, with “seniors” typically being in a more powerful position than “juniors.” Research on social exchange relations indicates that such unequal power status may have a negative influence on the commitment of partners and on relationship quality (Lawler & Yoon, 1996; Lawler, Thye, & Yoon, 2000). Building and maintaining a trusted relationship in a business alliance may be impeded by unequal power status, as the “junior” partners may find it difficult to speak up towards their “seniors” in the working relationship.

A further look at kin and non-kin relationships reveals that the influence of those relations on trust may be dynamic, as suggested by research on transference-based trust, namely when a third person or organization that both trust introduces the partners to each other (Doney et al., 1998). These partners may trust each other from the beginning of the relationship, thus exhibit an initial “trusting mode.” Based on perceived behavior over time, one or both partners may conclude later that the other indeed is or is not trustworthy.

In addition, the rapid development of the institutional environment for business activities in Korea in recent years may also contribute to our results. As mentioned before, dense personal networks may act as a substitute for institutional frameworks and rules which tend to be imperfect in emerging economies. However, when such

countries evolve, their institutional settings are also strengthening, while the relevance of informal social ties may be diminishing (Peng, 2003; Peng et al., 2005). This appears to be the case in Korea, where institutional settings including the financial system and intellectual property protection were considerably strengthened in recent years, particularly after the financial crisis of 1997 (OECD, 2005). Possibly, the behavior of incumbent domestic firms trails the real situation during such institutional transitions (Peng, 2003). Many Korean companies appear to still rely on social ties and informal networks, although the strengthened institutional environment may have diminished their importance. By focusing too much on existing networks and ties, these firms may forego valuable business opportunities by sealing themselves off from unique information and resources that exist outside established networks (Uzzi, 1997). As a consequence, innovating companies may lose out in an emerging and highly competitive economy like Korea when focusing on existing networks and ties as compared to seeking out and cultivating new relationships that have the potential to provide the range of novel resources and opportunities needed for survival or growth. Thus, the “ties that bind” may become “ties that blind.”

Interestingly, a recent study on business networks in Thailand, another country where social ties are strongly emphasized, found no relationship between existing ties and firm performance (Butler et al., 2003). Moreover, the observation of a declining importance of *guanxi* relationships for doing business in China was mentioned earlier (Guthrie, 1998). Thus, it appears that the business-related importance of social ties may be retreating not only in Korea, but also in other emerging East Asian countries.

In sum, the major contributions of this study are two-fold: First, the study adds to the debate around the importance of kin and non-kin ties for successfully conducting business in emerging Asian countries. We contribute to this debate by suggesting that the benefits of social connections in inter-firm collaborations in emerging East Asian countries are less important than widely assumed. As the institutional rules for market-based exchange are strengthening, pre-existing social connections do no more appear to be a necessary or sufficient condition for successfully establishing trust with business partners in the Korean machinery industry, and possibly beyond.

Second, we address the under-researched topic of alliances between independent firms that are used to conduct business within their established networks of ties and contribute to this research by suggesting that firms should not be preoccupied with pre-existing ties when successful innovation cooperation is the objective. Entering alliances with international or other local firms operating in Korea requires awareness and knowledge of relational mechanisms contributing to trust formation in lieu of social connections. This study identified two such important mechanisms in this context: a quality communication with alliance partners and fair behavior.

For domestic or foreign managers who are considering alliances with Korean firms it is more important to create an environment that fosters a quality communication and fairness. Managers involved in such alliances should take

great care to have timely, honest, reliable, and adequate information exchange with their partner(s) to foster trust. Likewise, successful trust formation demands that you must prove yourself to be basically fair in order to be accepted as a long-term reliable partner (Wucherer, 2006). Managers ought to make sure that disagreements or adjustments to project specific agreements are fairly resolved and that any benefits of the alliance are proportionally shared between the partners based on their roles and responsibilities and their tangible and intangible investments.

Limitations and directions for further research

The results of our study are built on information obtained from only one side of the collaboration. Given the reciprocal nature of trust, it would have been valuable to take into account the perceptions of both alliance participants. While we initially sought to collect such dyadic data on trust development, we eventually had to limit our observations to one side (the manufacturer's perspective) due to the reluctance of participating manufacturers to reveal information about their partners. This constitutes a major limitation of our study.

A single key informant was used for most measures. Given the interest in capturing the perceptions of respondents toward current partnerships, the use of self-report seemed justified for this research. We employed various methodological and statistical methods to control for common methods variance in general and social desirability in particular, and the results of our tests indicate that the potential for such bias may be limited.

The data were collected in one country and from one industry segment only and focused on alliances between independent (non-*chaebol*) firms. The sample size was relatively small but similar to other studies on trust in alliances (e.g., Uzzi, 1997; Bstieler, 2006; Reuer & Ariño, 2007). Despite the small sample size, however, the statistical power of the regression models was $>.80$ (Hair et al., 1998), suggesting that the data were suitable for detecting significant influences of the independent variables on the dependent variable within the given sample. Furthermore, the results appear to be robust when compared to results computed with a higher observation to predictor ratio, thus indicating generalizability of the findings to the firm population. Nevertheless, any strong claim regarding generalization of the results to other countries or industries should be made with caution.

The unexpected results, but also the limitations of this study, imply opportunities for further research on trust development in East Asian new product alliances. Ideally, such research would include data from both sides of an alliance. Considering our partially unexpected results, additional research on the effect of kin and non-kin relationships on inter-organizational trust formation in East Asian business alliances appears particularly promising. As the data did not capture the changing nature of trust over time, longitudinal studies that track these dynamics in new product alliances could identify the ways in which trust evolves (or co-evolves) along with the factors that influence it.

Appendix

Measurement of key constructs and factor analyses results.

	Communalities	Factor loadings		
Trust in partner ($\alpha=0.90$)				
This partner's representatives were frank in dealing with us	0.756	0.870		
Promises made by the partner's representatives were reliable	0.828	0.910		
If problems (such as delays) arose, the partner's representatives were honest about the problems	0.680	0.824		
The partner's representatives made sacrifices for us during the project	0.593	0.770		
We felt the partner's representatives were on our side	0.757	0.870		
Eigenvalue		3.61		
Variance extracted (%)		72.28		
Communication ($\alpha=0.93$)				
The communication between us and the partner representatives was untimely/timely	0.796	0.879	0.136	0.076
...inaccurate/accurate [you can rely on it]	0.834	0.880	0.242	-0.026
...inadequate/adequate	0.880	0.912	0.209	-0.065
...incomplete/complete	0.859	0.904	0.188	0.080
Fairness ($\alpha=0.87$)				
Disagreements were fairly resolved	0.764	-0.007	0.820	-0.302
Benefits were evenly shared	0.716	0.266	0.791	-0.141
Adjustments to project specific agreements were mutually resolved	0.601	0.347	0.669	-0.183
Benefits were fair compared to efforts	0.712	0.236	0.769	0.256
Benefits were fair compared to partner	0.795	0.162	0.871	0.102
Pre-existing social relationships (count of relationships identified)	0.850	0.032	-0.085	0.917
Prior to this project, the following relationships between representatives of our firm and the partner existed: (a) family relationships, (b) school network relationships, (c) regionally based relationships, (d) industry network-based relationships, (e) other personal relationships				
Eigenvalue		3.47	3.26	1.08
Variance extracted (%)		34.71	32.57	10.79

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