

# **Value sharing in customer-supplier relationships**

Inaugural Dissertation for Obtainment of the Degree  
Doctor rerum politicarum (Dr. rer. pol.)

Submitted to:  
WHU – Otto Beisheim School of Management  
Vallendar, Germany

Referee:  
Prof. Dr. Stephan M. Wagner  
Kuehne Foundation Endowed Chair of Logistics Management  
WHU – Otto Beisheim School of Management

Co-Referee:  
Prof. Dr. Dr. h.c. Jürgen Weber  
Institute of Management Accounting and Control (IMC)  
WHU – Otto Beisheim School of Management

Submitted by:  
Dipl.-Kfm. Eckhard Lindemann  
Vallendar, 2008

## **Vorwort**

Zu Beginn der Arbeit möchte ich es nicht versäumen, allen Personen zu danken, die am Entstehungsprozess und letztendlich am erfolgreichen Abschluss dieser Dissertation entscheidend beteiligt waren.

Dank gilt an erster Stelle meinem Doktorvater Prof. Dr. Stephan M. Wagner, der mich während allen Phasen des Dissertationsprozesses unterstützt hat. Hierdurch sind neben den Ergebnissen der vorliegenden Arbeit auch die Grundlagen für die aktuelle und zukünftige Zusammenarbeit an weiteren wissenschaftlichen Projekten gelegt worden. Für die Übernahme des Zweitgutachtens und die hilfreichen Ratschläge möchte ich mich auch ganz herzlich bei Prof. Dr. Dr. h.c. Jürgen Weber bedanken.

Außerdem möchte ich meinen WHU-Kollegen und Freunden Christoph Bode, Dr. Philipp Koziol, Gerald Schönbacher, Dr. Alex Michel, Horst C. Rau, Pan Theo Große-Ruyken, Rene Kemmerling und Christian Rink danken, die sowohl in fachlicher als auch außeruniversitärer Hinsicht wesentlich zu drei schönen und erfolgreichen Jahren in Vallendar beigetragen haben. Ulrike Cappel gilt mein Dank für die moralische Unterstützung des gesamten Lehrstuhlteams.

In besonderer Erinnerung werden mir auch der Aufenthalt an der Miami University in Oxford/Ohio und insbesondere die produktiven und interessanten Monate mit den Professoren Linda Coley, Thomas Speh, Jill Kickul und Mark Griffith bleiben.

Meiner Freundin Andrea Stolz gebührt an dieser Stelle mein spezieller Dank.

Abschließend gilt ein besonderer Dank meinen Eltern Conni und Dr. Max Lindemann, die mich in allen Phasen meines bisherigen Lebens in jeglicher Hinsicht unterstützt haben. Ihnen ist diese Arbeit gewidmet.

*Eckhard Lindemann*

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**ABBREVIATIONS**

AG	Aktiengesellschaft [ <i>engl.: corporation</i> ]
ANOVA	Analysis of variance
AVE	Average variance extracted
CN	Critical N
d.f.	Degrees of freedom
ECR	Efficient consumer response
ECVI	Expected cross-validation index
GFI	Goodness of fit index
IMP Group	International Marketing and Purchasing Group
NFI	Normed fit index
R&D	Research & development
RMSEA	Root mean square error of approximation
RMR	Root mean square residual
SEM	Structural equation modeling
US	United States
USA	United States of America
VIF	Variance inflation factor

Further abbreviations of items and constructs are presented in the Appendix.

## CHAPTER I: Introduction and overview

### 1 Introduction

Managers in industrial companies have long focused on the optimization of their *intra*-organizational settings and business processes to attain the highest level of (internal) value creation. However, the last two decades have witnessed a growing interest in the development of collaborative *inter*-organizational relationships in research and practice (Dwyer, Schurr, & Oh, 1987; Johnson, 1999; Schurr, 2007; Wagner, 2003; Wagner & Johnson, 2004). The goal of these collaborative inter-organizational relationships is to reach (in sum) a higher level of value creation than any of the collaborating companies could do on its own (Dyer & Singh, 1998; Walter, Ritter, & Gemünden, 2001). In this research context, scholars use the image of the inter-organizational value pie that can be enlarged through coordination and collaborative actions among companies (Jap, 1999; Narayanan & Raman, 2004). Other scholars refer to the process of enhanced inter-organizational value creation as the rising tide that lifts all ships (i.e., collaborating companies) (Crook & Combs, 2007; Ketchen & Guinipero, 2004).

Researchers have intensively investigated the inter-organizational value creation process and have provided several approaches for increasing the value creation for collaborating companies (e.g., Jap, 1999). Despite this extensive research attention on the process of *value creation* in inter-organizational settings, scholars have paid scant attention to the aspects of *value sharing* between collaborating companies (Jap, 2001) (i.e., to the process of sharing the enlarged value pie or how high the tide rises for single ships). This is astonishing, given that more than a decade ago scholars had already proclaimed the importance of value sharing among collaborating companies, declaring that this process is the “raison d’être” of inter-organizational



relationships along with the collaborative creation of value (Anderson, 1995; Wilson, 1995). Thus, it is essential for the endurance and success of inter-organizational relationships in the marketplace to shed further light on the process of value sharing.

The concepts of value sharing are certainly not entirely new to the academic literature. *Inter-personal* value sharing (between individuals) has been discussed in the social, psychological and economic sciences for decades (e.g., Güth, Schmittberger, & Schwarze, 1982). However, research on value sharing on the *inter-organizational* level is limited to recent years and still offers a significant potential for future research. Some scholars agree with Anderson's (1995) call for more research on the topic of inter-organizational value sharing, but often stay on a rather abstract level of description. Lee (2004), for example, proclaims that risks, costs and gains need to be shared "equitably" between collaborating companies to attain what he calls "triple-A supply chains" (those with high levels of agility, adaptability, and alignment). However, Lee (2004) does not go further into detail, so it remains unclear what is meant by an "equitable" sharing, how this can be assured, and why it is important for the success of these supply chains (or inter-organizational relationships in general).

This thesis takes this limitation into consideration and focuses on the process of value sharing in *vertical industrial inter-organizational relationships*. This means that the investigated collaborative relationships are established between an industrial customer<sup>1</sup> company and one of its upstream suppliers.<sup>2</sup> Overcoming the inter-organizational boundaries between customer and supplier companies, when coordinating the customer-supplier relationship and optimizing the value creation process, promises additional value creation potential for both companies. The question, however, is how and why the enlarged value pie is shared between the customer and its

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<sup>1</sup>The term "customer" is used synonymously with "buyer" throughout this thesis.

<sup>2</sup>The thesis refers to the bilateral relationship between a customer and a supplier company also as "dyad."

suppliers. This question has not been answered in prior research and is therefore – among others – the focus of this thesis.

## **2 Literature review on value, value creation and value sharing**

To provide a sound foundation for the following analyses, prior research on the topic needs to be reviewed from several perspectives. The concept of value and value creation is defined and highlighted with literature from diverse research fields (section 2.1). Section 2.2 reviews the literature on inter-personal value sharing and section 2.3 summarizes the model-based (section 2.3.1) and empirical (section 2.3.2) literature on the process of value sharing in inter-organizational relationships. This literature review identifies the research limitation in the empirical research that is the concern of this thesis.

### **2.1 Value and value creation**

An important premise of this thesis is the notion of *value*. Building on the literature on customer value in the field of marketing research (Anderson & Narus, 2004; Gale, 1994; Woodruff & Gardial, 1996; Zeithaml, 1988), scholars have conceptually and empirically advanced our understanding of value in recent years (Cannon & Homburg, 2001; Eggert & Ulaga, 2002; Hogan, 2001; Möller & Törrönen, 2003; Ulaga, 2003; Wilson & Jantrania, 1995). However, the term *value* is still often applied with different and somewhat inconsistent meanings (Lepak, Smith, & Taylor, 2007; Lindgreen & Wynstra, 2005; Ramsay, 2005).

On a high level of abstraction, value can be defined as the trade-off between the benefits (“what you get”) and the sacrifices (“what you give”) in a market exchange (Zeithaml, 1988). Marketing researchers adopt this definition and relate to value creation either as reducing the

costs in the inter-organizational relationship, consisting of direct, acquisition and operation costs (Cannon & Homburg, 2001) or broaden this narrow perspective by adding benefits, such as product quality, personal interaction or time-to-market to the value construct (Ulaga & Eggert, 2006).

According to this broadened perspective, value in industrial inter-organizational relationships can be created by either *reducing costs* or *increasing benefits* (Anderson, 1995). Common examples of created value in customer-supplier relationships are cost reductions through collaborative planning in the new product development process (reducing costs) or improvements in the product quality leading to a higher end customer satisfaction (increasing benefits). Both can contribute to competitive advantage for the customer company (Wagner, 2006). This relatively simple definition of value (creation) is used in the thesis for the data collection and empirical analyses, providing sufficient room for the survey respondents to consider any relationship-specific value that has been created (and shared) in their inter-organizational collaborations.

The amount of value that is created in inter-organizational relationships is not easy to determine and there is not one single standardized and commonly accepted method of measuring the size of the (enlarged) value pie. As prior empirical research and the author's case study interviews with purchasing managers from industrial companies in Germany have indicated, there is certainly not a true value on how large the value pie and the companies' shares of it are, since both are "perceived" by each company and therefore are in the "eye of the beholder" (e.g., Walster, Berscheid, & Walster, 1973, p. 152). Managers from customer companies might perceive some aspects of the collaboration exchange to be more valuable for their company than

their respective suppliers do (e.g., increased end customer satisfaction). This important aspect will be considered in this thesis.

## **2.2 Inter-personal value sharing**

After reviewing the literature on value and value creation in the previous section, the following sections will focus on value sharing. Since the aims and experiences of members of organizations determine the structure and strategy of those organizations – as shown in the well-known interaction model of the International Marketing and Purchasing (IMP) Group (Håkansson, 1982) – the research findings from inter-personal value sharing can be taken as foundation for the process of value sharing at the inter-organizational level (section 2.3).

As relevant developments and milestones in the research of inter-personal value sharing, two bargaining experiments have received extensive attention during past decades and are still in the focus of many scholars from diverse fields (e.g., sociology, economics) today. The results from ultimatum games (section 2.2.1) and dictator games (section 2.2.2) have attracted interest because their results contradict the premises of classical game theory (Camerer & Thaler, 1995) and because of their empirical evidence for the often neglected importance of fairness considerations in economic settings (e.g., Kahneman, Knetsch, and Thaler, 1986a; Kahneman, Knetsch, and Thaler, 1986b).

### **2.2.1 Ultimatum games**

The ultimatum game was initially investigated by Güth, Schmittberger, and Schwarze (1982). The non-repetitive experiment consists of two players with symmetric information and one game administrator. At the beginning of the experiment, one of the players receives a certain amount of money (i.e., value) and is supposed to pass a certain amount of this money (i.e., a certain value

share) to the other (anonymous) player. The passed value share can be between 0 and 100 % of the total amount. The second player can respond to the initial offer in one of two ways, and each response has a different consequence. If the receiving player accepts the offered amount, both players are allowed to keep the money (i.e., value shares). If the second player declines the offer, all of the money reverts to the game administrator and neither player receives anything. This situation characterizes the basic intention of the experiment, which is called “ultimatum”. Assuming two rational players (“homo oeconomicus”) classical game theory would advise the first (rational) player to cede a very small amount of money (just above 0) and keep the rest. The second (rational) player should accept the offer, since it is more and therefore economically better than nothing, which is what the second player would receive after rejecting the offer.

However, the empirical results of the ultimatum game deviate significantly from these rational assumptions (e.g., Bereby-Meyer & Niederle, 2005; Bolton, 1998; Fehr & Schmidt, 1999; Forsythe, Horowitz, Savin, & Sefton, 1994; Gale, Binmore, & Samuelson, 1995; Henrich, 2000; Hoffmann, McCabe, Shachat, & Smith, 1994; Kagel, Kim, & Moser, 1996; Kagel & Wolfe, 2001; Thaler, 1988). Researchers estimate that only about one percent of all ultimatum experiments meet the assumptions of classical game theory (Güth & van Damme, 1998). The empirical results reveal that the second player tends to reject offers of 20 % and below. Further (or as a logical consequence) an average of 30 to 50 % of the total amount of money is passed to the second player and the modus share is even 50 % (Güth, Schmittberger, & Schwarze, 1982; Prasnikar & Roth, 1992).

The empirical findings of the ultimatum game provide evidence that players do not only consider their absolute value share, but also their share relative to their exchange partner (Bolton, 1998). They are biased by behavioral aspects and decide how to share the value pie (first player)

and whether to accept the offered value share (second player) on the basis of perceived fairness or envy (Güth, Schmittberger, & Schwarze, 1982).

The receiving players obviously expect fair treatment and aim to receive a fair share of the value pie. However, do the players making the offer *want to be* fair (intrinsic motivation) or do they just *want to seem* fair to motivate the second player to accept the offer? Researchers have shown that players generally aim for the latter and an intrinsic fairness motivation is in most cases not the basic intention (Güth & Van Damme, 1998).

The determination of what to perceive as “fair” is another important aspect of value sharing on the inter-personal level. Scholars have claimed that the respective setting might have a significant impact on perception. For example, experiments show that beverages bought from a five-star hotel bar are expected to be more expensive than the same beverages bought in a grocery store, even when they are consumed at the same place (Thaler, 1985). The consumer is willing to pay a premium for the beverages from the hotel bar and therefore perceives the higher price as fair.

One might assume that the results of the basic ultimatum experiments depend on the amount of money to be shared, since it is obviously easier for the second player to reject Euro 1 than Euro 1.000 even though this is 10 % of the total amount of money in both cases. However, researchers have found no support for this assumption (Forsythe, Horowitz, Savin, & Sefton, 1994; Hoffman, McCabe, & Smith, 1996). However, these experiments still suffer from their limitation due to the researchers’ budgets.

Another impact on the experimental results of the ultimatum games was expected from the cultural or nationality background of the players. While Roth, Prasnikar, Okuno-Fujiwara, and Zamir (1991) find no significant differences in the behavior among players from four

different countries (Israel, Japan, the USA, and Yugoslavia), Henrich (2000) reveals significant differences in the fairness perception and sharing behavior of people from the USA and from the Peruvian Amazon.

### **2.2.2 Dictator games**

As an alternative to the ultimatum game, researchers have introduced dictator games (Camerer & Thaler, 1995). In these (very similar) bargaining experiments the second (receiving) player cannot reject the money offered by the first player (“dictator”) and therefore the first player does not have to consider fairness perception and its consequences (i.e., the rejection of the offer) on the part of the second player. Thus, the first player can keep as much or all of the money as desired and pass the rest (or none) to the second player.

In contrast to the ultimatum game, the dictator game provides no (rational) arguments for passing any money to the second player. However, experiments show that dictators (again) exhibit irrational behavior by continuously passing money to the second player (Forsythe, Horowitz, Savin, & Sefton, 1994). Even though these amounts are significantly lower than those in the ultimatum game, they are generally more than nothing. A practical example of this irrational behavior is the tip that customers leave in restaurants or bars they will never visit again. Obviously (rational) individuals would not have any reason for leaving money, since they will not receive any future benefits from doing so – but evidently most of them do (Dawes & Thaler, 1988). This can only be explained in terms of fairness (i.e., intrinsic motivation).

The experimental results of these two bargaining games on the inter-personal level provide empirical evidence that people often do not act according to the premises of rational economic theory when sharing value. Therefore, fairness perceptions and considerations are also

expected when investigating value sharing in the inter-organizational context, where the sharing is between collaborating companies.

## **2.3 Inter-organizational value sharing**

### **2.3.1 Inter-organizational value sharing in operations research**

In recent years the interest on value sharing in inter-organizational relationships has increased and a substantial body of knowledge on value sharing has already been accumulated, especially in the fields of operations research and management science. This research has contributed to a better understanding of collaboration and value sharing in supplier-retailer relationships (Bernstein & Marx, 2005; Chauhan & Proth, 2005; Gerchak & Wang, 2004; Van der Veen & Venugopal, 2005; Wang, Jiang, & Shen, 2004), in two-firm joint ventures (Du, Hu, & Liu, 2006; Wang & Zhu, 2005), and in multi-level supply chains (Giannoccaro & Pontrandolfo, 2004).

The US video rental company Blockbuster Inc. was one of the first value-sharing examples investigated in operations research literature. Dana and Spier (2001) used model-based research to show that certain value-sharing contracts can lead to an optimized inter-organizational coordination between Blockbuster (i.e., movie stores) and its suppliers (i.e., film studios) – especially when the end customer demand is stochastic. These innovative contract-based value-sharing approaches can lead to an inter-organizational coordination even when other forms of contracts like “buyback” or “quantity-flexibility” are not successful (Cachon & Lariviere, 2005).

The Blockbuster value-sharing approach is frequently cited as an example of the prospects of value sharing in the business-to-business context (e.g., Cachon & Lariviere, 2001; Van der Veen & Venugopal, 2005). Nevertheless, the basic idea is rather simple: in the



traditional video rental business model, movie stores paid a high fixed price per video tape to their suppliers (film studios) and generated their own sales revenues afterwards by renting these copies to their customers. In this setting the studios wanted to sell more tapes, while the movie stores wished to buy fewer tapes and rent them more often, leading to frequent stock-outs. After introducing the value-sharing approach in the 1990s, Blockbuster shared its sales revenues equally with its video suppliers and paid only a rather small fixed price per tape. Thereafter the availability of film titles, especially of newly released movies, increased dramatically (according to Blockbuster's marketing campaigns "Guaranteed to be there" and "Go away happy") as have the revenues of Blockbuster and its suppliers (Narayanan & Raman, 2004).

Blockbuster's innovative value-sharing approach was so successful that it became an industry standard within less than a decade. It is estimated to have increased the video rental industry's total profit by 10 % on average, and from 8 to 30 % for the single company (Mortimer, 2008). In addition, it is believed to be a very effective method for a wide range of other industries (Cachon & Lariviere, 2005). To apply the Blockbuster value-sharing approach to other industries, Cachon and Lariviere (2001) assume two premises: (1) the cost of production per additional unit must be below the market price per unit; and (2) the total cost for administration of the value-sharing approach must be lower than the additional value that can be created. The video rental industry meets both premises, but other industries like the automotive industry might not. The cost of producing an additional car will possibly be higher than the additional revenue per car because of a lack of additional customer demand (Cachon & Lariviere, 2001).

The numerous model-based value-sharing approaches in the operation research literature can lead to the optimization of a broader range of inter-organizational settings compared to other forms of contracts. However, they require that the companies have insight into the total actual

amount of created value that can be shared between the collaborating companies. Since this cannot be assured in most inter-organizational business-to-business relationships, value sharing with contracts is not as widely applied in industry as one might assume (Ziya, 2004). Another limitation of these model-based approaches is that their reliance on rigid premises often does not capture the complexity of inter-organizational relationships. Therefore, during the last decade researchers have started to explore value sharing by empirically investigating it in inter-organizational relationships.

### **2.3.2 Empirical studies on inter-organizational value sharing**

In contrast to the number of studies in the operations research literature, only a minority of the authors have so far used empirical research methods to examine value sharing in inter-organizational relationships. Investigating complex collaboration contexts (Jap, 2001), retailing relationships (Corsten & Kumar, 2005; Kumar, Scheer, & Steenkamp, 1995; Scheer, Kumar, & Steenkamp, 2003) and exporting communities (Tuusjärvi & Blois, 2004), these authors focus on the consequences of value sharing for the collaborating companies and on the success and quality of the inter-organizational relationships.

Kumar, Scheer, and Steenkamp (1995) examine the role of perceived fairness in developing long-term relationships between resellers (car dealers) and suppliers (car manufacturers). The authors investigate two components of fairness – distributive fairness (i.e., fairness in terms of the actual sharing the value pie) and procedural fairness. Surveying car dealers in the USA ( $n = 453$ ) and in the Netherlands ( $n = 309$ ), the authors find evidence that the dealers' perception of high distributive and procedural fairness enhances the perceived relationship quality with their suppliers and thereby provide initial evidence for the importance of fairness consideration in inter-organizational relationships.

Jap (1999) introduces the idea of the “pie of benefits” and its expansion through inter-organizational collaboration. By investigating 220 customer-supplier relationship dyads, the author identifies the companies’ inter-organizational coordination efforts and the companies’ relationship-specific investments as key determinants of the value pie expansion (i.e., value creation). In a second article, Jap (2001) investigates value pie sharing rules and the consequences of their application in 300 complex (R&D) inter-organizational collaboration contexts. Jap’s findings indicate that companies rely on two fundamental sharing rules or a combination of these two. Either they equally share the value pie (“equality”) or they divide it according to the resources invested by the respective partners (“equity”). The application of these sharing rules has significant effects on the future quality of the inter-organizational relationships depending on the characteristics of the collaboration resources and the inter-organizational setup.

Scheer, Kumar, and Steenkamp (2003) investigate the effects of inequity<sup>3</sup> in value sharing on the future of inter-organizational relationships by surveying automobile dealers in the USA (n = 435) and the Netherlands (n = 309). In both cultural settings the informants reacted negatively to the perception of negative inequity in value sharing (i.e., receiving less than deserved). However, only Dutch managers showed negative reactions to the perception of positive inequity (i.e., receiving more of the value than deserved). These results show that perceptions of inequity have to be investigated in context, since the deviation in perception was explained by the US managers’ cultural dimension of “masculinity” (Hofstede, 1980).

Corsten and Kumar (2003; 2005) investigate the consequences of the implementation of Efficient Consumer Response (ECR) on retail-relationships by surveying the suppliers (n = 266) of one of the world’s largest retailers. The authors measure the degree of perceived equity in

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<sup>3</sup>See section 15.1 for a detailed review of (in)equity theory.

sharing the benefits of ECR by applying the Global Measure of Equity developed by Walster, Walster, and Berscheid (1978) and confirm their basic hypothesis that suppliers benefit economically from ECR. However, the investigated suppliers do not perceive the implementation of ECR as equitable (as hypothesized by the authors). They even perceive it to be significantly inequitable. The authors provide two possible explanations for this counterintuitive finding. First, (large) retailers might actually benefit more than they deserve to from the implementation of ECR. Second, suppliers might have a biased perception because of the immense market power of the (large) retailer.

Besides these large-scale empirical studies on value sharing in inter-organizational relationships, Tuusjärvi and Blois (2004) conducted a case study in which they investigated an exporting community of five manufacturing companies in Finland. One of the companies perceived the sharing of the community benefits (i.e., reductions in exporting costs) to be inequitable and considered leaving the community.

This rather limited number of empirical studies sheds some light on the issue of value sharing in inter-organizational relationships and is therefore an important foundation for this thesis. However, these scholars leave some important questions unanswered and several of them support the claim for further empirical research (e.g., Scheer, Kumar, & Steenkamp, 2003). This thesis responds to their call and is based on two distinctive data collections investigating value sharing in the inter-organizational, customer-supplier context by surveying German-speaking purchasing, logistics and supply chain managers in industrial customer companies.

### **3 Research questions and methodology**

Section 3.1 provides an overview on the rest of this thesis and on the addressed research questions. The applied research methodology is then explained and the empirical basis and data collection are described (section 3.2).

#### **3.1 Research questions**

The main body of the thesis containing the results consists of three chapters (CHAPTER II, CHAPTER III and CHAPTER IV). The conceptual frameworks developed in each of these chapters take unique perspectives on value sharing in customer-supplier relationships and are of great relevance to the topic of value sharing in inter-organizational relationships. These conceptual frameworks are evaluated using two data sets collected from German-speaking company managers, involved in industrial customer-supplier relationships.

Companies that participate in collaborative inter-organizational relationships (Dwyer, Schurr, & Oh, 1987) have to understand the antecedents and consequences of value sharing with their partners, since these have an impact on the long-term benefit of their relationships. As shown in the literature review (section 2.3.2), so far there has been relatively little empirical insight into what determines the sharing of the value pie in customer-supplier relationships (e.g., Anderson, 1995; Jap, 2001). Such insights would help customer and supplier companies to understand what they have to do in order to capture a larger share of the increased value pie. CHAPTER II therefore investigates how the value pie is shared between customer and supplier companies. Furthermore, relationship quality, diverse supplier motivation approaches, the goals of the customer-supplier collaboration and the applied sharing principle (Adams, 1963) and

intention are evaluated in terms of their impact on how value is shared in corporate practice.

These analyses aim to answer the first research question:

**Q1:** *How is the value pie shared between collaborating customer and supplier companies and what are the determinants of the value-sharing process?*

Individuals (section 2.2) and companies (section 2.3) strive for fairness when sharing value with other individuals or companies. CHAPTER III builds upon prior research on fairness in terms of inter-organizational value sharing (e.g., Griffith, Harvey, & Lusch, 2006) and evaluates the effects of the customer's perception of the supplier's reputation for fairness on the future of the customer-supplier relationship. In the context of signaling theory (Spence, 1973), it is investigated how a supplier's reputation for fairness has a direct effect on continuity of the customer-supplier relationship and on future collaboration between the customer and supplier company. Afterwards, applying social exchange theory (e.g., Blau, 1964; Homans, 1958; Homans, 1961), it is evaluated how the impact of a supplier's reputation for fairness is affected once a customer-supplier (value creation) project collaboration commences. The customer's perception of economic rewards (outcome fairness), social rewards (relationship satisfaction) and trust are evaluated in terms of their effects on the outcomes at the project level of the customer-supplier relationship. This leads to answering the following research question:

**Q2:** *What is the impact of suppliers' reputation for fairness on the future of customer-supplier relationships and how is it affected by the customers' perceptions of fairness in recent customer-supplier project collaborations?*

Equity theory is one of the most respected theories to evaluate exchange relationships (Adams, 1963). However, the empirical application of this important theory in inter-organizational relationships is scarce and limited to the more recent years. CHAPTER IV evaluates equity theory in the context of customer-supplier relationships using recent projects as the basis of inter-organizational collaboration. Equity theory and the findings from prior studies (e.g., Corsten & Kumar, 2005; Jap, 2001; Scheer, Kumar, & Steenkamp, 2003) are extended by differentiating the material from the immaterial resources invested in and received from these customer-supplier relationships. In addition, the moderating role of long-term orientation is investigated; this has been shown to be a factor of great relevance in inter-organizational relationships (Ganesan, 1994). In summary, this chapter answers the following third research question:

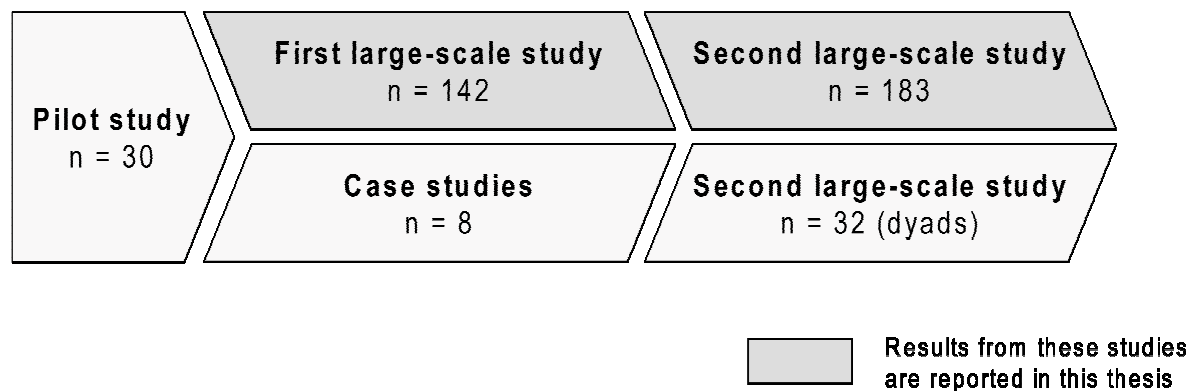
**Q3:** *What are the effects of an inequitable value sharing in recent project collaborations on the future of customer-supplier relationships and what is the role of the long-term orientation of the relationships?*

CHAPTER V summarizes the major findings of the thesis (section 19). Moreover, limitations and future research opportunities are presented (section 20). Finally, the thesis concludes with a short outlook on the future of the research topic (section 21).

### **3.2 Data collection**

The thesis is based on two studies with two distinctive data sets. The data collection for the first study (section 3.2.1) was conducted through a telephone survey. It was carried out as first large-scale study and basis for the second large-scale online-based survey conducted for receiving the

second data set (section 3.2.2). A pilot study and several case study interviews with purchasing managers augmented the data collection procedure, while the results from these studies are not reported in this thesis. Further, additional data collected from suppliers in the course of the second large-scale survey have also been excluded from this thesis.



**Figure 1: Data collected in the course of the dissertation project**

### 3.2.1 First study

To test the hypotheses of the first conceptual framework presented in CHAPTER II, data were collected through a large-scale telephone survey. Following the standard techniques suggested by Churchill (1979) and Dillman (2007), the survey instrument and its measures (section 6) were developed in several stages. First, a preliminary questionnaire was drafted on the basis of the literature and on the experiences and findings of a pilot study of 30 customer-supplier relationships in Switzerland (Wagner & Lindemann, 2006). Second, academics and practitioners commented on the items included in the questionnaire and several of their comments were incorporated into the questionnaire. Third, to refine the survey instrument, it was pre-tested



through interviews with supply chain executives from a small number of firms. Again, some of their comments were incorporated into the final version of the questionnaire.

The first study's key informants (Kumar, Stern, & Anderson, 1993; Phillips, 1981) were managers of large industrial companies located in Germany and operating in four industries: (1) automotive and transport equipment, (2) food and consumer goods, (3) industrial machinery, and (4) chemicals and pharmaceuticals. These industries were selected because of the high importance of suppliers for the companies' success and their highly professionalized purchasing functions. Furthermore, these industries are of great importance in the German economy. The population consisted of the largest (in terms of annual sales volume) 250 companies from each of these four industries as listed in the German "Markus" industry database (i.e., 1,000 firms in total). A random sample of 354 firms was drawn from this frame and contacted via telephone. Of these 354 targeted firms, 142 managers provided complete information on the study's questionnaire, yielding an effective response rate of 40.1 %.

About 16.9 % of the responding firms had an annual sales volume of Euro 100 million or less, 16.2 % had between Euro 100 million to Euro 250 million, 42.3 % between Euro 250 million and Euro 1 billion, 21.8 % between Euro 1 billion and Euro 5 billion and 2.8 % of more than Euro 5 billion. The average annual sales volume was Euro 1.31 billion.

The industry breakdown of the responding firms is shown in Table 1.

Automotive and transport equipment	38	26.8 %
Food and consumer goods	30	21.1 %
Industrial machinery	36	25.4 %
Chemicals and pharmaceuticals	38	26.8 %
Total	142	100.0 %

**Table 1: Industry breakdown of participating companies in first study (Number of companies and % of sample)**

The first study's key informants were the top-level logistics, supply chain management or purchasing executives within these firms. These informants are likely to have an overarching, boundary-spanning view of their companies' supplier activities (Hallenbeck, Hautaluoma, & Bates, 1999; Jemison, 1984). The majority of informants held titles such as head of logistics (54.9 %), head of supply chain management (20.4 %), and head of purchasing (12.0 %). The remainder characterized themselves as general company managers (4.9 %) and other managers (7.8 %) such as head of supplier integration/management or head of materials.

There are several ways to assess the informants' knowledge of the topic and their ability to answer the questionnaire (Kumar, Stern, & Anderson, 1993). Two basic indicators are the informants' experience in their current position and in the company. In this study the informants have worked in their current position for 5.1 years and with the respective firm for 11.6 years on average, indicating sufficient experience and knowledge.

The key informants were asked to complete the questionnaire focusing on their company's relationship with one of its most important<sup>4</sup> suppliers, since companies prefer to work with important suppliers on inter-organizational collaboration efforts (i.e., value pie expansion) than with less important suppliers. Such efforts are mandatory for answering the survey of the

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<sup>4</sup>The final judgment of "importance" (e.g., purchasing volume) was assigned to the respective informant.

first study. Further, the informants should possess extensive knowledge and information about the inter-organizational relationship to this supplier.

The experiences with developing the first study's questionnaire and collecting the data were taken into consideration when preparing the survey instrument and the data collection for the second study.

### **3.2.2 Second study**

To test the hypotheses of the conceptual frameworks presented in CHAPTER III and CHAPTER IV, a large-scale online survey was administered to industrial firms in Germany and Switzerland using a fully standardized questionnaire. Key informants consisted of a purchasing manager from each customer company. The unit of analysis was a customer-supplier relationship in the context of a customer-supplier project collaboration that had been completed within the previous 12 months. Referring to the definition of value provided in the literature review (section 2.1), these value creation projects had either the goals of cost reduction, quality improvement or innovation in processes or products at the customer-supplier interface (Wagner & Johnson, 2004).

The survey instrument and measures for the second study were developed in several stages and according to standard techniques (Churchill, 1979; Dillman, 2007). First, a preliminary questionnaire was drafted on the basis of the literature, the experiences with and findings of the first study (section 3.2.1) and eight in-depth case study interviews with purchasing managers in large industrial companies in Germany (e.g., Volkswagen AG, Robert Bosch GmbH, MAN Nutzfahrzeuge AG). Second, several academics from a variety of research backgrounds and a small number of practitioners commented on the items included in the questionnaire. Third, the survey instrument was pre-tested through interviews with purchasing

executives from a small number of firms in Germany. To ensure clarity, half of the pre-test informants were interviewed while they were answering the questionnaire and half of them after they had completed it. Their relevant comments were incorporated in the final version of the survey instrument. The original English questionnaire was translated first into German by one person and then it was back translated into English by a second person and differences between the two were reconciled (Brislin, 1970).

To obtain an initial set of companies in the manufacturing industry, contact details of managers with purchasing responsibilities in their firms (n = 1,846) were purchased from a commercial provider. The invitations to participate in the survey were sent by personalized emails containing a link to the online-based questionnaire. Informants were offered a summary of the results as well as a practitioners' purchasing book in exchange for participation. After three follow-ups via email and reminder phone calls, 186 completed questionnaires were received, yielding a 10.1 % response rate.

Forty potential key informants (2.1 %) replied to one of the mailings to state that their particular company had not been involved in a customer-supplier project in the last 12 months. This indicated that other potential informants may not have answered the questionnaire for the same reason. As a consequence, 100 non-respondents were randomly selected and contacted by telephone and asked whether they had information about recently conducted projects with their suppliers. Overall 45 % of these informants had not undertaken any customer-supplier project within the 12 months preceding the data collection. In sum, the effective response rate seems reasonable given the lack of recent customer-supplier projects at a large number of firms.

The participating companies' annual sales volume ranged from Euro 5.0 million up to Euro 104.9 billion. The average annual sales volume was Euro 2.34 billion. Table 2 shows the sample distribution based on Euro sales volume.

Less than Euro 50 million	75	41.0 %
Euro 50 million – Euro 99 million	27	14.8 %
Euro 100 million – Euro 199 million	16	8.7 %
Euro 200 million – Euro 499 million	11	6.0 %
Euro 500 million – Euro 999 million	9	4.9 %
Euro 1 billion – Euro 1.99 billion	8	4.4 %
Euro 2 billion and more	13	7.1 %
n.a.	24	13.1 %
Total	183	100.0 %

**Table 2: Annual sales volume of participating companies in second study (Number of companies and % of sample)**

On average 7,350 employees worked for the companies participating in the second study (ranging from 16 to 324,900 employees). Table 3 shows the sample distribution based on the number of employees.

Less than 250 employees	73	39.9 %
250 – 499 employees	45	24.6 %
500 – 999 employees	16	8.7 %
1,000 – 2,499 employees	15	8.2 %
2,500 – 4,999 employees	7	3.8 %
5,000 – 9,999 employees	11	6.0 %
10,000 employees and more	10	5.5 %
n.a.	6	3.3 %
Total	183	100.0 %

**Table 3: Number of employees of participating companies in second study (Number of companies and % of sample)**

The participating companies of the second study operate in a range of industries (cross-industry approach). A detailed description of the participating companies' industries is provided in Table 4.

Industrial machinery	37	20.2 %
Electronics and optics	35	19.1 %
Automotive and transport equipment	24	13.1 %
Metals and metal working	17	9.3 %
Chemicals and pharmaceuticals	14	7.7 %
Construction	6	3.3 %
Food and consumer goods	5	2.7 %
Rubber and plastic products	4	2.2 %
Textiles and clothing	3	1.6 %
Other	38	20.8 %
Total	183	100.0 %

**Table 4: Industry breakdown of participating companies in second study (Number of companies and % of sample)**

Most of the second study's key informants were purchasing executives who are likely to have boundary-spanning view of their companies' supplier activities. The majority of informants held titles as head of purchasing or chief purchasing officer (45.9 %), purchasing manager (17.5 %) as well as chief executive officer, owner or plant manager (11.5 %). The remainder characterized their position as head of logistics, supply chain or operations (8.7 %) or as head of supplier management/development (2.7 %) and other managers (6.0 %). On average the informants have worked in their position for 7.8 years and been with the firm for 11.4 years.

The second study's questionnaire design included two questions to ensure the informants' ability to answer the questionnaire (Kumar, Stern, & Anderson, 1993). These questions assessed the managers' knowledge about (1) the specific project, and (2) the relationship to the respective

supplier using a five-point (1 = fully disagree; 5 = fully agree) Likert-scale. While most informants rated their knowledge about the project and the relationship with values of 4.0 or 5.0 (92% and 96%, respectively), three informants rated these questions below the scale rating of 3.0 so they were deleted from the sample. The responses from the remaining 183 questionnaires indicate a high average degree of knowledge about the project (4.4) and the relationship (4.6). In sum, these results suggest knowledgeable informants.

Based on the assumption that late respondents are like non-respondents, the responses of early (initial email) and late respondents (second and third reminder emails) on all items used in the models in CHAPTER III and CHAPTER IV (see Appendix C and Appendix E respectively) were compared using ANOVA (Armstrong & Overton, 1977) and no statistically significant mean differences ( $p < 0.05$ ) were identified. Additionally, the sample of respondents was compared to 100 randomly selected non-respondent companies from the initial sample ( $n = 1,846$ ) in terms of sales and employees drawn from an independent industry database. No significant difference in terms of average means for both measures was found ( $p < 0.05$ ). In sum, these two tests indicate that non-response bias is unlikely to be an issue.

## **CHAPTER II: Determinants of value sharing in customer-supplier relationships**

### **4 How is the value pie shared, and why?**

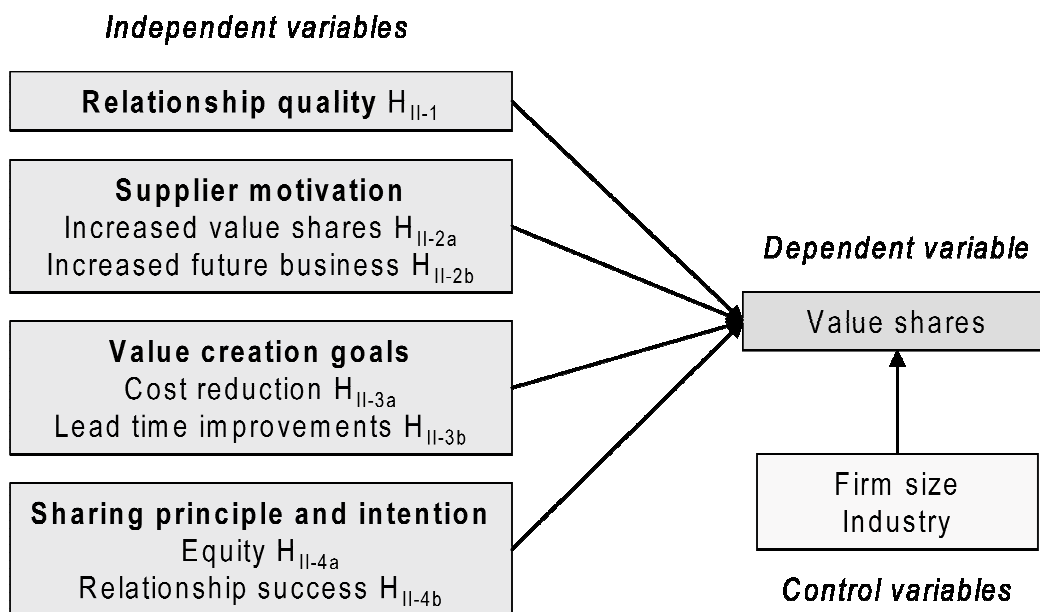
The goal of collaborative inter-organizational relationships is to create a higher sum of value than each partner could create on its own (Dyer & Singh, 1998; Walter, Ritter, & Gemünden, 2001). An inevitable question at some point in the collaborative relationship is how the expanded part of the “pie of benefits” (Jap, 2001) is shared. Which company receives the larger share of the extended value pie or is the value pie shared equally? This question, which has not been answered in former empirical studies, is the focus of this chapter. Further, to the best of the author’s knowledge, the determinants of the sharing process and the value allocation to the involved companies have received virtually no research attention. Therefore, this chapter attempts to close this gap by investigating the determinants of value sharing in customer-supplier relationships. Relying on the customer’s perspective of the dyad, this chapter examines what actually determines the shares of the expanded value pie that the two partners receive.

The rest of this chapter is organized as follows. Section 5 develops the conceptual framework and formulates the research hypotheses. Section 6 describes the applied measures, while section 7 shows the conducted analysis and reports the findings of the study, which are discussed in section 8.



## 5 Theory, conceptual framework and hypotheses

Since the purpose of this chapter is to reveal how certain characteristics of inter-organizational relationships determine the value shares of the two collaborating companies (i.e., the customer and the supplier company), the variables of (1) relationship quality, (2) diverse supplier motivation approaches and (3) goals of the inter-organizational relationship in addition to (4) the applied sharing principle and the underlying intention are integrated in the first conceptual framework of this thesis (Figure 2).



**Figure 2: Conceptual framework “Determinants of value sharing”**

### 5.1 Relationship quality

Relationship quality has frequently been investigated and several definitions have been proposed in the marketing and particularly in the relationship literature (Huntley, 2006). Mutual trust,

commitment and concord (Crosby, Evans, & Cowles, 1990; Dwyer & Oh, 1988; Jap, 2001; Johnson, 1999; Kumar, Scheer, & Steenkamp, 1995) as well as relationship satisfaction (Crosby, Evans, & Cowles, 1990; Dwyer & Oh, 1988; Johnson, Sakano, Cote, & Onzo, 1993) are commonly brought under the umbrella of relationship quality. Kumar, Scheer, and Steenkamp (1995) further added the expectation of continuity of the relationship and the willingness to invest in the relationship (Anderson & Weitz, 1989). Following Kumar, Scheer, and Steenkamp (1995, p. 55) the present research defines relationship quality “as a higher order concept, implying that a better quality relationship results in a lower level of conflict as well as greater trust, commitment, expectation of continuity, and willingness to invest.”

When the customer company considers the present relationship with a certain supplier to be of high quality and therefore anticipates that it will continue well into the future, this will support the decision to share the value pie with the supplier (Thibaut & Kelley, 1959). In this spirit, Toyota – an often-cited example of a company with outstanding supplier relationships – passes more value to its suppliers than do most other carmakers (Cox, 1999; Kumar, 1996). Similarly, Chrysler introduced its “American Keiretsu” approach to its operations in the 1990s, aiming for a “win-win” relationship with its suppliers (Dyer, 1996). In turn, a higher value share for the supplier will strengthen the current relationship by increasing satisfaction and developing mutual trust (Kumar, Scheer, & Steenkamp, 1995). Therefore it is hypothesized:

**H<sub>II-1</sub>:** *The higher the quality of the customer-supplier relationship, the larger the supplier company’s share of the value pie.*

## 5.2 Motivation for collaboration

Customer companies intending to create additional value in customer-supplier relationships need to convince their suppliers to collaborate on improvements (Dyer, 1996; Mouzas & Naudé, 2007). This can be attained in two ways, either by forcing them (coercive power) or by encouraging them (non-coercive power) to collaborate (Geyskens & Steenkamp, 2000). The former option, coercive power could, for example, consist of threatening to terminate the relationship with that supplier (Giller & Matear, 2001) and to switch to another supplier (Wathne, Biong, & Heide, 2001; Wagner & Friedl, 2007). The non-coercive form is the encouragement of the supplier (1) by promising higher shares of the benefits of collaboration and thus additional value, or (2) by offering incentives like increased business and future revenues (Kalwani & Narayandas, 1995). These two positive approaches that differ in their time horizons are investigated for their impact on the companies' value shares.

When customer companies apply the motivation approach of passing value shares to the supplier firm in the short term, this will lead to a larger value share for the supplier. Therefore it is hypothesized:

**H<sub>III-2a</sub>:** *The more the customer company motivates its supplier to collaborate by promising shares of the project benefits, the larger the supplier company's share of the value pie.*

In contrast, if the customer company decides to motivate its supplier by promising greater long-term future revenues, the customer company will be inclined to offer only a small short-term value share to the supplier company. Thus it is hypothesized:

**H<sub>II-2b</sub>:** *The more the customer company motivates its supplier to collaborate by promising future revenues, the smaller the supplier company's share of the value pie.*

### 5.3 Goals of collaboration

As defined in the literature review in section 2.1, value in inter-organizational relationships can be created either by reducing costs (Cannon & Homburg, 2001) or increasing benefits (Ulaga & Eggert, 2006). This research will investigate how a customer's goal of creating value by reducing costs and by improving the order lead time (increasing benefits) impacts the companies' value shares.

Customer companies that want to create value in inter-organizational collaborations will count on their suppliers' support and commitment to the relationship, since such goals can only be achieved, if both customer and supplier are willing to invest great effort in the relationship (Dyer, 1996). Since not every company will be willing to collaborate, if the partner receives the lion's share of the surplus (Thaler, 1988), the supplier's participation in improvements should create a strong identification with the goals of the collaboration. This will give the supplier incentives to commit greater effort to achieving these goals. Accordingly, it is hypothesized:

**H<sub>II-3a</sub>:** *The more the customer company aims at reducing costs in the customer-supplier relationship, the larger the supplier company's share of the value pie.*

**H<sub>II-3b</sub>:** *The more the customer company aims at improving order lead times in the customer-supplier relationship, the larger the supplier company's share of the value pie.*

#### **5.4 Sharing principles and intention**

The most frequently mentioned value-sharing principle in academic literature is equity (section 15.1). This principle can be traced to the early 1960s (Adams, 1963; Adams, 1965) and has consistently received high research attention in subsequent years (e.g., Carrell & Dittrich, 1978; Cosier & Dalton, 1983; Kabanoff, 1991; Walster, Berscheid, & Walster, 1973). The essence of the principle is to share outcomes in relation to the invested inputs in comparison to a reference person. The initial theory focuses solely on individuals, but it can also be applied to groups (Adams, 1963) and organizations (Jap, 2001). Accordingly, a company contributing a higher input to the collaboration than the respective partner (the reference person) should receive a commensurately higher outcome. According to Deutsch (1975), equity allows a fair sharing and is especially applicable to relationships aiming for economic productivity. When equity is applied to sharing processes, the results will be an objectively “fair dealing” as well as healthy relationships (Ring & Van de Ven, 1994).

The presence of inequity will motivate the collaborating partners to restore equity or at least reduce inequity (Adams, 1963; Kumar, 1996). Overpaid partners will be uncomfortable with – or even feel guilty about – existing inequity (Greenberg, 1990; Walster, Berscheid, & Walster, 1973) and their distress is supposed to increase along with that inequity (Walster, Berscheid, & Walster, 1973). Assuming that customer companies tend to receive higher shares of the value pie than they are entitled to (according to the equity principle and their invested inputs)

due to their position and status in the relationship, they should be willing to transfer a higher value share to their suppliers, if the equity based sharing principle is applied. Thus, it is hypothesized:

**H<sub>II-4a</sub>:** *The more the customer company applies the equity based sharing principle, the larger the supplier company's share of the value pie.*

When sharing the outcomes (i.e., the enlarged part of the value pie) of the relationship, customer companies can diverge considerably in their underlying intention to share. On the one hand, a short-term focus on the customer company's own success will lead customer companies to appropriate high shares of the value pie and thereby to improve their current operating profit. On the other hand, when taking a long-term (strategic) relationship perspective, customer companies will leave a higher value share to their suppliers. Larger value pie shares can be an investment in the supplier's business and are supposed to help them to develop and increase their future performance in the customer-supplier relationship. This will improve the performance of the entire inter-organizational relationship and the performance of the customer company in future periods (Fink, Edelman, & Hatten, 2007). Chrysler, for example, moved from a short- to a long-term strategic perspective with selected suppliers, and increased its long-term benefits (i.e., value creation) in these relationships (Dyer, 1996). Thus it is hypothesized:

**H<sub>II-4b</sub>:** *The more the customer company focuses on the success of the entire inter-organizational relationship in its sharing behavior, the larger the supplier company's share of the value pie.*

## 6 Measures

The questionnaire development and the data collection process for this research are described in detail in section 3.2.1. The telephone interviews for the data collection were based on a standardized questionnaire and conducted in German. In order to keep interviews simple, single-item measures were used to assess all variables on three- and five-point Likert-scales. Translated English descriptions of the applied items, descriptive statistics and the item correlations are included in Appendix A and Appendix B.

The value shares that the two partners receive in the customer-supplier relationship are the outcome of this first conceptual framework and serve as the dependent variable (Figure 2). Taking into account that representatives of companies participating in empirical research projects are typically unwilling to disclose any confidential financial details to the researchers, informants were asked whether the enlarged value pie was shared equally or, if this was not the case, who received the larger share. This leads to three possible answers. The interviewed customer company either receives (1) a higher or (2) a lower share of the value pie than the supplier company or (3) both of them receive equal shares. As pointed out in section 2.1, these categories rely on the customers' perspective and therefore have to be considered as "perceived" by the informant.

As firm size can be a potential source of variance that confounds research findings, firm size (in terms of logarithmized annual Euro sales volume) was included as a control variable in the analyses when testing the effects on value sharing. This control variable was taken from official external sources and databases securing a reliable data set. Furthermore, to control for industry effects, three binary coded (1/0) control variables were included in the analyses.

## 7 Analysis and empirical results

The first insight of the analysis is that in the majority (62 %) of observed customer-supplier relationships the value pie is shared equally between the two collaborating partners. In the other cases (38 %) the value pie is divided in favor of the customer company. None of the interviewed customer companies leaves a higher share of the value pie to its supplier. As a consequence of this finding the focus of the analysis was put on two distinctive groups of customer-supplier relationships – those with an equal sharing of value between customers and suppliers and those whose customer companies appropriate higher shares of the value pie.

On basis of this first result, logistic regression was selected to examine the data set. The technique of logistic regression analysis allows researchers to predict a binary coded outcome from a set of variables that may be continuous, discrete, dichotomous or a mix of any of these (Menard, 2001; Pample, 2000). Logistic regression and the method's two main uses are particularly suitable for this research. First, the probability that equal value sharing is applied in a relationship can be predicted. Second, logistic regression provides knowledge about the relationships and strengths among the variables, what means that one condition might have a stronger influence on the value sharing than another. In summary, the result of the logistic regression in this chapter is an equation for calculating the probability of equal sharing with respect to the value of the researched value-sharing determinants.

Logistic regression delivers reliable results when analyzing the dependence between a binary dependent variable and independent variables. The present analysis reveals a significant relationship between the partners' value shares and (H<sub>II-1</sub>) the relationship quality, (H<sub>II-2a</sub>) the supplier motivation promising higher value shares, (H<sub>II-2b</sub>) the supplier motivation promising



future business, (H<sub>II-3b</sub>) the goal of improving the order lead time, (H<sub>II-4a</sub>) the application of the equity-based sharing principle, and (H<sub>II-4b</sub>) the sharing intention of the customer company.

The regression model (Table 5) predicts 76.1 % of all cases correctly (i.e., the model predicts the value shares in more than three out of four customer-supplier relationships correctly). The omnibus tests of the model ( $\chi^2 = 40.262$ ;  $p < 0.001$ ) and the explanation quality of the model, indicated by the values for Cox and Snell R-square of 0.247 and Nagelkerke R-square of 0.336, are satisfactory. These results reveal that the model with its included variables is able to explain 33.6 % of the observed variance.

Independent variables		Regression coefficient	Hypothesis	Result
CONTROLS	Firm size	-0.052	—	—
	Industry food	-0.407	—	—
	Industry engineering	-0.247	—	—
	Industry chemicals	0.585	—	—
Relationship quality		0.626 *	H <sub>II-1</sub>	Support
Motivation value shares		0.931 ***	H <sub>II-2a</sub>	Support
Motivation future business		-0.674 *	H <sub>II-2b</sub>	Support
Goal cost reduction		0.424	H <sub>II-3a</sub>	No Support
Goal lead time improvements		0.807 **	H <sub>II-3b</sub>	Support
Sharing based on equity		0.408 **	H <sub>II-4a</sub>	Support
Sharing based on relationship success		0.484 **	H <sub>II-4b</sub>	Support

\* Significant at  $p < 0.1$

\*\* Significant at  $p < 0.05$

\*\*\* Significant at  $p < 0.01$

**Table 5: Logistic regression results with the suppliers' value shares as dependent variable**

A significant impact of relationship quality on the value shares can be shown ( $\beta = 0.626$ ;  $p < 0.1$ ). As expected, the higher the relationship quality, the larger the supplier's share of the value pie. Thus  $H_{II-1}$  is supported.

Hypothesis  $H_{II-2a}$  finds support with a highly significant positive impact of promising higher value shares ( $\beta = 0.931$ ;  $p < 0.01$ ). Hypothesis  $H_{II-2b}$  of the model is also supported by the data. That is, the more the customer company motivates its supplier to collaborate by promising future business, the lower the probability of an equal sharing ( $\beta = -0.674$ ;  $p < 0.1$ ).

Regarding the impact of the goals of the customer-supplier relationship, hypothesis  $H_{II-3a}$  investigating the impact of aiming at cost reductions on the value shares is not supported ( $\beta = 0.424$ ;  $p > 0.1$ ). However, aiming at lead time improvements in the relationship has a significant positive impact on the suppliers' value shares and therefore  $H_{II-3b}$  is supported ( $\beta = 0.807$ ;  $p < 0.05$ ).

The applied sharing principle and the underlying intention have both a significant impact on the companies' value shares. The equity-based sharing ( $\beta = 0.408$ ;  $p < 0.05$ ) as well as the focus on relationship success ( $\beta = 0.484$ ;  $p < 0.05$ ) have significant positive impacts on the supplier's share of the value pie and therefore  $H_{II-4a}$  and  $H_{II-4b}$  are supported.

## **8 Discussion and implications**

The presented analyses show that the value pie that is enlarged through collaborative actions is often shared equally between the companies in customer-supplier relationships. Whenever one of the two companies receives a larger share of the pie, it is very likely to be the customer company. Thus, in the investigated inter-organizational relationships the suppliers at best receive an equal

share of the value pie. One might assume that this reflects the power imbalances between customers and suppliers since large customer companies were targeted (Dwyer & Walker, 1981). However, the non-significant effect of the control variable “firm size” (in terms of annual sales volume) on the sharing of the value pie hints at the fact that size (i.e., power) imbalances do not account for an unequal sharing. The chapter’s results suggest other possible determinants of value sharing in customer-supplier relationships (apart from firm power) as well as the managerial implications for customer and supplier firms.

Relationship quality has a significant impact on the sharing of the value pie. The better the relationship quality, the larger is the supplier’s share and therefore the greater the possibility of an equal sharing in this relationship. If the quality of a customer-supplier relationship is good and the customer companies are positive about its viability and success, they are willing to concede higher shares to their “partners” and agree on a “cooperative” equal sharing. This finding is in line with the high willingness of firms to invest in relationships of high quality (Kumar, Scheer, & Steenkamp, 1995) and eventually has implications for suppliers. If they contribute to a high-quality relationship, they can also enlarge their share of the value pie. An equal value pie sharing might therefore even be an additional characteristic of high-quality inter-organizational relationships.

Customer companies need to convince their suppliers to aim for improvements (Dyer, 1996). Motivating suppliers with higher value shares is proven to have a significant impact on the sharing of the value pie. The more often this approach is followed, the higher the value shares of the suppliers. This finding shows that customer companies are planning to keep their promise of yielding higher shares to their suppliers and offering certainty for the suppliers, when investing effort in the customer-supplier collaboration. Motivating suppliers with the promise of

future revenues also has a significant impact on the shares of the value pie. Customers, who adopt this approach, follow the intention of “soft” motivation, which does not have immediate effects on their operating profits. Rather, they keep the value created from the collaboration for their own business and their suppliers must wait for their compensation in terms of additional revenues in future periods and hope that their customer will be fair (i.e., keep their promise).

As stated in the beginning, the main objective of inter-organizational relationships is the creation of additional value (Dyer & Singh, 1998; Walter, Ritter, & Gemünden, 2001). It was hypothesized and partially supported that the intensity of value creation efforts in terms of benefit enhancement and cost reduction (Ulaga & Eggert, 2006) affects the sharing of the value pie. A significant impact can be shown for benefit enhancement by improving the order lead time, but not for cost reductions. Reasons for the latter are sought in the underlying intention of the customer companies. Cost-focused companies are tempted to appropriate high shares of the value pie in order to realize short-term improvements. However, customers aiming for value creation rely on the full support of their suppliers (Dyer, 1996). These findings lead suppliers to the conclusion that aiming for cost reductions does not ensure an increased share of the value pie for them. Therefore they might consider adjusting their effort accordingly in future customer-supplier collaboration (i.e., value creation) projects. Cost-focused customer companies should keep this in mind when deciding how to motivate their suppliers.

This research reveals that the application of the equity principle (Adams, 1963) does have a significant impact on the sharing of the value pie. The more equitable the sharing behavior of the customer companies, the higher the shares for their suppliers. According to previous research, collaborating partners are willing to reduce existing inequity by passing value to their partners, as soon as equity becomes important to the inter-organizational relationship (Adams, 1963;

Walster, Berscheid, & Walster, 1973). An inequitable sharing might be considered to be unfair and a sense of injustice can undermine the entire relationship (Frazier, 1983). The finding that the application of equity-based sharing goes along with an equal sharing has already been observed in prior studies (Cate, Lloyd, Henton, & Larson, 1982; Huston & Burgess, 1979). Suppliers can extract from this finding that an equitable, fair sharing intention of their collaboration partners will lead to a bigger share of the pie for them. The third conceptual framework of this thesis, presented in CHAPTER IV pertains to this finding and investigates the importance of an equitable value sharing for the future of customer-supplier relationships.

Moreover, the basic intention of the customer company has a significant impact on value sharing. When companies follow a strategy promoting the success of the overall relationship, they will leave higher shares of the pie to their suppliers. This finding is reminiscent of the approaches followed by Toyota (Cox, 1999; Kumar, 1996) and Chrysler (Dyer, 1996). Suppliers therefore need to ascertain the intention of their customers to make own assumptions about future shares of the enlarged value pie.

## **CHAPTER III: Pre- and post-project collaboration effects of suppliers' reputation for fairness**

### **9 A company's reputation**

A company's reputation provides information about its performance and character in the marketplace. A good reputation is an "intangible market asset" (Srivastava, Shervani, & Fahey, 1998) and could be a source of competitive advantage since it is "difficult to imitate" (Hunt & Morgan, 1995; Mahon, 2002). However, Eberl and Schwaiger (2005, p. 839), citing Caminiti (1992), Shapiro (1983), Beatty and Ritter (1986), and Dowling (1986), find agreement in support of the claim that a company's good reputation as a source of competitive advantage is mostly theoretical. As such, empirical support for that claim and other consequences of reputation is limited (Eberl & Schwaiger, 2005; Roberts & Dowling, 2002).

Integrating the concept of reputation as an intangible market asset (Srivastava, Shervani, & Fahey, 1998) with signaling theory (Spence, 1973; Spence, 1974) and social exchange theory (e.g., Griffith, Harvey, & Lusch, 2006; Homans, 1961; Kumar, Scheer, & Steenkamp, 1995), this chapter addresses the limited empirical support for the consequences of reputation and maintains that a company's reputation for fairness in the marketplace signals the potential for enduring relationships (i.e., relationship continuity) and future collaborations. Enduring relationships are important because they allow fully independent companies to combine the benefits of vertical integration with the advantages of shared systems (Anderson & Weitz, 1986; Anderson & Weitz, 1989).

Supplier companies are especially interested in relationship continuity and future collaboration with their existing good customers since the costs of attracting and building relationships with new customers are immense (e.g., Gupta, Lehmann, & Stuart, 2004). Given these costs and the opportunities associated with enduring relationships, suppliers should model social exchange behaviors like trustworthiness and fairness while creating value on projects with customers (e.g., Prahalad & Ramaswamy, 2004; Sheth, Sisodia, & Sharma, 2000; Walter, Ritter, & Gemünden, 2001; Wu & Cavusgil, 2006). That is to say, successful value creation at the project level, coupled with fairness and trust, could lead to the continuity of customer-supplier relationships and a promise of future collaboration.

Customers are known to evaluate their suppliers on selected performance measures like product availability, delivery reliability and responsiveness (e.g., Beamon, 1999; Gunasekaran, Patel, & McGaughey, 2004). They also evaluate suppliers on expectations of future capacity and assessments of their ability to continue to perform at a desired level. While the importance of these tangible supply chain performance measures to the potential of relationship continuity and future collaboration is well known, the importance of intangible behavioral measures (like fairness, credibility and honesty) has only recently received research attention (e.g., Yilmaz, Sezen, & Kabadayi, 2004). Therefore, the effects of intangible behavioral measures need more study.

“Perceived fairness” (section 2.2) is one of the most important behavioral measures studied in economics (e.g., Fehr & Schmidt, 1999; Kahneman, Knetsch, & Thaler, 1986a; Kahneman, Knetsch, & Thaler, 1986b) and consumer behavior (e.g., Bolton & Alba, 2006; Goodwin & Ross, 1992; Vaidyanathan & Aggarwal, 2003). However, application of perceived fairness to the study of inter-organizational relationships is limited to a few scholars. Griffith,

Harvey, and Lusch (2006) found that companies perceiving a high degree of fairness in inter-organizational relationships are likely to show a higher interest in longer-term orientation of the relationships; and Yilmaz, Sezen, and Kabadayi (2004) associated fairness with a higher degree of relationship satisfaction. Further, Kumar, Scheer, and Steenkamp (1995) showed that perceptions of unfairness are likely to jeopardize the future of the relationship. Social exchange theory (e.g., Blau, 1964; Griffith, Harvey, & Lusch, 2006; Homans, 1961; Kumar, Scheer, & Steenkamp, 1995) helps to explain the value and importance of perceived fairness in generating satisfaction among exchange partners.

This chapter is particularly interested in the consequences of a supplier's reputation for fairness. An example of a firm that promotes fairness (among other intangible behavioral factors of reputation) is the German company Robert Bosch GmbH (Bosch), one of the world's leading suppliers of technology and services. Bosch considers "fairness" to be among the "Bosch Values" and a key to the company's success. The company's 2005 annual report states that, "fundamental to long-term success... [is] ...a balance between result focus and values such as responsibility, openness and trust, fairness, credibility, and cultural diversity" (Bosch, 2006, p. 6). The annual report sends signals to the marketplace about Bosch's reputation and values. These signals could influence relationship expectations among potential partners.

By integrating two theories, the influence of a supplier's reputation for fairness (signaling theory) with trust and perceptions of fairness in exchange behaviors in customer-supplier relationships (social exchange theory) is explored. This chapter focuses on the effects of a supplier's reputation for fairness on relationship continuity (i.e., the customer's interest in building or maintaining an enduring relationship) and future collaboration (i.e., the customer's willingness to collaborate with the supplier on future projects). The effects of customers'



perceptions of their suppliers' reputation for fairness with (or without) mediating factors important to social exchange theory (i.e., outcome fairness, relationship satisfaction, and trust) are evaluated in the context of recently completed customer-supplier projects. Using these project collaborations as the contextual framework allows for the application of signaling theory and social exchange theory at a level of customer-supplier relationships that has been insufficiently studied.

## **10 Theory, conceptual framework and hypotheses**

### **10.1 Signaling theory**

Spence's (1973; 1974) seminal work investigated signaling theory from an economic point of view. His work distinguished between unalterable attributes coined as "indices" (e.g., sex, age) and "signals", described as unobservable characteristics that are subject to manipulation (e.g., education) to influence decisions about potential employee-employer relationships. Companies also have certain indices (e.g., age, country of origin) and they also use signals (e.g., reputation) to influence marketplace opinions. Examples of factors that can improve a company's reputation, as a signal to influence market place opinions, are philanthropic actions and media announcements about strategic decisions. These observable factors can influence marketplace perceptions about the firm's capabilities and intentions; and thereby shape its reputation. Such positive tactics help to manage the firm's reputation signal, which could manipulate market value. Any market stakeholder (e.g., customers, suppliers, and competitors) can receive signals and develop perceptions about the company.

Spence's (1973; 1974) signaling theory is the foundation of recent studies to understand the effects of retailer assurance on consumer trust in an online shopping environment (Arnold, Landry, & Reynolds, 2007), the role of sequels and advertising expenditure in the motion picture industry (Basuroy, Desai, & Talukdar, 2006), signaling unobservable quality through the marketing mix (Kirmani & Rao, 2000), the negative consequences of unfulfilled promises and vendor dependence (Hoxmeier, 2000), and perceived quality and umbrella branding (Montgomery & Wernerfelt, 1992). Announcing very low prices for a few products can signal a low overall price perception (Shin, 2005), while brand credibility can influence the customers' price sensitivity (Erdem, Swait, & Louviere, 2002). Researchers have also investigated the influence of advertising (Kihlstrom & Riordan, 1984; Milgrom & Roberts, 1986), product branding (Rao, Qu, & Ruckert, 1999), and high market shares (Hellofs & Jacobson, 1999) as signals for high product quality. In addition, website design as a signal can enhance trust and therefore the customers' online purchase intentions (Schlosser, White, & Lloyd, 2006). Competitors are also among the potential recipients of a company's signals; therefore, preannouncements as signals about product launches (Eliashberg & Robertson, 1988; Sorescu, Shankar, & Kushwaha, 2007) can deter or encourage competitive market behavior.

While the potential of signals as influencers in the marketplace has received attention from marketing scholars, no studies evaluating the potential of signaling in inter-organizational customer-supplier relationships have been found. This research fills that void by studying a supplier's reputation for fairness as a signal in the context of recent customer-supplier project collaborations. Then signaling theory is combined with social exchange theory, to be discussed next.

## 10.2 Social exchange theory

Social exchange theory can be traced to the Greek philosopher Aristotle, whose “Nicomachean Ethics” posited that exchange evaluations need to include social in addition to economic factors. Several centuries later, researchers from sociology (Blau, 1964; Homans, 1958) and social psychology (Thibaut & Kelley, 1959) resumed the discussion and refined the original theoretical concept. According to Homans (1958), social exchange theory “...is one of the oldest theories of social behavior, and one that we still use every day to interpret our own behavior” (p. 597). Homans’ (1958) assessment of the utility of social exchange theory is still relevant today, as scholars continue to use the theory (e.g., Palmatier, Dant, & Grewal, 2007; Venkatesan, Kumar, & Ravishanker, 2007).

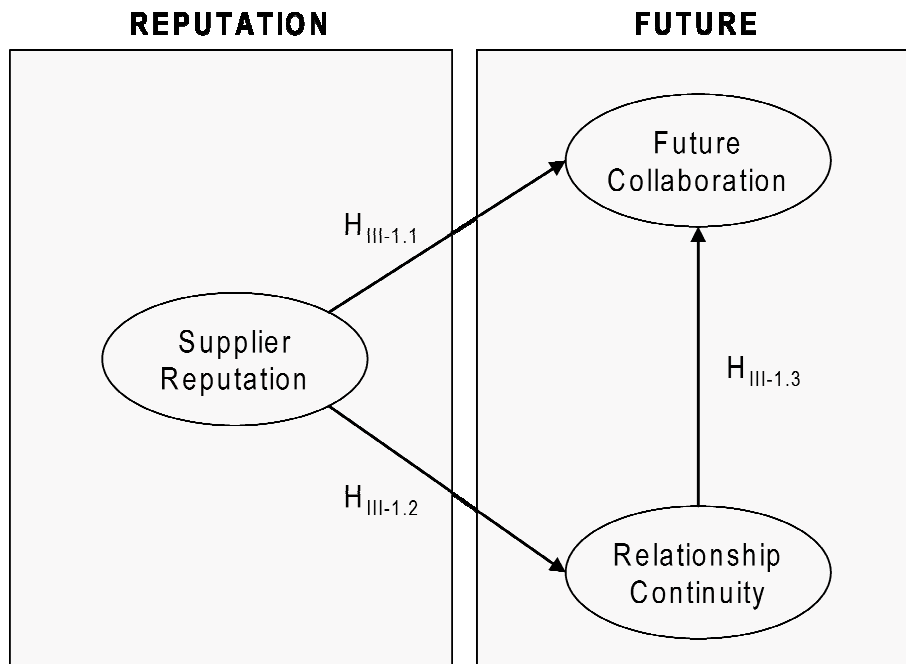
The essence of social exchange theory for the present research is the acknowledgement that companies enter exchange relationships expecting fairness as to certain outcomes (rewards). When the relationships commence, the actual outcomes of the collaboration are evaluated on the basis of this expectation. In contrast to traditional economic theory which focuses on economic outcomes, social exchange theory incorporates both economic and social outcomes (Blau, 1964; Blau, 1968). Hence, an analysis of perceived fairness in the exchange relationship needs to consider both economic and social outcomes. While economic rewards relate to each party’s share of the relationship benefits (outcome fairness), social rewards include intangible relationship values like the customer’s or the supplier’s perceived satisfaction with social interaction (relationship satisfaction). The exchange in customer-supplier relationships needs to be perceived as fair by both parties to build up mutual trust and create interest in relationship continuity (Blau, 1964; Homans, 1961; Thibaut & Kelley, 1959). The mutual trust link between

exchange theory and marketing theory was advanced by Morgan and Hunt (1994), who argued that trust among exchange partners determines relationship performance.

Unlike signaling theory where there is a void, social exchange theory has been used for theoretical framing in some inter-organizational relationship studies (e.g., Anderson & Narus, 1990; Golicic & Mentzer, 2006; Griffith, Harvey, & Lusch, 2006; Lambe, Wittman, & Spekman, 2001). Thus, the current findings add to both social exchange theory and signaling theory by combining the theories and investigating the effects in the context of recent project collaborations in customer-supplier relationships.

### **10.3 Development of hypotheses**

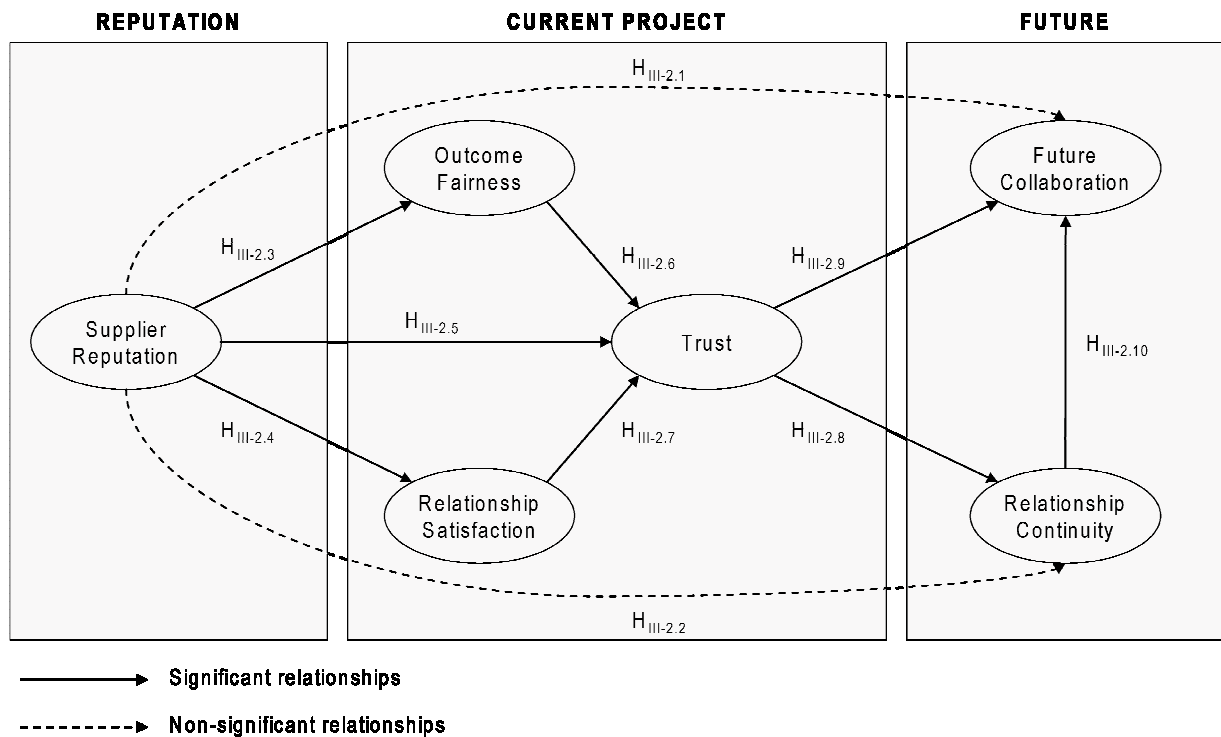
Using two conceptual frameworks, the thesis replicates with the direct effects model (Figure 3) that a supplier's reputation for fairness has a positive impact on the customer's expectations of relationship continuity and the customer's intention to collaborate on future projects with the supplier.



**Figure 3: Conceptual framework “Supplier reputation” (direct effects model)**

Next, the chapter uses a second conceptual framework (Figure 4) to show that when recent project collaborations are the focus of relationships, the direct effect of the customers’ perception of the suppliers’ reputation for fairness (Figure 3) is no longer positively related to the outcomes. A reputation for fairness now works with the customers’ perceptions of outcome fairness (economic rewards) and perceptions of relationship satisfaction (social rewards), experienced during the project. These factors drive trust and, along with trust, they mediate relationship continuity and future collaboration (Baron & Kenny, 1986). The effect of the customers’ perceptions of a reputation for fairness on relational commitment (defined as expectations of relationship continuity) has been supported by Anderson and Weitz (1992). However, the effects of social exchange variables (outcome fairness, relationship satisfaction, and trust) experienced during a recent customer-supplier project (the complete mediation or the

elimination of reported direct effects of the supplier's reputation for fairness on the future of the relationship) have not been shown. The theoretical bases for the expected effects are explained next.



**Figure 4: Conceptual framework "Supplier reputation" (mediated effects model)**

### 10.3.1 Direct effects of a supplier's reputation for fairness (Signaling theory)

The direct impact of the customer's perception of the supplier's reputation for fairness (i.e., before the project focus is introduced) is hypothesized for (1) the customer's expectations of relationship continuity and (2) the customer's willingness to collaborate on future projects (Figure 3). Signaling theory supports reputation as a signal for the future of relationships. The supplier's marketplace reputation for fairness serves as a positive signal for customers about the

potential behavior in the exchange relationship (Spence, 1973) and this positively affects the customer's perception of the future of the exchange relationship (Homans, 1961).

Anderson and Weitz (1989) determined that "...stability can be enhanced by avoiding building a poor reputation for treatment of channel members" (p. 322), since a poor reputation has negative effects on trust; and distrust negatively affects the future of the relationship (Morgan & Hunt, 1994). Anderson and Weitz, (1992) further showed that reputation for fairness can enhance the commitment of the partners in the relationship. Since companies are highly interested in being involved in fair exchange relationships (Blau, 1964; Homans, 1961), it seems reasonable to assume that customers would rather collaborate on projects with suppliers signaling a reputation for fairness. Suppliers with a reputation for fairness are therefore more likely to be considered valuable partners for creating value in future relationships.

**H<sub>III-1.1</sub>:** *The customer's perception of a supplier's reputation for fairness is positively related to the customer's willingness to collaborate on future projects.*

**H<sub>III-1.2</sub>:** *The customer's perception of a supplier's reputation for fairness is positively related to the customer's expectation of relationship continuity.*

If a customer perceives that the exchange relationship with a supplier will continue longer-term, the customer could associate this perception with commitment (Anderson & Weitz, 1992). Therefore, the customer's perception of relationship continuity leads to an interest in collaboration on future projects with the supplier.

**H<sub>III-1.3</sub>:** *The customer's expectation of relationship continuity is positively related to the customer's willingness to collaborate on future projects.*

### **10.3.2 The mediating role of social exchange variables at the project level of the relationship (Social exchange theory)**

Once a customer has collaborated with its supplier on a recent project, the impact of the supplier's reputation for fairness as a signal diminishes in favor of the customer's perception of the actual project collaboration. The mediated effects model predicts that the exchange experiences and perceptions encountered during the actual project collaboration (outcome fairness, relationship satisfaction, and trust) will have more of an impact on the expectations concerning the future of the relationship (continuity and willingness to collaborate on future projects) than the supplier's reputation for fairness alone (Figure 3 versus Figure 4). That is to say, the social exchange variables (Blau, 1964; Homans, 1961) are expected to eliminate the positive direct effect of the signal provided by supplier's reputation for fairness on the future of the relationship.

**H<sub>III-2.1</sub>:** *When the customer's focus is on a recent project, the direct effect of a supplier's reputation for fairness is no longer positively related to the customer's willingness to collaborate on future projects.*

**H<sub>III-2.2</sub>:** *When the customer's focus is on a recent project, the direct effect of a supplier's reputation for fairness is no longer positively related to the customer's expectation of relationship continuity.*



Once invited to collaborate on a project, suppliers should want the customers' perceptions during the project collaboration to be consistent with their marketplace reputation for fairness. They would want customers to believe that the rewards of the customer-supplier collaboration are just (e.g., Kumar, Scheer, & Steenkamp, 1995; Yilmaz, Sezen, & Kabadayi, 2004). Therefore, the model expects a significant relationship between the customer's perception of the supplier's reputation for fairness and the customer's perception of just economic rewards ( $H_{III-2.3}$ : *outcome fairness*). The model also expects a significant relationship between the customer's perception of a supplier's reputation for fairness and the customer's satisfaction with the collaboration during the project ( $H_{III-2.4}$ : *relationship satisfaction*). Outcome fairness and relationship satisfaction are examples of the customer's "economic and social rewards" that are important in exchange relationships (Blau, 1964; Blau, 1968).

As stated earlier, the goal of any project collaboration should be the creation of additional value (e.g., cost reduction, quality improvement, or innovation). The sharing of the "pie of benefits" (Jap, 1999; Jap, 2001) between the two companies must be perceived as fair and equitable (Adams, 1963; Adams, 1965; Homans, 1961). This theory is captured with the concept of outcome fairness which is the customer's perception of just economic rewards of the collaboration.

**$H_{III-2.3}$ :** *The customer's perception of a supplier's reputation for fairness is positively related to the customer's perceived outcome fairness.*

The customer's satisfaction with the supplier and the collaboration during the project is a social reward. Similar to just economic rewards, the customer also hopes to receive just social rewards in customer-supplier relationships (Blau, 1964). Relationship satisfaction is achieved

when a supplier's social behavior during the project (pleased to work with, favorable to work with) is consistent with the supplier's reputation for fairness signal.

**H<sub>III-2.4</sub>:** *The customer's perception of a supplier's reputation for fairness is positively related to the customer's perceived relationship satisfaction.*

Trust is a relationship success factor (Morgan & Hunt, 1994). It has been considered one of the key variables of social exchange theory and the theory postulates that perceived trust of an exchange partner is enhanced by reciprocal actions and behavior in former relationships (Blau, 1964). Companies with a reputation for fairness are more likely to be trusted in terms of credibility and benevolence. Anderson and Weitz (1989) lend empirical support by showing that a poor reputation lowers trust in relationships.

**H<sub>III-2.5</sub>:** *The customer's perception of a supplier's reputation for fairness is positively related to the customer's perceived trust.*

Trust is used as a central measure in the mediated effects model (Figure 4), since it is foundational for enduring relationships (Anderson & Weitz, 1989; Morgan & Hunt, 1994; Palmatier, Dant, Grewal, & Evans, 2006). The customers' perceptions of economic rewards (outcome fairness) and social rewards (relationship satisfaction) from customer-supplier relationships at the project level are important for maintaining and enhancing trust (Blau, 1964), while the suppliers' opportunistic (unfair) behavior could jeopardize trust (Morgan & Hunt, 1994).

**H<sub>III-2.6</sub>:** *The customer's perception of outcome fairness at the project level of the relationship is positively related to the customer's perceived trust.*

**H<sub>III-2.7</sub>:** *The customer's perception of relationship satisfaction at the project level of the relationship is positively related to the customer's perceived trust.*

### **10.3.3 Effects of trust on the future of the relationship**

As a mediator in the model (Baron & Kenny, 1986), the social exchange variable trust has a direct effect on the future of the customer-supplier relationship. Customers who highly trust their suppliers should have a lower propensity to terminate the relationship (Morgan & Hunt, 1994) and trust is an important factor for the stability of relationships (Anderson & Weitz, 1989). Therefore, companies should be more interested in working on future projects with suppliers that they trust to enhance mutually rewarding collaboration outcomes. Enduring relationships offer the opportunity for value creation at the project level between the companies.

**H<sub>III-2.8</sub>:** *The customer's perception of trust at the project level of the relationship is positively related to the customer's expectation of relationship continuity.*

**H<sub>III-2.9</sub>:** *The customer's perception of trust at the project level of the relationship is positively related to the customer's willingness to collaborate on future projects.*

**H<sub>III-2.10</sub>:** *The customer's expectation of relationship continuity is positively related to the customer's willingness to collaborate on future projects.*

## 11 Measures

Marketing scholars developed most of the items and measures used in this chapter. Several of the measures have been further applied and validated during follow-up empirical studies in different marketing research contexts. Finally, several items were slightly adapted to fit the context (project-based) of the present study and to enhance the understanding for German-speaking informants (see section 3.2.2 for a description of the research methodology).

*Reputation for fairness of the supplier* was measured using four items provided by Ganesan (1994), who measured the reputation for fairness of vendors and retailers in channel relationships. These items were partially based on the reputation measure of Anderson and Weitz (1992), who measured the reputation of manufacturers and distributors.

*Outcome fairness* (economic rewards) during the project phase of the relationship was measured using a three-item measure developed by Jap (2001), who investigated companies working together in complex R&D collaborations. Two new reverse-coded items were added to enhance the explanatory power of the measure.

*Relationship satisfaction* (social rewards) in the project was assessed using a measure developed by Crosby, Evans, and Cowles (1990), which was based on earlier research conducted by Crosby and Stephens (1987). These authors originally captured the satisfaction of a customer with a salesperson using these measures. However, the items were slightly revised for use in the present research setting to measure the feeling (satisfaction) that a customer company has with its collaboration with a supplier company during the project.

*Trust* perceptions that a customer has concerning the supplier during the project were assessed using the eight-item measure developed by Doney and Cannon (1997). Since these

authors did not find any evidence of discriminant validity in terms of trust in credibility and trust in benevolence (see e.g., Ganesan, 1994) the factors are also treated as one measure in this study. Further, due to the prior experiences gained during pre-testing of the survey (see section 3.2.2), one of the two reverse-coded items was recoded.

*Relationship continuity* was captured by applying a measure developed by Scheer, Kumar, and Steenkamp (2003). The reverse-coded third item in their measure was recoded for the present study based on the feedback from the pre-tests.

*Willingness to collaborate in future projects* was measured with three items provided by Jap (2001).

## **12 Analysis and empirical results**

Even though existing measures were used in this study, all measures were retested to assess convergent validity, reliability, and discriminant validity using the current data (second study, section 3.2.2) from the responding firms (LISREL 8.54). All scale items were measured on a Likert-scale anchored at 1 = strongly disagree, 5 = strongly agree. Confirmatory factor analysis and reliability of the measures were supported before model testing (Anderson & Gerbing, 1988; Fornell & Larcker, 1981).

### **12.1 Reliability and convergent validity**

Confirmatory factor analysis supported that the items used in this study captured the respective underlying constructs. However, a few items in three constructs (reputation, outcome fairness and trust) appeared not to fit the models and were eliminated from the measurement model (considering both theory and fit statistics) before the constructs were entered into the structural

equation model. All items tested with identifying codes are shown in Appendix C. Final items (codes) with factor loadings,  $t$ -values, and reliabilities (coefficient  $\alpha$  and composite) are reported in Table 6. A correlation matrix of all final items (codes) including descriptive statistics is shown in Appendix D.

Construct name / items	Factor loading	$t$ -value	Coefficient $\alpha$	Composite reliability
<b>Supplier's reputation for fairness</b>			<b>.81</b>	<b>.78</b>
REP_SUP1	.82	11.48		
REP_SUP2	.75	10.45		
REP_SUP4	.75	10.45		
<b>Outcome fairness</b>			<b>.85</b>	<b>.88</b>
FAIR1	.82	13.27		
FAIR2	.97	17.14		
FAIR3	.87	14.33		
FAIR5	.52	7.33		
<b>Relationship satisfaction</b>			<b>.83</b>	<b>.83</b>
SATISF1	.81	11.61		
SATISF2	.81	11.61		
SATISF3	.74	10.59		
<b>Trust (in supplier X)</b>			<b>.87</b>	<b>.88</b>
TRUST1	.85	13.40		
TRUST2	.76	11.56		
TRUST4	.73	10.82		
TRUST7	.87	14.07		
<b>Relationship continuity</b>			<b>.74</b>	<b>.77</b>
CONTINUE1	.93	11.17		
CONTINUE2	.56	7.19		
CONTINUE3	.68	8.55		
<b>Future collaboration</b>			<b>.96</b>	<b>.96</b>
FUTURE1	.93	16.48		
FUTURE2	.96	17.50		
FUTURE3	.94	16.81		

**Table 6: Factors / items, factor loadings, and reliabilities (“Supplier reputation”)**

## 12.2 Discriminant validity

After measures were finalized, each measure was entered separately into a structural model with the “supplier’s reputation for fairness” (REP\_SUP) construct to test for discriminant validity (Table 7 and Table 8). In each test between the construct pairs, the items loaded on the designated factors with no cross loading. In each case, the structural multiple correlation for the structural links between each of the pairs (FAIR and REP\_SUP, SATISF and REP\_SUP, FUTURE and REP\_SUP, CONTINUE and REP\_SUP) was less than .50 (.26, .38, .32, and .23 respectively) except between TRUST and REP\_SUP, which was .53 (Table 7) and were less than the squared structural links of each item in every case for each of the measures in the measurement model except one item (FAIR5,  $.26 = .26$ ) of the fairness construct (MacKenzie, Podsakoff, & Jarvis, 2005).

	FAIR / REP_SUP	SATISF / REP_SUP	TRUST / REP_SUP	FUTURE / REP_SUP	CONTINUE / REP_SUP
Squared multiple correlation of pairs	.26 < .50	.38 < .50	.53 > .50	.32 < .50	.23 < .50

**Table 7: Squared multiple correlation of pairs (Study variables and REP\_SUP)**

Additionally, the average variance extracted (AVE) for each construct is greater than the squared structural multicorrelation between the construct pairs ( $.72 > .26$ ,  $.60 > .38$ ,  $.65 > .53$ ,  $.89 > .32$ , and  $.55 > .23$  respectively) which further supports discriminant validity between the factors (Fornell & Larcker, 1981).

Variables / Item squared multiple correlations	REP_SUP	FAIR	REP_SUP	SATISF	REP_SUP	TRUST	REP_SUP	FUTURE	REP_SUP	CONTINUE
1	.67	.67	.67	.71	.32	.71	.69	.86	.93	.87
2	.57	.94	.60	.61	.40	.59	.56	.94	.56	.32
3	.52	.75	.49	.52	.53	.54	.52	.88	.67	.45
4	n.a.	.26	n.a.	n.a.	n.a.	.76	n.a.	n.a.	n.a.	n.a.
AVE > Squared multiple correlation	.58 > .26	.72 > .26	.60 > .38	.60 > .38	.58 > .53	.65 > .53	.60 > .32	.89 > .32	.59 > .23	.55 > .23

**Table 8: Squared multiple correlations of Y (REP\_SUP) and X (1st Order study variables)**

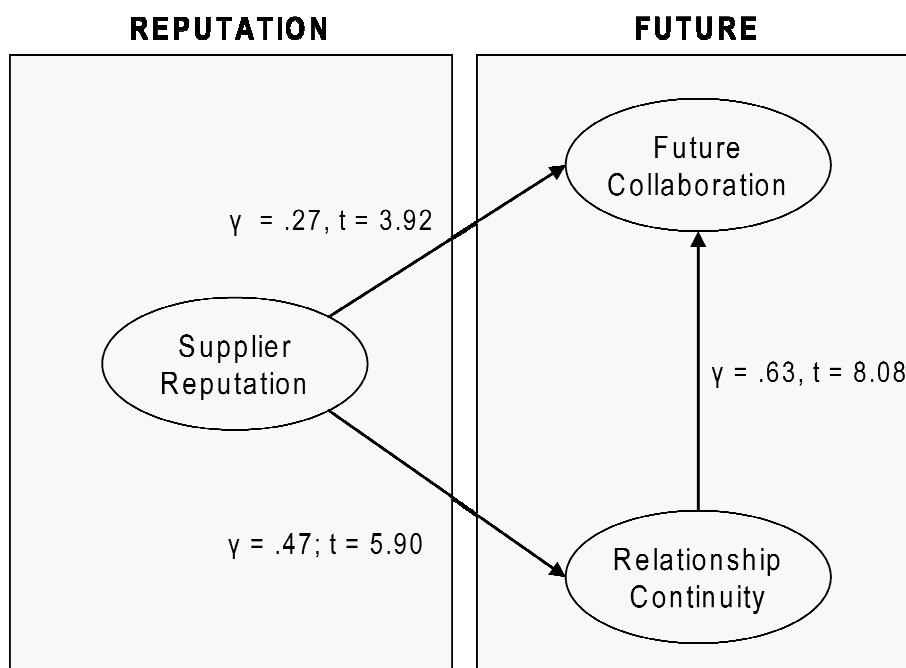
As a final examination of discriminant validity, the covariance matrices for the construct pairs were examined and showed intercorrelations less than .70 for every item tested in each of the four tests; and in every case the item's intercorrelation with the non-designated construct was below the correlation of the designated construct (MacKenzie, Podsakoff, & Jarvis, 2005).

### 12.3 Direct effects model hypothesis testing

All hypotheses for the direct effects model (Figure 3 and Figure 5) were supported. Specifically, H<sub>III-1.1</sub> which predicted that the supplier's reputation for fairness before the project is positively related to willingness to collaborate in the future and H<sub>III-1.2</sub> which predicted that the supplier's reputation for fairness is positively related to expectations of relationship continuity were both supported ( $\gamma = .27, t = 3.92$ ;  $\gamma = .47, t = 5.90$  respectively) at  $p < 0.01$  using structural equation modeling (SEM). This finding supports the importance of the supplier's reputation for fairness as a signal to the customers when they wish to engage in enduring relationships or hope to collaborate on future projects. Also supported was the hypothesis (H<sub>III-1.3</sub>) which predicted that a particular customer's expectations of relationship continuity with a particular supplier is positively related to perceptions of future collaboration in customer-supplier projects ( $\gamma = .63, t =$



8.08). This finding would suggest that if suppliers are interested in future project collaboration, then they should send signals that would encourage customers to desire relationship continuity based on their reputation. Results for the structural paths are shown in Figure 5 (LISREL 8.54). The model statistics that support these findings ( $\chi^2 = 40.70$ ; d.f. = 24;  $\chi^2/\text{d.f.} = 1.70$ ; RMSEA = .06; ECVI<sup>5</sup> = .45; NFI = .96; CN<sup>6</sup> = 192; RMR = .03; GFI = .95) indicate very good fit with the data.



**Figure 5: Results of the model estimation “Supplier reputation” (direct effects model)**

The relationships predicted and confirmed in the direct effects model have been partially supported previously. Anderson and Weitz (1989) showed the negative effect of a manufacturer’s poor reputation on its sales representative’s perception of relationship continuity

<sup>5</sup>ECVI is a measure proposed for use with a single sample to gauge the likelihood that the measure cross-validates across samples of a similar size (Diamantopoulos & Siguaw, 2000).

<sup>6</sup>CN is a measure of adequacy of the sample size.

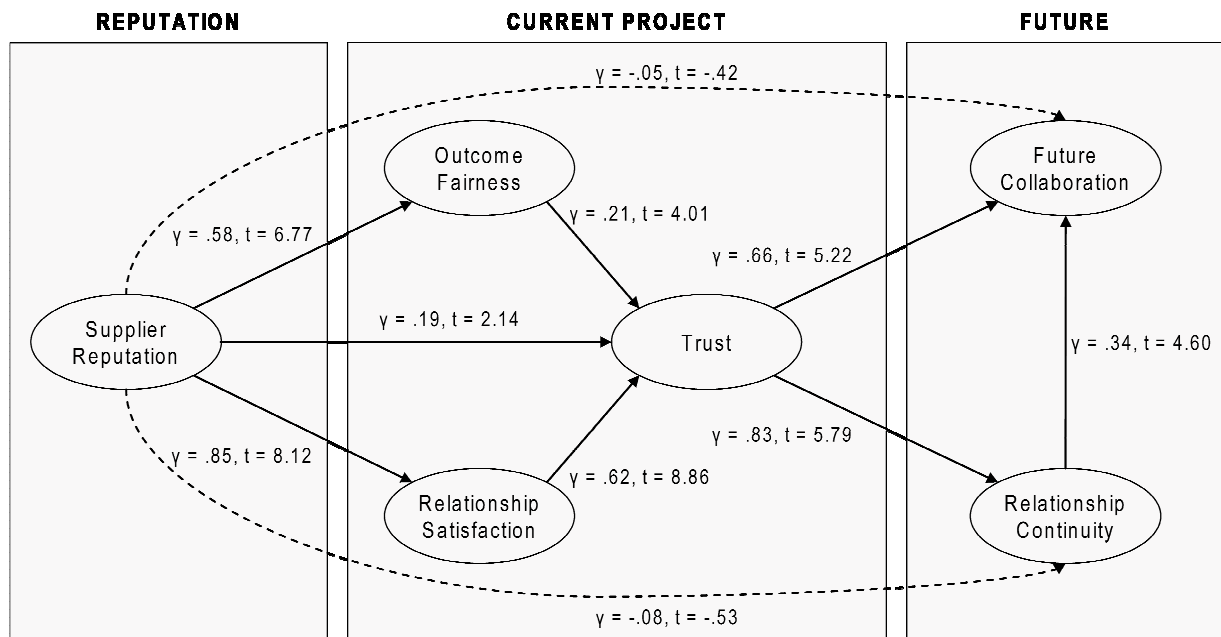
and they showed (1992) the positive effect of a distributor's perception of a manufacturer's reputation for fairness on the distributor's commitment to the manufacturer. However, the primary interest in the direct effects model is to validate the concepts in the current research setting (German and Swiss business-to-business customer-supplier relationships) as a base model to test hypotheses for the mediated effects model which predicts that once the project is taken into consideration, the direct effect of a reputation for fairness ceases to be significant. Rather, social exchange behavior perceptions (of economic and social fairness) experienced during the project drive the future of the relationships. These findings are discussed next.

#### **12.4 Mediated effects model hypothesis testing**

The findings with the mediated effects model (Figure 4 and Figure 6) support the model's predictions that the suppliers' reputation for fairness does not have a direct influence on the customers' perceptions about relationship continuity and future collaboration once experience with a recent project is considered in the model (the insignificant effects are displayed with dotted lines in Figure 4 and Figure 6). That is, after customers have worked with suppliers on recent projects, their fairness perceptions during the project (outcome fairness, relationship satisfaction, and trust) become the driving factors instead of the direct effect of the supplier's reputation. Each predicted relationship was supported as shown in Figure 6 and the results of model testing indicate good model fit with the data ( $\chi^2 = 260.67$ ; d.f. = 160;  $\chi^2/\text{d.f.} = 1.63$ ; RMSEA = .06; EVCI = 1.98; NFI = .97; CN = 146; RMR = .08; GFI = .87).

An interesting finding is that relationship satisfaction (fair social rewards) is more strongly linked to trust than outcome fairness (fair economic rewards) and supplier reputation for fairness to trust. Since trust mediates the outcomes between the other project level variables and

supplier reputation, it can be concluded that the customer's perception of fair social rewards has more influence on the future of the relationship. The predicted structural links with LISREL estimates and  $t$ -values are shown in Figure 6.



**Figure 6: Results of the model estimation “Supplier reputation” (mediated effects model)**

### 13 Discussion and implications

Reputation is a very important intangible market asset. A supplier's reputation serves as a signal to customers about future intentions, relationship behavior, and actions. A supplier's reputation for fairness can also signal expectations about future customer-supplier relationships. The present work contributes to the theory by combining the effects of signaling theory with social exchange theory in German and Swiss business-to-business customer-supplier relationships at the project level of the relationship on the future of relationships.

Results indicate that a customer's perception of a supplier's reputation for fairness alone can signal potential for relationship continuity and future collaboration. However, when recent customer-supplier project collaborations are considered, direct effects of their reputation for fairness "signal" on the customers' perception of the future of the relationship may not be as relevant. More important to the future of the relationship is the experience of fair economic and social rewards perceived during the project collaboration. Companies do not only rely on economic outcomes, but they place an even higher value on the relationship aspects of the collaborations when considering the future of the exchange relationship.

Results suggest that a negative or positive social exchange experience during a single customer-supplier project collaboration has a higher potential of affecting the future of the relationship than the supplier's prior reputation for fairness. This makes sense for practice. It supports that while reputation can be a signal initially used by customers to choose suppliers, experiences after actual collaboration with the suppliers during value creation at the project level is a better measure of the potential of the relationship.

While the direct effect of a firm's reputation for fairness decreases in importance at the project level of customer-supplier relationships, reputation for fairness still has an indirect effect. Customer companies can therefore also rely on a supplier's reputation for fairness during the project as a signal about their expected behavior when considering future customer-supplier projects. Some suppliers may not be aware of the high market potential of their reputation for fairness at the project level to the future of customer-supplier relationships. Based on the current results, suppliers should make it a business strategy to earn a reputation for fairness among customers and other stakeholders. Testimonials from previous customers, expert opinions, publishing best practices, and receipt of industry level recognitions can help to enhance

reputation and generate perceptions of economic and social fairness include. As a business strategy, supplier firms should first define “fairness” from the perspective of their own business environment; then they could (1) initiate a follow-up process of self-evaluations after projects have been completed to compare them to supplier-initiated customer evaluations on questions of fairness; (2) make fairness an “advertised” and action-oriented key value of the firm; (3) ensure that fairness is part of the training expectations among company representatives who work face-to-face with customers; and (4) embed respect for fairness into the expected behavior as to their evaluation and reward system. A single project leading to negative perceptions of the customer can threaten the reputation for a long period; and building and maintaining a good relationship for fairness at the project level promises expectations of relationship continuity.

## **CHAPTER IV: The effects of inequity on future collaboration in customer-supplier relationships and the moderating role of long-term orientation**

### **14 The importance of equity theory**

One of the most respected theoretical explanatory frameworks for value sharing in exchange relationships is equity theory (Adams, 1963; Adams, 1965). Equity theory has origins in the social sciences where the effects of employees' pay inequities on productivity and work quality were initially investigated (e.g., Adams, 1963). The theory has since been applied to the study of a wide variety of business, personal, and social exchange relationships.

The empirical application of equity theory to inter-organizational relationships has been limited to more recent years. However, these studies only scratch “the surface of the fertile research opportunities associated with outcome distribution norms in interorganizational relationships” (Scheer, Kumar, & Steenkamp, 2003, p. 312). This chapter addresses this limitation and empirically evaluates equity theory in the context of customer-supplier relationships by using recently completed projects as the focus for inter-organizational collaboration. The theory and the findings from prior studies are extended by differentiating the material from the immaterial resources invested in and received from these customer-supplier relationships. The process of separating material from immaterial resources allows for a more discrete analysis of inequity and unique implications of material (immaterial) resources for equity theory in the context of inter-organizational collaborations. In addition, the moderating role of long-term orientation is investigated; this has been shown to be a factor of high relevance in inter-organizational relationships (Ganesan, 1994).

This chapter is structured as follows. First, the theoretical concepts are reviewed and the conceptual framework is explained (section 15). Then, the applied measures are introduced (section 16). Next, the empirical results are presented (section 17) and the chapter concludes with a discussion of the findings (section 18).

## **15 Theory, conceptual framework and hypotheses**

### **15.1 Equity theory and equity measures**

Adams' (1963) equity theory is based on the theory of cognitive dissonance (Festinger, 1957) and it includes several aspects of the theory of distributive justice (Homans, 1961). Equity theory has received considerable research attention and wide support from scholars in numerous fields (e.g., Austin & Walster, 1975; Carrell & Dittrich, 1978; Greenberg, 1982; Ring & Van de Ven, 1994; Walster, Walster, & Traupmann, 1978). It is considered the most explicit (Campbell & Pritchard, 1976) and most rigorously developed (Mowday, 1979) of all concepts that explain how individuals evaluate their exchange relationships. Equity theory is seminal in the field of social exchange. Authors have shown that equity theory leads to the most reliable assumptions (Cosier & Dalton, 1983) and to more systematic empirical support than similar concepts provided by social exchange theorists (Goodman & Friedman, 1971). The theory can be applied to any relationship in which the partners expect a fair exchange (Adams, 1963) and it answers two questions: (1) What do individuals consider equitable, and (2) how do they react upon receiving less (or more) than they think they deserve? (Walster, Walster, & Berscheid, 1978)

In any exchange relationship, the partners could perceive the exchange to be equitable (or inequitable) when they assess its outcome (Adams, 1963). To evaluate an exchange in terms of

equity, a detailed comparison of the partners' inputs into and outcomes from the relationship is mandatory. This evaluation of inputs and outcomes is conducted by each exchange partner. Inputs and outcomes in the exchange are therefore "perceived" (Adams 1963, p. 423) and equity is "in the eye of the beholder" (Donnerstein & Hatfield, 1982, p. 310; Hatfield, Utne, & Traupman, 1979, p. 102; Walster, Berscheid, & Walster, 1973, p. 152).

Exchanges are considered equitable when the outcome-input ratios of both partners are equal. However, this chapter is primarily interested in the effects of inequity. Inequity arises in exchange relationships both when less (*negative inequity*) or more (*positive inequity*) value is received than deserved. The distinction between equitable and inequitable exchange relationships is not discrete since equity is "not an all-or-none phenomenon" (Adams, 1963, p. 426). Therefore, in empirical research, equity is not a binary coded measure (i.e., equity vs. inequity), but the concept is captured with equity indices that measure the degree of inequity (e.g., Walster, Walster, & Berscheid, 1978).

The evaluation of equity (inequity) demands a comparison of both exchange partners' outcome-input ratios. Scholars of empirical equity research typically asked their informants (e.g., employees, married couples, company managers) to answer all questions about the inputs and outcomes of the exchange relationship under the premise: "All things considered..." (e.g., Cate, Lloyd, Henton, & Larson, 1982, p. 178; Scheer, Kumar, & Steenkamp, 2003, p. 315). This data collection procedure (as opposed to indicating what factors to consider) is a safeguard against possible bias created when potentially relevant inputs and outcomes are excluded. However, an obvious shortcoming of this approach is the inability to differentiate among various kinds of potentially relationship-relevant inputs and outcomes. A differentiation could allow a more insightful evaluation of equity (or inequity) in customer-supplier relationships.



## 15.2 Characteristics of inputs and outcomes in the exchange

Inputs and outcomes of an exchange relationship are situational (Adams, 1963). Therefore, they should be viewed in the light of each investigated exchange setting. A major premise is that the inputs and outcomes achieve recognition from the exchange partners and are of relevance to the relationship (Adams, 1963). In evaluating this concept, Adams (1963) considered as inputs the effort an employee expends on the job and the employee's education, intelligence or experience. Employee outcomes considered were the received payments or status symbols like the closest parking space or a walnut desk instead of a metal one.

Using Adams' (1963) framework as a theoretical basis to investigate inequity in customer-supplier project collaborations in this chapter, inputs and outcomes are grouped into two distinctive categories: (1) material and (2) immaterial. This extension in analysis, compared to those of all previous studies, allows for the investigation of possible differences in the evaluation of the exchange of material and immaterial resources and can provide new implications for customer-supplier relationships.

*Material inputs and outcomes:* Companies contribute to inter-organizational project-collaborations with financial and personnel inputs (e.g., infrastructure resources or salaries and expenses for the company's project team members). Material outcomes are the financial benefits a company may receive from the collaboration (e.g., price reductions for procured parts or inventory reductions).

*Immaterial inputs and outcomes:* Companies provide immaterial inputs to project-collaborations in terms of their employees' knowledge like specific insights about the product or process best practices (e.g., Wagner & Bukó, 2005). Other examples of immaterial inputs are the companies' specific know-how and their patents (e.g., product or manufacturing technology).

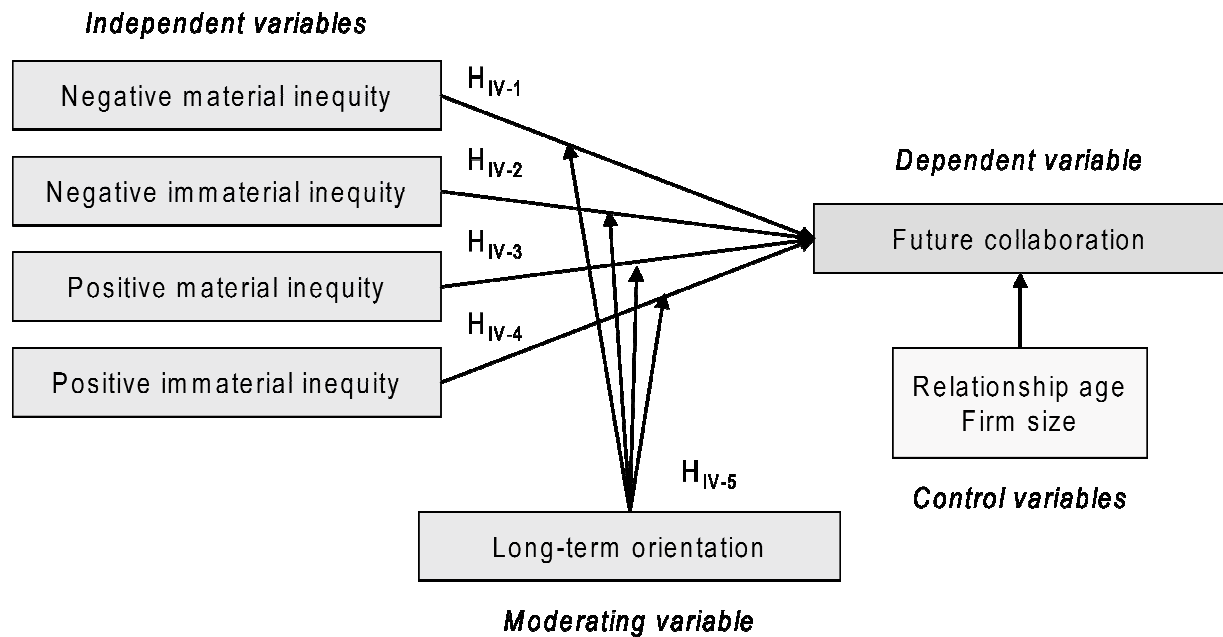
Examples of the companies' immaterial outcomes from the collaboration could be enhanced knowledge or new patents that can be used by the company to benefit other collaborations.

These two categories of inputs and outcomes (material and immaterial) seem relevant to any inter-organizational relationship. Differentiation of inputs and outcomes into material and immaterial categories allows for separate calculations of equity (and inequity) measures for each category to determine if there are unique effects on the future of project collaborations.

### **15.3 Development of hypotheses**

Exchange partners in customer-supplier relationships expect equitable financial rewards as material outcomes to balance their financial and personnel inputs into project collaborations. Companies receiving more or less (in terms of material outcomes) than they think they deserve will perceive the exchange of material resources invested in the project-collaboration to be less fair. Therefore, they will be less willing to collaborate with their exchange partner on future projects. The same effects are expected for the exchange of immaterial resources, since companies should also want to receive equitable immaterial outcomes for their invested inputs in terms of knowledge and patents.

The chapter's conceptual framework is shown in Figure 7. It is investigated how the companies' intention to collaborate on future projects is affected when they perceive to receive (1) less than deserved from a recent project collaboration (i.e., *negative* inequity:  $H_{IV-1}$  and  $H_{IV-2}$ ) or (2) more than deserved from a recent project collaboration (i.e., *positive* inequity:  $H_{IV-3}$  and  $H_{IV-4}$ ), as well as (3) the moderating effects of long-term orientation ( $H_{IV-5}$ ) on future collaboration.



**Figure 7: Conceptual framework “Effects of inequity”**

### 15.3.1 Effects of negative material and immaterial inequity

Prior empirical research has shown the effects of negative inequity on the future of exchange relationships. Homans (1961) revealed the presence of negative inequity between clerks and cashiers. In the investigated company, both groups of employees earned the same salary (i.e., equal outcomes), neglecting the fact that clerks are on a higher hierarchal level, which suggests more responsibility (i.e., higher input) than expected of the cashiers. The clerks responded to this negative inequity by forming a labor union to demand higher salaries (i.e., increase their outcomes) and thereby to reduce the negative inequity. Scheer, Kumar, and Steenkamp (2003) showed that negative inequity undermines the stability of inter-organizational relationships (i.e., on mutual trust and relationship continuity) and can lead to hostility between the exchange partners.

When prior empirical equity studies have evaluated equity in terms of invested inputs and received outcomes, the evaluations were in the aggregate (summed up). However, disaggregating inputs and outcomes can reveal unique effects. The model hypothesizes that when customers evaluate material and immaterial equity (inequity) from current customer-supplier project collaborations separately there are negative effects of both negative material inequity and negative immaterial inequity on the customers' willingness to collaborate with their suppliers on future projects.

**H<sub>IV-1</sub>:** *Perceptions of negative material inequity from collaboration on a recent customer-supplier project has a negative effect on the customer's willingness to collaborate on future projects.*

**H<sub>IV-2</sub>:** *Perceptions of negative immaterial inequity from collaboration on a recent customer-supplier project has a negative effect on the customer's willingness to collaborate on future projects.*

### **15.3.2 Effects of positive material and immaterial inequity**

Companies receiving more of the outcomes than they deserve will perceive the exchange to be unfair and consequently develop feelings of guilt (Adams, 1963). This less obvious effect of positive inequity has received both theoretical and some empirical support. For example, Arrowood (1961) showed that overpaid workers (i.e., higher outcome) in a factory increased their own productivity (i.e., increased input) to reduce inequity. These results were empirically validated by Adams and Rosenbaum (1962) and Goodman and Friedman (1971). Several decades later, Scheer, Kumar, and Steenkamp's (2003) inter-organizational study found that Dutch companies reacted similarly to the perception of positive inequity. Therefore, similar to

the hypothesized effects of negative inequity, when material and immaterial inequity are disaggregated, negative effects of each form of positive inequity on the company's intention to collaborate on future projects are expected.

**H<sub>IV-3</sub>:** *Perceptions of positive material inequity from collaboration on a recent customer-supplier project has a negative effect on the customer's willingness to collaborate on future projects.*

**H<sub>IV-4</sub>:** *Perceptions of positive immaterial inequity from collaboration on a recent customer-supplier project has a negative effect on the customer's willingness to collaborate on future projects.*

### **15.3.3 The moderating role of long-term orientation**

In the past, equity research has neglected the moderating effects of contextual factors in exchange relationships. Scheer, Kumar, and Steenkamp (2003) were among the first inter-organizational relationship scholars to take this gap into consideration. They compared the effects of inequity on different outcomes variables (i.e., hostility, guilt, trust, relationship continuity) investigating retailer-dealer relationships in the USA and the Netherlands. They were able to show a moderating effect of the companies' cultural background on their perception of inequity. The effects of negative inequity were similar in both countries. However, while positive inequity had (negative) effects in the Dutch case, the authors did not find significant effects of positive inequity in the US relationships. The cultural dimension of "masculinity" (Hofstede, 1980) in the US culture was believed to account for the deviation.

The present chapter contributes to the equity research stream by investigating the moderating effect of long-term orientation on the perception of inequity in the inter-organizational domain. Long-term orientation includes the companies' alignment of strategic goals, the importance of relationship continuity and long-term profitability of the relationship (Ganesan, 1994). Long-term oriented ("partnerships") relationships provide the opportunity for companies to share relationship-specific assets more openly than is possible in short-term ("arm's length") relationships (Dyer & Singh, 1998). In long-term relationships, any inequity in the current (project) collaboration can even out over time; however, the same effect is not expected in short-term relationships. Therefore is hypothesized:

**H<sub>IV-5</sub>:** *In short-term oriented relationships the negative effects of perceived inequity from collaboration on a recent customer-supplier project on the customer's willingness to collaborate on future projects are stronger than in long-term oriented relationships.*

## 16 Measures

Most of the items and measures used in this study have been applied and validated in prior empirical studies in different research contexts. Several items were slightly adapted to fit the level of analysis (project-based) of the present study and to enhance the understanding for German-speaking informants.

*Inequity* was measured using the "Global Measure of Equity" developed by Walster, Walster, and Berscheid (1978) which has been frequently used in its original form (e.g., Cate, Lloyd, Henton, & Larson, 1982; Corsten & Kumar, 2005; Hegtvedt, 1990; Scheer, Kumar, &

Steenkamp, 2003). While the original measure calculated the degree of inequity based on aggregated (virtually summed up) inputs and outcomes, material and immaterial inequity are measured in two separate measures using Equations 1 and 2.

**Equation 1: Measure of material (in)equity**

$$\frac{\text{Material outcome customer}}{\text{Material input customer}} - \frac{\text{Material outcome supplier}}{\text{Material input supplier}}$$

< 0    *negative material inequity* (from the customer's perspective)

= 0    *material equity*

> 0    *positive material inequity* (from the customer's perspective)

**Equation 2: Measure of immaterial (in)equity**

$$\frac{\text{Immaterial outcome customer}}{\text{Immaterial input customer}} - \frac{\text{Immaterial outcome supplier}}{\text{Immaterial input supplier}}$$

< 0    *negative immaterial inequity* (from the customer's perspective)

= 0    *immaterial equity*

> 0    *positive immaterial inequity* (from the customer's perspective)

Equations 1 and 2 result in four inequity variables: (1) negative material inequity, (2) negative immaterial inequity, (3) positive material inequity, and (4) positive immaterial inequity. When inequity exists, the appropriate variable reflects the degree inequity and the other one (of

the two inequity variables) equals zero (i.e., negative material inequity rules out positive material inequity and negative immaterial inequity rules out positive immaterial inequity; and vice versa). In the case of perfect equity, all four variables equal zero. The values of the inequity measures are used in the following calculations in terms of their absolute value, which means that high positive values represent high degrees of both positive inequity and negative inequity.

*Future collaboration* was measured using a three-item measure developed by Jap (2001), who investigated the effects of different value pie sharing rules (i.e., equality and equity) in complex collaboration contexts on the future of these relationships. The construct displays the customers' willingness and desire to collaborate on future projects with their supplier. This outcome measure has already been applied in the model described in CHAPTER III (section 11).

*Long-term orientation* of the relationship was measured using the seven-item measure developed by Ganesan (1994), who applied this measure to investigate supplier-retailer relationships. Long-term orientation includes the customers' belief in the long-term viability and profitability of the relationship and its strategic importance for the customer company's future success.

*Controls*. In order to eliminate undesirable sources of variance, two control variables (relationship age and firm size) that could influence and confound the hypothesized relationships were included in the analysis. *Relationship age* is measured as the duration of the relationship of the two companies involved in the project collaboration in (full) years. *Firm size* is a structural variable with potential impact on many areas of an organization (Blau & Schoenherr, 1971). Firm size was measured by the total number of employees working for the company.



## 17 Analysis and empirical results

### 17.1 Reliability and convergent validity

Confirmatory factor analysis supported that the items used in this study capture the respective underlying constructs. However, two items in one construct (long-term orientation) appeared not to fit the models and were eliminated before the construct was entered into further analyses, considering both theory and fit statistics. All items tested (with identifying codes) are shown in Appendix E. Final items (codes) with factor loadings, *t*-values, and reliabilities (coefficient  $\alpha$  and composite) are reported in Table 9. A correlation matrix of all final constructs is shown in Appendix F.

Construct name / items	Factor loading	<i>t</i> -value	Coefficient $\alpha$	Composite reliability
<b>Long-term orientation</b>			<b>.72</b>	<b>.78</b>
LONGTERM1	.69	9.98		
LONGTERM2	.56	7.81		
LONGTERM3	.94	14.85		
LONGTERM5	.23	3.03		
LONGTERM6	.68	9.74		
<b>Future collaboration</b>			<b>.96</b>	<b>.96</b>
FUTURE1	.93	16.48		
FUTURE2	.96	17.50		
FUTURE3	.94	16.81		

**Table 9: Factors / items, factor loadings, and reliabilities (“Effects of inequity”)**

## **17.2 Results**

Regression analysis was used to test the hypotheses pertaining to the relationship between the different degrees of inequity and the company's future collaboration intention. First, the future collaboration construct is regressed on the two control variables (i.e., relationship age and firm size). Further the parameters for the effects of the four types of inequity (negative material, negative immaterial, positive material, positive immaterial) on future collaboration are estimated in model 1 (including all 183 investigated relationships).

### **17.2.1 Effects of negative material and immaterial inequity**

The standardized regression coefficients for negative material and immaterial inequity are statistically significant with standardized parameter estimates of -0.17 ( $p < 0.05$ ) and -0.23 ( $p < 0.01$ ), respectively. Specifically, the current findings indicate the higher the negative material inequity, the lower the willingness of customers to collaborate on future projects with their respective suppliers. Likewise, the higher the negative immaterial inequity, the lower the willingness of customers to collaborate on future projects with suppliers. Thus, hypotheses H<sub>IV-1</sub> and H<sub>IV-2</sub> are supported. The findings further suggest that negative material inequity and negative immaterial inequity explain different variance and have unique effects on a company's willingness to collaborate on future projects. Negative immaterial inequity appears to have a stronger negative effect on the companies' willingness to collaborate in future projects than negative material inequity. In prior research, material and immaterial inequity was not delineated; therefore this is a new finding and can be seen as a contribution to equity theory.

### **17.2.2 Effects of positive material and immaterial inequity**

The coefficients for measures of positive inequity (both material and immaterial) were not statistically significant ( $p > 0.05$ ), thus  $H_{IV-3}$  and  $H_{IV-4}$  are not supported. Contrary to equity theory and the model's hypotheses, positive inequity (receiving more than what one deserves) does not appear to have a negative effect on the customers' willingness to collaborate on future projects. This finding, that the surveyed German and Swiss firms were not affected by receiving more than perceived as deserved could be culturally specific. In an earlier (similar) study there was also a non-significant effect of positive inequity when tested as an aggregated measure among US firms, while Dutch firms showed a tendency to react negatively to receiving more than they deserve (Scheer, Kumar, & Steenkamp, 2003). In this study, companies might simply interpret positive inequity (i.e., receiving too much) as "good fortune" (Adams, 1963, p. 426).

### **17.2.3 The moderating role of long-term orientation**

To explore the hypothesized moderating effect of long-term orientation, subgroup analysis is applied. This method is generally employed in organizational research (e.g., Fynes, de Búrca, & Marshall, 2004; González-Benito, 2007; Terwiesch & Loch, 1999). To test the effect, the sample is divided into two groups based on the long-term orientation of the relationships. One group, below the average mean score (3.94) of long-term orientation in all relationships, represents the short(er)-term oriented relationships. The other, above the average mean, is the long(er)-term oriented relationships group.

After separating the groups, to determine if two separate regression models are nested in the data based on the moderating variable, the Chow-test procedure is applied (Chow, 1960). Specifically, the null hypothesis that the regressions are identical was tested. The null hypothesis

was rejected at  $p < 0.05$  indicating the existence of two separate regression models (model 2: short-term oriented relationships; model 3: long-term oriented relationships). This finding supports the moderating role of long-term orientation ( $H_{IV-5}$ ).

To further support  $H_{IV-5}$  the parameter estimates and the significance levels were compared among the models. First, the effects of negative material and immaterial inequity on future collaboration in the relationships of short-term orientation were considered (model 2). The standardized parameter estimates of negative material and immaterial inequity are  $-0.26$  ( $p < 0.05$ ) and  $-0.28$  ( $p < 0.05$ ), respectively. On the one hand, these results indicate that both variables have a stronger negative effect on the outcome variable (willingness to collaborate on future projects) than in the base model 1 (for all relationships) when investigated in short-term orientated relationships. On the other hand, when investigated in long-term oriented relationships (model 3) the standardized parameter estimates of negative material and immaterial inequity are not significant ( $p > 0.05$ ). Contrary to model 1 (all relationships) and model 2 (short-term oriented relationships), the perceptions of negative (material and immaterial) inequity in the current customer-supplier project collaboration appear to have no effect on the customer company's future collaboration intention in long-term oriented relationships.

Next, the effects of positive material and positive immaterial inequity were investigated in the two subgroups. The results indicate that the effects of positive material and immaterial inequity are not significant ( $p > 0.05$ ) in short-term (model 2) and long-term relationships (model 3). Receiving a greater share than deserved from the collaboration outcomes appears to have no effect on the company's intention for future collaboration, independent of the strategic (long-term) orientation of the relationship.

Another indicator of different regression models is the existence of different levels of explained variance of the outcome variable (R-square). Model 1 (all relationships) explains 10.3 % of the overall variance of the outcome variable. This means that the perceptions of equity (inequity) in the current project collaboration determine 10.3 % of the customers' future collaboration intention. In short-term relationships (model 2) a higher level of the variance of the outcome variable (18.9 %) can be explained. This indicates that the effects of equity (inequity) have a higher impact on the future of the collaboration (compared to model 1). The low level of explained variance (3.6 %) in model 3 indicates that equity (inequity) in current customer-supplier project collaborations has only minor (almost no) effects on the customers' future collaboration intention in long-term oriented relationships.

The results of the Chow-test and the differences in standardized coefficients, significance levels and explained variance in the three models suggest that long-term orientation has a moderating effect on the effects of equity (inequity) on the customers' future collaboration intention. Overall, hypothesis (H<sub>IV.5</sub>) indicating that the effects of perceptions of inequity in current projects are stronger in short-term oriented relationships than in long-term oriented relationships is supported.

In all three models the inspection of the standard estimates for the control variables of relationship length and firm size reveals that they are not statistically significant ( $p > 0.05$ ), indicating the results are independent of relationship age and the firms' size.

All three models are tested for multicollinearity. The tolerance and the variance inflation factor (VIF) both meet the common thresholds (i.e.,  $> 0.10$  and  $< 10$  respectively), supporting the absence of multicollinearity (Hair, Black, Babin, Anderson, & Tatham, 2006).

	<b>Model 1</b>	<b>Model 2 (short-term)<sup>a</sup></b>	<b>Model 3 (long-term)<sup>b</sup></b>
Relationship age	-0.03	-0.08	0.01
Firm size (employees)	-0.04	-0.04	0.08
Negative material inequity	-0.17 *	-0.26 *	-0.05
Negative immaterial inequity	-0.23 **	-0.28 *	0.06
Positive material inequity	0.06	0.05	0.16
Positive immaterial inequity	0.03	0.05	-0.03
F value of model	3.17 **	2.80 *	0.53
R-square	0.103	0.189	0.036

\* Significant at  $p < 0.05$

\*\* Significant at  $p < 0.01$

<sup>a)</sup>  $n = 84$  (Long-term orientation  $< 3.94$ )

<sup>b)</sup>  $n = 99$  (Long-term orientation  $> 3.94$ )

**Table 10: Regression results with future collaboration as dependent variable**

Further, to test for the robustness of the sample to perturbations, median split was used in addition to average mean split and the presented regression analyses were repeated. The structure of the results remained unchanged.

Since prior studies have investigated equity (inequity) on an aggregated level, this procedure is also conducted in this analysis to validate the stability of the results. Therefore, material and immaterial inputs and outcomes were summed up and all calculations were redone (Table 11). The structure of the results was consistent with the disaggregated calculations. For all relationships (summed up) negative inequity has a significant negative effect (-0.23) on the customers' willingness to collaborate in the future ( $p < 0.01$ ), while (summed up) positive inequity has no significant effects ( $p > 0.05$ ). Similar to the results of the disaggregated regressions, the effects of (summed up) negative inequity were statistically significant and stronger (-0.34) in short-term relationships ( $p < 0.01$ ) and not significant ( $p > 0.05$ ) in long-term relationships. These results show that the prior calculations are consistent with the results on the

aggregate level. However, the disaggregated calculations allow a more detailed analysis and explain more of the variance of the outcome variable, i.e., in all relationships: 7 % (< 10.3 %), in short-term relationships 15.7 % (< 18.9 %) and in long-term relationships 1.6 % (< 3.6 %).

	<b>Model 1</b>	<b>Model 2 (short-term)<sup>a</sup></b>	<b>Model 3 (long-term)<sup>b</sup></b>
Relationship age	-0.02	-0.07	0.00
Firm size (employees)	-0.04	-0.03	0.08
Negative inequity	-0.23 **	-0.34 **	-0.03
Positive inequity	0.08	0.11	0.09
F value of model	3.10 *	3.30 *	0.37
R-square	0.070	0.157	0.016

\* Significant at  $p < 0.05$

\*\* Significant at  $p < 0.01$

<sup>a)</sup>  $n = 84$  (Long-term orientation < 3.94)

<sup>b)</sup>  $n = 99$  (Long-term orientation > 3.94)

**Table 11: Regression results (summed up) with future collaboration as dependent variable**

## 18 Discussion and implications

In contrast (and in extension) to prior empirical studies using Adam's (1963) equity theory framework this chapter shows the effects of material and immaterial inequity in customer-supplier projects. Support was provided for the assumption that exchange partners do not just aim for equity in total (as has been shown in prior studies), but further expect equitable outcomes for their material *and* immaterial inputs. Therefore, companies need to consider the equitable exchange in each resource category of their current project-collaboration, if they are interested in collaboration on future projects.

The disaggregating of material and immaterial project-specific resources was conducive to a more detailed analysis of the effects of inequity. The effects of negative immaterial inequity

on the customers' future collaboration intention were stronger than the effects of negative material inequity leading to the assumption that companies are especially focused on securing their immaterial resources in their inter-organizational project collaborations. Immaterial resources appear to be of higher importance to the companies than material resources. This finding is not surprising, since the protection of immaterial resources (e.g., knowledge and patents) is of high importance for any company as they represent a company's core capability and consequently determine the company's future market success.

The investigation of material and immaterial resources has been shown to be very suitable for the differentiated evaluation of inequity in inter-organizational customer-supplier projects. Further equity research might consider this disaggregated approach as a valuable extension to the traditional equity analysis. Further, to secure the stability of the results, researchers should, according to this research approach, sum up their disaggregated inputs and outcomes and prove for the consistency of their findings on the aggregated level.

A further intention was to provide evidence for the moderating role of long-term orientation on the effects of inequity in exchange relationships. In their suggestions for future research, Scheer, Kumar, and Steenkamp (2003) assumed that close inter-organizational relationships are less dependent on equity than are less intense relationships. Intense relationships might rather rely on sharing principles like equality (Deutsch, 1975). The results were able to show that companies considering their relationship with their supplier to be long-term (i.e., close and intense) do not show any negative effects of negative inequity on their future collaboration intention. In long-term relationships strategic goals and long-term profitability weaken the (negative) perceptions from the current project collaboration, since material



inequities will even out in the future of the relationship and immaterial knowledge is secured in the long-term relationship.

While the hypotheses on the effects of negative inequity were supported, no support was to be found for the hypothesized negative effects of positive inequity. This can be attributed to several reasons. First, some scholars argued that overpayment does not necessarily lead to feelings of unfairness and some exchange partners do not necessarily react negatively to positive inequity (e.g., Cosier & Dalton, 1983; Hegtvedt, 1990); they might simply interpret positive inequity as “good fortune” (Adams, 1963, p. 426). Second, companies perceiving positive inequity might develop feelings of guilt (e.g., Scheer, Kumar, & Steenkamp, 2003), but this does not necessarily force them to oppose future project collaborations. Finally, as stated earlier, the cultural background of the investigated companies might be another reason (Scheer, Kumar, & Steenkamp, 2003).

While the regression results are able to explain a certain amount of the variance of the outcome variable, it is obvious that other factors besides the equitable sharing behavior determine the companies’ future collaboration intention. Factors like the project’s success (in terms of value creation) or the partners’ satisfaction with the collaboration most likely have effects on the future collaboration intention of the exchange partners. However, in short-term relationships, inequity seems to have an important impact on the company’s future collaboration intention.

## **CHAPTER V: Summary, limitations and outlook**

### **19 Summary**

Although scholars noted the importance of value sharing for inter-organizational relationships more than a decade ago (e.g., Anderson, 1995) empirical research on the topic has remained scarce. This thesis is a response to this limitation and focuses on three research questions related to value sharing in inter-organizational relationships by empirically investigating customer-supplier relationships and specifically current project collaborations in industrial settings. Relying on several conceptual, model-based and empirical research approaches on value sharing and by applying several major theoretical concepts (e.g., equity theory, social exchange theory, signaling theory) this thesis makes a relevant contribution to the research field. Two large-scale (telephone and online-based) surveys were conducted with managers of industrial companies in Germany and Switzerland. The most relevant results and findings are summarized in below. The project-based approach with its results presented in CHAPTER III and CHAPTER IV is an especially innovative approach with unique implications for the research field.

The first conceptual framework (CHAPTER II) of this thesis investigated how created value is actually shared in industrial customer-supplier relationships and answers the question as to which of the collaborating companies appropriates the larger share of the value pie. The results showed that in most customer-supplier relationships the value pie is shared equally, while in some relationships the customer company appropriates larger value shares than the supplier company. In none of the investigated relationships did the supplier company receive the larger share. To answer the question why the value pie is shared in this manner, several possible determinants of the value-sharing process (e.g., relationship quality) were tested for their impact

on the collaborating companies' value shares. These initial results gleaned from the model provided first insights and important contributions to the research field and represented a valuable foundation for the further model development (CHAPTER III and CHAPTER IV) and data collection preparation of this thesis. Future empirical research in the field of inter-organizational value sharing might also take this basic conceptual framework as a theoretical basis and starting point for advanced empirical approaches.

CHAPTER III investigated how the customer's perception of the supplier's reputation for fairness affects the customer's intention of future collaboration and continuity of the customer-supplier relationship. The findings suggested that customer companies react positively to the perception of a supplier's reputation for fairness and intend to continue collaborating with these suppliers in the future. Therefore, supplier companies can increase the stability of their customer-supplier relationships by signaling a good reputation for fairness in the marketplace. However, the results also suggest that supplier companies need to continuously act according to their reputation since customers put a higher weight on their perception of the suppliers' actual behavior in current customer-supplier project collaborations than on their perceived reputation for fairness (before the collaboration). An interesting finding is that economic fairness related to the distribution of relationship benefits is less influential on the future of the relationship than social fairness related to the customer's relationship satisfaction with the collaboration. These results provide important insights on the relevance of a company's reputation for the future of inter-organizational relationships and might trigger further research on the topic.

The theoretical concept of equity theory (Adams, 1963) was in the focus of CHAPTER IV. Basic hypotheses of equity theory were validated in the setting of customer-supplier project collaborations and two relevant extensions compared to prior equity research were introduced

(i.e., the moderating role of long-term orientation and the separation of material and immaterial resources of the exchange). These unique findings support the negative effects of negative inequity on the future of the relationships. As hypothesized, both material and immaterial inequity have to be considered separately, since both have significant effects on the future collaboration intention. As expected, the relationship's long-term orientation had a moderating role on the effects of the customer's perceived inequity in the investigated customer-supplier collaborations. In long-term relationships the customers' intention of future collaboration is not affected by perceptions of inequity in the current collaboration. However, in short-term oriented relationships the negative effects of negative inequity could be shown. Therefore equity research in the future should take this finding into account and distinguish between the effects of inequity in short- and long-term inter-organizational relationships.

## **20 Limitations and future research opportunities**

The results of this thesis provide several relevant and unique insights into the determinants, the processes and the consequences of value sharing in inter-organizational relationships. However, the selected research approaches with their results and findings need to be seen in the light of the studies' limitations. Some of these limitations might represent interesting and fruitful areas of future research on the topic of value sharing in inter-organizational relationships. Therefore, the following sections are intended to motivate researchers to conduct more research in the field of inter-organizational value sharing and shed additional light on this important research area.

## 20.1 Model extensions

The first conceptual framework presented in CHAPTER II investigated several determinants of value sharing in customer-supplier relationships and was able to predict the companies' value shares in more than three out of four customer-supplier relationships correctly. However, there are certainly other factors that also have significant impacts on the collaborating companies' actual value sharing behavior. Therefore, future research might include additional independent variables and enhance the explanatory power of the presented model.

It would be useful to extend the second conceptual framework presented in CHAPTER III by testing intangible factors (i.e., perceived economic and social fairness and trust) in a model with tangible customer-supplier relationship performance measures (e.g., product quality, delivery reliability, responsiveness) on the customers' future intentions about the collaboration with their suppliers. This would provide additional support for the importance of intangible performance measures like perceptions of fairness in customer-supplier relationships. Further, it would add to knowledge if the presented models were applied in different business settings (e.g., service vs. manufacturing relationships; supply chains with a dominant retailer with positional power; high-tech vs. low-tech industry) among managers and at different levels of analysis (e.g., firm, business unit). In addition, since the German supplier firm Bosch offers anecdotal evidence that there is not a trade-off between reputation for fairness and financial success (Bosch, 2006); reputation for fairness may be a financial performance enabler for companies; this might be an interesting hypothesis for future researchers to explore.

Since the conceptual framework in CHAPTER IV represents a very innovative approach to equity theory by separating material from immaterial resources in the exchange, future research should try to replicate these initial results in different research settings. Future research

might also expand the presented findings by investigating the effects of material and immaterial inequity on additional outcome variables (e.g., guilt, satisfaction). Additionally, other variables should be investigated for their moderating impact on the effects of inequity on the future of customer-supplier relationships. While the investigation of the determinants of the customers' future collaboration intention was not in the core focus of this research, it might also represent an interesting idea for future research.

## **20.2 Dyadic approach**

The studies and therefore the results and findings of all presented models in this thesis suffer from the limitation that data was collected only from one side of the customer-supplier relationship dyad. In both data collections (i.e., via telephone and online-based) the studies' informants were managers (e.g., in purchasing, supply chain management, logistics) from the customer companies and therefore the results are limited to the perception of this side of the inter-organizational relationship. The perception of the customer company, however, might deviate from that of the supplier company. Thus collecting data from both sides of each relationship dyad would represent an interesting and promising task for future research on the topic of value sharing in inter-organizational relationships. First, agreement between the perceptions of the two sides of the dyad should be evaluated using advanced methods (for a review of agreement measures see LeBreton & Senter, 2008). Second, in the case of insufficient agreement (for common threshold values see LeBreton & Senter, 2008) possible reasons for these deviations in perception should be identified.

Prior dyadic research approaches (e.g., Steinman, Deshpandé, & Farley, 2000; Wagner, 2008) and the data collection process for the second study of this thesis have shown that data

collection at both sides of the customer-supplier dyad is a challenging task to accomplish. The effective response rate is basically the product of the response rate realized at the customer firm and at the supplier firm, resulting frequently in small response rates and small samples. Informants are often not willing to share any contact details of their respective suppliers (especially on the project-level of analysis as chosen for the second study of this thesis). Nevertheless, the potential contributions and insights from this approach should be sufficiently motivating. To reduce the required effort and therefore increase the probability of research success, researchers might consider small sample research and only select a limited number of customer-supplier relationship dyads and investigate them in greater detail, even though this approach would exclude the application of several advanced data analysis techniques (e.g., covariance-based SEM) due to the limited number of data points.

### **20.3 Multiple informants**

Both empirical studies of this thesis apply the data collection method of relying on single key informants (Kumar, Stern, & Anderson, 1993; Phillips, 1981) which is a common approach in organizational research. However, key informant reports are subject to systematic biases (e.g., hindsight bias, attributional bias), which cause deviations between the observed and the true values, as well as random errors, which lead to fluctuations of responses around the true value of the construct under investigation (Kumar, Stern, & Anderson, 1993). Many authors have discovered that sometimes there is a low degree of correspondence between key informants' reports and the actual organizational construct they intend to represent (Kumar, Stern, & Anderson, 1993; Phillips, 1981). Therefore, the last years have seen an increased interest in and recognition of the value of multiple informant methodology for improving the validity in

determining organizational properties. Several examples of its application can be found in the literature (e.g., Dooley, Fryxell, & Judge, 2000; Hoegl & Wagner, 2005).

However, the majority of empirical organizational research still relies on single key informants, which is often due to the practical constraints of multiple informant research (Kumar, Stern, & Anderson, 1993). It imposes significantly higher financial costs and time requirements on both researchers and informants (Enticott, 2004), and might result in lower response rates, especially as the procedure may appear to collect redundant information while occupying the time of multiple informants within the same organization (Glick, Huber, Miller, Doty, & Sutcliffe, 1990). Due to these constraints it was decided to rely on single key informants for this thesis, which therefore has to be seen as a limitation of the presented results and findings. Since the last decades have brought a number of advanced interrater agreement measures (for a review see LeBreton & Senter, 2008) and approaches to aggregate the multiple responses into one organizational response (e.g., Kumar, Stern, & Anderson, 1993; van Bruggen, Lilien, & Kacker, 2002) researchers should apply this valuable method to their future empirical research projects. However, in each case organizational measures with a true value must be distinguished from measures that rely on and display the informants' perception (as do most of the measures in this thesis). While for measures with a true value agreement among the informants is expected, it is not for perceived measures. Disagreement in the informants' perceptions of the same organization might be another interesting matter of investigation.

#### **20.4 Cross-country effects**

The data for this thesis were collected in German-speaking countries (Germany and Switzerland). Since these two countries have very similar cultural backgrounds (Hofstede, 1980) and previous



customer-supplier relationship studies have not revealed any statistical differences (e.g., Wagner, 2006), the two country subsamples were treated as a single sample for data analyses. However, this selected focus on one cultural entity limits the presented results and findings of this thesis to countries with very similar cultures.

Scholars conducting data collections in multiple cultural entities were able to show deviations in the informants' perceptions and in the effects of these perceptions in their theoretical models (e.g., Kumar, Scheer, & Steenkamp, 1995; Scheer, Kumar, & Steenkamp, 2003). Collecting the same data in a different country with a different cultural background (e.g., in the USA or an Asian country) would allow evaluation of the same models with a different data set and permit a cross-cultural investigation. The interpretation of possible divergences in the informants' perception and the effects would be able to shed additional important light on the topic of value sharing in the inter-organizational context.

As with suggestions of the dyadic (section 20.2) and the multiple informant (section 20.3) approaches, researchers need to consider and balance the additional efforts on the one hand with the additional insights from this cross-cultural approach on the other hand. However, fairness and equity perceptions included in the studies' models seem to be affected significantly by cultural aspects (e.g., Henrich, 2000; Scheer, Kumar, & Steenkamp, 2003) and therefore the additional effort should be justifiable for the researchers.

## **20.5 Long-term observations**

Another limitation of this thesis is that the data collection was conducted at a single point of time in the customer-supplier relationship in each case. This static approach precludes gaining any long-term effects and relationship life-cycle observations in the investigated relationships.

Companies that have only recently established customer-supplier relationships might perceive the value sharing in these relationships differently from companies working in mature or even declining customer-supplier relationships.

One could consider asking the same informants about the same relationship after a certain amount of time has passed and evaluate the change in their perceptions. However, by then several informants will no longer be working in their current position or with that company. Further, due to the time constraints on managers a 100 % response rate (i.e., all informants answer again) cannot be expected; this is critical since both data samples were rather small. Finally, the responding customer companies might cease their collaboration with the respective supplier.

As an alternative, quasi-longitudinal approach one could use the number of years that the relationship has existed at the time of data collection as a proxy for relationship life-cycle. However, this does not appear to be a very fruitful approach, since some relationships develop faster than others or reach different life-cycles for no discernable reasons. Jap and Ganesan (2000) provide a more promising approach by leaving the life-cycle categorization of the relationship to their informants. Eggert, Ulaga, and Schultz (2006) ask their informants about the future expansion of their relationships and use these answers as “reversed proxies for the maturity of the purchasing relationship” (p. 22). Researchers might adopt these innovative ideas when investigating the presented effects in the relationship life-cycle context.

## **21 Outlook**

The empirical results of the three conceptual frameworks in this thesis still leave ample room for additional future research on the topic of value sharing in inter-organizational relationships. The

presented results can thereby serve as the basis of future empirical research. Researchers are encouraged to consider the questions raised in this thesis and refine its conceptual frameworks. The limitations of this thesis offer additional interesting research opportunities.

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## APPENDIX

### Appendix A: Measures and descriptive statistics CHAPTER II (mean; standard deviation)

<b>Relationship quality</b>
Please rate the quality of the relationship with your supplier. <sup>1)</sup> (3.75; 0.62)
<b>Supplier motivation</b>
To motivate our suppliers to collaborate, we promise them shares of the project outcome. <sup>2)</sup> (1.76; 0.70)
To motivate our suppliers to collaborate, we promise them increased future business. <sup>2)</sup> (2.25; 0.56)
<b>Value creation goals</b>
When aiming for relationship improvements, we focus on cost reductions. <sup>2)</sup> (2.73; 0.46)
When aiming for relationship improvements, we focus on lead time improvements. <sup>2)</sup> (2.40; 0.63)
<b>Sharing principle and intention</b>
The sharing of project outcomes occurs on the basis of the invested inputs. <sup>3)</sup> (2.87; 1.14)
The sharing of project outcomes is rather based on the success of our company than on the success of the entire relationship. (R) <sup>3)</sup> (2.51; 1.15)

<sup>1)</sup> Response cue five-point Likert-scale: 1: very bad, 5: very good

<sup>2)</sup> Response cue three-point Likert-scale: 1: strongly disagree, 3: strongly agree

<sup>3)</sup> Response cue five-point Likert-scale: 1: strongly disagree, 5: strongly agree

### Appendix B: Correlation matrix (CHAPTER II)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Relationship quality	n.a.						
(2) Motivation value shares	0.06	n.a.					
(3) Motivation future business	0.12 *	-0.04	n.a.				
(4) Goal cost reduction	0.13 *	0.12 *	0.11	n.a.			
(5) Goal lead time improvements	-0.04	0.01	0.03	0.14 *	n.a.		
(6) Sharing based on equity	-0.01	0.12 *	0.06	0.18 **	0.17 **	n.a.	
(7) Sharing based on relationship success	-0.12 *	-0.02	-0.10	-0.10	-0.07	-0.09	n.a.
(8) Value shares	0.13 *	0.29 ***	-0.11 *	0.13 *	0.22 ***	0.23 ***	0.14 **

\* Correlation (Pearson) is significant at  $p < 0.1$  (1-tailed).

\*\* Correlation (Pearson) is significant at  $p < 0.05$  (1-tailed).

\*\*\* Correlation (Pearson) is significant at  $p < 0.01$  (1-tailed).



### Appendix C: Measures and items (CHAPTER III)

<b>Supplier reputation for fairness</b>	
REP_SUP1	Supplier X had a reputation for being honest.
REP_SUP2	Supplier X had a reputation for being concerned about the customers.
REP_SUP3	Supplier X had a bad reputation in the market. (R)*
REP_SUP4	Supplier X had a reputation for being fair.
<b>Outcome fairness (Economic rewards)</b>	
FAIR1	Our outcomes received from the project were just.
FAIR2	The benefits of the project with supplier X had been fair.
FAIR3	Our gains from this project with supplier X had been fair.
FAIR4	Our company has benefited disproportionately from the project in comparison to supplier X. (R)*
FAIR5	We would have deserved a larger share of the outcomes. (R)
<b>Relationship satisfaction (Social rewards)</b>	
SATISF1	We were very satisfied with the relationship to supplier X during the project.
SATISF2	We were pleased to work with supplier X during the project.
SATISF3	The relationship to supplier X was very favorable for us during the project.
<b>Trust in supplier X</b>	
TRUST1	Supplier X kept promises it made to our firm during the project.
TRUST2	Supplier X was always honest to us during the project.
TRUST3	We believed the information that supplier X provided us during the project.*
TRUST4	Supplier X was genuinely concerned during the project that our business succeeded.
TRUST5	When making important decisions during the project, supplier X considered our welfare as well as its own.*
TRUST6	We trusted supplier X keeps our best interests in mind during the project.*
TRUST7	Supplier X was trustworthy during the project.
TRUST8	We found it necessary to be cautious with supplier X during the project. (R)*
<b>Relationship continuity</b>	
CONTINUE1	We expect our relationship with supplier X to continue for a long time.
CONTINUE2	Renewal of relationship with supplier X is virtually automatic.
CONTINUE3	It is likely that our firm will still be doing business with supplier X in two years.
<b>Future collaboration</b>	
FUTURE1	We would welcome the possibility of collaboration with supplier X in additional projects in the future.
FUTURE2	We would be willing to work with supplier X in projects in the future.
FUTURE3	We would be willing to collaborate with supplier X in projects, should the opportunity arise.

\* = Item dropped in final measurement model.

Notes: All items were measured on five-point Likert-scales: 1: strongly disagree, 5: strongly agree

### Appendix D: Correlation matrix for items and descriptive statistics (CHAPTER III)

Items	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Outcome Fairness																							
1	FAIR1	3.91	0.85	1.00																			
2	FAIR2	3.99	0.77	0.80**	1.00																		
3	FAIR3	3.92	0.80	0.70**	0.84**	1.00																	
4	FAIR5	3.88	1.01	0.41**	0.49**	0.47**	1.00	Relationship Satisfaction															
5	SATISF1	3.96	0.91	0.52**	0.53**	0.56**	0.40**	1.00															
6	SATISF2	3.54	0.99	0.38**	0.43**	0.42**	0.20**	0.65**	1.00														
7	SATISF3	3.77	0.90	0.32**	0.41**	0.47**	0.18*	0.60**	0.60**	1.00	Trust												
8	TRUST1	3.99	0.92	0.49**	0.56**	0.57**	0.35**	0.77**	0.61**	0.59**	1.00												
9	TRUST2	3.99	0.94	0.47**	0.51**	0.50**	0.37**	0.66**	0.43**	0.43**	0.66**	1.00											
10	TRUST4	4.05	0.88	0.42**	0.48**	0.44**	0.30**	0.60**	0.47**	0.54**	0.62**	0.52**	1.00										
11	TRUST7	4.17	0.76	0.49**	0.56**	0.52**	0.32**	0.71**	0.57**	0.56**	0.73**	0.67**	0.65**	1.00	Future Collaboration								
12	FUTURE1	4.16	0.97	0.54**	0.60**	0.57**	0.42**	0.71**	0.56**	0.56**	0.74**	0.61**	0.54**	0.68**	1.00								
13	FUTURE2	4.23	0.91	0.51**	0.57**	0.51**	0.40**	0.65**	0.53**	0.54**	0.67**	0.59**	0.51**	0.61**	0.90**	1.00							
14	FUTURE3	4.24	0.91	0.47**	0.55**	0.50**	0.39**	0.65**	0.48**	0.53**	0.66**	0.61**	0.52**	0.64**	0.87**	0.91**	1.00	Relationship Continuity					
15	CONTINUE1	4.36	0.85	0.46**	0.50**	0.46**	0.43**	0.58**	0.43**	0.39**	0.62**	0.56**	0.42**	0.54**	0.74**	0.67**	0.68**	1.00					
16	CONTINUE2	3.86	1.10	0.24**	0.27**	0.25**	0.24**	0.22**	0.30**	0.23**	0.33**	0.38**	0.27**	0.34**	0.38**	0.40**	0.40**	0.52**	1.00				
17	CONTINUE3	4.38	0.94	0.23**	0.37**	0.27**	0.31**	0.37**	0.29**	0.28**	0.45**	0.38**	0.33**	0.40**	0.48**	0.44**	0.42**	0.63**	0.38**	1.00	Supplier Reputation		
18	REP_SUP1	4.01	0.90	0.34**	0.41**	0.37**	0.30**	0.48**	0.37**	0.33**	0.50**	0.51**	0.45**	0.53**	0.46**	0.45**	0.47**	0.39**	0.32**	0.23**	1.00		
19	REP_SUP2	3.85	0.93	0.34**	0.39**	0.37**	0.26**	0.49**	0.41**	0.36**	0.51**	0.47**	0.47**	0.53**	0.44**	0.41**	0.40**	0.36**	0.20**	0.25**	0.61**	1.00	
20	REP_SUP4	3.80	0.87	0.27**	0.32**	0.25**	0.26**	0.31**	0.22**	0.21**	0.29**	0.36**	0.34**	0.32**	0.31**	0.36**	0.34**	0.27**	0.22**	0.16*	0.60**	0.55**	1.00

\* Correlation (Pearson) is significant at  $p < 0.05$  (2-tailed)

\*\* Correlation (Pearson) is significant at  $p < 0.01$  (2-tailed)

### Appendix E: Measures and items (CHAPTER IV)

<b>Material inputs and outcomes</b>	
Material input customer	Our company's material (financial and personnel) contributions to the project.
Material input supplier	Supplier X's material (financial and personnel) contributions to the project.
Material outcome customer	The material (financial) outcomes we received from the project.
Material outcome supplier	The material (financial) outcomes supplier X received from the project.
<b>Immaterial inputs and outcomes</b>	
Immaterial input customer	Our company's immaterial (know-how and patents) contributions to the project.
Immaterial input supplier	Supplier X's immaterial (know-how and patents) contributions to the project.
Immaterial outcome customer	The immaterial (know-how and patents) outcomes we received from the project.
Immaterial outcome supplier	The immaterial (know-how and patents) outcomes supplier X received from the project.

Notes: All items were measured on five-point Likert-scales: 1: low, 5: high

<b>Future collaboration</b>	
FUTURE1	We would welcome the possibility of collaboration with supplier X in additional projects in the future.
FUTURE2	We would be willing to work with supplier X in projects in the future.
FUTURE3	We would be willing to collaborate with supplier X in projects, should the opportunity arise.
<b>Long-term orientation</b>	
LONGTERM1	We believed that over the long run our relationship with supplier X would be profitable.
LONGTERM2	Maintaining a long-term relationship with supplier X was important to us.
LONGTERM3	We focused on long-term goals in this relationship.
LONGTERM4	We were willing to make sacrifices to help supplier X from time to time. *
LONGTERM5	We were only concerned with our outcomes in this relationship. (R)
LONGTERM6	We expected supplier X to be working with us for a long time.
LONGTERM7	Any concessions we made to help out supplier X would even out in the long run. *

\* = Item dropped in final measurement model.

Notes: All items were measured on five-point Likert-scales: 1: strongly disagree, 5: strongly agree

<b>Relationship age</b>
For how many years had your company been working with supplier X at the beginning of the project (in full years)?
<b>Firm size</b>
How many employees worked for your company in 2006?

**APPENDIX F: Correlation matrix and descriptive statistics (CHAPTER IV)**

	MEAN	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) Negative material inequity	0.10	0.45							
(2) Negative immaterial inequity	0.13	0.55	0.08						
(3) Positive material inequity	0.56	0.88	-0.15 *	-0.06					
(4) Positive immaterial inequity	0.46	0.78	-0.09	-0.14	0.42 **				
(5) Long-term orientation	3.94	0.63	-0.14	-0.23 **	-0.04	0.04			
(6) Future collaboration	4.21	0.91	-0.20 **	-0.23 **	0.12	0.08	0.45 **		
(7) Relationship age	10.48	9.92	0.00	-0.09	-0.01	-0.01	0.12	-0.01	
(8) Firm size	7,350	37,342	-0.02	0.01	-0.04	-0.07	-0.04	-0.04	0.17 *

\* Correlation (Pearson) is significant at  $p < 0.05$  (2-tailed)

\*\* Correlation (Pearson) is significant at  $p < 0.01$  (2-tailed)

## **Declaration**

Hereby I declare, that the dissertation presented to the Wissenschaftliche Hochschule für Unternehmensführung (WHU), Otto-Beisheim-Hochschule, for obtaining of the degree 'Doctor rerum politicarum' was produced independently and without the aid at sources other than those which have been indicated. All ideas and thoughts coming both directly and indirectly from outside sources have been noted as such.

This work has not been published or presented in any similar form to any other board of examiners.

Vallendar, May 07, 2008

*Eckhard Lindemann*