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UNCERTAINTY IN COOPERATION BETWEEN SERVICE BUYERS AND SELLERS

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ABSTRACT

The realization of relationship marketing requires cooperative exchange between buyers and sellers. A key determinant of cooperative exchange is uncertainty perceived by the cooperating parties. This study investigates how cooperation is affected by decision makers’ perception of uncertainties in the environmental context, in relationships, and in decision-making routines. A sample of 135 branch managers from banks is used in a LISREL model. The results show that uncertainty regarding relationship and decision-making have strong direct effects on relationship cooperation. An important finding is that contextual uncertainty causes relationship cooperation indirectly. The results highlight the importance of organization in firms that aim to facilitate cooperation between buyer and seller. In addition, they set an agenda for future research.

INTRODUCTION

The last decade has witnessed a growing research on relationship marketing (Morgan & Hunt 1994) and networks in marketing (Iacobucci 1996; Iacobucci & Hopkins 1992; Reingen & Kernan 1986). The importance of relationship building and cooperation with customers has been highlighted by Alter and Hage (1993), Anderson and Narus (1990), Anderson and Weitz (1992), Axelrod (1984), Håkanson (1989), Morgan and Hunt (1994), Sheth and Parvatiyar (1995), Weitz and Jap (1995), and Wind (1982). In order to promote cooperation with buyers and reduce uncertainty, marketers find ways to adapt to the needs of the specific customer (Hallén, Johanson & Seyed-Mohamed 1991). Such adaptation brings forth internal structures and resources of the firm as important. In marketing, despite the fact that much effort has been devoted to study of customer-firm relations, little has been devoted specifically to the analysis of the management of a firm’s organization in order to facilitate cooperation with customer (Berry 1995; Lengnick-Hall 1996). This is surprising considering that a fundamental thought of marketing is management of cooperation between the service-selling firm and the client. This is illustrated in key marketing concepts, such as interactive marketing, the customer as part time employee, relationship development, and minimizing customer-supplying firm gaps (Bitner 1995; Grönroos 1983; Zeithaml et al. 1988).
Marketing literature has long accepted that uncertainty affects marketing transactions and cooperation between firms (Achrol, Reve & Stern 1983; Achrol & Stern 1988; Frazier 1988; Celly and Frazier 1996). An important issue in this respect concerns the impact of this uncertainty on buyer-seller cooperation, though the effects of uncertainty on buyer-seller cooperation have not been adequately investigated and modelled. The purpose of this paper is to investigate the relationship between managers’ perceived uncertainty and their cooperation with clients. To fulfil this purpose, we argue in favor of a distinction between contextual uncertainty, relationship uncertainty, and decision-making uncertainty, and construct a model to assess their effect on seller-client cooperation. These three dimensions of uncertainty correspond to the levels of environment, dyadic exchange relationship and individual firm, respectively. In the past, researchers in marketing have not modelled the relationships between uncertainty and buyer-seller cooperation precisely. Håkansson, Johanson and Wootz (1976), for example, distinguish between need uncertainty, transaction uncertainty and market uncertainty. Similarly, Håkansson and Wootz (1975) study uncertainty in buyer-seller supply exchange. In both of these studies, a case method was used. Neither estimate the relationship between the various components of uncertainty, nor do they specifically model the relationship between uncertainty and buyer-seller cooperation. Other researchers have also discussed the issue of uncertainty in buyer-seller cooperation. In a recent study, Das and Teng (1996) look at cooperative agreements and develop a number of propositions concerning the effects of uncertainty on cooperative agreements in general. They do not test these propositions. Also authors on strategic alliances have pointed out the importance of uncertainty in cooperative agreements between two or more independent firms (Gulati 1995; Parkhe 1991; Ring & Van de Ven 1994).¹ Here too, the researchers do not explicitly model the relationship between uncertainty and cooperative exchange. To our knowledge, no quantitative analysis has been made.

The focus of this paper is on cooperation as perceived by the decision makers. The decision makers in firms decide when, where and how a company’s

¹Uncertainty has also been studied in the field of economics (Knight 1921). MacCrimmon and Wehrung (1986)
resources are to be invested. Consequently, decision makers’ perceptions of how uncertainty affects the cooperation in which their firm takes part, and the depth, timing and scope of this cooperation. For example, the perception of uncertainty in a cooperation affects governance devices used in cooperation (Williamson, 1975, 1985). Studies based on an interaction approach to marketing have also emphasized the importance of the perceptions held by decision makers (Håkansson 1982). In seller-buyer exchange, Ford (1984) found a significant relationship between perceived technical and commercial skills and client commitment.

This paper starts off with a discussion of buyer-seller cooperation, and then goes on to specify the relationship between uncertainty and cooperation. Four hypotheses are developed, whereupon our arguments are tested in a structural LISREL model based on a sample of 135 branch managers of banks. Following this, the results are discussed and conclusions are drawn.

BUYER-SELLER COOPERATION AND UNCERTAINTY

In business studies, within the framework of social exchange theory (Blau 1964; Emerson 1972; Cook 1988; Thibaut & Kelley 1959), parties have been found to cooperate in pursuit of rewards, and/or to coordinate shared activities (Contractor & Lorange 1988; Ring & Van de Ven 1992; Axelrod 1984). Pursuit of resources may be seen as the overriding goal of cooperation, and coordination of activities as falling under cooperation. Empirical findings support the suggestion that cooperative business relationships are profitable (Axelrod 1984; Blankenburg Holm et al. 1996; Kalwani & Narayandes 1995; Lee & Beamish 1995; Zajac & Olsen 1993). Such cooperative relationships have been observed to develop over long periods of time, and mutual adaptation taking place between parties (Carlton 1986; Håkanson 1982; Levinthal & Fichman 1988; Hallén 1986). This may include adaptations in tangible and non-tangible assets, such as technical skills and know-how, as well as adjustment of routines and workflow integration (Zajac & Olsen 1993). A seller firm may, for
example, design a specific delivery system to suit the needs of a particular client. Such adaptation evolves over time as buyers and sellers accumulate knowledge about one another’s resources, expectations, and requirements. To conclude, cooperation can be said to involve a cognitive dimension of understanding between the parties, and a physical dimension of adaptation and coordination of activities between parties (Alter & Hage 1993).

Since the cost (time and effort) of governing the cooperation is reduced, adaptations in cooperative relationships may improve the efficiency of transactions. Consequently, there will be little need for the evolution of separate structures to negotiate, govern, and monitor the cooperation. When parties cooperate, they develop expectations concerning the motivations and resource investments of the counterpart as well as of their own firm. However, the knowledge held by the cooperating partners is imperfect. They are only marginally aware of the precise nature of one another’s expectations and needs (Kotter 1973), and the expected outcome of cooperation varies in its degree of explicitness (Ring & Van de Ven, 1994). The parties try to mitigate the discrepancy caused by varying expectations and need for resources by estimating the level of uncertainty and the extent to which to commit to the counterpart in the cooperation. In time, as cooperation is implemented and resources are invested, uncertainty may arise due to misunderstandings and mistakes made by one or both parties in the cooperation. In addition, during the course of implementing the agreement the expectations of the parties may change. Or, as decision makers act under bounded rationality, one of the exchange partners may come to realize that their firm does not possess the resources needed to materialize the goals of the cooperation. Furthermore, since exchange between two parties is connected to the exchange these parties have with other parties, cooperation may develop nicely in one relation, at the same time as being subject to unexpected effects from the surrounding network of connected relations (Blankenburg Holm et al. 1996; Iacobucci 1996).

As there is uncertainty regarding the future outcome, committing resources in interfirm cooperation is hazardous. Thus, we define “uncertainty” as a perceived gap between expected and actual future outcome. This is close to Cook and
Emerson’s definition, in which uncertainty “relates to the subjective probability of concluding a satisfactory transaction with any partner” (1983, p.13).

Parties form their perception of uncertainty in relationships with others in ongoing business relationships. Over time, through exchange with counterparts, decision makers accumulate knowledge that shapes their perception of how environment affects the cooperation between parties. These perceptions are antecedent to relationship exchange (Achrol, Reve & Stern 1983; Achrol & Stern 1988; Anderson et al. 1994; Heide 1994), and hold assumptions on aspects such as regulators, resources and technologies (Alter & Hage 1993; Aldrich 1978; Powell 1990; Gulati 1995; Das & Teng 1996). This we call contextual uncertainty, and define it as the accumulated experience of exchange interactions constituting an actor’s conception of the environment. Past experience of exchange is contextual, and accumulated experience of how exchange works in different contexts is what determines a decision maker’s perception of an environment and its associated uncertainty. The uncertainties unique to specific relationships are however also important. Inter-firm cooperation is exposed to uncertainty regarding the future behaviour of the counterparts (Parkhe 1993; Thomas & Trevino 1993), and the future outcome of the present cooperation. We call this relationship uncertainty. Lastly, a decision maker’s perception of uncertainty in a buyer-seller cooperation is influenced by a firm’s internal resources, structure, and routines, such as information collecting routines, internal procedures, and decision-making systems. Numerous authors have emphasized that management of the firm’s organization can mitigate uncertainty (Lawrence & Lorsch 1967; Peters & Waterman 1982). We call this decision-making uncertainty.

The above analysis has identified that the uncertainty perceived by decision makers in a buyer-seller cooperation stems from contextual, relationship and decision-making sources. The forms of uncertainty differ in that contextual uncertainty may be said to be a more aggregate and abstract accumulation of past experience, whereas decision-making uncertainty and relationship uncertainty focus on the handling of business problems within the firm as well as in customer cooperation. We
now go on to hypothesize the effect of each of these uncertainties on buyer-seller cooperation.

**CONTEXTUAL UNCERTAINTY AND COOPERATION**

It has been found that environmental or contextual factors affect decision making (Håkansson 1982; Kotler 1991; Porter 1980; Theorelli 1980), and also that buyers and sellers perceive the environmental context as something that affects their cooperation with partners (Achrol, Reve & Stern 1983; Achrol & Stern 1988; Heide 1994; Leblebici & Salancik 1981). Due to human cognitive limitations, it is not possible to perceive the full environment, rather decision makers have a bounded rationality and tend to act on the limited knowledge that they possess. A concept that captures these human limitations is perceived environmental uncertainty, which is based on actors interacting with their environment in order to gain feedback on the adequacy of their cognition. Lawrence (1981) identifies two dimensions of environmental uncertainty: unpredictability, meaning the rate of change and causal relatedness of environmental events; and complexity, meaning the heterogeneity and interdependence of environmental factors. The more volatile the environment, the more uncertainty decision makers are confronted with. Rapidly evolving changes in competition and technology may result in turbulent environments. This turbulence may be generated by institutional actors, such as governments, or by the actions of individual commercial actors. During the previous decade, for example, the Swedish banking industry experienced a turbulent environment when the industry was deregulated and new actors entered the Swedish financial market (Engwall 1984; 1985; Bergström 1994; Eriksson 1996). Competitive pressure increased, but the new competitive situation led to the introduction of new practices in lending and marketing, which later led to heavy losses. The bankers’ past experience of a stable environment had thus accumulated to form a contextual uncertainty inadequate for the deregulated and rapidly changing market conditions.
In light of the above, our first conclusion is that environmental uncertainty perceived by decision makers is based on prior exchange experiences. Ford (1986), Zeithaml, Berry, and Parasuraman (1988) thus concluded that buyers relate their current purchase deliberations to experience from the past. Secondly, we conclude that prior experience of exchange is also the basis for the decision makers’ perception of the conditions for exchange within the wider context of exchange/networks with buyers (Andersson, Håkansson, Johanson, 1994). The more inadequate decision makers in the selling firm perceive their cognition of the environment in the decision situation facing them, the higher the environmental uncertainty perceived. Decision makers will thus be either less willing to invest resources in the cooperation or will limit the amount of resources invested in the cooperation. On the other hand, we expect a lower level of perceived contextual uncertainty to make a manager more willing to cooperate with customers. The seller will be more willing to develop cooperation with the buyer and invest resources in the cooperation.

Hypothesis 1: The lower the perceived contextual uncertainty, the higher the cooperation between seller and buyer.

RELATIONSHIP UNCERTAINTY AND COOPERATION

Partners in cooperation are exposed to relational uncertainty. The sources of relationship uncertainty are two. First, the cooperating partners are independent, and the partners’ intentions concerning the relationship only partly overlapping. The cooperating parties may not be fully aware of the goals of the counterpart. Second, the resources within the cooperating firms are different. This is because development of resources within firms is a historic and path-dependent process (Barney 1986; 1996; Petrof 1993; Mahoney & Pandian 1992; North 1991). As firms operate at different times in different environments, they accumulate different types of experience and resources. Even within a single industry the differences between firms, their resources and strategies vary greatly (Rumelt 1974). But neither partner is fully aware of the
resources of the counterpart (Winter 1987). Thomas and Trevino (1993) argue that written contracts may supply information to the cooperating partners, but even this fails to reduce uncertainty. Indeed, even within firms, decision makers are only imperfectly informed of the resources of the firm (Nelson & Winter 1981). This means that cooperating with the counterpart is surrounded by uncertainty, and intentions may not always translate into actions.

Relationship uncertainty is reduced when two cooperating parties commit resources and adapt to one another (Cook & Emerson 1984). Resource commitment that leads to adaptation eases transactions between the partners by creating a match between buyers and sellers (Hallén et al. 1991). The adaptations made are specific to a counterpart and entail a switching cost. The specific nature of these adaptations make them a sunk cost as alternative uses of the same resources are either non-existing or limited (Anderson & Weitz, 1992). The redeployment of transaction-specific resources is inefficient. Adaptation stabilizes exchange and permits the exchange partners to reward and punish each other (Heide & Miner, 1992), and improve financial performance (Heide & John 1988). Through adaptation, expectations of reciprocity are created and the future casts a shadow on the present behaviour of the exchange partners. Adaptation involves the deployment of physical and human resources dedicated to a specific exchange relationship. One example is where a bank manager expects consistency in a client’s behaviour, for instance, that the client be loyal to the bank. This may entail guaranteeing services to be purchased in future at a fixed price. Non-recoverable investments entail investment in the form of training people for a specific task. Non-recoverable investments are made in advance of the exchange. Although adaptations have a temporal dimension and involve consistency in behaviour, there is still a degree of uncertainty in the transaction. Uncertainty evolves because buyers and sellers lack knowledge on the precise nature of the product/services required by the counterpart, or the precise nature of the adaptations a particular client will need in the delivery system. This lack of knowledge may concern either the nature and scope of adaptation or its timing, or both.
Relationship uncertainty is high if exchange relations are unbalanced. Uncertainty is an important factor in cooperation, and a more committed party in the exchange is vulnerable to opportunism (Gundlach, Achrol & Mentzer, 1995). Such opportunistic behaviour may include calculated efforts to mislead and distort, or less than full disclosure of facts. This could be a rational and well thought-out decision as one partner in the cooperation tries to make gains at the expense of the counterpart. Opportunistic behaviour may also occur if a counterpart forces renegotiation of the original cooperative agreement to further his own gains. Decision makers are also exposed to outcome-related uncertainty. Since the future is unknown, the outcome of a course of action is uncertain. Even if an exchange partner behaves in the manner promised and commits all the resources as promised, the future outcome remains uncertain. The future outcome of a particular course of action is partly contingent on the actions of the other network connections in the environment.

Written contracts are only partly helpful in reducing relational uncertainties. Firstly, due to the bound rationality, ex ante, decision makers are not in a position to specify all future contingencies. Secondly, reliance on classical contract laws to enforce formal contracts is both time- and resource-consuming (Macneil 1974; 1980). Resorting to legal contracts does not remove all uncertainty from transactions (Frazier & Summers, 1984; Gundlach & Murphy, 1993; Macaulay, 1963; Macneil, 1980; Palay, 1985). Conventional contract law is efficient in singular and discrete transactions. For repeated transactions and transactions lasting for a long time, this contract law is not efficient. Van de Ven and Walker (1984) find that excessive formalization of the terms of exchange in inter-firm cooperative agreements results in conflicts.

For these reasons, we hypothesize that reduced relationship uncertainty increases cooperation between buyers and sellers.

Hypothesis 2a: The lower the perceived relationship uncertainty, the higher the cooperation between buyer and seller.
Relationship uncertainty is however also affected by the perceived contextual uncertainty. The decision maker’s perception of unpredictability and complexity of the environmental context represents beliefs about the mechanisms in a firm - environment interface. Such beliefs constitute the framework for assessment of the evolution of buyer-seller cooperation. Thus, it is expected that contextual uncertainty defines relationship uncertainty. Rosson (1986), for example, reported that the environmental factors of hard economic climate and adverse economic conditions had a negative effect on dyadic manufacturer-exporter cooperation. We hypothesize that lower perceived contextual uncertainty leads to lower perceived relationship uncertainty.

Hypothesis 2b: The lower the perceived contextual uncertainty, the lower the perceived relationship uncertainty in buyer-seller cooperation.

DECISION-MAKING UNCERTAINTY AND BUYER-SELLER COOPERATION

The uncertainty perceptions of decision makers in a cooperation is shaped by the internal resources, structure and routines in a firm. Business strategy literature emphasizes the significance of assessing the strength and weaknesses of a firm when developing its marketing strategy (Porter 1980). The literature also emphasizes the importance of resources and organization of firms for success. Prahalad and Hamel (1990), for example, view the performance of a firm as a result of the superior resources it possesses. Cunningham and Home (1986) emphasize the importance of organizational structure and coordination in buyer-seller cooperation. A firm’s resources, such as decision-making routines, processes and structures, assist decision makers in collecting and interpreting information, and making decisions (Cyert & March, 1963; Nelson & Winter 1982; Simon, 1945). Decision makers’ perception of a decision situation is determined by the internal factors of a firm, such as the dynamics
of social interaction in the work group (Schein 1965), organizational culture (Schein 1985), technology (Thompson 1967), or merely myths that are taken for granted (Meyer & Rowan 1977). As pointed out earlier, a firm’s resources, such as organizational routines, structures, and decision-making processes emerge from path-dependent processes unique to the firm. Consequently, organizational routines, structures and processes heavily influence perceptions held by the decision makers concerning the match between the needs and capabilities of the buyer and seller, and the uncertainty perceived in a particular cooperation. However, as stated earlier, much of a firm’s resources are soft in nature, and managers frequently lack full knowledge of these resources. Decisions may often be based on beliefs rather than on knowledge. Consequently, as March and Olsen (1976) argue, there is uncertainty in situations where there is a choice. The more familiar a decision maker is with the nature and amount of resources in his firm, the more confident he will be in a decision situation. The lower the perceived decision-making uncertainty in a cooperative situation, the higher the cooperation.

Hypothesis 3a: The lower the perceived decision-making uncertainty, the higher the cooperation between buyer and seller.

In addition, we expect decision-making uncertainty to be affected by contextual uncertainty. Galbraith (1973) views uncertainty as a gap between the information required to perform a work task, and the information available in the organization. Organizations in which decision makers work adapt to their conditions (Lawrence & Dyer, 1981) and continuously make sense of their situation (Weick 1969). But making sense of a situation often requires advanced learning processes that are difficult to acquire (Argyris & Schön 19xx). The more uncertain environmental conditions are, the more difficult and resource-consuming is it for a firm to adapt to its external context.

Contextual uncertainty was earlier defined as the accumulated exchange experiences of a decision maker. This experience may also be passed on from one
generation of decision makers to another in a socialization process (Zucker 1988). Regardless of how it is acquired, a firm’s current stock of knowledge on exchange relations is the basis for its future assessment of cooperative buyer-seller exchange. Consequently, in less uncertain environments with low complexity and high predictability, decision makers perceive their current routines, processes and structures to be adequate for reaching decisions on cooperating with a particular counterpart. We expect lower perceived contextual uncertainty to lead to lower perceived decision-making uncertainty.

Hypothesis 3b. The lower the perceived contextual uncertainty, the lower the decision-making uncertainty in a buyer and seller cooperation.

A MODEL OF COOPERATION AND UNCERTAINTY

Hypotheses 1 through 3b are combined into a structural model in Figure 1. The argumentation above suggests that less contextual uncertainty leads to more buyer and seller cooperation (arrow 1 in Figure 1), but also to less relationship uncertainty (2b) and less decision-making uncertainty (3b). The latter two, in turn, affect relationship cooperation (2a and 3a). The entire model may be viewed as an additional hypothesis, since we expect all hypotheses to combine into a unified model. The implications of such reasoning are that all of the hypotheses are interrelated. For instance, through the mediating variables of relationship uncertainty and decision-making uncertainty, contextual uncertainty affects relationship cooperation.
Figure 1. Structural Model of Relations between Perceived Environmental Uncertainty, Individual Routines, Organizational Routines, and Relationship Adaptation.

DATA AND METHOD

Data was gathered by means of a questionnaire despatched to 145 branch managers of Swedish banks. The response rate was 95%, and the number of missing values is 0. The high response rate was due to the project receiving an enthusiastic response from the banks’ top management. The branch managers were selected from the four largest bank groups in Sweden. Together, these banks comprise approximately 3/4 of the Swedish bank market. All of the banks are universal banks, but their customer bases differ in that two have a larger share of corporate customers, and two a larger share of individual clients.

The sample of branches in this study were selected according to how centrally located they were, in the Stockholm area, an urban region with a population of 2 million. Stockholm was selected as it is comparable to most mid-sized urban areas.
of the industrialized market economies. Almost all branches of each of the four banks’ Stockholm organizations were included in the study. The sample contains no deliberate selection of market segments or branch size. On a question pertaining to the size of the branch’s customer base, 87% of the respondents stated that the branch had a mid-range (4 on a 7-point scale ranging, where 1 is low) or larger volume of retail clients. The volume of corporate clients was stated as mid-range (4) or larger by 62% of respondents.

Our research design focuses on the perception of branch managers in the responding banks. The branch managers had a well developed knowledge of customer relations in their market, which is the reason we selected them. We designed four groups of variables to capture the bank managers’ perception of environmental uncertainty, relationship uncertainty, decision-making uncertainty, and cooperation with customers. We chose subjective measures because when studying uncertainty in a local bank market, Leblebici and Salancik (1981) found that objective measures of uncertainty, such as volatility measured as the share of bankruptcies, had little relation to bank managers’ perception of environmental uncertainty.

The statistical method used is LISREL (Jöreskog & Sörbom 1993), which is a structural relations technique that has been applied successfully in the field of social sciences in general (Bollen 1988; Hayduk 1987; Jöreskog & Sörbom 1993; Jaccard & Wan 1996).

Structural relations are derived in two steps (Anderson & Gerbing 1988). First, indicators are bundled into latent variables, which are intermediate variables at the construct level. In the following, we will label latent variables as constructs. A construct represents the underlying commonalities of its indicators. The second step in deriving structural relations is to define the causalities between the constructs.

The validity of a structural model is also assessed in a two-step procedure. First, a measurement model of constructs, without causal relations between constructs, is tested for three key validity dimensions. These dimensions are: convergent validity, which refers to the homogeneity of constructs; discriminant validity, which refers to the extent of separation between constructs; and finally, nomological validity, which
refers to the validity of the entire model. When the validity of the measurement model has been assessed, the procedure is then repeated for the structural model with causal relations between latent variables.

The designers of LISREL suggest a number of key statistical values to be used in validity assessment. To assess convergent and discriminant validity, they suggest the use of factor loadings, t-values and R2 values (Jöreskog & Sörbom 1993, pp. 5,9,121). Each relation’s values are investigated, and all should be good to support convergent validity and discriminant validity. Nomological validity is investigated by $\chi^2$ and degree of freedom, which measures distance between data and model, and a probability value, which is a test of a non-significant distance between data and model (Jöreskog & Sörbom 1993: 120-128). There is ongoing discussion regarding what measures should be chosen for assessment of nomological validity (Bollen & Long 1993), but as Jöreskog and Sörbom (1993, pp. 121-122) point out, all the other measures suggested are also functions of $\chi^2$.

From a technical viewpoint, we recall that an ordinary linear regression yields a correlation coefficient and an error term. LISREL uses the two, correlation coefficients and error terms, as independent sources of information on co-variation in a set of data. In comparison with traditional linear regression, this gives a “truer” representation of the variation of variables (Lord & Novik 1967; Jöreskog & Sörbom 1993). The extended co-variation information is a base, from which LISREL derives structural relations models.

The potential of LISREL-based studies is better achieved if the empirical investigation itself is designed for the purpose of being treated with LISREL. To a certain extent, LISREL-based empirical research designs coincide with those of most other methodology such as getting a good response rate, easily understandable questions, uniform scaling, and indicators that are conceptually well founded. To our knowledge, there is no published analysis of the distinctive traits of the LISREL-based empirical research design. Perhaps this is because the experience gained by researchers using LISREL is difficult to codify systematically. As a starting point for further development of how to make LISREL-adjusted empirical research, we propose a focus
on the level of aggregation of the questions and the causal relationship. A questionnaire can be effectively developed along these two dimensions. The level of aggregation should be specified as relevant to the purposes of the study. Examples of pairs of end points on a level of aggregation is individual-collective, specific-general, or business unit-firm. The causal relationships between independent and dependent variables in a questionnaire should also be specified to suit the research purposes. Such specification may be achieved through design of a questionnaire in structure, process, and outcome questions, with the purpose of analyzing whether structure causes process causes outcome.

**CONSTRUCT VALIDITY**

To assess construct validity, we first made a measurement model. The entire measurement model is nomologically valid since the $\chi^2$ is 57.74, with 48 degrees of freedom, at a probability of 0.16. Correlation between latent variables shows that no pair is unidimensional, which means that our constructs are discriminantly valid.

Convergent validity is assessed by analyzing the indicators and their respective constructs as displayed in Table 1. We chose to analyze the key statistical estimates as they appear in our resulting structural model in Figure 2. This has been done mainly for pedagogical reasons, since there is little difference between the figures in the measurement and structural model as far as convergent validity is concerned.

Contextual uncertainty is operationalized as three indicators concerning the possibility to: 1) forecast changes in information that will affect cooperation, 2) obtain information relevant to cooperation, and 3) obtain a clear picture of how information affects cooperation. The reason for choosing information as a key variable to operationalize environmental uncertainty is that information is a crucial input in bank service production and supply. Also, Galbraith (1973, 1994) argues that information processing is the key determinant of organizational behaviour. The key statistical values in Table 1 suggest good convergent validity of our construct, with t-values well above 1.96, R2 values well above 0.20, and high factor loadings.
Decision-making uncertainty is operationalized in three indicators of the support the decision maker perceives to receive in a decision situation. The dimensions of support include work routines, the bank’s organization, and other employees. The convergent validity of our organizational support construct is supported by t-values well above 1.96, R2 values above 0.20, and high factor loadings.

Relationship uncertainty is operationalized in three dimensions suggested by MacCrimmon and Wehrung (1986). These include the ability to assess the magnitude, probability, and exposure to a potential loss. The key statistical values show t-values above 1.96, and two slightly - but not alarmingly - low R2 values. However, since the factor loadings and t-values for this construct are acceptable, and because of conceptual relevance, we have chosen to retain the indicators with low R2 values. The results show however that the probability of loss is a more valid indicator for the relationship uncertainty construct in the context of the present structural model.

Relationship cooperation’s three indicators are: 1) the customer’s contribution to establishment and development of the bank - customer relations, 2) the bank’s contribution to establishment and development of customer relations, and 3) the extent of mutual adaptation between bank and customer. Convergent validity is supported by t-values and factor loadings, while one R2 value is a bit low. This R2 value for customer contribution to adaptation between bank and customer is 0.16, which is somewhat below the recommended value of 0.20. However, on conceptual grounds we have chosen to retain this indicator with the construct. It is important, as it is the only indicator concerning customer contribution to bank-customer adaptation. The low R2 value may be attributed to the fact that we here asked the bank manager for his perception of customer behaviour, whereas the other two indicators relate specifically to the bank manager’s own behaviour.
### Table 1. The Constructs and their Indicators.

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Abbreviation</th>
<th>Factor Loading</th>
<th>t-value</th>
<th>R2 value</th>
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<tr>
<td><strong>Contextual Uncertainty</strong></td>
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<td>Heading: The following questions are general, where I want you to analyze</td>
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<td>the information you use in your own work situation.</td>
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<tr>
<td>The possibility to forecast changes in information that will affect</td>
<td>FORE</td>
<td>0.55</td>
<td>6.43</td>
<td>0.30</td>
</tr>
<tr>
<td>your work tasks is: &lt;low-high&gt;</td>
<td></td>
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<tr>
<td>The possibility to obtain information that is relevant to your work tasks</td>
<td>OBTI</td>
<td>0.73</td>
<td>8.91</td>
<td>0.54</td>
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<tr>
<td>is: &lt;low-high&gt;</td>
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<tr>
<td>The possibility to obtain clear pictures of how information affects your</td>
<td>OBTP</td>
<td>0.93</td>
<td>11.76</td>
<td>0.86</td>
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<td>work tasks is: &lt;low-high&gt;</td>
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<td><strong>Decision-making Uncertainty</strong></td>
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<tr>
<td>Heading: Think of a decision situation that you consider representative</td>
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<td>for your work and answer the questions below with this situation in mind.</td>
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<tr>
<td>Do you get support from existing routines in decision situations?</td>
<td>ROUT</td>
<td>0.77</td>
<td>7.65</td>
<td>0.59</td>
</tr>
<tr>
<td>Do you get support from your banks organisation in decision making?</td>
<td>ORG</td>
<td>0.77</td>
<td>6.98</td>
<td>0.45</td>
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<tr>
<td>Do you get support from other bank employees in decision making?</td>
<td>EMPL</td>
<td>0.46</td>
<td>4.76</td>
<td>0.21</td>
</tr>
<tr>
<td><strong>Relationship Uncertainty</strong></td>
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<tr>
<td>Heading: Risk can be discussed by relating it to the potential of loss.</td>
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<tr>
<td>Judge the questions below with respect to your own work situation.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Possibility to assess the magnitude of a potential loss is:</td>
<td>MAGN</td>
<td>0.41</td>
<td>4.09</td>
<td>0.17</td>
</tr>
<tr>
<td>The Possibility to assess the probability of a potential loss is:</td>
<td>PROB</td>
<td>0.83</td>
<td>5.76</td>
<td>0.69</td>
</tr>
<tr>
<td>The Possibility to assess the exposure to a potential loss is:</td>
<td>EXPO</td>
<td>0.39</td>
<td>3.93</td>
<td>0.16</td>
</tr>
<tr>
<td><strong>Relationship Cooperation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heading: The following questions concern your customer relations.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Answer the questions with respect to your own experience!</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How much does the customer contribute to establish and develop bank -</td>
<td>CCOOP</td>
<td>0.40</td>
<td>3.38</td>
<td>0.16</td>
</tr>
<tr>
<td>customer relations by asking for new services, point to needs etc.?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>How much does the bank contribute to establish and develop bank -</td>
<td>FCOOP</td>
<td>0.61</td>
<td>4.26</td>
<td>0.37</td>
</tr>
<tr>
<td>customer relations by asking for new services, point to needs etc.?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is there much or little mutual adaptation between customer and bank,</td>
<td>MCOOP</td>
<td>0.59</td>
<td>4.23</td>
<td>0.34</td>
</tr>
<tr>
<td>for instance so that you get to know each other, adapt routines and/or</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>technical solutions?</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**RESULTS**
The results of the statistical analysis are shown in Figure 2. The model is nomologically valid since $\chi^2$ is 58.68, with 50 degrees of freedom, at a probability of 0.19. All t-values are above 2.33, and all R2 values (except for the three indicators previously discussed in the construct validity section) are above 0.21. Since the key statistical estimates are good, we may continue to discuss the results in detail. It is often the case that structural models need to be modified to become acceptable. This model did not need modification, which is a considerable advantage since it is "a widespread misuse of structural equations modeling to include correlated error terms." (Jöreskog & Sörbom 1993, p.113)

The results in Figure 2 show that contextual uncertainty has positive relations to both decision-making uncertainty (0.48) and relationship uncertainty (0.45), thus supporting hypotheses 2b and 3b. The results also show that decision-making uncertainty (0.56) and relationship uncertainty (0.34) have positive effect on buyer and seller cooperation, which supports hypotheses 2a and 3a, and that the strength of the causalities from contextual uncertainty to relationship uncertainty and decision-making uncertainty are more or less equally large. Decision-making uncertainty has a stronger causal effect on cooperation than does relationship uncertainty, though both effects are strong.

The direct causal link form contextual uncertainty to relationship cooperation is not significant (0.14(0.95)), and thus does not support hypothesis 1. Instead of a direct causal relation, we found an indirect effect from contextual uncertainty, via relationship and decision-making uncertainty, to buyer-seller cooperation. This indirect effect is strong, with a coefficient of 0.43, and a t-value of 3.16. In fact, even with a direct causal link, the effect from contextual uncertainty to cooperation was disseminated through relationship and decision-making uncertainty. Thus, one result is that the effect of contextual uncertainty on buyer-seller cooperation is mediated through relationship and decision-making uncertainty.

To further investigate this finding, we made a model with only contextual uncertainty affecting cooperation. This model showed contextual uncertainty to affect
cooperation with a coefficient of 0.50 (3.55). This additional result supports the claim that contextual uncertainty has an effect on cooperation.

**Figure 2. Structure of the LISREL Model.**

Model statistics: $\chi^2$ is 58.68 with 50 degrees of freedom, at a probability of 0.19. Figures are factor loadings followed by t-values in parentheses.

**CONCLUSIONS**
In this article, we have argued that buyer-seller cooperation is affected by three types of uncertainty, i.e., contextual uncertainty, decision-making uncertainty, and relationship uncertainty. Five hypotheses were developed, and a structural model was designed and tested empirically. Based on the results of this study, we conclude that buyer-seller cooperation is strongly influenced by relationship uncertainty and decision-making uncertainty in the selling firm. We also conclude that contextual uncertainty has a strong influence on buyer-seller cooperation, though that this influence is indirect and mediated through relationship uncertainty and decision-making uncertainty. Our analysis shows that buyer-seller cooperation should be considered in the wider context of the management of a firm’s marketing activities. This is consistent with the prevailing view in marketing literature (Grönroos 1995; Berry 1995).

The results add to the research on relationship management by explicating how buyer-seller cooperation needs to be managed. For instance, our analysis shows that the effects of contextual uncertainty are mediated through decision-making and relationship uncertainties. This means that contextual uncertainty is included by the cooperating firms in the assessment of decision-making and relationship uncertainties. We stated earlier that contextual uncertainty is based on the accumulated experience of past relationships, while relationship uncertainty and decision-making uncertainty are more closely related to present action. Future research should thus investigate the effect of uncertainty dimensions relating more to present action on buyer-seller cooperation. Furthermore, the above findings imply that decision environments do not exist in isolation, but must be considered in their market contexts. The assessment of environment is based on the specific decision situations that firms are faced with. This finding supports the view of market network researchers (Anderson et al. 1994). A firm’s perception of environment is based on experience of specific transaction situations. Assessment of the environmental effects on buyer-seller cooperation is thereby based on specific decision situations and specific cooperating partners. To further clarify the link between a firm’s accumulated experience and present actions, marketing researchers could turn to research on learning (Argyris & Schon 1978;
Levinthal & March 1993). Research on buyer-seller cooperation would benefit from treating firms as learning entities.

As mentioned earlier, contextual uncertainty affects cooperation indirectly, through relationship and decision-making uncertainty. Further investigation in this area may include research into which components of accumulated experience affect which present action-related uncertainties. Clarifying the link between organizational context and the cooperation in buyer and seller firms can be accomplished through by drawing on organizational literature. This has been done in marketing studies of factors such as employee empowerment, work task characteristics, and organizational structure (Agarwal & Ramaswami 1993; Hartline & Ferrell 1996; Menon, Jaworski & Kohli 1997; Menon, Bharadwaj & Howell 1996). Some of the factors identified in these studies can be incorporated in a study of decision makers’ perception of uncertainties and cooperation between buyer and seller.

Broadening the implications from our results, we have increased the understanding of intrafirm cooperation. Such knowledge is vital to the strategy that evolves as firms attempt to capitalize on their competitive setting, or changes thereof. According to Lengnick-Hall (1996), the customer may take on the roles of: resource, co-producer, buyer, user and product. Future research could study the implications of the customer’s different roles in cooperation with the selling firm. If the customer is, e.g., a resource that provides information and assets, then cooperation with the customer adds to the selling firm those resources. The effectiveness of co-production with customers is dependent on the clarity of the task, and the customers ability and motivation to cooperate. Such issues can be handled in the processes of exchange that come to work in cooperation between the supplying firm and the customer. The customer as a buyer of new services is indirectly influenced by cooperation. The indirect effect of cooperation takes the form of greater knowledge of customer motives and needs, as well as the generation of factors such as trust that can encourage customers to initiate cooperation. The customer as a user of the product will perceive a certain satisfaction. This satisfaction may be defined in the cooperation between the customer and the firm, since the customer adapts his expectations and experiences of
the product to the seller’s production and delivery of the same. In effect, when the
exchange that takes place in cooperation alters both the customer’s and the firm’s
perception of each other, the customer himself becomes a product. Presumably, each
of the roles assumed by the customer discussed above has particular implications for
buyer-seller cooperation and uncertainty. Research could develop this.

One implication of our findings is that the cooperating buyer and seller
may act so as either to increase or decrease the decision maker’s perception of
uncertainty, thereby also influencing the “perceived distance” between the cooperating
firms and the scope and intensity of the cooperation. An important strategic issue for
both the buying and the selling firm in a cooperation is to decide whether there is need
to alter the decision makers’ perception of uncertainty in a venture. If a firm feels a
need to alter this perception of uncertainty, the issue is then whether it should be
reduced or increased. In either case, the partners in a cooperation may opt for one of
two strategies, the first being that one or both of the cooperating firms alter their
perception of uncertainty in their own firm, or, alternatively, alter the perception of
uncertainty in their counterpart, which also carries implications for their own firm.

The first strategy implies investment in improving and refining internal
organizational structure and decision-making routines, for example, through
improvement of the firm’s own information collection and interpretation routines.
Another approach to reducing the perception of uncertainty of the decision makers
would be to seek expert assistance and specialist advice, in which case, a firm may, for
example, hire specialist consultants to assist the decision maker.

The second strategy that may be used to alter the perception of uncertainty
and thereby the nature and the scope of cooperation between buyers and sellers, is to
invest resources in improving communication and information exchange between the
parties. These resources may include activities such as frequent face-to-face meetings
between buyers and sellers, or enlarging the contact surface (the number of people
involved in the exchange, the number of hierarchical levels involved, the number of
different functions involved, etc.) between buyers and sellers. A further implication
here is that buyers and sellers with a history of successful cooperation will find it
easier to cooperate than firms that are new to each other. Thus, perceived uncertainty will be lower in a re-buy situation than in a first-time buying situation. More research on the strategies used by firms to alter the perceptions of decision makers on uncertainty in buyer-seller cooperation is needed.

Our findings point out the direction for future research on the decision maker’s perception of the relation between environmental context and cooperation in relations. This agenda is to effect a deeper study of the relation between context and cooperation. This can be achieved by studying context and cooperation in more depth. For instance, cooperation may be viewed as being composed of physical coordination of activities and cognitive understanding of the relationship (cf. Alter & Hage 1993; Blankenburg Holm et al. 1996). Researchers can identify the roles of the components of cooperation, such as trust and dependence. Regardless of which dimension of the cooperation is studied, it should be linked to the contextual setting of the decision maker. Such contextual settings can be further defined by researchers.
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Appendix. Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>MAGN</th>
<th>PROB</th>
<th>EXPO</th>
<th>CCOOP</th>
<th>FCOOP</th>
<th>MCOOP</th>
<th>ROUT</th>
<th>ORG</th>
<th>EM</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAGN</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PROB</td>
<td>0.330</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXPO</td>
<td>0.245</td>
<td>0.330</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCOOP</td>
<td>0.088</td>
<td>0.075</td>
<td>-0.012</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FCOOP</td>
<td>0.001</td>
<td>0.300</td>
<td>0.020</td>
<td>0.208</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MCOOP</td>
<td>-0.026</td>
<td>0.256</td>
<td>-0.020</td>
<td>0.300</td>
<td>0.343</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ROUT</td>
<td>-0.004</td>
<td>0.145</td>
<td>0.074</td>
<td>0.166</td>
<td>0.311</td>
<td>0.216</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORG</td>
<td>-0.119</td>
<td>0.129</td>
<td>0.027</td>
<td>0.210</td>
<td>0.301</td>
<td>0.242</td>
<td>0.529</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>EMPL</td>
<td>-0.032</td>
<td>-0.011</td>
<td>0.025</td>
<td>0.222</td>
<td>0.110</td>
<td>0.176</td>
<td>0.395</td>
<td>0.222</td>
<td>1.0t</td>
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<tr>
<td>FORE</td>
<td>0.182</td>
<td>0.167</td>
<td>0.068</td>
<td>0.110</td>
<td>0.203</td>
<td>0.290</td>
<td>0.123</td>
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<td>OBTI</td>
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<td>0.275</td>
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<td>OBTP</td>
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<td>0.183</td>
<td>0.241</td>
<td>0.278</td>
<td>0.310</td>
<td>0.333</td>
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