Gelei, A., – Dobos, I. (2016). Mutual trustworthiness as a governance mechanism in business relationships—A dyadic data analysis. Acta Oeconomica, 66(4), 661-684.

Mutual trustworthiness as a governance mechanism in business relationships – a dyadic data analysis

Andrea Gelei
Corvinus University of Budapest, Faculty of Business Administration, Department of Logistics and Supply Chain Management
Fővám tér 8., Budapest, Hungary - 1093
tel: +36 30 546 1566
e-mail: andrea.gelei@uni-corvinus.hu

Imre Dobos
Corvinus University of Budapest, Faculty of Business Administration, Department of Logistics and Supply Chain Management

Abstract

Purpose – Several researchers have pointed out that trust is a relational attribute that has to be analyzed in situations associated with risk and vulnerability; and that analyzing it needs a dyadic operationalization and analysis, especially when mutuality is a key concept of the research design. Based on a literature review we develop a state of the art research profile that illustrates, today's survey based trust related empirical research has severe limitations, it usually carries out general relationship analysis using mainly single end or quasi to sided sampling and classic statistical constructs.

Design/methodology/approach – We tested the following hypothesis: In a business relationship characterized by mutually high levels of trustworthiness perceived by each counterpart, the willingness to be involved in risky situations is higher than in relationships in which actors do not mutually believe that their partners are highly trustworthy. Mutually high levels of trustworthiness can act as a governance mechanism and, in such cases, trust appears in the relationship. In order to overcome the methodological shortcomings mentioned we designed and carried out a survey based empirical research that was highly situational, applied dyadic operationalization, pairwise sampling and dyadic data analysis – a special statistical approach and toolset developed by psychologists and used to analyze interdependencies in relationships. The dyadic, situational analysis of trust is typical in case based qualitative programs and in experimental economics but not in survey based empirical researches. Pairwise sampling has already been applied, but according to our best knowledge dyadic data analyses has not been applied in business research.

Findings – Empirical results back the hypothesis and they affirm the importance of dyadic operationalization and both situational and dyadic analysis.

Research limitations/implications – We think our main contribution is methodological and theoretical, since the paper gives a structured overview on the methodological challenges in analyzing mutuality in trust but also in other relational attributes. The paper not only makes these methodological problems explicit but also offer a potential solution to overcome some of their limitations.

Originality/value – Despite extensive literature on trust in business relationships key methodological problems have not been discussed in details. The suggested methodological solution's applicability and usefulness is also discussed.

Keywords Business Relationship, Trust, Trustworthiness, Governance, Mutuality, Pairwise sampling, Dyadic data analysis

1. Introduction

This paper introduces a business application for a relatively new statistical technique called *dyadic data analysis* that has been developed in social psychology; it is also called the statistics of interdependence (Gonzalez – Griffin, 2000). The importance of adaptation and, consequently, interdependence between cooperating partners is widely accepted in business research. Today, it may sound stereotyped to say that interactions lead to adaptation on both sides of a business relationship, creating interdependence between partners. It is also widely accepted that this interdependence can increase the competitiveness of business relationship and firms cooperating in them (Noordewier *et al*., 1990; Dyer – Singh, 1998; Fawcett *et al*., 2012). Successful partnerships necessitate a long-term orientation for both actors, adaptation and mutuality in several crucial relational characteristics, such as trust, satisfaction (Ivens, 2004), commitment (Holm *et al*., 1999) and power (Cox, 2004). Research still lacks both conceptual clarity and analytical constructs that are capable of measuring and analyzing interdependence in general and mutuality in particular. Dyadic data analysis, is an attempt to bridge this methodological gap (Gonzalez – Griffin, 2000; Burk *et al*., 2007).

Our paper presents research using pairwise sampling and dyadic data analysis. The research hypothesis under investigation is as follows: In a business relationship characterized by mutually high levels of trustworthiness perceived by each counterpart, the willingness to be involved in risky situations is higher than in relationships in which actors do not mutually believe that their partners are highly trustworthy. Mutually high levels of trustworthiness can act as a governance mechanism and, in such cases, trust appears in the relationship. The above hypothesis is empirically analyzed in situations in which sensitive information is to be shared between actors, creating risk and vulnerability in the relationship.

The interplay between trust and information sharing is not a new research area. Dyer *et al*. (1998) have investigated supplier–buyer relationships, including such characteristics as information sharing and trust. They concluded that both of these characteristics were differentiating factors in a long-term strategic type of cooperation in the Japanese automotive industry. Dyer and Chu (2003) have calculated the correlation between trust and information sharing in US, Japanese and Korean automotive supply chain partnerships. Results indicate that there is a strong correlation between the supplier's trust in the buyer and its willingness to share confidential information with its partner. Kwon and Shuh (2004) interpreted information sharing as a prerequisite for the buyer's trust. Our hypothesis focuses on the turnaround effect; we analyze whether mutual trustworthiness can act as a governance mechanism in risky situations, such as sharing sensitive information. These two approaches are not contradictory, because a given level of trustworthiness between partners in a relationship is the result of an ongoing investment process (Otto – Obermaier, 2009). Due to this ongoing investment process, the accumulated level of trustworthiness is both a prerequisite but also a consequence of other relational phenomena.

The most important limitation of the above mentioned papers –but also in other studies on trust– is the way they measure and analyze relational characteristics, including trust. Although several researchers have already emphasized that research on any relational phenomena should be carried out in a dyadic way (Andreson *et al*., 1994) studies are still single-end in nature (Brennan *et al*., 2003). As Henneberg *et al*. (2009) pointed out, researchers use five types of operationalization when relational attributes are analyzed, and only one of them is really a dyadic one. But even if the way of measuring is dyadic, classic statistical tools used are not capable to capture important effects of the specific context different business relations

have. This inevitably means that analytical results systematically tend to generalize and fail. It is straightforward for example that satisfaction, commitment or trust all are relation-specific, their levels vary to a great extent in different relationships. Still, current research miss the opportunity to analyze the differences that stem from these relation-specific contexts; for example differences in perceptions that exist between partners in concrete relationships (the so-called individual effect) and the differences between relationships (the dyadic effect) (Gonzalez – Griffin, 2000; Burk *et al*., 2007). This limitation can be exceeded with real dyadic measurement and using constructs of a relatively new statistical technique, called dyadic data analysis (Ickes – Duck ed., 2000). According to our best knowledge, dyadic data analysis still lacks business research application. Our survey based empirical research aims at filling this research gap and applies a real dyadic operationalization and dyadic data analysis for testing our hypothesis. Let us point out that our objective is not to develop the methodology but to show an application. A methodology that leads to a deeper understanding of trust, but also other relational phenomena.

In the next section, a literature review is presented. First, theoretical background of our hypothesis is given then a focused literature review is presented on state of the art survey based empirical research methodology related to trust in business relationships. We point out that these widely used solutions have severe limitations and are not capable for testing our hypothesis. We suggest a research design and a methodology that guarantees real situational analysis and makes dyadic measurement and analysis possible. We outline our research design and the applied methodology. Finally, results are presented and discussed in details.

2. Theoretical foundation - developing the hypothesis

Trust has an extremely rich literature that spreads over several area even in the field of economics and management. As our hypothesis indicates, we interpret trust as a governance mechanism in business relationships, consequently our paper is closely linked to Transaction Cost Economics (TCE) (Coase, 1937; Williamson, 1975). Although TCE acknowledges that trust has a key role in governing the course of events in any business relationships, it does not provide a clear definition of it. B2B literature is robust in this respect, although several competing interpretations and definitions are still available. In our theoretical foundation first we introduce the concept of governance in general and relational governance in particular, where relational attributes –such as trust– play the crucial role. Then we interpret the term trust and a closely linked concept, trustworthiness.

2.1. Governing business relationships

The concept of governance in TCE is closely linked to coordination. Coordination mechanism is a broad term specifying the general rules of regulating and intermediating micro level processes that takes place between cooperating partners in any relationships (Kornai, 1984; Rosenbaum, 2000). These rules include the mode of governance. Governance mechanisms are defined as safeguards against opportunism that firms employ in order to govern their relationships, when they face the possibility of opportunistic behavior (Jap – Ganesan, 2000; Olsen *et al*., 2005; Wang *et al*., 2008).

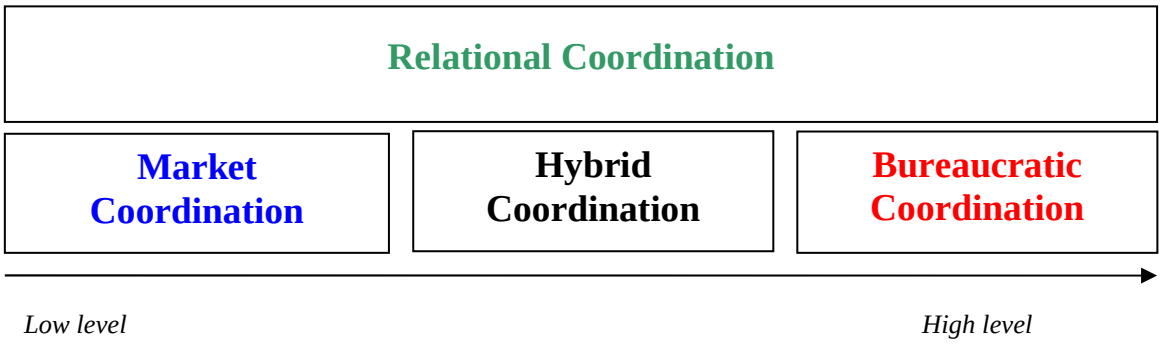
TCE focuses on the two classic coordination mechanisms, the market and the hierarchical (or bureaucratic) coordination, but their representatives acknowledge the existence of additional mechanisms too. Ouchi (1980) for example introduced the term of clan coordination, where

common values and beliefs (e.g. trust) play a crucial role in governing the relationship. Kornai (1984) introduced the ethical and the aggressive mechanism of coordination. In both cases relational characteristics –altruism and power– are the instruments of governance. Medlin *et al*. (2005) have called the type of coordination where relational attributes and norms are the ones that govern the relationship as relational coordination. On the whole theory distinguishes three basic coordination and their aligned governance mechanisms as follows (Jap – Ganesan, 2000; Olsen *et al*., 2005; Zaheer – Venkatraman 1995; Yu *et al*., 2006; Wang *et al*., 2008):

1. Market coordination and its governance mechanism the contract.
2. Hierarchical (or bureaucratic) coordination and its governance mechanism, ownership and property rights.
3. Relational coordination, where relational characteristics (e.g. trust) play the role of governance.

According to TCE three characteristics of the exchange influence the decision which coordination and governance mechanism to apply (Williamson, 1981;1985). These characteristics are the frequency, the uncertainty and the asset-specificity of the exchange. Let us imagine a continuum, on one end with transactions characterized with very low level of uncertainty, asset-specificity, and frequency. The other end of this continuum represents transactions with extremely high frequency, uncertainty, and asset specificity. In case transactions are uncertain, characterized with high level of asset-specificity and/or are frequent, the ideal coordination mechanism is the hierarchical one, while around the other end of this continuum market coordination is suggested to be applied (Figure 1). According to Ouchi (1980) clan coordination (as a specific representation of relational coordination) is suggested to be used in the middle of this continuum. This kind of interpretation supposes that different coordination –and their aligned governance– mechanisms are exclusive to each other.

Figure1 – Supplementary character of different coordination mechanisms (based on Simon, 1945; Bradrach – Eccles, 1989; Poppo - Zenger, 2002; Olsen et al., 2005)



2.2. ***Distinctive characteristics of transactions***: frequency, uncertainty and asset-specificity

Other researchers (Bradrach – Eccles, 1989; Olsen *et al*., 2005) suggest that in most real life situations a mix of different coordination and governance mechanisms are applied, so coordination and their governance mechanisms are supplementary in nature. When for example the above mentioned distinctive features of the transaction tend to be moderately strong, hybrid coordination and governance is present, such as complex contracts with partial ownership agreements between partners (Dyer *et al*., 1998). These hybrid solutions combine the two classic formal coordination mechanisms, market with hierarchical coordination (Yu *et al*., 2006). But the supplementary character is true in case of the relational coordination too

(see Figure 1). Either a good contract or full ownership cannot guarantee that all future, potentially risky transactions are governed. In these situations relational norms play a decisive role (Simon, 1945; Bradrach – Eccles, 1989; Poppo – Zenger, 2002; Olsen *et al*., 2005). We accept the complementary nature of different coordination and governance mechanisms. Our hypothesis actually aims at testing the role of a special relational attribute in governing formally non-regulated but risky situations.

Trust has always been an important feature and intensely researched aspect of behavior between persons and organizations. Research on trust has a long standing tradition in psychology (Deutsch, 1958; Larzelere – Huston, 1980). Based on their results several management areas have put effort into understanding trust between cooperating business organizations. It is clear that organizations do not behave the same way persons do; so conceptualizing and measuring interorganizational trust is a real challenge (Anderson – Narus, 1990; Zaheer *et al*., 1998). Despite the theoretical differences between personal and organizational trust, it is widely accepted that organizations can be interpreted as sets of actors. Organizational trust is so based on personal trust, consequently empirical analysis captures interorganizational trust along the perceived level of personal trust between boarder line professionals (Zucker, 1986; Bachman, 2001).

As pointed out earlier, while interpreting relational coordination and its governance mechanism TCO uses the term trust. According to the traditional interpretation trust is the credibility and benevolence of the trustee perceived by the trustor (Ganesan, 1994). Kumar (1996) similarly defines trust as the confidence of the trustor that the counterpart in a business relationship will not exploit one's vulnerabilities even in situations where such opportunistic behavior would be possible. This interpretation is the basis of a rich body of literature focusing on different types of trust, where typology is based on the source of this confidence (Korczynski, 2000).
But there is a different approach to trust in the literature as well. This makes a clear distinction between trust and trustworthiness (Mayer *et al*.; 1995). It stresses that the above introduced concept is a characteristic of the trustee; so it is about the trustworthiness of the trustee and not trust itself. Trustworthiness is a perception; a perception of one actor, the trustor's about a key feature of the trustee's. Trust itself is a closely related but conceptually different term. It indicates the trustor's intentions in risky situations with the trustee. Trust in this case is interpreted as the trustor's willingness to engage in risky behavior with a counterpart in a specific relationship and a specific situation.

In both interpretations risk has a key role, since trustworthiness and also trust are important only in situations involving actions in which vulnerability and risk is present. It is an axiom in trust related research that trust can empirically be investigated only in risky situations (Luhmann, 1979). But the distinction between trust and trustworthiness outlined above is crucial. Based on this distinction the terminology used by TCE has to be refined: Not trust but trustworthiness is or can be the safeguard applied against potential opportunism and may play the role of governance, influence the actual behavior. According to our hypothesis, trust – interpreted as the willingness to act in risky situations– does depend on the accumulated levels of trustworthiness between partners in the relationship. It appears only when the levels of perceived trustworthiness are mutually high. In such cases partners in the relationship will be willing to engage even in situations associated with high level of risk that are not governed by formal governance mechanisms, neither contract or ownership.
Whether perceived levels of trustworthiness are enough to facilitate the appearance of trust and help governing risky situations is an important theoretical question that also has practical

relevance. The answer to this question directly depends on the level of risk associated with the analyzed situation (Gefen *et al*., 2003). Therefore trust related research should be highly situational. Not only relational partners but also analyzed events should be very concrete. It is not by chance that qualitative case studies (Canning – Hanmer-Lloyd, 2007) and experimental economics are preferred research methodologies (Wang – Huff, 2007) in trust related research. But we argue that survey based research can also meet the requirement of this situational character when real dyadic sampling and dyadic data analysis is applied.

In the following we develop the state of the art methodological profile of today's survey based trust related research and highlight that this does not ensure the needed situational character of empirical research. Then dyadic data analysis is shortly introduced, our own empirical research presented, results interpreted and discussed.

3. State of the art methodological profile of survey based trust literature

As discussed earlier, analyzing trust makes it necessary to be able to operationalize, measure and analyze it in concrete situations. We have conducted a research review to map the state of the art research methodology and check, to what extent it meets the above mentioned situational requirement. The majority of the papers on trust in business relationships have applied qualitative research (e.g., Friman *et al*., 2002; Lee- Trim, 2012; Fawcett *et al*., 2012); we have left these out of our review because we concentrated on papers applying quantitative analyses based on surveys. The same reasoning is behind omitting publications applying experimental economics and game theory as their analytical method (Rieskamp – Todd, 2006; Pech – Swicegood, 2013). We have elaborated 26 articles presenting survey based quantitative research on trust in dyadic business setting. All these articles were published after the millennium so represent current methodological solutions. Therefore we think they constitute a sound basis for developing the state of the art methodological profile.

Mutuality is a core concept in our hypothesis and a key issue in B2B research in general. Still, conceptualization and measurement is underdeveloped in most of the papers. We accept the conceptualization of Svensson (2006; based on: Smith – Barclay, 1997; Smith, 1999). This points out that measuring mutuality necessitates the following two elements to be present:

(1) The levels of the relational characteristics in a given relationship perceived by the partners have to be measured in a dyadic way because,
(2) Only in such cases can the balance between these perceptions be captured.

The conceptual separation, but also the analytical coupling of these two elements make it possible to measure mutuality in business relationships. This necessitates a clear dyadic approach in both measurement and analysis. We show that state of the art research methodology in trust related literature is typically not capable of separating while simultaneously coupling the two above mentioned elements of mutuality and capture their systemic effects during analysis. This is because a real situational approach, dyadic measurement and analysis is missing.

During our literature review process, we identified four key characteristics of the applied quantitative, survey based research methodology that are relevant for a situational and real dyadic research. These key characteristics are as follows:

1) Concreteness of the analyzed business relationship;
2) Concreteness of the situations analyzed;
3) Applied sampling technique;
4) Applied statistics.

1) The concreteness of the relationship analyzed: Several papers asked their respondents to evaluate trust/trustworthiness in relationships without specifying the concrete partner being analyzed. These respondents were typically asked to evaluate trust in their customer or supplier relationships in general. In our methodological profile, these studies are called surveys applying *general relational analysis***.** In other studies, questions aimed at measuring trust in concrete relationships. In these cases, respondents were asked to evaluate a concrete relationship with one specific partner, (e.g., the most important customer or supplier). This type of analysis we call *concrete relationship analysis*.

2) Concreteness of the situation analyzed: Although risk belongs to the core aspect of all trust related research, none of the articles have analyzed concrete business situations, where the actual level of risk could have been measured.

3) Applied sampling techniques: It is clear that organizations are not the same as persons. Despite the theoretical differences between personal and organizational trust (Anderson – Narus, 1990), it is widely accepted that organizational trust is basically a personal construct and it is measured using the perceptions of key informants (Håkansson – Snehota, 1995). A specific problem is how to operationalize these perceptions. Henneberg *et al*. (2009) have identified five types of such operationalization:

- Pure monadic operationalization,
- Antagonistic perceived monad,
- Internal dyad,
- Perceived dyad,
- Dyad.

1. Pure monadic operationalization: Only one partner's informant(s) of a business relationship participate in the sampling process. Classic situation is, when the representative of a customer or a supplier cooperating in a supply chain type of relationship is asked to evaluate the relational attribute under analysis. For example a purchasing manager is asked to evaluate to what extent his/her company is committed to the relationship with a given supplier.
2. Antagonistic perceived monad: As indicated by the name, here we also have a monadic type of operationalization since only one side of the relationship takes part in measuring the relational attribute. Here we ask the representative of one party to indicate his/her perception related to the other party's perception. For example we ask the customer firm's key informant: "Please indicate, to what extent do you think your supplier is committed to the relationship!"
3. Internal dyad: This operationalization aims at analyzing the relationship between different relational attributes, for example commitment and trust. Measuring both attributes happens in a monadic (pure or antagonistic) way, because only one side of the relationship participates in the survey. Let say, the customer's informant is asked to indicate both the perceived level of trust and also of commitment toward a supplier.
4. Quasi dyadic operationalization: In such a case perceptions related to a specific relational attribute are asked to be evaluated from the perspective of both partners. But again, only one partner of the relationship does actually participate in the sampling

process. This operationalization is nothing else than the parallel application of the pure and the perceived monadic operationalization.

5. Dyadic operationalization: This is the only one really dyadic operationalization, where key informant(s) of both partners are actually asked to participate in the survey and indicate their perceptions.

The sampling technique is based on the type of operationalization applied. During the literature review, we found several papers in which only one end of the relationship was asked to indicate perceptions (pure or antagonistic monadic operationalization). Brennan *et al*. (2003) call this *single end sampling*. In other articles, sampling was based on the perceived dyadic operationalization, *quasi two sided sampling*. *Real two sided sampling*, based on the real dyadic operationalization was also present in literature. Papers measuring trust/trustworthiness in real dyadic approach can be further sorted according to the number of informants involved in the survey and the way sampling is actually carried out. Svensson (2006) distinguished between *one-to-one* and *multiple informants sampling*. Both could have been identified during our literature review. In the former case only one key informant, while in the latter case several informants on both sides are involved in measurement. A specific type of one-to-one sampling is *pairwise sampling*. Here, two key informants representing the two sides of a specific relationship indicate perceptions in relation to the concrete partner as a person (the representative of the company). Pairwise sampling can also be carried out in the physical presence of the informants, making measurement highly concrete and situational.

4) Type of applied statistics: All of the papers in the review applied *classic statistics*.
Using traditional statistical techniques for analyzing dependencies between two variables in the context of specific relationships (pairs) may create four common errors (Gonzalez – Griffin, 2000). Let us assume that N pairs have evaluated the perceived level of trust/trustworthiness in a survey. This means that in traditional terms, we have $2N$ data points. The so-called *assumed independence error* occurs when this $2N$ is interpreted as the sample size and analyzed using classic statistical techniques. The *deletion error* is present when N data points of the above mentioned $2N$ are left out because we want to avoid the assumed independence error. Although this error will not always bias the statistical results, e.g., actual correlations, it is still a waste of analytical power to drop half of the data. *Cross-level error* is committed when researchers calculate the mean scores for two aligned data points of a pair and use it in further classical statistical analysis (widely used in ongoing research). Depending on the degree of interdependence within dyads, these may result in false interpretations. Last, but not least, the *levels of analysis error* should also be avoided, because correlations between dyad means cannot be interpreted as dyad level effects, while correlations between individual scores do not indicate individual level effects.

As mentioned already the highest concreteness of dyadic operationalization and analysis can be achieved by applying pairwise sampling, a special case of real two sided, one-to-one sampling. In this case, the two cohesive informants of a given business relationship are called pairs. In statistical terms, the two scores given by these informants to the same variable represent one observation. (In our own research setting this is the two levels of perceived trustworthiness of the two persons in a concrete pair representing a concrete business relationship.) In dyadic data analysis, these aligned data pairs are called dyads. In mathematical terms, these aligned data pairs define a vector. The special technique of *dyadic data analysis* aims at measuring statistical constructs between such vectors (Kenny *et al*., 2006). The special approach of dyadic data analysis makes it possible to overcome the above mentioned analytical errors. It offers statistical constructs for analyzing both individual and

dyad level effects within relationships. It is capable of capturing individual effects, for example, the effect of the perceived level of trustworthiness of a partner on his/her other relational perceptions (e.g., on commitment). It can also capture dyad level effects, e.g., the extent to which mutuality in perceived levels of trustworthiness in a relationship influences other relational characteristics (e.g. commitment) in the same dyad.

Along the above described attributes we have developed the state of the art methodological profile (see Table 1) of survey based trust related literature. This profile indicates that these research programs can be characterized with low level of situational concreteness; still rely on single-end or quasi dyadic sampling, and exclusively on traditional statistical constructs. In our research we aim to overcome the shortcomings of such a methodology and apply situational analysis, pairwise sampling and dyadic data analysis. In the following first we shortly introduce dyadic data analysis then our research is described, results interpreted and evaluated.

Table 1 – Research profile of state of the art methodology in trust-related and survey-based empirical research

Methodological characteristics	**Level of concreteness**			**Sampling technique**					**Type of statistics**	
						Real two sided sampling				
Articles	***General relational analysis***	***Concrete relationship analysis***	***Concrete situation***	***Single-end sampling***	***Quasi two sided sampling***	*One-to-one informants*	*Multiple informant*	*Pair-wise sampling*	***Classic statistics***	***Dyadic data analysis***
Zineldin – Jonsson 2000		x	-	x					x	
Handfield – Bechtel 2002		x	-	x					x	
Brashear *et al*. 2003	x		-	x					x	
Dyer – Chu 2003		x	-			x			x	
Farrelly - Quester 2003		x	-			x			x	
Izquierdo – Cillán 2004		x	-				x		x	
Kvon – Suh 2004	x		-		x				x	
Ryssel *et al.* 2004	x		-	x					x	
Gountaris 2005		x	-	x					x	
Leung *et al.* 2005	x		-	x					x	
Svensson 2005		x	-			x			x	
Gao *et al*. 2005	x		-	x					x	
Barnes *et al*. 2005		x	-				x		x	
Ulaga – Eggert 2006		x	-	x					x	
Svensson 2006		x	-			x	x		x	
Zhao – Cavusgil 2006		x	-			x			x	

Caceres - Paparoidamis 2007	x		-	x					x	
Erikkson – Laan 2007	x		-	x					x	
Kingshott - Pecotich 2007	x		-	x					x	
Liu *et al*. 2009		x	-					x	x	
Nielsen – Nielsen 2009	x		-	x					x	
Panayides – Lun 2009		x	-	x					x	
Yeung *et al*. 2009		x	-	x					x	
Wagner *at a*l. 2010		x	-	x					x	
Davis *et al*. 2011		x	-	x					x	
Jiang *et al*. 2012		x	-	x					x	

4. A situational analysis of trust using pairwise sampling and dyadic data analysis

As already mentioned, both trust and trustworthiness are dyadic phenomena that cannot effectively be analyzed using single end research (Brennan *et al*., 2003), monadic or quasi dyadic operationalization (Henneberg *et al*., 2009) and traditional statistical tools; especially not in the context of mutuality. To overcome the limitations of this state of the art research methodology, we have analyzed concrete situations and applied pairwise sampling and dyadic data analysis (Ickes – Duck, ed., 2000). Our paper does not want to provide an in-depth presentation of dyadic data analysis; we only aim to highlight the basic differences compared to the traditional sampling and mathematical-statistical concepts and to introduce tools directly relevant to our research hypothesis. Therefore, after a short introduction to the methodology, we describe the empirical research conducted. A detailed description of the statistical background of dyadic analysis –this relatively new statistical toolset– is given in the works of Gonzalez and Griffin (2000) and Kenny *et al*. (2006).

As already mentioned, in case of a dyadic data analysis, two coherent scores –a vector– specify one observation related to the analyzed phenomenon, the perceived levels of trustworthiness in our case, and analytical tools try to capture statistical relationships between these vectors. Dyadic data always contain a mix of dyad and individual level information. Separating these two levels "requires an approach that explicitly identifies and models the degree of interdependence within and between variables at each level of analysis" (Gonzales – Griffin, 2000: 183). Pairwise sampling is suggested because it helps researchers to think in a structured way about processes and effects in concrete dyads and makes it possible to ask questions at both the dyad and the individual levels. The method applies the double entry coding (see: Gonzales – Griffin; 2000). The double entry is a tool that transforms the 2xN matrix of observations developed by pairwise sampling to a 2N vector. This data transformation makes it possible to use standard statistical program packages in our examinations.

Dyadic data analysis can be applied for exchangeable and also distinguishable cases. These two cases necessitate different statistical solutions for further analysis. The so-called dyadic homogeneity analysis is necessary to decide whether a case is exchangeable or

distinguishable. In dyadic data analysis homogeneity analysis is a mean to test whether two respondents in the pair have a similar or different answers to a given questions. We have conducted this analysis and found that our cases are exchangeable (Gonzales – Griffin; 2000), consequently ICC and APIM dyadic regression models suggested could have been applied.

As mentioned in the introduction our research hypothesis is as follows: in a business relationship characterized by mutually high levels of trustworthiness perceived by each counterpart, the willingness to be involved in risky situations is higher than in relationships in which actors do not mutually believe that their partners are highly trustworthy. In these cases mutually high levels of trustworthiness act as a governance mechanism, and trust appears in the relationship. The above hypothesis is empirically analyzed in situations in which sensitive information is to be shared between actors, creating risk and vulnerability in the relationship.

To test our hypothesis, we had to apply the dyadic regression analysis developed for exchangeable cases. These models are the ***ICC*** (Intraclass Correlation Coefficient Model) and the ***APIM*** model (Actor-Partner Interdependence Model) (Gonzalez, 2010). These models analyze how one or more variable (the independent variables of the regression model) determine the value of a dependent variable. In our analysis, the dependent variable was the willingness to act in a risky situation (trust), in concrete, the willingness to share risky information with a partner (and his/her organization). The independent variables were related to the perceived levels of trustworthiness in specific pairs.

The regression models of dyadic data analysis are special because they can incorporate several effects into the regression function: the *actor* and the *partner effect* (ICC model). APIM is even more complex because it also incorporates the so called *mutual effect*, which is the effect of mutuality in the perceived levels of a given relational attributes between concrete partners in a pair. These effects are interpreted as follows:

1. *Actor effect*: Effect of the partner's trustworthiness as perceived by the actor in a dyad on the actor's willingness to share information with the partner.
2. *Partner effect*: Effect of the actor's trustworthiness as perceived by the partner in a dyad on the actor's willingness to share information with the partner.
3. *Mutual effect*: Effect of mutuality in the above-perceived levels of trustworthiness on the actor's willingness to share information with the partner.

Because our hypothesis does stress mutuality in the perceived levels of trustworthiness, our expectations were that only results using the APIM model will support or hypothesis. The mathematical formula for the APIM model is as follows:

$$Y = \beta_0 + \beta_1 \cdot X + \beta_2 \cdot X' + \beta_3 \cdot X \cdot X' ,$$

where Y is the dependent variable, and the values of β_0, β_1 and β_2 are regression values. X and X' are independent variables, the two perceived levels of trustworthiness in a given dyad. Predictor X represents the actor's influence on the actor's Y; predictor X' represents the partner's influence on the actor's Y. The product $X \cdot X'$ is a new independent variable indicating the mutual effect of these levels on the dependent variable (Kenny *et al*., 2006).
The ICC model is different from APIM only in respect it does not incorporate the mutual effect (Gonzalez, 2010).

We have developed a questionnaire, which was used during sample development. Respondents were asked to evaluate:

- the perceived level of trustworthiness toward his/her concrete partner in the pair, and
- the perceived level of trustworthiness toward the partner's company as an organization.

(The original scale was –3 to +3 and has been recoded into a 1-7 Likert scale.)

As already mentioned, trust between persons and organizations are closely related, still different concepts (Anderson – Narus, 1990). There are only a limited number of papers studying these differences (Swan – Nolan, 1985; Young –Wilkinson, 1989). We expected that our empirical research will enrich the body of knowledge in this respect too, since our questionnaire not only asked respondents to indicate the level of perceived trustworthiness toward his/her concrete partner as a person but also the perceived level of trustworthiness toward the company represented by this person.

Next step, we asked our informants to indicate whether they are willing to share with their pairs the following types of information (yes/no):

- Operational information related to transactions with your partner (e.g., order volumes, due dates, inventory levels);
- Operational information related to other, third party companies;
- Information related to future innovations and strategic actions;
- Financial information concerning your company (e.g., cost level, profit margin).

Similarly to the level of trustworthiness, informants had to indicate:

- whether they were willing to share risky information with their concrete partner in a pair, but also
- their willingness to share this information with another hypothetical representative of the partner's firm.

We organized several workshops with purchasing and logistics professionals –two typical boundary spanning professionals in supply chain types of business relationships– and asked them to complete our questionnaire using pairwise sampling. This data gathering was carried out in the physical presence of respondents, but in an anonym way. Concrete answers were neither visible nor accessible to the participants in order to avoid biases in responses. We gathered 96 pairs of questionnaires, with 192 dyadic data points.[1]

The workshops started with pairwise sampling. We did not discuss any of the concepts in the questionnaire (trust, trustworthiness or risk). Only after sampling, did we let our respondents to evaluate the four concrete information-sharing situations. They indicated that sharing operational information is a must and so is not associated with any type of risk. They did not associate real risk either with sharing third party information or innovation-strategic related information; only sharing financial information was perceived by the respondents to be a situation associated with a high level of risk.

[1] Let us remark, that the situations under investigation are virtual in nature. Real life situations are analyzed using qualitative approach, mainly case studies. This methodology has the advantage of high reliability, but it has also limitations, its generalizability for example. Mathematical-statistical constructs are strong in this latter aspect. This is the reason, we have chosen the survey based statistical methodology, and tried to map the limitations of current techniques. Behavioral economics can also be used for modelling our problem. But behavioral game theory has the same limitation in this respect. They are used in laboratory environment and virtual situations.

5. Results

During our empirical analysis, 32 dyadic regression functions were developed. These functions differed along the following dimensions:

1. Whether the ICC or the APIM model has been applied;
2. The built in independent variables: The type of the partner in the analysis, or whose perceived trustworthiness has been evaluated: the concrete partner as a person in the pair or the company the person was representing.
3. The dependent variable: The type of the partner with whom the information sharing situation was tested: with the actual partner as a person in the pairwise sampling process or another hypothetical representative of the company for which the actual partner in the pair was working.
4. Four information sharing situations characterized by different levels of risk.

Table 2- Characteristics of the 32 regression models developed with a focus on the APIM model

Numbers of the regression models ***Characteristics of these models***		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**from the 17. to the 32. regression models applying ICC model.** **…**
(1) Type of dyadic regression model	*ICC regression model*																	
	APIM regression model	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
(2) Whose perceived levels of trustworthiness were measured	*Trustworthiness of the person*	x	x	x	x					x	x	x	x					
	Trustworthiness of the company					x	x	x	x					x	x	x	x	
(3) The context of trust (personal or organizational)	*Information sharing with the person*	x	x	x	x	x	x	x	x									
	Information sharing with the company (other, hypothetical employee)									x	x	x	x	x	x	x	x	
(4) Concrete situations analyzed	*Sharing operational information*	x				x				x				x				
	Sharing third party information		x				x				x				x			
	Sharing innovation related information			x				x				x				x		
	Sharing financial information				x				x				x			x		

According to our expectations, applying the ICC model –which does not systematically builds into the model the effect of mutuality– will not support the hypothesis. This expectation was backed by our empirical results: no significant regression models using the ICC method could have been developed.

We asked or informants to indicate the willingness to share risky information with both the concrete person in his/her pair but also with other, hypothetical employees of the company represented by these persons. The former tested trust in an interpersonal, the latter in an organizational context. In both cases mutually high level of perceived trustworthiness led to the appearance of trust; partners were willing to engage in a situation with high level of risk, namely sharing financial information.

Table 3– Key results

No of models	Dependent variable	Independent variables of the regression functions	Value of R^2	Significance* of the regression model
Perceived level of trustworthiness of the partner as a person – APIM – information sharing with the partner as a person				
4.	**InfoFinancial1**	**Trustworthiness1** **Trustworthiness2** **TrustworthinessMutual**	**0.207**	**Significant**
Perceived level of trustworthiness of the partner's firm – APIM – information sharing with the partner as a person				
8.	**InfoFinancial1**	**TrustworthinessFirm1** **TrustworthinessFirm2** **TrustworthinessFirmMutual**	**0.272**	**Significant**
Perceived level of trustworthiness of both the partner as a person and the partner's firm – APIM – information sharing with the partner as a person				
33.	**InfoFinancial1**	**Trustwothiness1** **Trustwothiness2** **TrustwothinessMutual** **TrustwothinessFirm1** **TrustwothinessFirm2** **TrustwothinessFirmMutual**	**0.302**	**Significant**

($p < 0.01$)*

As mentioned, informants indicated that real risk is associated only with the situation sharing financial information. This was the only situation in the research that needed relational governance. Therefore, we expected that results will be supporting only when regression models were related to this type of situation. This expectation was also fulfilled: The regression models were never significant when situations with low levels of associated risk were analyzed. However, regression models related to the situation of financial information sharing were significant and the R^2 values were also supporting. These were regression models were 4 and 8 (see Table 2 and 3). Since regression models 4 and 8 were both backing and have differed only in respect of whose perceived trustworthiness have been measured (the person's or the company's in general) we have developed a 33. regression model that incorporated both types of perceived trustworthiness (see regression model 33 in Table 3). The model was also significant and resulted in the highest R^2 value.

5. Discussion and conclusion

Our paper aimed to test the following hypothesis: In business relationships characterized by mutually high levels of trustworthiness, the willingness to be involved in risky situations is higher than in relationships in which the actors do not believe that their partners are highly trustworthy. In situations characterized by mutually high levels of trustworthiness, it actually acts as a governance mechanism: trust appears in the relationship and risky situations are willing to be taken. The hypothesis was empirically analyzed using survey based research methodology in situations, where sensitive information was to be shared between partners, creating the perception of risk and potential vulnerability.

Empirical results supported this hypothesis having direct managerial relevance. This means, building mutually high levels of trustworthiness is a rewarding investment because it may help in governing risky situations inevitably emerging in business relationships. According to our results trust can only be detected when mutuality is present. The absence of mutually high level of trustworthiness does not generate trust and so may lead to the deterioration of the partnership. In today's turbulent environment, characterized by globalization, the intense outsourcing of important capabilities and constant innovation and knowledge sharing, such risky situations arise from day to day.

Trust has a rich literature and is widely expected as an important relational characteristic that has a positive effect on both relationships' and firms' competitiveness. So what is new in our findings? An important element of our hypothesis was the mutuality in the perceived levels of trustworthiness. Mutuality is also often stressed in trust related literature (Ivens, 2004), but only scarcely ever conceptualized and analyzed systematically in survey based empirical research programs. Literature also points out that any relational characteristics should be analyzed in concrete dyadic setting (Brennan *et al*., 2003; Henneberg *et al*., 2009). Unfortunately, research methodology is lacking behind requirements in this respect too. Based on a literature review of 20 trust related publications, we have developed a state of the art methodological profile. This profile showed that empirical research is never really specific in respect of the analyzed situation, sometimes even analyzed relationships fail to be specific. It still relies on single-end research, does only very seldom applies real dyadic operationalization and uses traditional statistical constructs. Empirical results of studies with such a methodological profile are biased and can be questioned.

Our research is survey based empirical research that tries to overcome these methodological limitations. We have carried out a highly situational research, applied a real dyadic operationalization and analysis. We have used the pairwise sampling method and the dyadic data analysis that has been developed in order to capture interdependences, between partners in relationships – including the issue of mutuality. Pairwise sampling has already been applied in business setting, but according to our best knowledge dyadic data analysis had lacked such an application. In this respect our paper is unique. It tries to fill the methodological research gap outlined with the state of the art methodological profile developed. Qualitative case studies and experimental economics fulfill the requirement of situational and dyadic analysis. But extended survey based empirical research is needed in order to develop knowledge that is reliable and generizable at the same time. Therefore we think any paper focusing on methodological challenges, discussing methodological developments, and highlighting potential solutions is important.

The research described and results presented thrown up four methodological –but also theoretical– issues:

1. Does mutuality really matters in relationship management?
2. Does analyzing trust or any other relational attribute really needs a dyadic operationalization?
3. To what extent is trust as a governance mechanism situational?
4. Does interpersonal trust is the same as interorganizational trust?

As described, we have developed 33 regression models altogether. From these 33 only those have led to backing results:

- that have systematically incorporated into the regression model the effect of mutuality in the perceived levels of trustworthiness;
- were related to the only situation characterized with high level of risk and vulnerability – the situation of information sharing;
- where dependent variable of the model was related to information sharing with the actual person in the pair during the pairwise sampling and not the company in general this partner person was representing.

Mutuality is a key attribute of research related to several relational characteristics, including trust. Yet, mutuality in trustworthiness or trust is seldom operationalized and analyzed systematically. As Svensson's (2006) interpretation indicates this would need a real dyadic operationalization and measurement. Our state of the art methodological profile showed that survey based research programs are still dominated by single end or quasi two sided sampling that is not capable to measure mutuality. A real two sided sampling is essential when mutuality is a key concept of the research model. We have applied pairwise sampling, a special case of one-to-one real two sided sampling, when questions are answered by the informants in their concrete physical presence. Using these dyadic data pairs we applied the APIM regression model of dyadic data analysis that is capable to incorporate the mutual effect into the analysis.

Both trust and trustworthiness are born situational, since they are closely linked to risk (Gefen *et al*., 2003). Our empirical results affirm this statement: Only situations associated with high level of risk and potential vulnerability are suitable to detect trust and analyze the role of trustworthiness in relationship governance. Situations, where real risk is not present do not necessitate governance. Therefore analyzing relationships (even specific ones) in general is not appropriate when trust/trustworthiness is a key concept of the research model.

Last, but not least, we discussed the issue of interpersonal and interorganizational trust. In our survey, we measured separately the perceived level of trustworthiness of the concrete person in a pair and the level of trustworthiness perceived toward the company in general. Regression model 4 (see Table 2 and 3) used the level of trustworthiness of the actual person in the pair, while regression model 8 used the perceived level of trustworthiness toward the firm in general. In both cases regression models were significant and R^2 backing, when perceived levels of trustworthiness were mutually high and the situation associated with high level of risk was analyzed. This result indicates that it does not seem to be a distinguishing feature whose trustworthiness is measured, a person's or generally the company's. But it does seem to matter, with whom the risky situation has to be handled. High levels of mutual trustworthiness perceived toward the partner and also toward his/her firm can facilitate risky information sharing with the concrete person, present during pairwise sampling. No-one under no circumstances was willing to share financial information with other representatives of the

partner firm. These surprising results indicate that research on relational characteristics have to devote more effort into understanding differences between interpersonal and interorganizational settings.

The paper tried to focus on the methodological challenges of today's trust related survey based research practice. The situational character of the research, measuring mutuality in a systemic way, using real dyadic operationalization and analysis – all these have been present in our survey based research program. We hope were able to draw attention to these methodological problems, make some suggestions and enhance further thinking.

Acknowledgement: The project is supported by OTKA (K 115542)

References

Anderson, E. – Narus, J.A. (1990), "A Model of Distributor Firm and manufacturer Firm Working partnerships", Journal of Marketing, 54, pp. 42 – 58.
Anderson, E. – Håkansson, H. – Johanson, J. (1994), "Dyadic Business Relationships within a Business Network Context", *Journal of Marketing*, Vol. 58, No. 4, pp. 1-15.
Bachmann, R. (2001), "Trust, power and control in trans-organizational relations", *Organization Studies*, Vol. 22, No. 2, pp. 337 – 365.
Barnes, B. R. – Naudé, P. – Michell, P. (2005), "Exploring Commitment and Dependency in Dyadic relationships", *Journal of Business-to-Business Marketing*, Vol. 12 No. 3, pp. 2-26.
Bradach, J.L. – Eccles, R.G. (1989), "Price, authority and trust", *Annual Review of Sociology*; 15, pp. 97-118.
Brashear, T.G. – Boles, J. S. – Bellenger, D. N. – Brooks, M. (2003), "An Empirical Test of Trust-Building Processes and Outcomes in Sales Manager–Salesperson Relationships", *Journal of the Academy of Marketing Science*; Vol. 31 No.2, pp. 189-200.
Burk, J. W. – Steglich, C.E.G. – Snijders, T.A.B. (2007), „Beyond dyadic interdependence: Actor-oriented models for co-evolving social networks and individual behaviors", *International Journal of Behavioral Development*, Vol. 31, No. 4, pp. 397–404.
Caceres, R.C. – Paparoidamis, N.G. (2007), "Service quality, relationship satisfaction, trust, commitment and business-to-business loyalty", *European Journal of Marketing*, Vol. 41 No. 7/8, pp. 836 – 867.
Coase, R.H. (1937), "The Nature of the Firm", *Economica*, Vol. 4, Issue 16. pp. 386–405.
Dyer, J. H. – Chu, W. (2003), "The role of trustworthiness in reducing transaction cost and improving performance: Empirical evidence from the United States, Japan, and Korea", *Organization Science*, Vol.14 No.1, pp. 57-68.
Canning, l. – Hanmer-Lloyd, S. (2007), "Trust in buyer-seller relationships: the challenge of environmental (green) adaptation", *European Journal of* Marketing; Vol. 41 NO. 9/10, pp. 1073 – 1095.
Cox, A. (2004), "Business relationship alignment: on the commensurability of value capture and mutuality I buyer and supplier exchange", *Supply Chain Management: An International Journal*, Vol. 9 No. 5, pp. 410-420.
Davis, M. A. P. – Lassar, W. – Manolis, C. – Prince, M. – Winsor, R. D. (2011), "A model of trust and compliance in franchise relationships", *Journal of Business Venturing*, 26, pp. 321 – 340.
Deutsch, M. (1958): Trust and suspicion; *Conflict Resolution*, Vol.2 No.4, pp. 265-279.
Dyer, J. H. – Cho, D. S. – Chu, W. (1998), "Strategic Supplier Segmentation: The Next „Best Practice"; *Supply Chain Management; California Management Review*; Vol. 40, No 2, pp. 57-77.
Dyer, J.H. – Singh, H. (1998), "The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage", *The Academy of Management Review*, Vol. 23, No. 4, pp. 660-679.

Eriksson, P.E. – Laan, A. (2007), "Procurement effects on trust and control in client-contractor relationships; Engineering", *Construction and Architectural Management*; Vol. 14 No. 4, pp. 387-399.
Farrelly, F. – Quester, P. (2003), "The effects of market orientation on trust and commitment: The case of the sponsorship business-to-business relationship", *European Journal of Marketing*, Vol. 37 No. 3/4, pp. 530 – 553.
Fawcett, S.E. – Jones, S.L. – Fawcett, A.M. (2012), "Supply chain trust: The catalyst for collaborative innovation", *Business Horizon*, 55, pp. 163 – 178.
Friman, M. – Gärling, T. – Millet, B. – Mattson, J. – Johnston, R. (2002), "An analysis of international business-to business relationships based on the Commitment-Trust theory", *Industrial Marketing Management*, 30, pp. 403-409.
Ganesan, S. (1994), "Determinants of Long-Term Orientation in Buyer-Seller relationships", *Journal of Marketing*; 58 (April), pp. 1-19.
Gao, T. – Sirgy, M.J. – Monroe, M.B. (2005), "Reducing buyer decision-making uncertainty in organizational purchasing: can supplier trust, commitment, and dependence help?", *Journal of Business Research*, 58, pp. 397-405.
Gonzalez, R. – Griffin, D. (2000), "On the Statistics of Interdependence: Treating Dyadic Data with Respect", pp. 181-213, in.: Ickes, W. – Duck, S. (2000) (ed.), *The Social Psychology of Personal Relationships*, John Wiley and Sons.
Gonzalez, R. (2010), Dyadic Data Analysis; University of Michigan; http://www.cfs.purdue.edu/CFF/documents/Families_and_Health/purdue.pdf
Gounaris, S.P. (2003), "Trust and commitment influences on customer retention: insights from business-to-business services", *Journal of Business Research*, 58, pp. 126-140.
Ghosh, A. – Fedorowicz, J. (2008), "The role of trust in supply chain governance", *Business Process Management Journal*, Vol. 14 Iss. 4, pp. 453 – 470.
Håkansson, H. – Snehota, I. (1995), *Developing relationships in Business Networks*, Routlege, London and New York.
Handfield, R. B. – Bechtel, C. (2002), "The role of trust and relationship structure in improving supply chain responsiveness", *Industrial Marketing Management*, 31, pp. 367-382.
Heide, J. B. (1994): Interorganizational Governance in Marketing Channels; *Journal of Marketing*, 58, pp. 71-85.
Henneberg, S.C. – Ashnai, B. – Naudé, P. (2009), "Is there such a thing as a 'dyadic operationalization'? Some considerations regarding quantitative research and the interaction model of business relationships", *25th Annual IMP Conference, Book of Abstracts*.
http://impgroup.org/uploads/papers/7241.pdf
Holm, B. D. – Eriksson, K. – Johanson, J. (1999), "Creating value through mutual commitment to business network relationship", *Strategic Management Journal*, 20, 467-486.
Ickes, W. – Duck, S. (2000) (ed.), *The Social Psychology of personal Relationships*, John Wiley and Sons.
Ivens, B. S. (2004), "How relevant are different forms of relational behavior? An empirical test based on Macneil's exchange framework", *Journal of Business & Industrial Marketing*, Vol. 19 No. 5, pp. 300- 309.
Izquierdo, C.C. – Cillán, J.G. (2004), "The interaction of dependence and trust in long-term industrial relationships", *European Journal of Marketing*, Vol. 38 No. 8, pp. 974 – 994.
Jap, S. D. – Ganesan, S. (2000), "Control mechanisms and the relationship life cycle: implications for safeguarding specific investments and developing commitment", *Journal of Marketing Research*, 37, pp. 227-245.
Jiang, Z. – Henneberg, S.C. – Naudé, P. (2012), "Supplier relationship management in the construction industry: the effect of trust and dependence", *Journal of Business & Industrial Marketing*, 27/1, pp. 3-15.
Johnston, J. L. – Cullen, J. B. – Sakano, T. – Takenouchi, H. (1996), "Setting the stage for trust and strategic integration in Japanese-U.S. cooperative alliances", *Journal of International Business Studies*, Vol. 27, No.5, pp. 981-1004.
Kenny, D. A. – Kashy, D. A. – Cook, W. L. (2006), *Dyadic data Analysis*, The Guilford Press, New York – London.

Kingshott, R.P.J. – Pecotich, A. (2007), "The impact of psychological contracts on trust and commitment in supplier-distributor relationships", *European Journal of Marketing*, Vol. 41 No. 9/10, pp.1053 – 1072.
Kornai, J. (1984),"Bureaucratic and market coordination", *Osteuropa Wirtschaft*, *29* (4), pp. 306-319.
Kumar, N. (1996), "The Power of Trust in Manufacturer – Retailer Relationships", *Harvard Business Review*, Vol. 74, No.6, pp. 93-107.
Kwon, I-W.G. – Suh, T. (2004), "Factors Affecting the Level of Trust and Commitment in Supply Chain Relationships", The Journal of Supply Chain Management: A Global Review of Purchasing and Supply, Vol. 40 No. 1, pp. 4-14.
Larzelere, R.E. – Huston, T.L. (1980), "The Dyadic Trust Scale: Toward Understanding Interpersonal Trust in Close Relationships", *Journal of Marriage and Family*, Vol. 2. No. 3, pp. 595-604.
Lee, Y-I. – Trim, P.R.J. (2012), "How mutuality reinforces partnership development: Japanese and Korean marketing perspectives", *Industrial Marketing Management,* 41, pp. 770-779.
Leung, T.K.P. – Lai, K-h. – Chan, R.Y.K. – Wong, Y.H. (2005), "The roles of xinyong and guanxi in Chinese relationship marketing", *European Journal of Marketing*, Vol. 39 No. 5/6, pp.528 – 559.
Li, Y. – Liu, Y. – Liu, H. (2011), "Co-opetition, distributor's entrepreneurial orientation and manufacturer's knowledge acquisition: Evidence from China", *Journal of Operations Management*, Vol.29, No. 1–2, pp. 128–142.
Liu, Y. – Luo, Y. – Liu, T. (2009), "Governing buyer–supplier relationships through transactional and relational mechanisms: Evidence from China", *Journal of Operations Management,* 27, pp. 294-309.
Luhman, N. (1979), *Trust and Power*, John Wiley, Chichester.
Mayer, R.C. – Davis, J.H. – Schoorman, F.D. (1995), "An Integrative Model of Organizational Trust", *Academy of Management Review*, Vol. 20, No. 3, pp. 709-734.
Medlin, C.J. (2003), "A Dyadic Research Program: The Interaction Possibility Space Model", *Journal of Business-to-Business Marketing*; Volume 10, Issue 3, pp. 63-80.
Medlin, C.J. – Aurifeille, J-M. – Quester, P.G. (2005), "A collaborative interest model of relational coordination and empirical results", *Journal of Business Research*, Vol.58, Issue, 2, pp. 214-222.
Nielsen, B. – Nielsen, S. (2009), "Learning and Innovation in International Strategic Alliances: An Empirical Test of the Role of Trust and Tacitness", *Journal of Management Studies*; Vol. 46 No. 6, pp. 1031-1056.
Noordewier, T. G. – John, G. – Nevin, J. R. (1990), "Performance-Outcomes of Purchasing Arrangements in Industrial Buyer-Vendor Relationships", *Journal of Marketing*, 54, pp. 80-93.
Olsen, B.E. – Haugland, S.A. – Karlsen, E. – Husoy, G.J. (2005), "Governance of complex procurement in the oil and gas industry", *Journal of Purchasing and Supply Management*, 11, pp. 1-13.
Ouchi, W.G. (1980), "Markets, Bureaucracies, and Clans", *Administrative Science Quarterly*, Vol. 25, No. 1, pp. 129-141.
Otto, A. – Obermaier, R. (2009), "How can supply networks increase firm value? A causal framework to structure answers", *Logistics Research*, 1, pp. 131-148.
Panayides, P.M. – Lun, Y.H.V. (2009), "The impact of trust on innovativeness and supply chain performance", *International Journal of Production Economics*, 122, pp. 35-46.
Pech, W. – Swicegood, P. (2013), "Trust And Trustworthiness: A Game Theory Transcontinental Experiment", *International Business and Economics Research Journal*, Vol. 12 No. 3, pp. 311-317.
Poppo, L. – Zenger, T. (2002), "Do formal contracts and relational governance function as substitutes or complements?", *Strategic Management Journal*; 23, pp. 707-725.
Rieskamp, J. – Todd, P. M. (2006), „The evolution of cooperative strategies for asymmetric social interactions", *Theory and Decision*, 60, pp. 69-111.
Rodenbaum, E. F. (2000), "What is a Market? On the Methodology of a Contested Concept", *Review of Social Economy*, Vol. 58, No. 4, pp. 455-482.
Simon, H.A. (1945), *Administrative Behavior*, Free Press, New York.
Smith, B. (1999), "A comparison of aggregation approaches for second-order data", *Industrial Marketing Management*; Vol. 28, No. 3, pp. 277-292.
Smith, J. B. – Barclay, D.W. (1997), "The effects of organizational differences and trust on the effectiveness of selling partner relationships", *Journal of Marketing*, Vol. 61. No. 1, pp. 3-21.

Svan, J. E. – Nolan, J. J. (1985), “Gaining customer trust: A conceptual guide for salesperson”, *Journal of Personal Selling and Sales Management*, Vol. 5 No. 2, pp. 39-48.
Svensson, G. (2005), “Mutual and interactive trust in business dyads: condition and process”, *European Business Review*”, Vol. 17 No. 5, pp. 411-427.
Svensson, G. (2006), “Multiple informants and asymmetric interactions of mutual trust in dyadic business relationships”, *European Business Review*, Vol. 18 No. 2, pp. 132-152.
Ulaga, W. – Eggert, A (2006), "Relationship value and relationship quality: Broadening the nomological network of business-to-business relationships", *European Journal of Marketing*, Vol. 40 No. 3/4, pp. 311 – 327.
Wagner, S.M. – Eggert, A. – Lindemann, E. (2010), “Creating and appropriating value in collaborative relationships”, *Journal of Business Research*; 63, pp. 840 – 848.
Wang, S. – Huff, L.C. (2007), “Explaining buyers' responses to sellers' violation of trust”, *European Journal of Marketing*, Vol. 41 No. 9/10, pp. 1033 – 1052.
Wang, Q. – Xu, J. – Weitz, B. (2008), “Creativity in buyer-seller relationships: the role of governance”, *International Journal of Research in Marketing*, 25, pp. 109-118.
Williamson, O. E. (1979), “Transaction Cost Economics: The Governance of Contractual Relations”, *Journal of Law and Economics*, 1979. October, Vol. 22. No 2, pp. 233-261.
Williamson, O.E. (1981), “The economics of organization: the transaction cost approach”, *American Journal of Sociology*, Vol. 87 no. 3, pp. 548–77.
Williamson, O.E. (1985),”*Economic institutions of capitalism*”, New York, Free Press.
Yeung, J.H.Y. – Selen, W. – Zhang, M. – Huo, B. (2009), “The effects of trust and coercive power on supplier integration”, *International Journal of Production Economics*, 120, pp. 66-78.
Young, L. C. – Wilkinson, I. F. (1989), “The role of trust and co-operation in marketing channels: A preliminary study”, *European Journal of Marketing*, Vol. 23 No. 2, pp. 109-122.
Yu, C.M.J. – Liao, T.J. – Lin, Y.D. (2006), “Formal governance mechanisms, relational governance mechanisms, and transaction-specific investments in supplier-manufacturer relationships”, *Industrial Marketing Management*; 35, pp. 128-139.
Zaheer, A. – Venkatraman, N. (1995), “Relational governance as an interorganizational strategy: an empirical test of the role of trust in economic exchange”, *Strategic Management Journal*; 16 (5), pp. 373-392.
Zaheer, A. – McEvil, B. – Perrone, V. (1998), “Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance”, *Organization Science*, Vol.9 No.2, pp. 141-159.
Zao, Y. – Cavusgil, S.T. (2006), “The effect of supplier’s market orientation on manufacturer’s trust”, *Industrial Marketing Management*, 35, pp. 405-414.
Zineldin, M. – Jonsson, P. (2000), “An examination of the main factors affecting trust/commitment in supplier-dealer relationships: an empirical study of the Swedish wood industry”, *The TQM Magazine*, Vol. 12 No. 4, pp. 245-265.
Zucker, L.G. (1986), “Production of trust: Institutional sources of economic structure, (1980 – 1920)”, pp. 53-111. in: Staw, B.M. – Cummings, L.L. (eds.), *Research in Organizational Behavior*, Greenwich, Vol 8.