CHAPTER SEVEN

SOLIDARITY AND THE REGULATION OF TRANSACTIONS: SOLIDARITY COST AND TRANSACTION COST

7.1 INTRODUCTION

The studies in the previous chapters showed that solidarity affected different aspects of the seller’s behavior in the economic transaction presented. On the one hand, solidarity - whether as frame or as a secondary goal in the background - resulted in restrained gain-seeking and restrained cost accounting. Compared to what the seller could have potentially gained in the relational bargaining game, solidarity did result in costs in terms of forfeited profits in the weak and strong-solidarity relationships. On the other hand, the seller also gained from the solidarity relationship. It was shown in Chapter Three that solidarity resulted in a higher perceived probability of sale. This means that the seller can to some extent control the uncertainty in transactions through a solidarity relationship. The basic question in this chapter is whether this gain in certainty outweighs the forfeited profits for the seller. The question refers to which, if any, solidarity relationship is the most efficient for the seller in regulating an uncertain transaction.

No new experiments will be conducted in addressing this issue. Instead, we will use results from a previous experiment to answer the question.

7.2 THE REGULATION OF TRANSACTIONS

The problem of the regulation of economic transactions under uncertainty has been addressed by Williamson (1975, 1985). As was mentioned in the first chapter, Williamson introduced the relational perspective on contracting in order to overcome shortcomings of neoclassical contracting. His transaction cost theory criticizes the neoclassical reliance on enforceable
contracts. People are generally not fully informed and this incompleteness of a contract can be exploited for sheer gain. The exploitation reduces the outcomes for the investing party. The threat of exploitation is easily reduced in a situation in which complete information is available (i.e., without cost). However, in a situation in which complete contracts are (too) costly, for example because of ambiguous or unforeseeable future contingencies, others can exploit this strategically.

Reliance on incomplete contracts is especially hazardous for a party investing specifically in a transaction. These investments create an economic dependency between the parties, due to the transaction specificity of the good. In transaction-specific investments, the seller reduces the number of potential buyers to which the investment can be sold and thus its value. In this respect, the transaction specificity represents a potential risk for an investor. According to the transaction cost theory, a dependency relationships force at least one of the parties to replace the anonymous contact with the other party with an identifiable and unique relationship. Williamson (1985) describes this process of transition as the fundamental transformation of the market. Furthermore, he predicts investments in order to mitigate the economic dependence. These extra investments are the transaction costs. Transaction costs can be described as the investment necessary to organize the (economic) transaction itself. Williamson (1985) defines transaction costs as the investments in coordination and control of the transaction. In a particular transaction, transaction costs can arise as the result of efforts to reduce the uncertainty and damage potential of the economic dependence on the other party.

Research based on the transaction cost theory has focussed on designing economic regulation mechanisms to tackle the uncertainty and risk in the transaction. Examples are the drafting of (legally) enforceable contracts (Klein, 1980), the posting of hostages, the development of monitoring mechanisms and the installation of a hierarchy. Although Williamson (1985) does refer to a relational perspective on contracting, little attention is given to regulation mechanisms for economic transactions based on relations. Strangely enough, very little research has been done in this area by sociologists, although Weber (1961) and Durkheim (1933) did prominently point out the social embeddedness of transactions (see also Granovetter, 1985). However, Ouchi (1980) elaborated on regulation by solidarity norms existing in a clan. He suggested that regulation through solidarity could be useful, in particular in situations in which individual performance is difficult to measure and takes
place in a team context. The social structure of the clan mitigates the pure form of private gain-seeking. In this situation other goals become more important, such as maintaining a good relationship with the other members of the clan. The solidarity among the clan members provides (some) protection against exploitation.

According solidarity theory, a focus solely on the advantages of solidarity norms for transactions would appear to be a limited approach. As was shown in previous chapters, solidarity not only facilitates economic transactions but also affects these transactions negatively for the seller. Before a solidarity relationship can be regarded as a desirable tool for the governance of a transaction under uncertainty, the benefit in terms of reduced uncertainty has to outweigh the cost in terms of forfeited profits. The present study focuses on this balance. In the following section, the results of Chapter Three are analyzed in terms of governance cost. Hypotheses based on the solidarity theory are formulated in following the following section.

7.3 Governance cost of economic transactions

The experiment conducted in Chapter Three incorporated a transaction under uncertainty for the seller with a given level of transaction specificity. The transaction-specific investment consisted of the book that would be difficult to resell to one but the individual who ordered it. It was specifically mentioned that the book was no longer current, and that the seller had not heard of it before. The purchase of the book would make the seller dependent on this buyer in order to retain the investment. This transaction specificity of the investment was equal in each solidarity relationship. Nevertheless, the results showed that the less uncertainty, the seller perceived in the transaction, the greater the impact of solidarity was in the relationship. Sellers reported a mean probability of sale of 53.7 % in an opportunistic relationship, a mean probability of 67.4 % in a weak-solidarity relationship, and a mean probability of 91.4 % given a strong-solidarity relationship. The differences in the perceived levels of uncertainty reflected differences in the lack of control and coordination between the actors. Given solidarity in the relationship, the seller does not need to invest as much in additional control and coordination (i.e., transaction cost). Solidarity has already reduced a substantial part of the uncertainty about the sale. The residual uncertainty still present in the
transaction points at different levels of transaction costs for the different solidarity relationships.

The other side to this beneficial effect of solidarity norms is that solidarity also leads to solidarity costs in terms of restrained gain-seeking. Because of solidarity, sellers did forego a larger part of the surplus. In the transaction under uncertainty presented in Chapter Three, the sellers asked a mean selling price of 57.27 guilders in an opportunistic relationship, a mean selling price of 52.63 guilders in a weak-solidarity relationship, and a mean selling price of 39.86 given a strong-solidarity relationship. Given a mean maximum offer of 65 guilders by the (only) buyer, the amounts forfeited by the sellers are considerable. The solidarity cost increased from 7.63 guilders, and 12.27 guilders to 15.14 guilders.

If a solidarity relationship is attractive for the seller as a governance structure for economic transactions, the perceived benefit of solidarity (the reduced transaction cost in terms of the uncertainty of sale) has to outweigh the solidarity cost. In other words, solidarity in one of the weak and strong solidarity relationships has to be more efficient for the seller than the opportunistic relationship. The efficiency is expressed in terms of the combined transaction and solidarity costs, together they form the governance costs of solidarity.

7.4 Hypotheses

According to solidarity theory, it can be expected that the governance costs of solidarity will be smallest in a weak-solidarity relationship, if there is transaction specificity. Here, the frame of the seller is still directed towards gain-seeking but its salience is decreased by solidarity. The dominant goal of gain-seeking will keep the seller responsive to changes in relative prices, while its salience decreased by solidarity will allow investments in transaction specific prospects. The opportunistic seller with a pure gain frame will only be responsive to the relative prices and misses any protection of transaction specificity. Solidarity as a frame truly guards the transaction-specific prospects but it is so unresponsive to gain opportunities that its total result will likely be worse than that for weak-solidarity. This effect will be bounded by two extremes. Without any transaction specificity, there is no point to relational concerns. With extreme transaction-specific investment, conformity to solidarity
will be the only relevant concern. Thus, it is predicted in the Governance Costs hypothesis that:

I. The seller will have transactions with a lower level of the governance costs (i.e., the combination of the transaction cost and the solidarity cost) in the weak-solidarity relationship than in an opportunistic or strong-solidarity relationship. This effect is bounded at both extremes.

The greater attractiveness of transactions in a weak-solidarity relationship as predicted by this hypothesis would not only show in low governance costs at the individual level but also in an increased quantity of potentially profitable transactions for the sellers in the weak-solidarity condition. A transaction with a lower level of governance costs will also have a higher likelihood of being profitable. The governance costs hypothesis can be rephrased as the Volume hypothesis. This hypothesis states that:

II. Sellers will generate a higher volume of profitable transactions in the weak-solidarity relationship than in the opportunistic or strong-solidarity relationship, given non-extreme levels of transaction specificity.

In the following section, the design and procedure of the experiment are described in brief. The hypotheses were tested by re-analyzing the findings of the experiment described in Chapter Three. The experimental design and method are presented in detail in that chapter.

7.5 Experimental design and method

Subjects A total of 241 subjects, female and male students from various faculties of the University of Groningen participated in this study. The subjects were invited in groups of 14. The subjects were assigned randomly to one of the experimental conditions. The subject filled out the questionnaire individually and in private. The subjects received a small compensation (5 guilders) for their participation.

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29 The Volume hypothesis is a rephrased version of the Governance Costs hypothesis given equal variances between the solidarity conditions; a lower mean total cost in a transaction then results in a higher quantity of potentially profitable transactions.
Design The design contained two within-subject factors. The first within-subject factor 'Solidarity Relationship' had three levels: Opportunism, a Weak-solidarity relationship, and a Strong-solidarity relationship. The solidarity relationships were operationalized as forms of interpersonal relations that had to be imagined by the subject, namely a stranger, a vaguely known acquaintance, and a good friend.

The subject was confronted with an incomplete contract, that is, the situation in which the buyer did not fill out an order form. The transaction contained a lack of control that should be reflected in a higher uncertainty of sale for the seller. The absence of a filled-in order form would make it impossible for the seller to enforce a sale. The factorial design used for this study is, thus, as follows (the operationalizations are given in brackets):

<table>
<thead>
<tr>
<th>Experimental Design:</th>
<th>Solidarity Relationship (within-subject):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Opportunism (stranger)</td>
</tr>
<tr>
<td></td>
<td>Weak-solidarity (acquaintance)</td>
</tr>
<tr>
<td></td>
<td>Strong-solidarity (good friend)</td>
</tr>
<tr>
<td>Uncertain sale</td>
<td>(no order form)</td>
</tr>
</tbody>
</table>

In addition to these factors, a sequence factor was introduced to counterbalance the possible sequence effects on the solidarity relationship of the subject. The three levels of the within-subject Solidarity Relationship factor were presented to each subject in one of six possible sequences. See Chapter Three for the procedure and scenario followed for the experiment.

7.6 RESULTS

The results were analyzed using the Multivariate Analysis of Variance-module (MANOVA) of SpssPc 5.0.1. Significant univariate results were only considered when there was also a significant multivariate effect. The significance level was .05 for one-tailed and two-tailed tests. The checks on the experimental induction are already presented in chapter Three. In general, these results showed that the personal relationships induced the solidarity relationship intended.
7.6.1 The governance costs

The governance costs hypothesis contained the prediction in which the combination of both the transaction cost and the solidarity cost. These costs variables were measured by different scales. The transaction costs -the control and coordination costs- were measured in terms of the perceived uncertainty of sale, given an equal level of transaction specificity in the transaction presented. The solidarity costs were measured in terms of the forfeited profit given the transaction and relationship. These costs variables were described in Chapter Three and reviewed in the introductory sections. The results indicated that the trend of these effects was as predicted by the solidarity theory. In order to analyze these combined governance costs, the expected value of the book has to be calculated. The higher the expected value of the book, the lower the governance costs.

The expected value of the book incorporates the expected values of the two options, that is, the value of the book under the condition of a (successful) sale to the buyer and the "residual value" of the book if the book is left unsold. The level of residual value also determines the level of transaction specific investments, that is, the level of economic dependence of the seller on the buyer. For example, if an unsold book has no residual value at all then the seller’s investment depends completely on the buyer’s behavior, in other words the transaction specificity of the investments is 100 %. As there were no other procurement costs than the purchase price in this experiment, a residual value equal to the purchase price signifies a no-risk situation in the presented transaction, i.e., the transaction-specific investments are 0 %. The transaction presented to the sellers did not indicate any monetary standard for the level of transaction- specificity of the book, although the book was described as no longer current, there was no indication that there may not much demand for the book. However, the whole range of different levels of transaction-specificity - which relates inversely to the level of residual value - are examined to test the governance costs hypothesis.

The governance costs hypothesis is described in terms of costs. These total costs are the complement of the expected gain, because the buyer’s maximum offer is the same in each condition. The effect of the solidarity relationships on the governance costs is thus examined in terms of the expected gain of the book. The expected gain equals the expected value of the book for the seller minus the purchase price of 35 guilders. The higher the governance costs are, the lower the expected gain of the book is. As was described
previously, the expected gain of the book is calculated as the function of the level of transaction specificity, given the seller’s perceived level of transaction and the solidarity costs. The results are depicted for each solidarity relationship in Figure 7.1.

Figure 7.1. The amount of the total expected gain on the book (i.e., the complement of the total governance costs and the given purchase price) as a function of the level of transaction specificity of the investment for each solidarity relationship.

It is also shown in Figure 7.1 that given a transaction specific investment of 100 % or a residual value of zero guilders the total expected gain of the book will equal the expected selling price of the book. At this point, the seller dealing within a strong-solidarity relationship would achieve the highest expected gain for the book (fl 1.26) although this is not significantly more than the result in a weak-solidarity relationship (fl 0.25) (Weak-Strong contrast: $t_{(223)}= -1.3$, $p< 0.208$). Sellers in an opportunistic relationship have the lowest expectation about the book’s gain under zero residual value (Opp-Weak contrast: $t_{(223)}= -6.3$, $p< 0.001$). At the other extreme, if there is no transaction-specificity (the residual value equals the purchase price, that is, there is no risk for the seller), some effects were reversed. Here,
sellers in a weak-solidarity relationship would achieve the highest expected gain (fl 11.45), although this amount would not differ significantly from the expected gain than in an opportunistic relationship (fl 11.26) (Opp-Weak contrast: t(223) = .01, p< 0.990). At this point, the seller dealing in a strong-solidarity relationship would gain the lowest expected value (fl 4.76) (Weak-Strong contrast: t(223) = 12.7, p< 0.001).

The exact domains in which each of the solidarity condition yields its highest expected gain given the level of transaction specificity can be determined by computing the points of intersection. At these points, the mean seller is indifferent to which of the two solidarity relationships to chose.

The intersections (see Appendix C at the end of this chapter) are at a transaction specificity of 1 % for the opportunistic and weak-solidarity relationships (the book has a residual value of fl 34.42) at 57 % for the opportunistic and strong-solidarity relationship (a residual value of fl 15.28), and at 89 % for the weak-solidarity and strong-solidarity relationship (a residual value of fl 4.20). As can be seen in Figure 7.1, these results show that in the lowest domain of transaction specificity lower than 1 %, where practically no risk is at stake, transactions in an opportunistic relationship would acquire the highest expected value. In the highest domain of transaction-specific investments, in the 100 % and 89 % range, the seller dealing in a strong-solidarity relationship receives the highest total expected value. However, in the large domain between 89 % and 1 % of transaction-specific investment, the sellers in a weak-solidarity relationship gained the highest total expected gain. These combined results of transaction and solidarity costs confirm the governance costs hypothesis. With the exception of extreme situations of certainty or risk, it is rational to invest in weak-solidarity.

7.6.2 The volume hypothesis

The attractiveness of transactions in a weak-solidarity context, as predicted by the governance costs hypothesis, should also show up in the number of potentially profitable transactions, as is stated by the volume hypothesis. The volume hypothesis states that sellers will generate more profitable transactions in a weak-solidarity relationship then in an opportunistic or strong-solidarity relationship. A transaction is profitable if a seller can expect a positive gain. Based on this simple profit criterion, the sellers were counted per solidarity relationship who realized a potentially profitable transaction. Because of the relevant impact of the level of transaction
specificity, the number of these profitable transactions is depicted as a function thereof (Figure 7.2).

Figure 7.2 clearly shows that in general, more transactions were profitable in a weak solidarity relationship than in any of the other relationships. There were only more profitable transactions within an opportunistic relationship if the level of transaction specificity was extremely low. In the strong-solidarity condition, sellers realized fewer profitable transactions at every value of the transaction specificity. Sellers with such a relationship were, by and large, unaffected by the level of transaction specificity.

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**Figure 7.2.** The number of potentially profitable transactions (sales) as a function of the transaction specificity of the investment for each solidarity relationship.

An alternative method of examining the volume hypothesis is to add up the expected gains for the profitable transactions per solidarity relationship. These aggregated amounts of expected gain for the profitable transactions are shown in Figure 7.3 for each solidarity relationship. The general tendency in Figure 7.2 is also apparent in Figure 7.3. Sellers generated a higher expected gain in a weak solidarity relationship than in one of the other relationship for
all levels of transaction specificity. The line of the aggregated expected gains for sellers in a strong-solidarity relationship remained relatively flat, that is, between a minimum of 819.10 and a maximum of 1118.30 guilders. The steepest line was produced by sellers in an opportunistic relationship, but their aggregated expected gains exceeded the gains in the weak-solidarity condition only when the transaction specificity of the investments was reduced to near zero.

**Figure 7.3.** The expected gains aggregated only for the profitable transactions (sales) for each solidarity relationship as a function of transaction specificity.

In summary, the findings concerning the mean expected value of the book supported the governance costs hypothesis. In terms of the mean expected value, sellers acquired the highest expected value given a weak-solidarity relationship with the buyer at intermediate levels of transaction specificity. Likewise in terms of the number of potentially profitable transactions per condition, the weak-solidarity relationship outperformed the opportunistic or the strong-solidarity relationships conditions, as was predicted by the volume hypothesis. This result was further confirmed when the expected gains for the profitable transaction were aggregated per solidarity relationship. Sellers in the
weak-solidarity relationship acquired a higher general level of aggregated expected gain compared to the other relationships. Only when the transaction specificity of the investment was almost completely eradicated, did sellers in an opportunistic relationship acquire a higher level of aggregated gain. These results supported both hypotheses.

7.7 DISCUSSION

This study focussed on the combination of two opposite effects of solidarity. On the one hand, solidarity affects economic transactions through increasing costs in terms of forfeited profit. On the other hand, solidarity enables the seller to avoid certain transaction costs in order to control and coordinate the transaction. Both effects were combined in the governance costs hypothesis. The results confirmed that the combination of the transaction cost and solidarity cost -the governance costs- is the least in the weak-solidarity relationship, in which gain-seeking is the dominant principle but is mitigated by the indirect effect of solidarity. This effect proved to hold true for all but the most extreme conditions which were close to certainty and extreme risk. The seller in the opportunistic relationship was able to get more out of the transaction only when the transaction specificity of the investment was almost non-existent. In the extremely high-risk domain, the seller in the strong-solidarity relationship yielded the highest expected value.

Support was also found for the volume hypothesis in which a larger number of potentially profitable transactions were predicted on an aggregated level for transactions in a weak-solidarity relationship. The results showed that, in general, sellers generated a larger number of profitable transactions if they had a weak-solidarity relationship with the buyer. Further confirmation was found in terms of the aggregated expected gain of the profitable transactions. Sellers in the weak-solidarity relationship obtained a higher level of aggregated expected gain than in the opportunistic and strong-solidarity relationships, given intermediate levels of transaction specificity.

The confirmation of both hypotheses shows that solidarity in transactions can have a relevant economic impact. However, the beneficial effect of solidarity is not straightforward. According to the solidarity theory, solidarity primarily has such beneficial effects if it affects in a gain frame, not when it is the frame itself. The study reported here showed that investing in
weak-solidarity as part of a governance structure for transactions under uncertainty makes economic sense for the seller.

APPENDIX C

The intersection in terms of the residual value is calculated at the group level by the following equation:

\[
(Selling\ Price(i) \times Selling\ Probability(i)) + (Residual\ value \times (1-Selling\ Probability(i))) = \\
(Selling\ Price(j) \times Selling\ Probability(j)) + (Residual\ value \times (1-Selling\ Probability(j)))
\]

in which the intersection point expressed in terms of the residual value is the unknown parameter in guilders (the relative transaction specificity is specified in brackets). The indices i en j refer to the seller in an opportunistic, a weak-solidarity, or a strong-solidarity relationship (i not equal to j). Thus, if i = opportunistic and j = weak-solidarity the equation results in the intersection point:

\[
(30.51) + RV(.45) = (35.25) + RV(.32) \Rightarrow RV = 4.74/1.14 = fl.34.42 (1\%),
\]

if i = opportunistic and j = strong-solidarity:

\[
(30.51) + RV(.45) = (36.26) + RV(.09) \Rightarrow RV = 5.75/3.8 = fl.15.28 (57\%),
\]

if i = weak-solidarity and j = strong-solidarity:

\[
(35.25) + RV(.32) = (36.26) + RV(.09) \Rightarrow RV = 1.01/2.4 = fl. 4.20 (89\%),
\]

mean intersection: fl. 17.97 (49\%).