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**Cross-cultural differences in effects of social embeddedness on trust.**  
**A comparative study of German and Dutch business transactions**

**Abstract**

Embeddedness theory stresses the importance of concrete personal relations and networks of relations in economic life. Recent sociological research shows that effects of embeddedness may differ between social settings, and recent experimental anthropological findings reveal that levels of cooperation and norm-enforcement differ between cultural settings. We extend these lines of research by examining whether effects of embeddedness on trust differ between two social settings, namely Germany and The Netherlands. To examine our research question we use a comprehensive data base consisting of 925 Dutch and 929 German purchase transactions. We find evidence that some aspects of social embeddedness indeed have different effects in the two countries. In Germany sharing a history of previous transaction and the existence of alternative partners had a larger effect on trust than in the Netherlands. We offer a potential explanation and discuss its implications for future research on embeddedness.

## INTRODUCTION

The question of economic action and institutions and how they are affected by social relations is one of the classic questions in social theory (Granovetter, 1985). The notion that transactions between business-firms are embedded in a wider social context became a familiar phrase for economic and organizational scholars (Dacin, Ventresca, & Beal, 1999; Borgatti & Foster, 2003). Empirical embeddedness research focused on a broad range of topics such as the survival of business (Baum & Oliver, 1992; Uzzi, 1996), price-fixing (Baker and Faulkner, 1993), trust and opportunism in inter-organizational relations (Gulati, 1995; Provan, 1993; Batenburg, Raub, & Snijders, 2003), the social identity of firms (Rao, David, and Ward, 2000), the likelihood of competitive action (Gnyawali & Madhavan, 2001), and entrepreneurial behavior (Simsek, Lubatkin, & Floyd, 2003).

Recently scholars have started examining whether effects of embeddedness and its associated mechanisms differ between social settings. For instance, Rowley, Behrens and Krackhardt (2000) find support for the hypothesis that effects of strong ties on firm performance are greater in sparse than in dense networks. In a study on firm financing Mizruchi, Stearns, and Marquis (2006) find that the effects of social network ties differ across different periods. Although one classical line of embeddedness research is the generation of trust within social networks (Granovetter, 1985; Lorenz, 1988; Coleman, 1990; Gulati, 1995; Uzzi, 1996; Humphrey & Schmitz, 1998), to the best of our knowledge no studies have explored whether the relation between embeddedness and trust differs between social settings. This is unfortunate, since trust is important. It facilitates risky exchange (Gambetta, 1988; Coleman, 1990), and in economic activity trust acts as a ‘lubricant’ (Lorenz, 1988). Often cited benefits of inter-firm trust in business relations are lower transaction costs (Gulati, 1999; Dyer, 1997), flexibility (Heide & Miner, 1992), and the facilitation of dispute resolution (Ring & Van de Ven, 1992; Macaulay, 1963).

There are good reasons to expect differences in embeddedness effects on trust between social settings. Many authors maintain that embeddedness produces trust through the (potential) application of informal sanctions (Axelrod, 1984; Raub & Weesie, 1990; Ellickson, 1991; Heide & Miner, 1992; Parkhe, 1993; Helper, 1993; Uzzi, 1996; Jones et al. 1997; Blumberg, 2001; Rooks, Raub & Tazelaar, 2006). For example, untrustworthy business partners can be the target of gossip, they can be ostracized from business groups, and -very important - relations with untrustworthy partners can be terminated. In the last decennium evolutionary anthropologists and economists discovered in series of behavioral experiments that culture plays a crucial role in economic action and sanctioning of uncooperative behavior (see for instance Henrich et al. 2005; Gurven, Zanolini & Schniter, 2008; Cronk, 1995). Henrich et al. (2006) find that the degree of sanctioning of uncooperative behavior varies substantially among human societies. In a review Gächter and Herrmann (2009: 15) argue that motivations for sanctioning are likely to be influenced by cultural learning mechanisms and “by local social norms about what constitutes the appropriate reaction to a ... harm one has received from another.” It would be important to develop models of social preferences, that is models of concerns for equity and the reward and punishment of kind and unkind intentions, that take cultural influences of these motivations into account.

In line with these arguments we propose that some effects of embeddedness on trust may differ between cultural settings because they hold diverging views about whether leaving a partner constitutes an appropriate reaction to untrustworthy behavior. We examine the moderating role of culture in this contribution by comparing social embeddedness effects on trust between two cultural settings, namely Germany and the Netherlands. We use two detailed and large-scale surveys of purchasing transactions in Germany and the Netherlands.

In the remainder of this article we first briefly explain one important cultural difference between the two countries that may lead to country differences in the willingness to

leave business partners. We then discuss embeddedness and the social mechanisms that affect the development of trust according to the standard version of embeddedness theory, clarifying how some of the mechanisms depend on the willingness to leave an untrustworthy business partner. As an addition to standard embeddedness theory, we therefore expect differences between the countries in some of the effects of embeddedness. After that we describe how the data in the Netherlands and in Germany were collected. In the section thereafter we present the results of our statistical analysis. We conclude the paper with a discussion of the implications of the findings for future research on embeddedness.

#### THE CULTURAL CONTEXT: GERMANY AND THE NETHERLANDS

Germany and the Netherlands are two neighboring European countries that are very similar in terms of economical and technological development. While Germany and the Netherlands are similar to each other in many respects, there is one remarkable difference of a cultural nature that is known to affect the willingness to leave a business partner. Empirical research makes a distinction between so-called "masculine" cultures that are more achievement oriented and "feminine" cultures that are more relationship oriented (Hofstede 1980; Schwartz and Bilsky 1987; Schwartz 1992). Members of a feministic culture, when compared to members of a masculine culture, would appreciate more a balance of interests during conflicts and they would favor more an approach to conflict resolution that rests on mediation (Smith and Bond 1993; Hofstede 1980; Leung et al., 1990). Members of a feminine culture are less likely to use harsh, direct forms of dispute resolution in case of conflicts (Xie, Song & Stringfellow, 1998; Ting-Toomey et al. 1998; Oudenhoven, Mechelse & deDreu, 1998).

Empirical research consistently has shown that the Netherlands score much higher than Germany on the dimension of feminism versus masculinity whereas they are rather similar on other cultural dimensions (e.g., Hofstede 1980, 1983, 2001; Vunderink and

Hofstede 1998; Ulijn et al., 2003; Ulijn, Linck, Wynstra, 2004). Leung et al (1990) found that Dutch students preferred a mediating style of conflict resolution more than students of Canada who score lower on the cultural dimension than the Netherlands. The cultural difference was related to differences in the perceived efficacy of the conflict resolution procedure. The Dutch students believed more than the Canadians that mediation would facilitate process control and animosity reduction (ibid.). This has interesting implications. During mediation which is more preferred in a feminine culture than in a masculine culture one does not easily leave the partner. Rather, Cheung (1999) found that one important benefit of mediation is relationship *preservation*. Applying this argument to the context of business transactions between a buyer and a supplier, we expect that in the Netherlands buyers will be more reluctant to leave the supplier in case of untrustworthy behavior than buyers in Germany. German buyers are more likely to punish untrustworthy suppliers by leaving the relation early.

Summarizing, while German and Dutch society and culture are very similar, German culture has consistently been found to be more masculine than the Dutch. In feminine cultures actors are more likely to use mediating forms of conflict resolution that aim at relationship preservation. In general, it is likely that economic actors in masculine societies are more inclined to punish untrustworthy partners by leaving them. This form of punishment of untrustworthy partners, in turn, plays a central role in the effects of embeddedness, as hypothesized by standard embeddedness theory.

#### EMBEDDEDNESS THEORY AND TRUST

The concept of embeddedness has been frequently discussed in the literature, and has taken on many meanings and uses. A common theme is that embeddedness is the context of economic action. Granovetter (1992: 33) defines embeddedness as follows "Embeddedness refers to the fact that economic action and outcomes ... are affected by actors' dyadic

(pairwise) relations *and* by the structure of the overall network of relations". In this article we adopt this definition and distinguish two types of social embeddedness: *temporal* embeddedness, which refers in essence to the quality and depth of dyadic durable relations, and *network* embeddedness, that is embeddedness in networks of relations with third parties (Gulati, 1998; Rooks et al, 2000; Batenburg, Raub, & Snijders, 2003; Jones et al. 1997). Both types of embeddedness serve as a foundation for social mechanisms that create trust (Helper, 1993; Jones et al. 1997; Buskens & Raub, 2002).

Trust has been defined in terms of attitudes or expectancies and behavior. Sako and Helper (1998: 388) define trust as an expectation: "Trust is an expectation held by an agent that its trading partner will behave in a mutually acceptable manner (including an expectation that neither party will exploit the other's vulnerabilities)." Lorenz (1988: 197) defines trust in terms of behavior: "*Trusting behavior* consists in action that (1) increases one's vulnerability to another whose behavior is not under one's control, and (2) takes place in a situation where the penalty suffered if the trust is abused would lead one to regret the action".<sup>1</sup>

Embeddedness is known to have an effect on trust mostly through either 'control' or 'learning' opportunities (Buskens & Raub, 2002; Lewicki & Bunker, 1995). In embedded settings, such as firms in an enduring alliance, actors will learn about characteristics, such as reliability, of their partners. Business relationships with less reliable partners are more likely to be terminated. Hence relations where the partners share a longer history will be associated with higher levels of trust. In embedded settings trust can also be created by using opportunities to exert control. Untrustworthy behavior may lead to costly social sanctions that outweigh the benefits of trustworthy behavior. Social sanctions can be diverse, including termination of a relation (in a dyadic relationship) or gossip and ostracism (in a business

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<sup>1</sup> In our analysis we use three empirical indicators for trust: (1) a subjective perception of the amount of trust before the transaction, (2) the effort made to safeguard the transaction, (3) severity of conflict management. Details of the indicators are provided later.

network). If potential sanctions outweigh the benefits of untrustworthy behavior, rational transaction partners will anticipate future sanctions and behave trustworthy.

To explain the emergence of trust we distinguish four specific types of social embeddedness. For every type of embeddedness we indicate the associated social mechanism(s) that according to standard embeddedness theory facilitate the development of trust. The first two types of embeddedness refer to durable dyadic relations or so-called *temporal embeddedness*. A temporal embeddedness implies that partners may share a history of previous transactions or they may expect their relation to continue after the specific transaction. A *relationship history* is associated with trust because previous transactions allow firms to learn from direct experience. Given that untrustworthy partners are left and not selected for subsequent business, on average long-lasting relations are associated with more trust (Larson, 1992; Podolny, 1994; Gulati, 1995; Luo, 2002; Robinson & Stuart, 2006). Note that this mechanism presupposes the willingness of one partner to leave the other in case of untrustworthy behavior. The second type of embeddedness, *expected relationship continuity*, is also related to trust. Anticipated future interactions permit buyers and suppliers to apply informal social sanctions (Heide & Miner, 1992; Parkhe, 1993). For instance, punishment can consist of reducing the amount of invested resources or –in the extreme case- leaving the partner and withdraw from the common future transactions. Because of the implicit threat that a partner may ‘retaliate’ untrustworthy behavior it is often most sensible to behave trustworthy (Axelrod, 1984; Heide & Miner, 1992). Once more, business partners have to be willing to leave an untrustworthy partner for this mechanism to work.

Additional to relationship history and expected relationship continuity we distinguish two types of *network embeddedness*. The first is the presence of *common third parties*. In most business contexts it is common that firms know or are business partners of one and the same third party (Anderson, Håkanson & Johanson 1994). A buyer may for instance know

other buyers of a supplier. A network of common third parties has been argued to be associated with trust (see for instance Raub & Weesie, 1990; Kreps, 1990; Ellickson, 1991; Uzzi, 1996; Blumberg, 2001). On the one hand common third parties can give referrals, and act as information repository. Third parties enable firms to learn, and hence trust is created. On the other hand, trust is created because common third parties may spread information about untrustworthy behavior of partners, i.e. gossip, thus damaging valuable reputations (Macaulay, 1963; Axelrod, 1984; Raub & Weesie, 1990; Ellickson, 1991; Gierl & Bambauer, 2002; Robinson & Stuart, 2006). Common third parties thus provide the opportunity to exert social control, thereby creating trust between partners.

Another form of network embeddedness is the existence of potential alternative suppliers. Such a network can be seen as a reflection of the *market structure* and has been labeled as an *exit network* of the buyer (Raub, 2002). An exit network offers the opportunity for the buyer to exert control on the supplier who anticipates that in the case of untrustworthy behavior the buyer will leave. A small exit network implies that a buyer has only few alternative sources available, as a consequence the buyer is dependent on the supplier, and the supplier has power over the buyer (Emerson, 1962). It has been shown that network dependencies are related to the occurrence of opportunistic behavior: the more dependency the more likely opportunistic behavior (Provan & Skinner, 1989; Dyer & Singh, 1998). Stated the other way around, a large exit network ensures that a supplier is less likely to show opportunistic behavior, thereby increasing the trust on the side of the buyer. Note that this effect depends on the buyer's willingness to leave an untrustworthy partner. As a summary, standard embeddedness theory predicts that the larger the exit network, the higher the number of common third parties, the longer the relationship history, and the stronger the expectancy of relationship continuity the more trust the buyer has in the seller (Jones et al., 1998; Rooks et al. 2000; Blumberg, 2001).



## RESEARCH QUESTIONS

We propose that the efficacy of embeddedness mechanisms depends on the cultural context within which a transaction takes place. As explained above, some of the mechanisms that produce trust in embedded settings are based on the willingness of transaction partners to punish each other by breaking relations and leaving the partner. This holds true for embeddedness in the form of a long relationship history, expected relationship continuity, and a large exit network. If firms, because of cultural norms, are less likely to exit their relations with other firms, embeddedness effects are less likely to exist. In an earlier section we discussed the literature about cultural differences between Germany and the Netherlands in the tendency to leave a partner. According to that review empirical research consistently has shown that the Netherlands score much higher than Germany on the dimension of femininity versus masculinity (Hofstede, 1980; 2001). Members of a feminine culture are more likely to use mediating forms of dispute resolution in case of conflicts leading to relationship preservation (Leung et al 1990; Xie, Song & Stringfellow, 1998; Ting-Toomey et al. 1998; Oudenhoven, Mechelse & deDreu, 1998; Cheung, 1999). Based on this literature we might expect Dutch buyers to be more reluctant to leave the supplier in case of untrustworthy behavior. German buyers on the contrary will be more likely to punish their untrustworthy suppliers by leaving the relation. Accordingly effects of embeddedness on trust may differ between Germany and the Netherlands if they presuppose that buyers are willing to leave untrustworthy partners. This leads to the following research questions.

*Do effects of (1) a relationship history between buyer and supplier, (2) expected relationship continuity, (3) exit network, and (4) common third parties on trust differ between Germany and the Netherlands?*

In line with the cultural difference between the two countries we expect that the first three effects of embeddedness, the effects of a common relationship history, expected relationship continuity, a large exit network are stronger in Germany than in the Netherlands.

#### THE DATA: THE MANAGEMENT OF INFORMATION TECHNOLOGY PURCHASE IN THE NETHERLANDS AND GERMANY

We make use of a comprehensive survey on the purchase of IT by Dutch and German small and medium sized enterprises (SMEs) with 5-200 employees (see Batenburg, 1997a; 1997b for detailed information on the Dutch data collection, and Berger, Kropp, and Voss, 2000 for the German data collection). At the time of data collection, the purchase of IT offered a suitable context and strategic research site. IT was rapidly developing. Rapid improvement of hardware performance and software applications induced considerable uncertainties with respect to price and quality. Thus, the purchase of IT-products and related services often implied considerable risks associated with specific investments and long-term business relations (see, e.g., Schellekens et al., 2000). Given that IT-transactions often involved sizeable risks, problems were likely to occur so that supplier performance could not be taken for granted. The data collection focused on purchasing transactions and hence on the perspective of the buyer.

##### *The Dutch Survey*

The sampling frame for the 1995 survey in the Netherlands was a business-to-business database of Dutch SMEs that contained information about the characteristics of these SMEs with respect to automation. At the time of data collection, about 80% of all Dutch SMEs with more than five employees were included in the database. The database can be considered to be representative for the Dutch population of SMEs (see Batenburg, 1997a). Three criteria

were used for stratification. First, the sample was stratified according to the number of IT-specialists employed by the firm. The second stratification criterium was the strength of inter-firm relations within certain sectors of industry. The third stratification criterion was the type of IT-products purchased by a firm. This criterion distinguished four groups of products: standard hardware, complex hardware, standard software, and complex software.

Key informants of buying firms were first briefly interviewed by a structured Computer Assisted Telephone Interview (CATI). In the CATI-interview cooperation was asked from an employee responsible for automation in the firm, most of those key informants were IT-managers of the buying firm. The CATI-interview was then used to randomly select a particular IT-investment the firm had made in the recent past, in order to define beforehand on which transaction the main questionnaire would focus. Usually, the respondents were involved themselves with and often responsible for the purchase. Following this sampling procedure, a sample of 547 IT-transactions was obtained. Respondents were visited by a member of the research team to personally deliver the questionnaire and eventually assist the respondent in filling in the questionnaire. Subsequently, the data set was extended with an additional sample. This additional sample was collected in order to obtain more observations on innovative and complex IT-products. Transactions were sampled from SMEs in sectors that typically use such products. Another 241 questionnaires were collected within this additional sample.

From the main sample and the additional sample, data were obtained from 788 (547 + 241) IT-buying firms. About 25% (183 out of 788) of the respondents were willing to fill out a second questionnaire regarding the purchase of a different IT-product, in most cases from a different supplier. In total, the 1995 data set thus consists of 971 (547 + 241 + 183) transactions, of which 183 are second transactions from the same buyer. The total response rate equaled 59% (see Batenburg, 1997b for details), which is an exceptionally high response

rate in surveys among organizations (see for instance Kalleberg et al., 1996: chaps. 1-2) in general and specifically in survey research on supplier performance. Non-response analysis that was feasible through relatively extensive information on the buyer firms not agreeing to participate in the survey showed that the response group is not biased on crucial firm characteristics such as size, industry, or region. We also know from a question in the CATI-questionnaire that firms in our sample do not differ from the non-response group in their general satisfaction with IT-suppliers (see Batenburg, 1997b for details).

### *The German survey*

In the German survey (1999) buyers of information technology in two regions, one in former East Germany and one in former West Germany, were sampled. At the time of the survey both of the regions (Halle/Leipzig and München) were economically prosperous regions. To be included in the survey, a firm had to meet the following requirements: 1) the firm had to manage the purchase itself, that is, the decisions about the product and supplier had to be taken in the firm instead of a mother company; 2) a contact person had to be present that could give detailed information about the transaction; 3) the transaction should have been completed not too long ago – if possible not longer than three years; 4) the transaction should involve only one supplier. To compile the sampling frame the yellow pages were used ("Gelben Seiten für Deutschland. Frühjahr 1999"). The data collection was conducted in two phases. First, a member of the research team called the firm in the sample to determine whether the firm met the requirements to be a part of the survey, and if this was so whether the firm was willing to cooperate in the survey. If a firm agreed to cooperate with the survey, and met the requirements, then a contact person that was responsible (and thus knowledgeable) for purchases of information technology was selected and an appointment was made for a face-to-face interview (if a questionnaire was preferred instead of a face to face interview a questionnaire was sent by post). The telephone interviews were started in

March 1999 and concluded in August 1999. Of the 1702 firms that were contacted and that met the requirements for the survey, in total 832 were interviewed. So, the response rate for the German survey was 49%, which is just like the Dutch survey a high response rate.

#### THE VARIABLES

The questionnaires that were used in the Dutch and German survey were very similar. Most questions in the original Dutch survey were directly translated in German. This allows us to construct comparable variables for the Dutch and the German cases. Table 1 shows the items upon which our empirical variables were based.

#### *The dependent variables: trust, transaction costs and severity of conflict regulation*

In our study trust is measured using three variables. One variable measures trust as an attitude of the buyer towards the supplier before the transaction. Two others are behavioral indicators of trust, namely transaction costs, and the severity of conflict regulation (given that actual problems occurred). The first dependent variable is a direct measure of the trust attitude of the buyer *before* the transaction. This variable called *trust* is based on the following question "Before our firm entered into the contract with the supplier, we were confident that we found a reliable supplier".

The second dependent variable *transaction costs* is a behavioral indicator of trust. Transaction costs are costs such as negotiating and writing contracts that firms incur to safeguard transactions, for instance by negotiating and writing contracts (Williamson, 1985). Hence, the lower trust between business firms, the higher the transaction costs. The variable *transaction costs* is based on a question "Was the amount of time in drawing up the agreement and on negotiations with the supplier more or less than your firm spent on average on the negotiations with suppliers of similar products at that time?".

The third dependent variable *severity of conflict regulation* is a behavioral measure of trust that is based on a question about the measures that were taken to solve occurring ex post problems (see Table 1 for the items). While firms take measures to prevent problems from occurring, it may not be possible or efficient to prevent all problems from happening. If trust exists between buyer and supplier those problems are easier to deal with. Firms that trust each other will by and large restrain themselves from using power and coercive tactics to solve problems. Hence the higher the trust, the less severe the conflict management. In this study, we use the variable *severity of conflict regulation* which indicates the number of steps taken in a sequence of measures to enforce a contract ex post ((Rooks & Snijders, 2001; Liebe, 2004).<sup>2</sup>

*The independent variables: embeddedness*

We distinguish four embeddedness variables (see Table 1 for the specifics). Two embeddedness variables measure characteristics of the relation between the buyer and the supplier. The *relationship history* is a dummy variable that indicates whether or not there were previous transactions between buyer and supplier. The variable *expected relationship continuity* measures the degree to which the buyer (before the transaction) expected the relationship to extend in the future. The other two variables measure the embeddedness of the transaction in a network of business relations. The variable *common third parties* is the extent to which the buyer knows other buyers of the focal supplier. The variable *exit network* measures from the point of view of the buyer the availability of alternative suppliers and products.

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<sup>2</sup> This measure is similar to the measure of Antia and Frazier (2001) who measured the severity of contract enforcement subjectively as well as objectively. Our severity of conflict resolution scale has been shown to be a strong and reliable scale (Rooks & Snijders, 2001).

*Control variables*

Transaction cost economics points to a number of characteristics that influence the hazards that are associated with a transaction and consequently the firm's choice of the governance structure of the business transaction (Williamson, 1985). To control for these characteristics we additionally constructed four variables (see Table 1 for the specifics). The first set of control variables contains characteristics of the transaction that measure the 'exchange hazards' of a transaction (Williamson, 1985). The first variable (*measurement difficulties*) in this set indicates difficulties of the buyer to assess the quality of the product. The second variable (*switching costs*) measures the dependence of the buyer on the supplier. This is indicated by the costs that a buyer would have if he wants to do business with *other* suppliers. Two dummy variables indicate the type of IT product (*hardware* and *software* respectively). Note that we use two dummies since in some cases the transaction could involve hardware and software as well. Next to transaction characteristics we control for possible confounding effects of characteristics of the firms involved in the transaction, namely the size of the buyer and the supplier (*size buyer* and *size supplier* respectively), and a characteristic of the respondent, namely age of the informant (*age*).

(Table 1 about here)

Table 2 and Table 3 show descriptive statistics and correlations divided into the Dutch and German cases. Overall the means of the variables differ only to a limited amount.

(Table 2 and Table 3 about here)

In the German sample the buyers have slightly more trust in their suppliers, they share more

often a relationship history, but are somewhat less sure that the relationship will continue than in the Dutch sample. The informants in Germany are on average 6 years older, work in somewhat smaller firms, and they have smaller suppliers than the Dutch informants.<sup>3</sup> The conflict regulation efforts are somewhat more severe in the Netherlands than in Germany.

#### RESULTS OF STATISTICAL ANALYSIS

To empirically research our question whether effects of embeddedness on trust differ between Germany and the Netherlands we first performed two separate regression analyses. We then combined our estimation results using the ‘seemingly unrelated estimation’ procedure as implemented in Stata (StataCorp, 2003). After that we use a Wald test (as implemented in the Stata ‘test’ module) to test whether our estimated coefficients differed significantly between the German and the Dutch data sets. For the analysis of trust as an attitude Table 4 presents in the second column the regression coefficients and standard errors for the pooled data set. The next two columns present the same information separately for the Dutch and the German cases. The last column presents the results of the Wald test for equality of the coefficients in the two data sets.

(Table 4 about here)

The second column shows that when we combine both data sets the effects of a relationship history, expected relationship continuity, the exit network, and common third parties are positive and significant. For example, the larger the exit network of the buyer the more trust he has in the supplier. That is, in general we find support for the hypotheses of standard embeddedness theory. At the same time, the results for the two separate data sets show that

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<sup>3</sup> In the Dutch sample five firms in the sample turned out to be somewhat larger. Those firms had about 2000 employees at the time of the survey.



there are a number of differences in the effects of embeddedness between the two countries that are masked when we treat both data sets as uniform.

When we look at the two countries separately, we see that seven out of the eight coefficients of the effects of embeddedness on trust are positive, as it is predicted by embeddedness theory. Four out of the eight embeddedness coefficients reach statistical significance at the 5% level, this number rises to six if we employ one tailed testing instead of two tailed testing. To test whether embeddedness effects differ between the two countries we first conduct an overall test and we find that indeed embeddedness effects differ significantly between the two countries ( $\chi^2=10.45$ ,  $df=4$ ,  $p=.03$ ). Two types of embeddedness effects differ significantly between German and Dutch transactions: the effects of *relationship history* ( $\chi^2=5.00$ ,  $df=1$ ,  $p=.03$ ) and the *exit network* ( $\chi^2=3.82$ ,  $df=1$ ,  $p=.05$ ). Both effects are significantly stronger in Germany than in the Netherlands. A larger exit network of the buyer increases the amount of trust he has in the supplier in Germany, but this does not hold in the Netherlands where there is no effect of the exit network on trust. Also the effect of relationship history is significantly stronger in Germany than in the Netherlands. However, the coefficients of *common third parties* and the *expected relationship continuity* do not differ significantly between the two countries.

Contrary to embeddedness effects, the effects of transaction characteristics do not significantly differ between the countries ( $\chi^2=0.40$ ,  $df=2$ ,  $p=.82$ ). We find that in both countries the existence of *measurement difficulties* has a significant negative effect: the more difficult it is to judge the quality of the product, the less the buyer trusts the supplier. Surprisingly, the indicator of the classic transaction cost variable 'asset specificity', that is *switching costs*, has no significant effect in both countries. Moreover, in both countries there is no difference in the placement of trust between the different size classes of suppliers. The effect of the *size of the buyer* and the effect of the *hardware*, however, differ significantly

between Germany and the Netherlands. For instance, in Germany larger buyers are inclined to trust their suppliers more than smaller buyers. There is no such difference in the Netherlands. In general, in both data sets only a limited amount of the variance of trust can be explained.

(Table 5 about here)

Table 5 presents the results of the regression analysis of ex ante *transaction costs*. Standard embeddedness theory expects a negative effect of the four forms of embeddedness on *transaction costs*: the better connected, the more trust and the less time you have to spend on writing contracts and negotiating. As is shown in Table 5 three of the embeddedness variables have the expected effect sign, although only two of them are significant at the 5% level. The fourth variable *common third parties* has a significant effect, however the sign is positive. Hence, although there is more trust (as shown in the previous Table 4), the partners in the transaction spend more time on managing the transaction.

The results are somewhat different when we look at the two data sets separately. The effects of the embeddedness characteristics do differ significantly between the countries ( $\chi^2=31.64$ ,  $df=4$ ,  $p=.00$ ). This is mainly because the effects of the *exit network* ( $\chi^2=25.73$ ,  $df=1$ ,  $p=.00$ ) differ significantly between Germany and the Netherlands. In Germany the negative effect of the *exit network* is significantly stronger than in the Netherlands. The effects of the other three embeddedness variables do not differ significantly. The effect of the variable *relationship history* is somewhat stronger in Germany than in the Netherlands, but the difference is not significant at the 5% level ( $\chi^2=0.85$ ,  $df=1$ ,  $p=.36$ ). In the Dutch data set only the variable *expected relationship continuity* has a significant and negative effect. In the German data set two effects, namely of *common third parties* and of *exit network*, are significant. However, just like in the total data set, the sign of the coefficient of *common third*

*parties* is positive in the German data set, which is contrary to what embeddedness theory predicts. The effect of having a larger *exit network* is negative, which is in accordance with the prediction of standard embeddedness theory.

Furthermore, the effects of the transaction characteristics do differ between Germany and the Netherlands as well ( $\chi^2=21.76$ ,  $df=2$ ,  $p=.00$ ), which is predominantly because of differences between effects of *switching costs* which is larger in the Netherlands ( $\chi^2=21.71$ ,  $df=1$ ,  $p=.00$ ). The effects of *hardware* and of the *size of the buyer* do not differ significantly, while the effect of the *size of the supplier* is stronger in Germany ( $\chi^2=4.24$ ,  $df=1$ ,  $p=.04$ ). The amount of explained variance is in the Dutch data rather small and in the German data set of a medium size.

(Table 6 about here)

Table 6 presents the results of the analysis of the effects of embeddedness on the *severity of conflict regulation*. Embeddedness theory expects a negative effect of the four forms of embeddedness on the severity of conflict regulation efforts. In the first column we see the effects of the four characteristics of temporal and network embeddedness on the *severity of conflict regulation* combined over both data sets. Since conflicts did not occur in all transactions, analyses are based on only 849 cases. Out of the four variables only the size of the *exit network* has the expected significant negative effect. The larger the *exit network* the less severe is the conflict regulation. So when we combine both data sets standard embeddedness theory finds only partial support.

Again, results change when we look at the two data sets separately. We see that in the Dutch data set none of the embeddedness characteristics has a significant effect while in the German data set two effects, namely having a *relationship history* and having a larger *exit*

*network*, show the expected negative effect. While the effects of the transaction characteristics do not differ between Germany and the Netherlands ( $\chi^2=2.18$ ,  $df=2$ ,  $p=.34$ ), the effects of the embeddedness characteristics do differ ( $\chi^2=11.25$ ,  $df=4$ ,  $p=.02$ ). This is because the effects of a relationship history ( $\chi^2=4.57$ ,  $df=1$ ,  $p=.03$ ) and exit network ( $\chi^2=4.64$ ,  $df=1$ ,  $p=.03$ ) are significantly stronger in Germany than in the Netherlands. Moreover, we find that in both countries measurement difficulties increase the severity of the conflict regulation efforts. Switching costs also increase the severity, but this effect is only in the Netherlands significant. The amount of explained variance is limited in both countries. Apart from the two embeddedness effects, no other effects differ significantly between the two countries.

To summarize our findings, we find that two of the four forms of embeddedness, expected relationship continuity and common third parties, consistently do not differ in their effects on trust, ex ante transaction costs, and severity of ex post conflict regulation efforts. However, the other two forms of embeddedness, relationship history and the size of the exit network differ in their effects, at least partly, between the countries. In all three analyses the effect of the *exit network* differs significantly between the countries and in all three analyses it is stronger in Germany than in the Netherlands. Also, the effect of having a *relationship history* on trust and severity of ex post conflict regulation efforts is significantly stronger in Germany than in the Netherlands. The effect of a relationship history on transaction costs is somewhat stronger in Germany than in the Netherlands, but does not reach significance. Stated differently, when we find differences in the effects of embeddedness, they are consistently larger in Germany than in the Netherlands. The differential effects of a relationship history and the exit network are in line with our expectation about cultural differences. The failure to find a difference in the effects of expected relationship continuity is not.

## CONCLUSION AND DISCUSSION

In this article we examined whether national cultures moderate the effect of social embeddedness on trust. We found evidence that embeddedness effects differ between Germany and the Netherlands. It appears that in Germany a relationship history and having multiple alternative transaction partners, i.e. a large exit network, has a (much) stronger effect on trust than in the Netherlands. Two other effects of embeddedness that were examined, namely the effects of expected relationship continuity and a network of common third parties, did not yield differences between Germany and The Netherlands. Contrary to the embeddedness characteristics, the effects of transaction characteristics did not systematically differ between Germany and the Netherlands.

Why are some embeddedness effects stronger in Germany than in the Netherlands? As discussed earlier in the section on the importance of cultural context, one remarkable cultural difference between Germany and the Netherlands consistently shown by empirical research is that the Netherlands score much higher than Germany on the dimension of femininity versus masculinity whereas they are rather similar on other cultural dimensions (e.g., Hofstede, 1980; 1983; 2001; Vunderink & Hofstede, 1998; Ulijn et al., 2003). In feminine cultures a mediating style of conflict resolution is preferred above harsher styles, such as litigation (Leung et al., 1990; Xie, Song & Stringfellow, 1998; Ting-Toomey et al. 1998; Oudenhoven, Mechelse & deDreu, 1998). One implication of this observation is that relationship *preservation* is one important benefit that practitioners of alternative dispute resolution techniques attribute to mediating styles of conflict management (Cheung, 1999). Hence, Dutch managers will be less willing to terminate a business relation. The two embeddedness effects that differed, relationship history and exit network, both depend on this informal sanction. It follows that embeddedness effects that are based on the informal social sanction of terminating a relation will be stronger in Germany.

The finding that some embeddedness effects differ between countries implies that generalization of embeddedness effects beyond a studied population must be made carefully. Our results indicate that conclusions based on findings in one country or social setting may not always be valid for other settings. Consequently, our finding might shed light on some of the inconsistent findings regarding the effects of a relationship history on the management and longevity of a business relationship (Kalnis & Mayer, 2004; Park & Russo, 1996; Pangarkar, 2003). Every empirical application of those studies focused on one particular social setting. It might be useful to have a closer look at studies with inconsistent results to find out whether differences in the social setting might explain differential embeddedness effects.

We found no differences in the effects of expected relationship continuity and common third parties between Germany and the Netherlands. For the first effect we expected differences. Moreover, we found an unexpected positive effect of common third parties on transaction costs (an aspect of network embeddedness). Although trust is higher, transaction costs are higher as well in networks. One possible explanation for the lack of differences in the network of common third parties is that the informal sanction that mainly creates trust in network settings is gossip, i.e. informal talk between business managers. This mechanism is not dependent on the willingness to leave a business partner. The lack of a difference therefore is in line with our arguments. However, we were surprised not to find a difference in the effects of expectations of relationship continuity. A potential explanation of this unexpected finding is that causality might be reversed: the reported trust is not based on the expectation of future business, but future business is expected because of existing trust. If this explanation is true, then the association between trust and expectation of relationship continuity would not be affected by differences in the willingness to leave a partner. Our data does not allow clarifying this issue.

A weakness of our study is that we did not measure differences in the willingness to leave a partner directly, but assume them because of well-established cultural differences. Another weak point is that although the surveys were very similar, different sampling procedures were used in Germany and the Netherlands. While the different sampling procedures prevent us from comparing the distributions of the transaction characteristics between Germany and the Netherlands, we presume that this does not prevent the comparison of the effects of embeddedness between the countries. A related weakness is the time lag between the two surveys. The Dutch survey was carried out in 1995, and the German survey was carried out in 1998.

Our study is limited to only two countries. To be really able to test whether the masculinity dimension of national culture moderates embeddedness effects on trust, a larger number of countries is needed. Furthermore we have limited our study to Hofstede's model of national culture, which has been criticized (McSweeney, 2002). Culture refers to within-group similarities and between group differences in beliefs and behavior. Humans live in many groups simultaneously; therefore culture has an influence not only at the national level (Pothukuchi et al., 2002). For example, we neglected the influence of organizational culture, while arguments similar to ours concerning national culture could be made for the influence of organizational culture on the relation between embeddedness and trust. Regrettably, we are not able to include such organizational culture in our analysis, because there is no information on organizational culture in the data-set.

The limitations of this study could be overcome by future studies. One promising line of research consists of more large-scale and systematic international comparisons of the embeddedness effects in different countries. Country differences on the masculinity-femininity dimension are well established (see Hofstede, 1980; 2001). For example, according to our argument presented above in Norway and Sweden the effects of embeddedness in the

form of relationship history and the exit network should be weaker, whereas in Austria and Japan they should be stronger. Moreover, scenario (factorial survey) research could be used to test hypotheses about the underlying causal mechanisms under more controlled conditions. This could then lead to a theory of embeddedness that shows which effects are of a culturally universe nature and which effects are moderated by cultural, individual, and other social differences.



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**TABLE 1: Variables**

Variable	Items	Construction of variable
<i>Trust</i>	Before our firm entered into the contract with the supplier, we were confident that we found a reliable supplier.	5 point scale (not at all ... yes, certainly) <i>Trust</i> = score on question
<i>Transaction costs</i>	Was the amount of time in drawing up the agreement and on negotiations with the supplier more or less than your firm spent on average on the negotiations with suppliers of similar products at that time?	5 point scale (far less, ... far more) <i>Transaction costs</i> = score on question
<i>Severity conflict regulation</i>	8 measures to manage ex post problems: referring to contract – consult supplier – informing higher levels supplier – stating deadlines – postpone payments – claiming compensation – other legal steps	<i>Severity</i> = Number of measures taken Mokken's H = .51
<i>Relationship history</i>	Has your firm had any kind of business relation with this supplier before the purchase of this product?	Dummy variable no (=0) – yes (=1)
<i>Expected relationship continuity</i>	To what extent did you expect, before the purchase of this product, that your firm would continue business with this supplier?	5 point scale (no business ... very regular, extensive business) <i>Expected relationship continuity</i> = score on question
<i>Common third parties</i>	Please think about other firms that have (likely) been clients of the supplier at the time of the purchase of the product. How many of such firms did you know?	<i>Common third parties</i> = number of firms
<i>Exit Network</i>	1. Considering the situation before purchasing the product, how large was the number of potential suppliers? 2. Considering the situation before purchasing the product, how large was the number of alternatives for the product?	5 point scales (very small ... very large) <i>Exit network</i> = the mean value of the scores on the two questions. Cronbach's $\alpha$ = .82
<i>Measurement difficulties</i>	1. Was it difficult for you and your employees to judge the quality of the product at the time of delivery?	5 point scales (very easy ... very difficult) <i>Measurement difficulties</i> = score on question
<i>Switching costs</i>	Assume that the product had failed to function and had to be replaced. What would have been the damage, in terms of time and money, associated with: 1. purchasing another product 2. training of personnel 3. new data entry 4. idle production.	5 point scales (very small ... very large) <i>Switching costs</i> = main principal component of the 4 items mentioned. Cronbach's $\alpha$ = 0.79.
<i>Software</i>	What was delivered: standard software, adjusted software, tailor-made software, industry specific software?	Dummy variable no (=0) – yes (=1)
<i>Hardware</i>	What was delivered: PCs, work stations, network configuration, mini-computer, mainframe, robots, peripheral equipment, cabling?	Dummy variable no (=0) – yes (=1)
<i>Size buyer</i>	How many full-time employees were working at your firm at the time of the purchase of this product?	<i>Size buyer</i> = natural logarithm of number of full-time employees .
<i>Size supplier</i>	How many employees were working at the supplier at the time of the purchase of this product?	5 point scale (1=< 5; 2 =5-9; 3=10-19; 4=20-49; 5=>50) <i>Size supplier</i> = the score of the chosen answer category.
<i>Age</i>	How old are you?	<i>Age</i> = score on question in years

**TABLE 2**  
**Descriptive statistics of the variables divided into Dutch and German transactions**

Variable	The Netherlands (n=925)					Germany (n=929)			
	Mean	s.d.	min	max		mean	s.d.	min	max
<i>Trust</i>	3.78	0.70	1	5		3.97	0.68	1	5
<i>Ex ante transaction costs</i>	2.94	.90	1	5		2.62	.97	1	5
<i>Severity ex post regulation</i>	1.46	1.59	0	7		.73	1.29	0	6
<i>Relationship history</i>	0.49	0.50	0	1		.66	0.47	0	1
<i>Expected relationship continuity</i>	2.80	1.38	1	5		2.62	0.94	1	5
<i>Common third parties</i>	1.32	1.90	0	7		1.49	2.05	0	7
<i>Exit Network</i>	2.68	0.97	1	5		3.27	1.12	1	5
<i>Measurement difficulties</i>	2.71	0.99	1	5		2.69	1.11	1	5
<i>Switching costs</i>	2.74	0.96	1	5		3.02	1.06	1	5
<i>Software</i>	0.84	0.37	0	1		.69	.46	0	1
<i>Hardware</i>	0.78	0.41	0	1		.76	.50	0	1
<i>Size buyer</i>	3.67	1.03	0	7.82		2.55	1.30	0	6.7
<i>Size supplier</i>	3.33	1.42	1	5		2.80	1.17	1	5
<i>Age</i>	34.5	8.80	19	71		41.3	9.42	20	68

**TABLE 3**  
**Correlation Matrices (Pearson's r)- A: The Dutch sample (n=925)**

<b>Variable</b>	<i>Trust</i>	<i>Transaction costs</i>	<i>Severity</i>	<i>Rel. history</i>	<i>Exp.rel . cont.</i>	<i>Com. third parties</i>	<i>Exit network</i>	<i>Switch. costs</i>	<i>Measur e ment</i>	<i>Size buyer</i>	<i>Size supplie r</i>	<i>Hard- ware</i>	<i>Soft ware</i>
<i>Trust</i>													
<i>Transaction costs</i>	.00												
<i>Severity</i>	-.14***	.23***											
<i>Relationship history</i>	.17***	-.06+	.11***										
<i>Expected relationship continuity</i>	.23***	-.08*	.01	.38***									
<i>Common third parties</i>	.10**	.06	.05	.09**	.11***								
<i>Exit network</i>	-.01	-.04	-.15***	.09**	-.08*	-.16***							
<i>Switching costs</i>	-.01	.27***	.26***	-.12***	.01	.14***	-.22***						
<i>Measurement difficulties</i>	-.15***	.19***	.33***	-.20***	-.11***	-.03	-.21***	.29***					
<i>Size buyer</i>	-.02	.08*	.10**	.04	.01	.10**	-.05	.04	.02				
<i>Size supplier</i>	.05+	.09*	.10**	.10**	.08*	.18***	-.11***	.20***	.07*	.26** *			
<i>Hardware</i>	.11***	.05	-.01	.15***	.10**	.05	.15	.01	-.04	-.04	.07*		
<i>Software</i>	-.04	.06+	.14***	-.10**	.05	.09**	-.18	.19***	.15***	-.02	.02	-.20***	
<i>Age</i>	.05*	-.00	-.07*	.00	-.07*	.08*	-.05	-.04	-.00	.03	.11***	-.06+	-.02

\*\*\* =  $p < .001$ ; \*\* =  $p < .01$ ; \* =  $p < .05$ ; +:  $p < 0.1$ ; two-tailed tests.

**TABLE 3**  
**Correlation Matrices (Pearson's r) - B: The German sample (n=929)**

<b>Variable</b>	<i>Trust</i>	<i>Transaction costs</i>	<i>Severity</i>	<i>Rel. history</i>	<i>Exp.rel. cont.</i>	<i>Com. third parties</i>	<i>Exit net.</i>	<i>Switch. costs</i>	<i>Measurement</i>	<i>Size buyer</i>	<i>Size supplier</i>	<i>Hardware</i>	<i>Software</i>
<i>Trust</i>													
<i>Transaction costs</i>	-.11**												
<i>Severity</i>	-.26***	.23***											
<i>Relationship history</i>	.25***	-.12***	-.18***										
<i>Expected relationship continuity</i>	.17***	-.08*	-.03	.28***									
<i>Common third parties</i>	.03	.19***	.12***	.09**	.06+								
<i>Exit network</i>	.13***	-.34***	-.22***	.08**	.12***	-.20***							
<i>Switching costs</i>	.04	.04	.09**	.01	.10**	-.04	.03						
<i>Measurement difficulties</i>	-.18***	.25***	.23***	-.25***	-.13***	-.02	-.16***	.27***					
<i>Size buyer</i>	.10**	.11**	.16***	.11**	.17***	.09**	-.12***	.09**	.01				
<i>Size supplier</i>	.01	.14***	.11**	-.02	.02	.20***	-.02	.05	.02	.20***			
<i>Hardware</i>	.02	-.12***	-.03	.06+	.03	.00	.19	-.21***	-.22***	-.02	-.01		
<i>Software</i>	-.16***	.33***	.19***	-.16***	-.14***	.17***	-.32***	.06*	.25***	-.05	-.02	.00	
<i>Age</i>	.01	-.07+	.06+	-.02	-.13***	-.02	.02	.01	.01	-.07*	.02	.00	.00

\*\*\* =  $p < .001$ ; \*\* =  $p < .01$ ; \* =  $p < .05$ ; +:  $p < 0.1$ ; two-tailed tests.

**TABLE 4**  
**Linear regression analysis of trust in the supplier**

	All purchase transactions	Dutch purchase transactions	German purchase transactions	Prob. ( <i>Dutch = German</i> )
<i>Relationship history</i>	.19*** (.03)	.08+ (.05)	.24*** (.05)	$\chi^2_{(1)} = 5.00$ p = 0.03
<i>Expected relationship continuity</i>	.08*** (.01)	.09*** (.02)	.05* (.02)	$\chi^2_{(1)} = 1.61$ P = 0.20
<i>Common third parties</i>	.02* (.01)	.02+ (.01)	.01 (.01)	$\chi^2_{(1)} = .44$ p = 0.51
<i>Exit network</i>	.03* (.02)	-.01 (.02)	.05* (.02)	$\chi^2_{(1)} = 3.82$ p = 0.05
<i>Measurement difficulties</i>	-.08*** (.02)	-.09*** (.02)	-.08*** (.02)	$\chi^2_{(1)} = 0.10$ p = 0.75
<i>Switching costs</i>	.05** (.02)	.01 (.03)	.03 (.02)	$\chi^2_{(1)} = 0.22$ p = 0.64
<i>Software</i>	-.12** (.04)	-.03 (.06)	-.14* (.05)	$\chi^2_{(1)} = 1.73$ p = 0.19
<i>Hardware</i>	.01 (.04)	.14* (.06)	-.10+ (.05)	$\chi^2_{(1)} = 8.48$ p < 0.01
<i>Size buyer</i>	-.01 (.01)	-.03 (.02)	.04* (.02)	$\chi^2_{(1)} = 6.01$ p = 0.01
<i>Size supplier</i>	-.00 (.01)	.01 (.02)	-.01 (.02)	$\chi^2_{(1)} = 0.58$ p = 0.45
<i>Age</i>	.01* (.00)	.01* (.00)	.00 (.00)	$\chi^2_{(1)} = 0.69$ p = 0.40
Number of observations	1854	925	929	Overall test $\chi^2_{(11)} = 26.14$ p < 0.01
R <sup>2</sup>	.10	.09	.11	
F	17.89***	8.33***	10.18***	

\*\*\* =  $p < .001$ ; \*\* =  $p < .01$ ; \* =  $p < .05$ ; +:  $p < 0.1$ ; two-tailed tests.

**TABLE 5**

**Linear regression analysis of transaction costs**

	all purchase transactions	Dutch purchase transactions	German purchase transactions	Prob. ( <i>Dutch = German</i> )
<i>Relationship history</i>	-.07 (.05)	-.01 (.07)	-.10 (.07)	$\chi^2_{(1)}=0.85$ p =0.36
<i>Expected relationship continuity</i>	-.05** (.02)	-.05* (.02)	-.02 (.04)	$\chi^2_{(1)}=0.47$ p =0.49
<i>Common third parties</i>	.03** (.01)	.01 (.02)	.04* (.02)	$\chi^2_{(1)}=1.67$ p =0.20
<i>Exit network</i>	-.11*** (.02)	.03 (.03)	-.19*** (.03)	$\chi^2_{(1)}=25.73$ p =0.00
<i>Measurement difficulties</i>	.12*** (.02)	.10** (.03)	.14*** (.03)	$\chi^2_{(1)}=0.64$ p =0.42
<i>Switching costs</i>	.06** (.02)	.21*** (.03)	-.00 (.03)	$\chi^2_{(1)}=21.71$ p =0.00
<i>Software</i>	.34*** (.06)	.06 (.08)	.44*** (.08)	$\chi^2_{(1)}=13.37$ p =0.00
<i>Hardware</i>	.14* (.05)	.11 (.08)	.12 (.08)	$\chi^2_{(1)}=0.01$ p =0.93
<i>Size buyer</i>	.07*** (.02)	.06* (.03)	.05* (.02)	$\chi^2_{(1)}=0.09$ p =0.76
<i>Size supplier</i>	.05** (.02)	.02 (.02)	.09** (.02)	$\chi^2_{(1)}=4.24$ p =0.04
<i>Age</i>	-.01* (.00)	-.00 (.00)	-.01* (.00)	$\chi^2_{(1)}=2.16$ p =0.14
Number of observations	1649	852	797	Overall test $\chi^2_{(11)}=76.75$ p =0.00
R <sup>2</sup>	.15	.10	.23	
F	26.16***	8.71***	21.27***	

\*\*\* =  $p < .001$ ; \*\* =  $p < .01$ ; \* =  $p < .05$ ; +:  $p < 0.1$ ; two-tailed tests.

**TABLE 6**

**Linear regression analysis of severity of conflict regulation efforts**

	all purchase transactions	Dutch purchase transactions	German purchase transactions	Prob. ( <i>Dutch = German</i> )
<i>Relationship history</i>	-.07 (.11)	.10 (.14)	-.37* (.18)	$\chi^2_{(1)} = 4.57$ p = 0.03
<i>Expected relationship continuity</i>	.06 (.04)	.03 (.05)	.17+ (.09)	$\chi^2_{(1)} = 1.78$ p = 0.18
<i>Common third parties</i>	.00 (.03)	-.01 (.04)	.03 (.04)	$\chi^2_{(1)} = 0.71$ p = 0.40
<i>Exit network</i>	-.16*** (.05)	-.05 (.07)	-.28** (.08)	$\chi^2_{(1)} = 4.64$ p = 0.03
<i>Measurement difficulties</i>	.25*** (.05)	.30*** (.07)	.19* (.09)	$\chi^2_{(1)} = 1.03$ p = 0.31
<i>Switching costs</i>	.16*** (.06)	.21** (.07)	.12 (.09)	$\chi^2_{(1)} = 0.57$ p = 0.45
<i>Software</i>	.08 (.16)	.14 (.21)	.15 (.25)	$\chi^2_{(1)} = 0.00$ p = 0.98
<i>Hardware</i>	.12 (.12)	-.04 (.16)	.29 (.20)	$\chi^2_{(1)} = 1.71$ p = 0.19
<i>Size buyer</i>	.16*** (.04)	.12 (.06)	.16* (.06)	$\chi^2_{(1)} = 0.29$ p = 0.59
<i>Size supplier</i>	.06 (.04)	.07 (.05)	.02 (.07)	$\chi^2_{(1)} = 0.35$ p = 0.56
<i>Age</i>	-.01 (.01)	-.00 (.01)	-.01 (.01)	$\chi^2_{(1)} = 0.40$ p = 0.53
Number of observations	849	548	301	Overall test $\chi^2_{(11)} = 14.35$ p = 0.21
R <sup>2</sup>	.10	.09	.13	
F	8.05***	4.64***	3.84***	

\*\*\* =  $p < .001$ ; \*\* =  $p < .01$ ; \* =  $p < .05$ ; +:  $p < 0.1$ ; two-tailed tests.