THE MODERATING EFFECT OF TRUST ON THE RELATIONSHIP BETWEEN POWER ASYMMETRY AND ORGANIZATIONAL LEARNING

Marjolein C.J. Caniëls (corresponding author)
Faculty of Management Sciences
Open University of the Netherlands
P.O. box 2960, NL-6401 DL Heerlen, the Netherlands
Tel: (+31) 45 576 2724
E-mail: Marjolein.Caniels@ou.nl

Submitted to: International Conference on Organizational Learning, Knowledge and Capabilities (OLKC) VU University Amsterdam, The Netherlands, 26-28 April 2009.
Submission date: 16 January 2009

Keywords: Buyer-supplier relationships; inter-firm learning; power asymmetries; trust

Abstract
This paper reports the findings of a study conducted among 450 European buyers and suppliers in manufacturing regarding their relationship with their trading partners. Particularly, the focus is on whether and how asymmetry in the power position of two trading partners affects the level of inter-firm learning and the moderating role of inter-firm trust. Results indicate that power differentials have a negative impact on organizational learning if the level of trust is low. When inter-firm trust is high, power asymmetries have a slightly positive effect on inter-firm learning. Conclusions and implications are derived from the study findings and directions for further research are provided.

1. INTRODUCTION

In the competitive environment of current times, the success for individual firms depends on how well the supply chain functions as a whole. The strength of the functioning of the entire chain is largely determined by the links between trading parties, i.e. the relationships between buyers and suppliers in the chain. Many studies have shown that power has a critical influence on the relationship between trading partners (Frazier and Summers, 1984; Payan and Nevin, 2005). In this respect it is important to distinguish between the possession of power and the actual use of power (Frazier and Summers, 1984). The research about the use of power is refined to exploring the effect of various influence strategies – exercised coercive and non-coercive power (e.g. Lui *et al.*, 2006; Molm, 1997). Studies have documented which influence strategies are used most frequently by firms (Frazier and Summers, 1984; Frazier and Summers, 1986) and how certain influence strategies will affect compliance of the trading partner (Payan and Nevin, 2005). Research on the possession of power contains studies advocating that the power positions of trading partners should be balanced in order to achieve co-ordination and co-operation among exchange partners and therefore an optimal exchange relationship (Dwyer and Walker 1981; Ireland and Webb, 2007). In contrast, other studies argue that power dominance might not be bad for the relationship, as long as the dominant power position is not misused by employing a coercive influence strategy (Kotter 1979; Stern and Heskett, 1969).

It is well known that in the turbulent and unstable business environment of today individual firms as well as entire supply chains must compete for their survival through continuous improvement and innovation (Bessant, Kaplinsky and Lamming, 2003; Sanchez, 2005). This recognition has led to growing emphasis on the concept of "learning organizations" and on the mechanisms through which learning capability can be developed (Bowen *et al*., 1994; Cohen and Levinthal, 1990; Garvin, 1993; Leonard-Barton, 1995; Senge, 1999). The benefits gained from organizational learning are considered to be of strategic importance for improvements in productivity and longer-term competitive advantage (De Geus, 1988; Ireland and Webb, 2007; Stjernström and Bengsston, 2004). A vast body of empirical research provides support for the positive relation between organizational learning and financial and non-financial results (e.g. Bontis, Crossan, and Hulland, 2002; Calantone, Cavusgil, and Zhao, 2002; Jimenez-Jimenez and Cegarra-Navarro, 2007; Prieto and Revilla, 2006; Skerlavaj and Dimovski, 2006; Tippins and Sohi, 2003).

A critical element in achieving the benefits of organizational learning is the ability of companies to learn and innovate across the individual firm's boundaries, among others in the relationship with the firm's trading partners (Leavy, 1998). Since the respective power position of trading partners determines to a large extent the behavioural processes in the relationship, power differentials are likely to have an impact on organizational learning and hence on organizational performance. However, the influence of power asymmetry in buyer supplier relationships on organizational learning has seldom been investigated in academic research. Studies on power predominantly focus on the influence on the buyer-supplier relationship in terms of perceived conflict (Frazier *et al.*, 1989; Leonidiou *et al.* 2008), information exchange (Frazier and Summers, 1984), cooperation (Lui *et al.*, 2006) and satisfaction (Benton and Maloni, 2005; Leonidiou *et al.* 2008; Morh and Spekman, 1994). Hence, in this paper we aim to examine the effect of power asymmetry between buyers and suppliers on inter-organizational learning.

Various studies have demonstrated that trust is a vital catalyst of inter-firm cooperation and that trust is an essential ingredient in the behavioural processes that take place in buyer supplier relationships (Ariño *et al.*, 2001; Blois 1999; Boersma *et al.* 2003; Lui *et al.* 2006; Mayer *et al.* 1995; Morgan and Hunt 1994). The benefits associated with trust in socio economic relations are specified most prominently in social capital theory (Adler and Kwon, 2002; Blau, 1964, Uzzi 1997). According to social capital theory, "exchange is based on norms of reciprocity or the belief that a firm acting to benefit a partner will be reciprocated favourably for such behaviour in the future" (Ireland and Webb, 2006, p. 484; Woolcock, 1998). Inter-firm trust creates an atmosphere in which firms willingly exceed the minimal requirements of a relationship to increase the likelihood of mutual benefits (Ireland and Webb 2006). Furthermore, various studies have shown that trust facilitates inter-firm learning processes (e.g. Kraatz, 1998). Therefore, we expect that trust moderates the effect of power asymmetry on organizational learning.

In sum, the goal of this paper is to examine the effect of power asymmetry in the buyer-supplier relationship on organizational learning and whether trust moderates this correlation. In the remainder of this paper we first develop hypotheses on the relationship between power asymmetry and organizational learning and the possible moderating effect of trust on this relationship. Then we test the hypotheses using a survey of 450 European sales and purchase managers. We describe the empirical findings and conclude by discussing the theoretical and practical implications of the study.

2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Inter-firm learning

Organizational learning has been conceptualized and defined in numerous ways and there are many perspectives in the field. Several studies argue that organizational learning takes place via the individual employee (Argyris and Schön, 1978; March and Olsen, 1976; March, 1991; Simon, 1991), and individuals learn as agents for the organization (Kim 1993). Other studies see learning as a process of social interaction with others (Cook and Yannow, 1993; Lave and Wenger, 1991). Miller (1996) argues that although learning must be undertaken by individuals, it also depends on different circumstances and situational settings with which the individuals are surrounded. Learning occurs also at the group, organizational and industrial levels (Jiang and Li, 2007; Miller, 1996).

To present just few of the definitions of organizational learning, Senge (1990) defines organizational learning as "a continuous testing of experience and its transformation into knowledge available to the whole organization and relevant to their mission", while Argyris and Schön (1978) see organizational learning as a phenomenon that emerges when organizations acquire information (knowledge, understanding, know-how, techniques and procedures) of any kind by any means and Cyert and March (1963, p. 123) define organizational learning as "a process by which organizations as collectives learn through interaction with their environments". The latter two definitions imply the importance of the business environment for organizational learning, thereby including the interaction with trading partners. Business partners are important providers of information and knowledge to a focal firm. Interactions with suppliers, intermediaries, customers and other firms and organizations enhance organizational learning (Mohr and Sengupta, 2002; Kraatz, 1998; Garvin, 1993; Freeman, 1994). Von Hippel (1988) and

Lundvall (1988) have shown the importance of forward and backward linkages for organizational learning and innovation. This is in line with the 'relational view of the firm' (Jones *et al*., 1997; March and Olsen, 1976; March, 1991; Dyer and Singh, 1998a), which suggests that buyers and suppliers systematically share knowledge and information with each other and make relationship-specific investments in return for benefits that can only be reaped by working together.

In the underlying study we focus on organizational learning in the sense of inter-firm learning, i.e. the extent in which a focal firm learns or internalizes critical skills or capabilities from its trading partners. There is a plethora of conceptual and empirical studies on inter-organizational learning, including learning in regional small firm clusters (Keeble and Williamson, 2000; Nadvi and Schmitz, 1994; Schmitz, 1998), in strategic alliances (Hamel *et al*., 1989; Simonin, 1999; Szulanski, 1996), in industry associations (Keeble *et al*., 1999; Semlinger, 1995) and in shared product development projects (Bozdogan *et al*., 1998; Oliver and Blakeborough, 1998). However, there has been only scant empirical attention for the role of power asymmetry between trading parties specifically that goes beyond small-sample, in-depth studies of a few organizations.

2.2 Power

Firms always depend, to varying extents, on their trading partner. Early studies on dependence focused on the effects for the buyer of its dependence on the supplier, without taking into account the supplier's dependence (e.g., El-Ansary and Stern, 1972). More recent studies have incorporated dependence from the perspective of the buyer as well as the supplier (Buchanan, 1992; Kumar *et al*. 1995; Geyskens *et al*., 1996). In other words, dependence is mutual. Dependence and power are closely related concepts. The possession and control of critical assets generates power. The sign of the net dependence between the two parties indicates the relative power of one organization over the other. If A depends on B more than B depends on A, then B has power over A (Pfeffer, 1981). Whether or not this power is exercised to influence the trading partner's behaviour is a separate issue. In general, the mere presence of asymmetric power positions in relationships is associated with instability and conflict (Anderson and Weitz, 1989; Frazier and Rody, 1991; Geyskens *et al*., 1996; Kumar *et al*., 1995; Rokkan and Haugland, 2000). However, a dominant power position of one party is also linked to fewer possibilities for opportunism of the other party (Anderson and Narus, 1990; Ireland and Webb, 2007; Rokkan and Haugland 2000). Powerful parties will motivate their trading partners to behave properly.

Power can have an important effect on organizational learning. On certain occasions, where one of the parties dominates the other and forces its views onto the other organization, organizational learning could be negatively affected (Ford and Thomas 1995). In such situations sharing of data and information which is critical to organizational learning will be difficult or even impossible (Kwon and Suh, 2004). Furthermore, Ford and Thomas (1995) showed that in asymmetric relationships communication will predominantly go from the dominating party to the dependent party. The lack of two-way communication hampers in turn the dependent party's responses to the dominant party's initiatives. According to Rota *et al.* (2002), March and Olsen (1976) and Senge (1990) there can hardly be organizational learning without the sharing of information on an equal basis. Hence, symmetry in the power position of two trading partners is expected to facilitate mutual learning (Andaleeb, 1995) and equivalently, power asymmetry will lead to less organizational learning. Hence, we hypothesize:

H1. Higher levels of power asymmetry between buyer and supplier are associated with lower degrees of inter-firm learning (ceteris paribus)

2.3 Direct and moderating effect of trust

Trust and commitment are essential prerequisites for building and developing customer-supplier relationships (De Ruyter, Moorman and Lemmink, 2001; Morgan and Hunt, 1994) and therefore they are of particular importance for cooperation (Dwyer *et al.*, 1987; Hakansson *et al.* 2004) and organizational learning (Bessant *et al.*, 2003; Kim, 1993; Ragatz *et al.*, 1997; Stjernström and Bengtsson, 2004). However, trust is a diffuse concept, defined in different ways (Blois, 1999; Schary and Skjøtt-Larsen, 2001). Blomqvist (1997, p. 271) points at "the many faces of trust", referring to the various dimensions and levels of trust, and to the many disciplines that incorporate the concept of trust (social psychology, philosophy, economics, contract law, and marketing). Overall one could say that trust exists when one party has confidence in the exchange partner's reliability and integrity (Anderson and Narus, 1990; Ganesan, 1994; Moorman, Zaltman and Dehpandé, 1992; Morgan and Hunt, 1994).

Whereas many prior studies view trust as a firm-level construct, we extend this unit of analysis to inter-organizational trust (conform Lui *et al*. 2006). Inter-organizational trust is seen as "the extent of trust placed in the partner organization by the members of a focal organization" (Zaheer *et al*, 1998, p.142).

Trust encourages information sharing between buyers and suppliers, and therefore reduces information asymmetry (Min and Mentzer, 2004). This creates good circumstances for inter-firm learning. Several studies have found that trust was positively related to the effectiveness of knowledge transfer between firms (Bessant *et al*, 2003; Mohr and Sengupta, 2002; Ragatz *et al*, 1997; Wathne *et al*, 1996). Knowledge transfer between business parties is expected to lead to inter-firm learning, hence we hypothesize:

H2. Higher levels of trust in a trading partner are associated with higher levels of inter-firm learning.

Some studies propose that the true meaning of trust implies a leap of faith: parties believe that both are interested in the other's welfare and that neither will act without considering the impact of his action on the other (Kumar, 1996, p. 95). In other words, trust reflects the belief that each partner is interested in the other's welfare and that a partner will not intentionally undertake actions that harm the other (Anderson and Narus, 1990; Geyskens, Steenkamp, Scheer and Kumar, 1996). In relation to this aspect some authors refer to 'relational capital' (Burt, 2000; Dyer and Singh, 1998a; Dyer and Nobeoka, 2000b). Theories of the embeddedness of economic exchanges in social relations (Granovetter, 1985; Uzzi 1996, 1997) suggest that trading partners in trusting relationships will be able to overcome luring problems of uncertainty and opportunistic bargaining.

In this light, we argue that power asymmetry does not necessarily have to be bad for a relationship. If trust is present between exchange parties, a dominant power position could also be used with the best intentions for both parties in mind (Ireland and Webb 2006, p. 483). For example, a dominant party might use its power to create co-ordination and co-operation among exchange partners. In other words, trust could be a

moderating mechanism, mediating possible negative effects of power asymmetry on organizational learning. Therefore, we hypothesize:

> **H3.** Trust has a moderating effect on the impact of power asymmetry on inter-firm learning.

Figure 1 displays the theoretical framework of this research which summarizes our hypotheses.

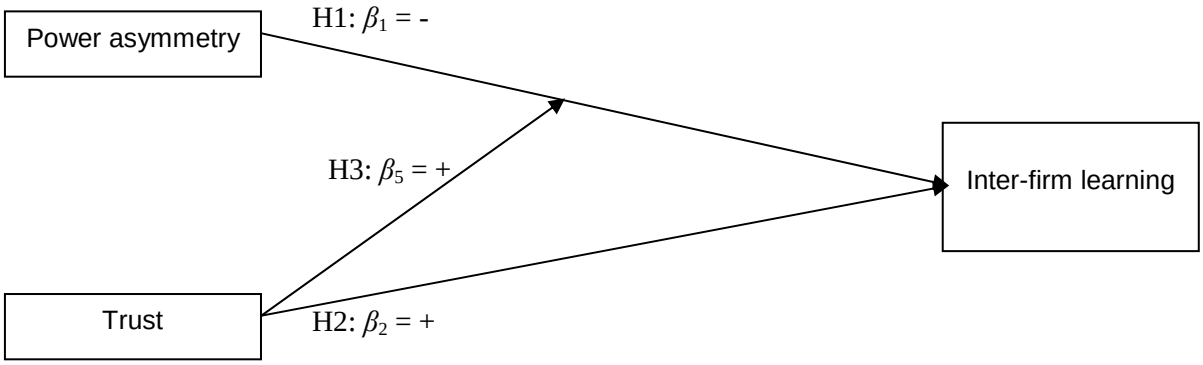

Figure 1.: Theoretical framework

3. METHODOLOGY

3.1 Sample and data collection

The firms that were included in the sample all belong to NACE (Nomenclature statistique des activités économiques dans la Communauté Européenne) category 24 "Manufacture of chemicals and chemical products". In the chemical industry, value chains are particularly important, therefore this sector is very suitable for research about buyer-supplier relations. The sample covers several countries within the European continent: Belgium, Denmark, UK, Germany, Netherlands, Norway and Sweden. The survey has been translated by native speakers into six languages, English, German, Dutch, Danish, Swedish and Norwegian in order to reduce the barriers to participation and enhance the understanding of the questions. We have used an independent back translation of the surveys by a second translator to ensure construct validity. Overall, with the help of various local trade organizations, 2585 companies have been identified as being part of the population.

We developed a questionnaire that was administered online in one round between 25 February and 31 March 2007. The target respondents for this questionnaire were sales and marketing managers from a broad variety of suppliers as well as purchasing managers from a broad variety of buying firms from all around Europe. We solicited the support of a large Dutch multinational company which mediated access to their global address list of suppliers and customers. 237 e-mail invitations were returned as undeliverable. A total of 3349 invitations were assumed to have reached the intended recipients, that is 1979 sales managers and directors and 1362 purchasing managers and directors.

The questionnaire contained questions about generic respondent demographics such as age, gender, current job position, work experience, and level of education. The respondent was also asked to report generic firmographics, such as country, industry, company size, and turnover. As the survey is focused on successful mutual learning in

the dyadic buyer-supplier relationship, we developed two separate questionnaires, one contains items formulated from the buyer's viewpoint and the other one contained the same items but now formulated from the supplier's viewpoint.

3.2 Response

All respondents were assured anonymity. While it was clear that their names and addresses were provided by the multinational and this company openly endorsed the study, the data were collected and analyzed by the research team, separate from the multinational company. Also, the respondents were not required to report on their experiences specifically with this multinational, thereby reducing the threat of social desirability bias. Furthermore, in order to reduce method biases, the respondents' anonymity was protected, respondents were assured that there are no right or wrong answers and they were urged to answer questions as honestly as possible (Podsakoff et al, 2003). Reminders were sent out to non-respondents one week and two weeks after the original invitation. Using this procedure, a total of 450 usable responses were received (270 of suppliers and 180 of buyers), yielding an average response rate of 450/3349 = 13.4% (270/1979 = 13.6% response rate for suppliers and 180/1433 = 13.2% response rate for buyers). Mail surveys generally have an average response rate of about 20 %, however, it is known that internet surveys generate a lower response than mail surveys (Dillman, 2007). In that respect, the response rate of 13.4 % is in line with what is to be expected. The non-response bias should be minimal, as comparisons between respondents and non-respondents on their rank and on the size of the firm in which they are employed, and between early and late respondents yielded no significant differences.

3.3 Research model

On basis of our literature review, we present a model that links the key variables in this study. The model pertains to the hypotheses and identifies the relative importance of certain factors on organizational learning, while taking into account the moderating effects of trust. The model can be expressed mathematically as multiple regression equation as follows:

$$\textit{Inter-firm learning} = \alpha + \beta_1\, \textit{Power asymmetry} + \beta_2\, \textit{Trust} + \beta_3\, \textit{Mutual goal setting} + \beta_4\, \textit{Buyer-Supplier dummy} + \beta_5\, \textit{Power asymmetry} \times \textit{Trust},$$

in which *power asymmetry* is measured as the absolute difference between the perceived dependence of the firm itself on its trading partner and the perceived dependence of the trading partner on the firm itself.

The *buyer-supplier dummy* is inserted to take account of differences in the effect of trust and power asymmetry on down- versus upstream trading partners. We included *mutual goal setting* as control variable in order to further specify the model. Having mutual goals within a dyadic buyer-supplier relationship is positively related to the level of commitment between both parties (Wilson, 1995). Wilson (1995) argues that "…mutual goals are the glue holding a relationship together in times of stress" (Wilson, 1995, p. 17). Companies with a high degree of mutual goal setting are expected to be more successful in organizational learning than those without clear mutual goals (Argyris and Schon, 1978; Gaudet *et al*, 2003; Kim, 1993; Mulholland *et al*, 2002).

3.4 Measures

Multiple-item scales, closely following previous studies, were used to measure each construct. The items that were used to assess the construct variables as well as their

internal consistency are reported in the Appendix. All items were measured on 7-point Likert scales. Anchors for these scales were 1 = strongly agree to 7 = strongly disagree. We provided verbal labels for the midpoint of scales and avoided using bipolar numerical scale values (e.g., -3 to +3) in order to reduce acquiescence bias (Tourangeau et al 2000). Wherever possible, existing measures of the constructs were adapted and used. The survey items assessing inter-firm learning are based on Ramus and Steger (2000). The items measuring trust are based on Larzelere and Huston (1980). Mutual goal setting items were adopted from Rojsek and Matajic (2002).The items measuring buyer's and supplier's dependence were based on Lusch and Brown (1996) and Gelderman (2003).

The dependent construct variable inter-firm learning approximately follows a normal distribution. Distributions with a skewness and kurtosis between -1.0 and +1.0 are considered to be normal. Our sample exhibits a skewness of 0.859 and a kurtosis of 0.230. This means that we are allowed to use multiple regression analysis.

4. RESULTS

We used linear multiple regression analysis to examine the hypothesized effects of power asymmetry on inter-firm learning. In addition, we examined the hypothesized interaction effect of trust on the power asymmetry. Table I reports the means, standard deviations, and correlations between variables. The results of the regression analysis are presented in Table II.

Table I: Means, Standard Deviations, and Correlations

	Mean	SD	1	2	3
1. Inter-firm learning	3.02	1.03			
2. Power asymmetry	1.16	.85	.112*		
3. Trust	3.35	.87	.311***	.366***	
4. Mutual goals setting	3.56	.96	.505***	.232***	.354***

Notes. N = 450; ‡ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

Table II: Regression analysis on inter-firm learning

Independent variables (centralized)	B	Hypothesis supported/rejected
Direct effects		
Power asymmetry	-0.13** (0.007)	H_1 supported
Trust	0.22*** (0.000)	H_2 supported
Control variable		
Mutual goals setting	0.52*** (0.000)	
Dummy		
Supplier	0.55*** (0.000)	
Interaction		
Power asymmetry x trust	0.16*** (0.000)	H_3 supported
Intercept	2.74*** (0.000)	
Δ R^2	0.325 – 0.342 = 0.018*** (0.000)	
Δ F	54 989 – 47 655 = 12 590*** (0.000)	
N	450	

Notes. Unstandardized coefficients are reported, independent variables were centered, *p*-values are reported between brackets. ‡ $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$.

The results show that power asymmetry is negatively associated with inter-firm learning, thereby supporting hypothesis 1 and confirming similar findings by Andaleeb (1995), Stjernström and Bengtsson (2004) and Ragatz *et al* (1997). Furthermore, trust has a significant positive relation to inter-firm learning, a finding that supports hypothesis 2. Hypothesis 3 is supported as well. Trust has a mitigating effect on power asymmetry, thereby supporting previous research of Ariño *et al* (2001), Blois (1999),

Boersma *et al* (2003), Mayer *et al* (1995), Morgan and Hunt (1994) and Lui *et al* (2006).

Hypothesis 3 predicted that trust will decrease the negative effect of power asymmetry on inter-firm learning. The model consisting of the control and main effects of trust and power asymmetry produced an (adjusted) R^2 of 0.325. When the interaction term was added, the R^2 increased to 0.342, showing a significant R^2 change of 0.018 ($p < .001$). As shown in Table II the interaction term of trust and power asymmetry was positive and significant ($b = 0.16$, $p < .001$). Thus hypothesis 3 was fully supported.

In hypothesis 3 we predicted that the presence of trust will decrease the negative effect of power asymmetry on inter-firm learning. Following Aiken and West (1991), the independent variables were centred and simple slopes analyses were conducted. The interaction is plotted in Figure 2 to understand the precise effects of this variable. The plot was 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.

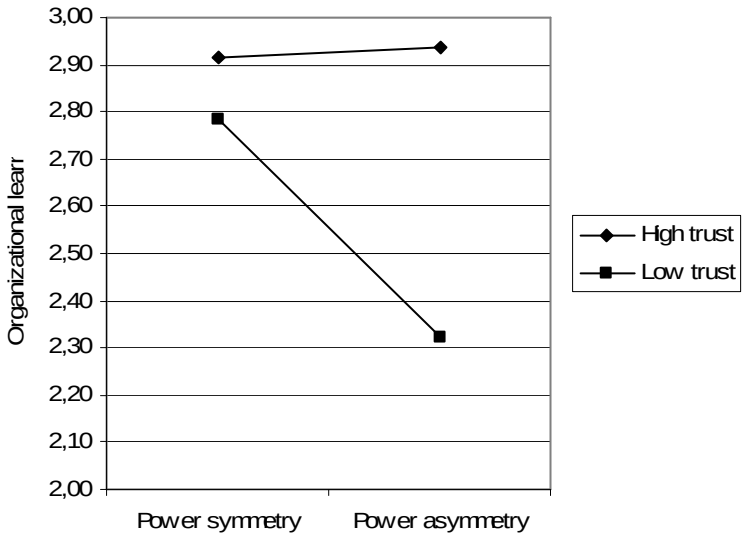

Figure 2: The moderating effect of trust on the negative impact of power asymmetry on inter-firm learning

Simple slopes with trust as the moderator revealed the slope for inter-firm learning to be negative at low levels of trust and positive at high levels of trust. The sign of the effect is consistent with our expectations. Figure 2 displays that the moderating effect of trust is very prominent when trust is high. In the presence of low trust, large power differentials between buyers and supplier dramatically reduce inter-firm learning. In contrast, when trust between trading partners is high, power asymmetry between buyers even has a slight positive effect on inter-firm learning. This suggests that power asymmetry is associated with reduced inter-firm learning, but that this effect can be moderated to a large extent by high inter-firm trust between trading partners.

Table III presents a summary of research hypotheses and findings.

Table III: Summary of research hypotheses and findings

Independent variable	Hypothesis	Predicted sign	Dependent variable	Overall results

Power asymmetry	H_1	-	inter-firm learning	supported
Trust	H_2	+	inter-firm learning	supported
Power asymmetry x trust	H_3	+	inter-firm learning	supported

5. DISCUSSION, CONCLUSION, LIMITATIONS AND IMPLICATIONS FOR FURTHER RESEARCH

The goal of this paper was to examine the effect of power asymmetry in the buyer-supplier relationship on inter-organizational learning and whether trust moderates this correlation. The results of our study contribute to the literature in an important way. In previous studies on power the focus was on the impact of power asymmetry on perceived conflict (Frazier *et al*, 1989; Leonidiou *et al* 2008), information exchange (Frazier and Summers, 1984) and satisfaction (Benton and Maloni, 2005; Leonidou *et al* 2006; Morh and Spekman, 1994). However, no attempt was made to examine the effect of power asymmetry on inter-firm learning. In our study we go beyond small-sample, in-depth studies of a few organizations and carry out a survey among 450 European firms which relates power asymmetries to inter-firm learning.

Furthermore, this research advances our understanding of the role of trust in organizational learning. The correlation between power asymmetries and organizational learning mediated by trust, has not been specified in the research to date. Our study extends the previous research by suggesting that trust plays an important role in influencing the impact of power differentials on learning. In absence of a moderating variable one may conclude that power asymmetry is detrimental to inter-firm learning. Our findings suggest that this relationship may not always be so straightforward. In trusting relationships power asymmetry between buyers even slightly enhances possibilities for inter-firm learning. Hence, the presence of power differentials is generally associated with reduced inter-firm learning, but this effect is lessened and even turned around in trusting relationships. This finding is in line with theories about the embeddedness of economic exchanges in social relations (Granovetter, 1985; Uzzi 1996, 1997) that suggest that trading partners in trusting relationships will be able to overcome luring problems of uncertainty and opportunistic bargaining.

The managerial implications of our study lie in the observation that trust influences organizational learning. We found that trust moderates the damaging impact of power asymmetry on inter-firm learning. Hence, managers may need to direct their efforts to trust building processes in exchange with their trading partners to overcome power asymmetry issues.

Several limitations of this study are noted. First, although we have data from buyers as well as suppliers, we do not have dyads. We have measured the perception of one party only. Consequently, buyers as well as suppliers might systematically have underestimated the dependence of the other party on themselves. With dyadic data it would also have been possible to include a firm fixed effect which would help to take care of unobserved heterogeneity on part of the focal firm. Hence, a more complete picture of power asymmetries, trust and organizational learning would be created if the data was collected in dyads. Additionally, it is sensible to move beyond the dyadic view of inter-firm learning to a network or system level of analysis. Further research initiatives should be taken in this direction as well.

Second, our study could be extended in further research by including more factors that influence organizational learning in order to increase the predictive value of the model.

In this respect it would be worthwhile to include the duration of the relationship between the buyer and the supplier as a control variable. The longer a trading relationship exists, the more trust is generated, as is the belief that learning is taking place. Since the measure of learning is subjective, it may be that the managers themselves (falsely) believe that they are learning from partners they like, while believing they are learning less from partners they dislike. Hence, the inclusion of an independent variable measuring the duration of the relationship would take account of this effect. Also the stock of valuable knowledge or the recipient's ability to learn (absorptive capacity) would be helpful to include as controls or primary effects. These variables could indicate whether there is actually something valuable to learn from the partner, which it implicitly assumed in our model.

Third, the regression analysis in our study only allows us to associate variables and it is not possible to indicate causality. From a theoretical point of view we implied causality from power asymmetry and trust towards organizational learning, and we did not take into account a possible reverse causality. However, it would not be a far stretch to argue that the existence of a learning relationship (B has know-how that is of value for A) causes dependence and power asymmetry, and not the other way around. Further research could explore the causality aspects in our model.

Fourth, in our study we stretch the concept of trust from inter-personal towards inter-organizational relationships (Das and Teng, 2001; Zucker, 1986). Although this is done in many studies, one might challenge whether this approach is apt, as exchanges between firms are really exchanges between individuals or groups of individuals (Barney and Hansen, 1994; Mouzas, Henneberg and Naudé, 2007; Zaheer *et al*, 1998). A similar argument holds for organizational learning. It would be an interesting avenue for further research to combine an exploration of organizational learning on different levels, i.e. on the individual level as well as on the firm level, in one study. In this line, Lui *et al*. (2006) have developed an excellent measure of interpersonal organizational learning. Furthermore, trust is a multidimensional concept. The role of different types of trust in inter-firm learning could be investigated in future research.

Fifth, although organizational learning has often been viewed as an end in itself, the final objective of many partnering firms will probably be an improvement in financial performance, such as productivity or profitability. Hence, while firms are seeking to gain competitive advantage by engaging in inter-organizational learning, we need to understand whether this has an impact on their financial performance and whether such impact will be conditioned by other factors (Jiang and Li, 2007).

Finally, our research was conducted in a particular setting, namely that of the manufacturing industry in Europe. Replications of this study with different samples are needed. It might also be useful to explore whether nationality of the firms involved has an impact on the results, as there might be asymmetries in knowledge transfer or learning between countries. Dyer and Hatch (2006) recently demonstrated that there might be asymmetries in knowledge transfer or learning depending on whether the parties involved are US or Japanese manufacturers. A similar issues could be at play between European countries.

REFERENCES

Adler, P. and Kwon, S.-W. (2002). Social capital: prospects for a new concept. *Academy of Management Review* **27**, 17–40.

Andaleeb, S.S. (1996). An experimental investigation of satisfaction and commitment in marketing channels: The role of trust and dependence. *Journal of Retailing* **72**(1), 77−93.

Anderson, J. C. and Narus, J. A. (1990). A model of distributor firm and manufacturer firm working partnerships. *Journal of Marketing* **54**(1), 42−58.

Anderson, J. C. and Weitz, B. A. (1989). Determinants of continuity in conventional industrial channel dyads. *Marketing Science* **8**, 310–323.

Argyris, C. and Schön, D.A. (1978). *Organizational learning: A theory of action perspective*. Reading, MA: Addison-Wesley.

Ariño A, de la Torre J. and Ring P.S. (2001). Relational quality: managing trust in corporate alliances. *California Management Review* **44**(1), 109–131.

Barney J.B. and Hansen M.H. (1994). Trustworthiness as a source of competitive advantage. *Strategic Management Journal* **15**, 175-90.

Benton,W.C. and Maloni, M. (2005). The influence of power driven buyer/ seller relationships on supply chain satisfaction. *Journal of Operations Management* **23**, 1–22.

Bessant, J., Kaplinsky, R. and Lamming, R. (2003). Putting supply chain learning into practice. *International Journal of Operations and Production Management* **23**(2), 167–184.

Blau, P.M. (1964). *Exchange and Power in Social Life*. John Wiley and Sons: New York.

Blois, K.K. (1999). Trust in business to business relationships: An evaluation of its status. *Journal of Management Studies* **36**(2), 197–215.

Blomqvist, K. (1997). The many faces of trust. *Scandinavian Journal of Management* **13**(3), 271-86.

Boersma M.F., Buckley P.J. and Ghauri P.N. (2003). Trust in international joint venture relationships. *Journal of Business Research* **56**(12), 1031–42.

Bontis, H., Crossan, M. and Hulland, J. (2002). Managing an organizational learning system by aligning stocks and flows. *Journal of Management Studies* **39**(4), 437–469.

Bowen, H., Clark, K., Holloway, C., Leonard-Barton, D. and Wheelwright, S. (1994). Regaining the lead in manufacturing. *Harvard Business Review* **72**(5), 108-44.

Bozdogan, K., Deyst, J., Hoult, D. and Lucas, M. (1998). Architectural innovation in product development through early supplier integration. *R&D Management* **28**(3), 163-173.

Buchanan, L. (1992). Vertical trade relationships: The role of dependence and symmetry in attaining organizational goals. *Journal of Marketing Research* **29**, 65–75.

Burt, R.S. (2000). The network structure of social capital. *Research in Organizational Behavior* **22**, 345-423.

Calantone, R.J., Cavusgil, S.T. and Zhao, Y. (2002). Learning orientation, firm innovation capability, and firm performance. *Industrial Marketing Management* **31**, 515–524.

Cohen, W. and Levinthal, D. (1990). Absorptive capacity: a new perspective on learning and innovation. *Administrative Science Quarterly* **35**(1), 128-52.

Cook Scott D.N. and Yannow D. (1993). Culture and organizational learning. *Journal of Management Inquiry* **2**(4), 373-390.

Cyert, R.M. and March J.G. (1963/1992). *A Behavioral Theory of the Firm*. 2nd ed. Prentice Hall: Englewood Cliffs, NJ.
Das T.K. and Teng B.S. (2001). Trust, control and risk in strategic alliances: an integrated framework, *Organization Studies* **22**(2), 251-83.
De Geus, A.P. (1988). Planning as learning. *Harvard Business Review* **88**(2), 70–74.
De Ruyter, J. C., Moorman, L. and Lemmink, J. G. A. M. (2001). Antecedents of commitment and trust in customer– supplier relationships in high technology markets. *Industrial Marketing Management* **30**(3), 271– 286.
Dillman, D.A. (2000). *Mail and Internet Surveys: The Tailored Design Method*, second ed. John Wiley: New York/Chichester.
Dwyer R.F., Schurr P.H. and Oh S. (1987). Developing buyer– seller relationships. *Journal of Marketing* **51**(2), 11–27.
Dwyer, F.R. and Walker, O.C. (1981). Bargaining in an asymmetrical power structure. *Journal of Marketing* **45**(1), 104–115.
Dyer, J.H. and Hatch, N.W. (2006). Relation-specific capabilities and barriers to knowledge transfers: creating advantage through network relationships. *Strategic Management Journal* **27**(8), 701-719.
Dyer, J. and Singh, J. (1998). The relational view: cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review* **23**(4), 660–679.
Dyer, J.H. and Nobeoka, K. (2000). Creating and managing a highperformance knowledge-sharing network: the Toyota case. *Strategic Management Journal* **21**(3), 345–367.
El-Ansary, A.I. and Stern, L.W. (1972). Power measurement in the distribution channel. *Journal of Marketing Research* **9**(1), 47−52.
Ford, D. and Thomas, R. (1995). Omega: network perceptions and network learning. In Håkansson H. and Snehota, I (Eds). *Developing Relationships in Business Networks.* Routledge: London; 221-31.
Frazier, G.L., Gill, J.D. and Kale, S.H. (1989). Dealer dependence levels and reciprocal actions in a channel of distribution in a developing country. *Journal of Marketing* **53**(1), 50−59.
Frazier, G.L. and Rody R.C. (1991). The use of influence strategies in interfirm relationships in industrial product channels *Journal of Marketing* **55**(1), 52-69.
Frazier, G.L. and Summers, J.O. (1986). Perceptions of interfirm power and its use within a franchise channel of distribution. *Journal of Marketing Research* **23**(2), 169−176
Frazier, G.L. and Summers, J.O., (1984). Inter-firm influence strategies and their application with distribution channels. *Journal of Marketing* **48**(3), 43–55.
Freeman, C. (1994). The economics of technical change. *Cambridge Journal of Economics* **18**, 463-514.
Ganesan, S. (1994). Determinants of long-term orientation in buyer-seller relationships. *Journal of Marketing* **58**(2), 1–19.
Garvin, D.A. (1996). Building a learning organization. *Harvard Business Review* July/August, 78-91.
Gaudet, C.H. and Annulis, H.M., Carr J.C. (2003). Building the Geospatial Workforce. *URISA Journal* **15**(1).
Garvin, D. (1993). Building a learning organisation. *Harvard Business Review* July/August, 78-91.
Gelderman, C.J. (2003). *A portfolio approach to the development of differentiated purchasing strategies.* Eindhoven: Eindhoven University of Technology.

Geyskens, I., Steenkamp, J.E.M., Scheer, L.K. and Kumar, N. (1996). The effects of trust and interdependence on relationship commitment: A trans-Atlantic study. *International Journal of Research in Marketing* **13**, 303–317.
Granovetter, M.S., (1985). Economic action and social structure: A theory of embeddedness. *American Journal of Sociology* **91**, 481–510.
Hakansson, H., Harrison, D. and Waluszewski, A. (2004). *Rethinking Marketing: Developing a New Understanding of Markets.* Wiley: Chichester.
Hamel, G., Doz, Y. and Prahalad, C. (1989). Collaborate with your competitors – and win''. *Harvard Business Review* **67**(January/February), 133-9.
Ireland, R.D. and Webb, J.W. (2007). A multi-theoretic perspective on trust and power in strategic supply chains. *Journal of Operations Management* **25**(2), 482-497.
Jiang X. and Li Y. forthcoming (2008). The relationship between organizational learning and firms' financial performance in strategic alliances: A contingency approach. *Journal of World Business*.
Jimenez-Jimenez, D. and Cegarra-Navarro, J.G. (2007). The performance effects of organizational learning and market orientation. *Industrial Marketing Management* **36**(6), 694–708.
Keeble, D., Lawson, C., Moore, B. and Wilkinson, F. (1999). Institutional thickness in the Cambridge region. *Regional Studies* **33**, 319-32.
Keeble, D. and Williamson, F. (Eds) (2000). *High Technology Clusters, Networking and Collective Learning in Europe*, Ashgate: Aldershot.
Kim, D.H. (1993). The link between individual and organizational learning. *Sloan Management Review* Fall, 37-50.
Kotter, J. (1979). Managing External Dependence. *Academy of Management Review* **4**(1), 87-92.
Kraatz, M.S. (1998). Learning by Association? Interorganizational Networks and Adaptation to Environmental Change. *Academy of Management Journal* **41**(6), 621-643.
Kumar, N. (1996). The power of trust in manufacturer-retailer relationships. *Harvard Business Review*. 92-106.
Kumar, N., Sheer, L.K., and Steenkamp, J.E.M. (1995). The effects of perceived interdependence on dealer attitudes. *Journal of Marketing Research* **32,** 348–356.
Kwon, I.-W.G. and Suh, T. (2004). Factors affecting the level of trust and commitment in supply chain relationships. *Journal of Supply Chain Management* **40,** 4–14.
Larzalere, R.E. and Huston, T.L. (1980). The dyadic trust scale: toward understanding interpersonal trust in close relationships. *Journal of Marriage and the Family* **42**, 595-604.
Lave J. and Wenger E. (1991). *Situated Learning: Legitimate Peripheral Participation.* Cambridge: Cambridge University Press.
Leavy, B. (1998). The concept of learning in the strategy field - Review and outlook. *Management Learning*, **29**, 447-466
Leonard-Barton, D. (1995). *Wellsprings of Knowledge: Building and Sustaining the Sources of Innovation*, Harvard Business School Press: Boston, MA.
Leonidou, L.C., Barnes B.R. and Talias M.A. (2006). Exporter–importer relationship quality: The inhibiting role of uncertainty, distance, and conflict. *Industrial Marketing Management* **35**, 576–588.
Lui S.S., Ngp H. and Hon A.H.Y. (2006). Coercive strategy in interfirm cooperation: Mediating roles of interpersonal and interorganizational trust. *Journal of Business Research* **59**, 466– 474.
Lundvall B.-Å. (1988). Innovation as an interactive process: from user-producer interaction to the national system of innovation. In Dosi G., Freeman C., Nelson R.,

Silverberg G. and Soete L. (Eds). *Technical Change and Economic Theory*. Frances Pinter: London.
Lusch, R.F. and Brown, J.R (1996. Interdependency, contracting and relational behavior in marketing channels. *Journal of Marketing* **60**(4), 19-38.
March, J. and Olsen, J. (1976). *Ambiguity and Choice in Organizations*. Universitetsforlagat: Bergen.
March, J.G. (1991). Exploration and exploitation in organizational learning. *Organization Science* **2**(1), 71–87.
Mayer, R.C., Davis, J.H. and Schoorman, F.D. (1995). An integrative model of organizational trust. *Academy of Management Review* **20**, 709–734.
Miller, D. A. (1996). A preliminary typology of organizational learning: Synthesizing the literature. *Journal of Management* **22**, 484–505.
Min S. and Mentzer J.Y. (2004). Developing and measuring supply chain management concepts. *Journal of Business Logistics* **25**(1), 63-99.
Mohr J. and Spekman R. (1994). Characteristics of partnership success: partnership attributes, communication behavior, and conflict resolution techniques. *Strategic Management Journal* **15**(2), 135–152.
Mohr, J. J. and Sengupta, S. (2002). Managing the paradox of inter-firm learning: The role of governance mechanisms. *The Journal of Business and Industrial Marketing* **17**(4), 282–301.
Molm, L.D. (1997). Risk and power use: constraints on the use of coercion in exchange. *American Sociological Review* **62**, 113–133.
Moorman, C., Zaltman, G., and Deshpande, R. (1992). Relationships between providers and users of market research: The dynamics of trust within and between organizations. *Journal of Marketing Research* **29**(3), 314−328.
Morgan R.M. and Hunt S. (1994). The commitment–trust theory of relationship marketing. *Journal of Marketing* **58**(3), (20–38.
Mouzas S., Henneberg S. and Naudé P. (2007). Trust and reliance in business relationships. *European Journal of Marketing* **41**(9/10), 1016-1032.
Mulholland, P., Zdrahal Z., Domingue J. Hatala M. and Bernardi A. (2002). A methodological approach to supporting organizational learning. *International Journal of Human-Computer Studies archive* **56**(3), 337 – 367.
Nadvi, K. and Schmitz, H. (1994). *Industrial Clusters in Less Developed Countries: Review of Experiences and Research Agenda.* Institute of Development Studies: Brighton.
Oliver, N., and Blakeborough, M. (1998). In Grieve Smith, J. and Michie, J. (Eds), *Innovation,Co-operation and Growth.* Oxford University Press: Oxford.
Payan J.M. and Nevin J.R. (2006). Influence strategy efficacy in supplier–distributor relationships. *Journal of Business Research* **59**, 457– 465.
Pfeffer, J. (1981. *Power in organizations.* Massachusetts: Pitman Publishing Inc.
Podsakoff, P.M., MacKenzie S.B. and Lee J.-Y. (2003). Common method biases in behavioural research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology* **88**(5), 879-903.
Prieto, I. M. and Revilla, E. (2006). Learning capability and business performance: A non-financial and financial assessment. *The Learning Organization* **13**(2), 166–185.
Ragatz G.L., Handfield R.B. and Scannell T.V. (1997). Success factors for integrating suppliers into new product development. *Journal of Product Innovation Management* **14**,190-202.
Ramus C.A. and Steger U. (2000). The roles of supervisory support behaviors and environmental policy in employee “ecoinitiatives” at leading-edge European companies. *Academy of Management Journal* **43**(4), 605-626.

Rojsek I. and Matajic M. (2002). Do Slovenian service companies belong to the mainstream of relationship marketing oriented companies? Proceedings from The 18th Annual IMP ConferenceDijon, Bourgogne : Groupe ESC ; The IMP Group , (2002.

Rokkan, A.I. and Haugland, S.A. (2002). Developing relational exchange: effectiveness and power. *European Journal of Marketing* **36,** 211– 230.

Rota K., Thierry C. and Bel G. (2002). Supply chain management: a supplier perspective. *Production Planning and Control* **13**(4), 370-380

Sanchez, R. (2005). Knowledge management and organizational learning – Fundamental concepts for theory and practice. Lund Institute for Economic Research, Working Paper Series, 2005/3.

Schary, P.B. and Skjoett-Larsen, T. (2001). *Managing Global Supply Chain Management*, Copenhagen Business School Press: Copenhagen.

Schmitz, H. (1998). Collective efficiency and increasing returns. *Cambridge Journal of Economics* **23**(4), 465-83.

Semlinger, K. (1995). In Kaplinsky, R., Coriat, B., den Hertog, F. and Andreason, L. (Eds). *Europe's Next Step.* Frank Cass: London.

Senge, P. (1990). *The Fifth Discipline*, Doubleday:New York, NY.

Senge, P. (1999). *The Dance of Change: Mastering the Twelve Challenges to Change in a Learning Organisation,* Doubleday: New York, NY.

Simon, H. (1991). *Models of my life*. Cambridge, MA: MIT Press.

Simonin, B. (1999). Ambiguity and the process of knowledge transfer in strategic alliances. *Strategic Management Journal* (20(7), 595-623.

Skerlavaj, M. and Dimovski, V. (2006). Social network approach to organizational learning. *The Journal of Applied Business Research* **22**(2), 89–98.

Stern, L. and Heskett, J.,1969). Conflict management in interorganization relations: a conceptual framework. In: Louis, S. (Ed.), *Distribution Channels: Behavioral Dimensions*. Houghton Mifflin Company: New York; 288–305.

Stjernström S. and Bengtsson L. (2004). Supplier perspective on business relationships: experiences from six small suppliers. *Journal of Purchasing & Supply Management* **10**, 137–146.

Szulanski, G. (1996). Exploring internal stickiness: Impediments to the transfer of best practice within the firm. *Strategic Management Journal* **17**(2), 27-44.

Tippins, M.J. and Sohi, R.S. (2003). IT competency and firm performance: is organizational learning a missing link? *Strategic Management Journal* **24,** 745-61.

Tourangeau, R., Rips, L.J. and Rasinski, K. (2000). *The psychology of survey response*. Cambridge, England: Cambridge University Press.

Uzzi, B. (1996). The sources and consequences of embeddedness for the economic performance of organizations: The network effect. *American Sociological Review* **61**, 674–698.

Uzzi, B. (1997). Social structure and competition in interfirm networks: the paradox of embeddedness. *Administrative Science Quarterly* **42**, 35–67.

Von Hippel, E. (1988). *The Sources of Innovation.* Cambridge: Cambridge University Press.

Wathne K, Roos J, and Krogh G. (1996). Towards a theory of knowledge transfer in a cooperative context. In *Managing Knowledge - Perspectives on cooperation and competition*, Krogh G , Roos J (eds). Sage Publications: London.

Wilson, D. (1995). An integrated model of buyer-seller relationships. *Journal of the Academy of Marketing Science* **23**(4), 335-45.

Woolcock, M. (1998). Social capital and economic development: Toward a theoretical synthesis and policy framework. *Theory and Society* **27**(2), 151-208.

Zaheer, A., McEvily, B. and Perrone, V. (1998). Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance. *Organization Science* **9**(2), 141–159.

Zucker, L.G. (1986). The production of trust: institutional sources of economic structure, 1840-1920. In Staw, B.M. and Cummings, L.L. (Eds), *Research in Organizational Behavior*, Vol. 8. JAI Press: Greenwich, CT; 53-111.

APPENDIX

Measures (on a seven point Likert-scale)	**Cronbach's alpha**
Organizational learning adapted from Ramus and Steger (2000) With the help of lessons learned from this customer, we are able to make more efficient use of our organization. We learn from this customer. We feel that this customer is a valuable source of information and new ideas. Thanks to this customer we are able to shorten the time line of our product introduction. Thanks to this customer we are able to improve our business processes. Due to the help of this customer, we are able to get a sustainable competitive advantage.	0.876
Dependence of the own firm based on Lusch and Brown (1996) and Gelderman (2003) Reliable ordering of this product by this customer is important for an uninterrupted flow of our manufacturing processes. This customer is important for us in terms of volume of trade. We need the technological expertise of this customer. We will experience high switching costs if another customer will replace the current customer. We depend on this customer.	0.856
Dependence of the trading partner perceived by the own firm based on Lusch and Brown (1996) and Gelderman (2003) Reliable delivery of this product is important for an uninterrupted flow of the manufacturing processes of the customer. Our company is an important supplier for this customer in terms of volume of trade. This customer needs our technological expertise. Replacing us by another supplier involves high switching costs for the customer. This customer depends on us.	0.665
Mutual goal setting based on Rojsek and Matajic (2002) Our business objectives have been achieved by support of this customer We work together with this customer on joint projects. We are aware of the business goals of this customer Our business goals have been adjusted to match the goals of this customer We prepare our strategic business plans in collaboration with this customer We cooperate with this customer to get more competitive strengths in the market This customer informs us about all their achievements We share information with this customer on our goal achievements This customer and we both include each other in discussions about business development and/or changes of business processes. This customer as well as our company always shares information about supply and demand forecasts and competitors' moves We make legally binding agreements with this customer specifying obligations of both parties Our company tries to act in favor of this customer's business results This customer tries to act in favor of our business results If market situation changed, we as well as this customer, are prepared to make changes in business processes to each others benefits	0.889
Trust based on Larzelere and Huston (1980) We feel that this customer can be counted on to help us We feel that we can trust this customer completely This customer has a high level of integrity There are times when this customer cannot be trusted (R) This customer is perfectly truthful and honest with us This customer treats us fairly and justly	0.843

Notes. The above questions are addressed to buying firms, similar questions have been posed to supplier firms.
(R) indicates item was reverse coded.