

Case studies

An examination of the main factors affecting trust/commitment in supplier-dealer relationships: an empirical study of the Swedish wood industry

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Keywords

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Abstract

This research examines the importance of a set of underlying variables, such as willingness of the supplier to adapt to the dealer, built-up relationship bonds, costs of terminating the relationship, level of shared values, formal and informal communication between the participating parties, opportunistic behavior by the supplier and perceived level of satisfaction in the relationship, for achieving high trust and commitment within a supplier-dealer relationship. Data for the analysis are generated from 114 purchasing managers at Swedish lumber dealers, an industry where collaborative relationships are not very developed, but considered necessary for future success. Methodology is described and results are discussed. Concludes that companies trying to achieve high trust and commitment relationships, should create high satisfaction relationships, by decreasing their opportunistic behavior, adjusting to the needs of the other part, and developing shared values.

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1. Introduction

A trend during the 1990s has been the introduction of the relationship paradigm, a concept that encompasses relational contracting (MacNeil, 1980), relational marketing (Dwyer *et al.*, 1987), working partnerships (Anderson and Narus, 1990), collaborative relationship (Zineldin, 1998), strategic alliances (Day, 1990; Sherman, 1992) and competitive supply chains (e.g. Christopher, 1992; Bowersox, 1990).

Aggressive globalization and internationalization “emerging from the global village”, deregulation and elimination of physical, fiscal/financial and technical barriers, rapidly advanced scientific and technological innovations, economic turbulence and predictive uncertainty (McKenna, 1991; Faulkner, 1992) are some factors that underlie the importance of the emerging relationship paradigm of creating long-term relationships with customers and suppliers. The relationship paradigm refers to all activities directed toward establishing, developing, and maintaining successful relational exchanges (Morgan and Hunt, 1994). Increased global competitiveness demands increased collaborative relationships. Increased competitiveness, that has led to focus on core businesses and outsourcing of sub-processes, has made many companies aware of the importance of creating long-term collaborative relationships with their customers and suppliers. Creating a collaborative relationship with a supplier as a dominant mode of interaction is at odds with the traditional arms-length, almost adversarial, interaction between buyers and sellers (e.g. Guinipero and Brand, 1996), but concepts such as collaborative relationships are being accepted by both suppliers and customers.

There are several potential benefits of a long-term collaborative relationship (e.g. Ellram, 1991; Zineldin, 1998). Long-term suppliers, for example, are more interested in final customer needs. Mutual planning and exchange of information lead to faster adjustment to future plans. Mutual strategy development generates long-term competitive strength. Faster technology development is

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possible, when sharing technological knowledge. The collaborating parties are more willing to get involved in the other part's product design process, when collaborating. The business risk is shared between two parties. Information sharing can speed up flows and decrease tied-up capital. Stable relationships can lead to stable delivery prices. Empirical research shows numerous examples of successful long-term collaborative relationships (e.g. Landeros and Monczka, 1989; Lorange and Roos, 1991; Burt and Doyle, 1993). Especially those implementing supply chain management should develop good relations with channel members. Giunipero and Brand (1996), for example, empirically found that buying companies within a supply chain were strongly committed to sustain the relationships and develop future arrangements with the largest suppliers.

Several studies have shown that successful collaborative relationships rely on relational forms of exchange characterized by high levels of trust (Dwyer *et al.*, 1987; Morgan and Hunt, 1994; Ellram, 1995; Smeltzer, 1997). Ellram (1995), for instance, determined the average ratings of factors leading to inefficient partnership. Lack of trust was ranked by the buyers as the third highest out of 19 factors, while the suppliers ranked the lack of trust as the fourth highest factor. The high levels of trust characteristic of relational exchange enable parties to focus on the long-term benefits of the relationship (Ganesan, 1994; Doney and Cannon, 1997), ultimately enhancing competitiveness and reducing transaction costs (Noordewier *et al.*, 1990). The most profitable relationship, however, is often characterized by trust and positive conflicts, where the parties have an open dialogue about most decisions, and the conflicts lead, in the long-term, to shared values and policies (e.g. Moss, 1994).

Integrated distribution channels and supply chains are not only economic and technical systems, but also behavioral systems (e.g. Stern and Reve, 1980). The behavioral focus is oriented toward a sociopolitical perspective which includes dependence, cooperation and conflict (Skinner *et al.*, 1992). Past interorganizational studies have included cooperation in conceptual models (Frazier, 1983; Robicheaux and El-Ansary, 1975) and

have recognized cooperation as a necessary component in channel relationships commitment (Frazier and Rody, 1991). A cooperative business relationship grows over time as trust and commitment between business partners develop. Thus, the trust/commitment building process is a social exchange (Scanzoni, 1979). Social exchange relations evolve in a slow process, starting with minor transactions in which little trust is required because little risk is involved and in which both partners can prove their trustworthiness, enabling them to expand their relations and engage in major transactions (Blau, 1964). This description of social exchange gives a picture of the exchange as it takes place in business relationships.

Thus, we argue that trust and commitment are results of successful relationship marketing activities, behavior, action and counteraction mechanisms. These mechanisms include communication, information exchange, adaptation willingness, cooperation and satisfaction. Positive actions and counteractions are central and keys to develop, sustain and enhance a collaborative relationship because they encourage marketers, purchasers and managers to resist attractive short-term alternatives in favor of the expected long-term benefits of staying with existing partners, and they encourage the partners to work at preserving relationship investments by cooperation with each other.

A fully implemented collaborative approach (e.g. Zineldin, 1998) can be viewed as a partnering (or a partnership) arrangement based on win-win relationships (Casti and Karlqvist, 1995; Gumesson, 1996; Jarillo, 1993). Some features of a committed and trusted collaborative relationship are that the parties adapt their processes and products to achieve a better match with each other, sharing information and experiences, eliminating or minimizing the sources of insecurity and uncertainty (e.g. Zineldin *et al.*, 1997). Zineldin (1999) states that:

The quality of a relationship is a function of a number of factors or elements, among others, . . . cooperation, skills and performance of employees including managers, physical resources, quality, delivering and pricing of products/services, sharing information, experience, customer expectations and satisfaction.

Sharing of information and experiences function as ways to demonstrate trust which may lead to a higher level of commitment and a better atmosphere for subsequent transactions. Ford *et al.* (1998) states that companies collaborate because it is a way of improving performance in their distribution activities. Thus, trust and commitment are affected by the partners' previous dealings with each other (Garbarino and Johnson, 1999; Doney and Cannon, 1997). In this study, we propose that evaluation of a dealer's trust and commitment will be based on a wider view of the overall activities and performance of its current suppliers.

Interestingly, however, although process framework typically has cooperation and commitment leading to one another over time, specification of their causal ordering in a given exchange episode has varied (Anderson and Weitz, 1989; Heide and John, 1988). The work of Morgan and Hunt (1994) supports the position that trust and commitment cause cooperation, and the work of Axelrod (1984) supports the opposite, i.e. cooperation causes commitment. A partner committed to the relationship will cooperate with another member because of a desire to make the relationship work. Once trust is established, firms learn that coordinated, joint efforts will lead to outcomes that exceed what the firm would achieve if it acted solely in its own best interests (Anderson and Narus, 1990). We suggest and propose a positive direction from cooperation to relationship commitment and trust.

The purpose of this study is to examine the main determinants/factors affecting the trust and commitment in supplier-dealer relationships. Specifically, drawing on theory developed in social psychology, sociology, marketing and economics, a conceptual model including behavioral dimensions of marketing and marketing channels will be proposed and a set of hypotheses presented. We then report the results of an empirical study of the supplier-dealer relationships in the Swedish wood industry designed to test the hypotheses. Finally, we discuss the managerial implications of our study and offer suggestions for future research. There are several possible approaches to studies of trust and commitment. Here, we focus on the significance of eight relationship characteristics in high trust and commitment relationships.

2. A conceptual model of supplier-dealer relationships

Relationships between companies are at least as complicated as those between people (Scanzoni, 1979; Thompson *et al.*, 1983; Zineldin *et al.*, 1997). Sometimes a company will not be committed to the long-term future of a relationship and will try to take short-term advantage, just like some people! For example, a supplier may increase its price at a time when there is a product shortage, or a customer may encourage a supplier to invest in their relationship even though its requirements are likely to change in the near future. At other times, one or both of the parties will try to show that it is committed to the long-term future of the relationship and seek to achieve mutual advantage. Each may be prepared to incur considerable costs so that both companies gain in the longer term. The level of trust in a relationship may also vary widely. Sometimes the parties will be entirely open in their dealings, sometimes they will behave with guilt. On some occasions they will show genuine altruism, but other times they will simply cheat. The behavior of the two companies will not always be predictable, or indeed make any sense when set against their stated individual aims, individual best interest or the good of their relationship (Ford *et al.*, 1998).

It is imperative for a successful cooperation relationship between the partners to communicate and cooperate in an atmosphere of frank debate, interdependence, and mutual positive expectation so that the mutual benefits and interests may be achieved (Zineldin, 1998; Larzelre *et al.*, 1980; Lewicki and Bunker, 1995). Historically, distribution relationships have been managed in two different modes. The first is through ownership and vertical integration, the second through making use of power. Over the last ten years there has been a tendency to develop chains or networks of collaborative supplier-distributor relationships. This is a necessary trend, because of simultaneous need for short leadtimes and outsourcing. Instead of relying on manipulation, these relationships take the motivations of the counterparts as the point of departure for the relationship building. Also, instead of power which creates tension, they build on shared values, cooperation, adaptation, mutual information, social, technical and economic exchange trust and

commitment between the parties involved. This means that the actor bonds in these relationships are changing (Ford *et al.*, 1998; Zineldin, 1998).

Close cooperation and good communication processes are essential, gives the type of transactions involved, product features, and the client's technology . . . Compared to relationships with other customers, the relationship between Francelec and Honor is said to be based on an unusually high level of trust (Perrin and Valla, 1982).

Suppliers should understand that the success of the firm depends in part on the dealer firms, with a supplier consequently taking actions so as to provide a coordinated effort focused on jointly satisfying the requirements of the dealers. If a dealer assumes the supplier's reputation in satisfying the requirements of other dealers is well deserved, trust will be granted on the basis of the supplier's history in relationship with other firms. Every single relationship will have a specific history in terms of how the parties have treated each other and this affects the degree of trust and commitment that may build up. Clearly, this will affect how the parties will act toward each other, how they will handle cooperation opportunities and the degree to which they will wish to favor each other in the future.

Efficient coordination of activities form the basis for more trust and commitment. Trust and commitment improvements in activity coordination can reduce the need for inventory investment and improve levels of services (Lamming, 1993; Anderson and Narus, 1990; Morgan and Hunt, 1994). Thus, we theorize that trust and commitment develop as a result of a host of reasons, not just because a supplier has good products at a reasonable price. It may be that the collaborative relationship provides secure delivery, low failure rates, advice about product use, technical development and support, flexible production capacity, up-to-date information exchange etc.

2.1 Nature of trust

There is a lot of literature on trust/commitment in business and purchase-supply relationships, but this study is not meant to be a comprehensive literature review. Trust, however, is a necessary condition for commitment and commitment only makes sense if tomorrow matters. Both trust and

commitment, not only one of them, are results of the development of collaborative relationships between two companies which brings us to the issue of trust and time dimensions of the relationship. Trust takes time to develop between the parties involved. Trust is a necessary condition for commitment but the latter has also a more distinct priority dimension. In a lot of situations it is not enough to know that the other is trustworthy but also that the other will actively support oneself – reciprocate the commitment.

Trust according to the classic view is:

. . . a generalized expectancy held by an individual or an organization that the word of another individual or organization can be relied on (Rotter, 1967).

We argue that trust is existing when one party has confidence in an collaborative exchange partner's reliability and integrity. This definition parallels that of Moorman *et al.* (1993):

Trust is defined as a willingness to rely on an exchange partner in whom one has confidence.

Both definitions highlight the importance of confidence. The literature of trust (Altman and Taylor 1973; Lindsfold, 1978; Cook and Emerson, 1978; Dwyer and LaGace 1986; Larzelere and Huston, 1980; Rotter, 1967; Anderson and Narus, 1990; Moorman *et al.*, 1993; Lamming, 1993; Lewicki and Bunker, 1995) suggests that confidence on the part of the trusting party results from the firm belief that the trustworthy party is reliable and has high integrity, which are associated with such qualities as: consistent, competent, honest, fair, responsible, helpful, and benevolent. Confidence, trustworthiness, and the way in which crises and difficulties should be treated and solved between the partners are central factors of developing longer term relationships between organizations. An organization must consider all of these factors in order to effectively create, manage, maintain, sustain, and enhance its relationships with customers (Zineldin *et al.*, 1997; Zineldin, 1998).

Anderson and Narus (1990) focus on the perceived outcomes of trust when they define it as:

. . . the firm's belief that another company will perform actions that will result in positive outcomes for the firm as well as not take unexpected actions that will result in negative outcomes.

The evaluation of a new relationship may take place without a high level of trust or commitment, because of the high level of risk of any new relationship, rather like the conversation that might take place between a couple meeting for the first time in a singles bar. This leads the partners to raise a question of how they can develop the needed trust to enable a collaborative relationship to develop. For example, a supplier has to convince its dealers that she/he is seriously interested in the relationship and will take the actions needed to earn the dealer's trust. Thus, trust is a result of a complex set of factors, actions, counteractions and positive outcomes.

Positive actions and outcomes cause trust and commitment of a relationship. A company would expect such outcomes from a partner on whose integrity one can rely on confidently. The behavior intention of "willingness" is a critical facet of trust's conceptualization because if one believes that a partner is trustworthy without being willing to rely on that partner, trust is limited (Moorman *et al.*, 1993). We argue that willingness to act is implicit in the conceptualization of trust and, therefore, one could not label a collaborative partner as "trustworthy" if one was not willing to take actions that otherwise would entail risk. And, if one is confident, then one would be willing; if one is not willing, then one is not genuinely confident.

Willingness to rely should be viewed as an outcome or alternatively, a potential indicator of trust and not as a part of how one defines it (Fishbein and Ajzen, 1975).

To be an effective competitor requires one to be a trusted cooperator (in some network). Competition requires cooperation (Solomon, 1992). Successful cooperative relationship marketing is closely related to the process of development of mutual trust and commitment (Morgan and Hunt, 1994).

Partnership in supply chain relationships is clearly a very powerful strategy. It encourages a joint approach to problems and it can lead to reductions in costs, improvements in quality (Lamming, 1993).

A mutually beneficial relationship between suppliers, manufacturers and distributors/retailers based on inter-linked flows of information and materials is often described in terms of just-in-time (Monden, 1994), quick response (Stern *et al.*, 1996), efficient consumer response (Stern *et al.*, 1996) or

supply chain management (Bowersox, 1990). In such cooperative relationships, the partners can create new value by reducing the transaction cost, uncertainty and the level of the financial and practical risks associated with the purchase or joint investment. In such a relationship, there is a great opportunity to gain access to vast information about, for example, each partner's needs, wishes, business and investment plans, which provides a substantial competitive advantage in strengthening the strategic cooperation.

In buyer-seller bargaining situations, Schurr and Ozanne (1985) find trust to be the central outcome of the process of achieving cooperative problem solving and constructive dialogue. Berry (1993) stresses that trust is the basis for loyalty. In automobile marketing, Saturn stresses "partnerships in which everyone shares risks and rewards", which emphasizes "win-win role playing games stressing mutual trust" (*Advertising Age*, 1992). Thus, we propose that trust is a result of effective collaborative relationship and higher level of customer satisfaction.

2.2 Relationship commitment

Drawing on the conceptualizations of commitment in social exchange (e.g. Scanzoni, 1979; Cook and Emerson, 1978), marriage (e.g. Larzelere and Huston, 1980; Thompson and Spanier, 1983; Zineldin *et al.*, 1987), and organizations (e.g. Mowday *et al.*, 1979; Meyer and Allen, 1984; Reichers, 1985), we define relationship commitment as:

...an exchange partner believing that an ongoing collaborative relationship with another is so important as to warrant maximum efforts at maintaining it; that is, the committed party believes the relationship is worth working on to ensure that it endures indefinitely.

This definition corresponds almost exactly with that developed by Moorman *et al.* (1992): commitment to the relationship is defined as "an enduring desire to maintain a valued relationship". Their "valued relationship" corresponds with our belief that relationship commitment exists only when the relationship is considered important. Similarly, their "enduring desire to maintain" corresponds with our view that a committed partner wants the relationship to endure indefinitely and is willing to work at maintaining it. It also means that the partners will try to build their relationships slowly and will seek to minimize their commitment until

potential outcomes become clearer (Ford *et al.*, 1998).

Collaborative activities and exchange are keys because they encourage marketers to work at preserving relationship investments by cooperating with exchange partners, resist attractive short-term alternatives in favor of the expected long-term benefits of staying with exchange partners, and view potentially high-risk actions as being prudent because of the belief that their partners will not act opportunistically. Therefore, when collaborative activities and actions are positively present, they produce commitment and outcomes that promote efficiency, productivity, and effectiveness.

Commitment, as well as trust does not imply naïve revelation of company secrets outside the relationship arrangement, but it implies the belief that the partner will act with integrity. It does not either imply “blind commitment or trust”. Commitment and committing behavior as well as trust cannot be forced or imposed. It has to be earned. Thus, developing trusted business relationships will probably imply a long-term process, where stage by stage, the risk and uncertainty decrease, and commitment and trust increase (Zineldin *et al.*, 1997). Trust and commitment between business companies can only be built on actions, rather than promises. Actions such as adaptation, communication, bonds, degree of cooperation, degree of satisfaction, length of the relationship, and quality generate commitment. According to Zineldin (1999), the combination of such elements is called the total relationship management (TRM). Therefore, we propose that collaborative actions between a supplier and its various partners, e.g. dealers, are central to achieve a higher level of commitment.

2.3 Trust influences commitment

Finally, the development of trust and commitment requires a long-term cooperative business relationship and a willingness not to try to exploit the new relationship at the expense of long-term cooperation, patience-payoff often takes time. Trust and commitment lead directly to cooperative behaviors that are conducive to relationship marketing success. Achrol (1991) posits that trust is a major determinant of relationship commitment. Also Moorman *et al.* (1992) find that trust by marketing research users in

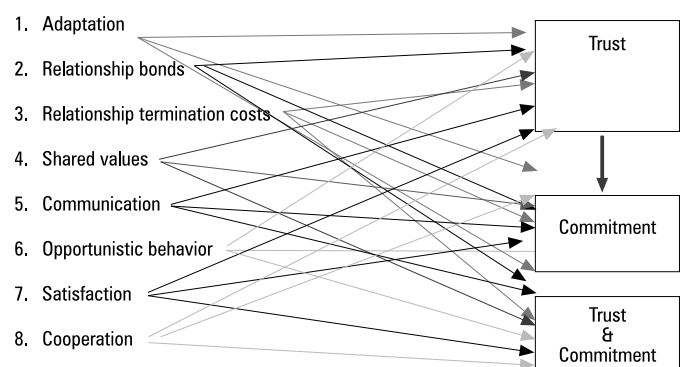
their research providers significantly affected user commitment to the research relationship. Trust influences relationship commitment. Spekman (1988) postulates trust to be “the cornerstone of the strategic partnership”, that is because relationships characterized by trust are so highly valued that parties will desire to commit themselves to such relationships. Thus, we also posit and theorize that trust is a major determinant of commitment.

2.4 Factors (antecedents) influencing relationship commitment and trust

Based on the recently developing commitment and trust in social exchange, social psychology (e.g. Deutsch 1960; Lweicki and Bunker, 1995; Lindsfold, 1978; Fox, 1974; Scanzoni, 1979; Caldwell *et al.*, 1990), and marketing and management literature (e.g. Anderson and Weitz, 1989; Dwyer *et al.*, 1987; Ganesan 1994; Moorman *et al.*, 1993), and on more than two decades of theory and empirical research on commitment in organization behavior (see review by Reichers, 1985; Mathieu and Zajac, 1990; Caldwell *et al.*, 1990), there are a considerable number of determinants affecting the development of trust and commitment. Because of the broad nature of trust and commitment and their varied conceptual roots, our literature review will be limited to eight antecedents measurable criteria/determinants that either directly or indirectly impact the relationship commitment and trust. A model displaying these constructs or criteria is presented in Figure 1.

We posit that these determinants/criteria directly or indirectly influence trust and commitment. This complex set of determinants explains why companies trust

Figure 1 Proposed model of determinants of trust and commitment



each other and become committed to doing business with each other.

Adaptations

Adaptation is one important factor in the collaborative relationship building (Axelsson and Easton (1992). Both supplier and distributor might modify their product, production processes or services and administrative procedures to suit the other. Many of the adaptations that each partner makes to its normal operations will be formally laid out in the contract between the supplier and distributor. Others will be informal adaptations and will be agreed to cope with a problem that arises or at the request of the counterpart. The supplier could agree to reduce deliveries from the contractually agreed level for a short time to cope with a sales down-turn at the distributor company, or the distributor company could change its own product design to cope with a production difficulty at its supplier.

Adaptation could also include investment of tangible and intangible resources by both parties. This investment ranges from the use of human resources to develop contacts with the counterpart, to investment in order-processing procedures to simplify and reduce the cost of interaction. It could also include developing new products or services in the relationship or adding new plant and equipment to it. A supplier could make idiosyncratic investments in the relationship. Such investments might include specialized equipment or adaptation of production processes to meet the distributor's needs. Williamson (1985) argues that firms making idiosyncratic investments are unlikely to engage in opportunistic behavior because such behavior threatens the continuation of the relationship. Adaptation willingness also provides evidence that a supplier can be believed, it cares for the relationship, and it is willing to cooperate and make sacrifices (Ganesan, 1994; Lindsfold, 1978; Strub and Priest, 1976). Clearly, the adaptations mechanism will affect the level of trust and commitment in a supplier-distributor relationship. According to Ford *et al.* (1998), "adaptations are the way in which a company shows that it can be trusted to respond to a counterpart's requirements". More generally, it is a willingness to adapt that demonstrates the company's commitment to the development of the relationship and customer

satisfaction. Over time these adaptations are a major determinant through which the supplier and the dealer come to rely on and trust each other. Thus, we posit that adaptation is a major determinant that should lead to trust and commitment.

Bonds

There are obviously aspects of relationship other than adaptations and customer satisfaction. These include, for instance, the existence of bonds between the supplier and the distributor. These bonds may function as switching barriers beside customer satisfaction. Another dimension relates to the supplier's and distributor's commitment to the relationship. Bonds reflect and cause commitment in business relationships (Håkansson and Snehota, 1995).

Commitment might be based on customers' intentions and plans for the future. Bonds arise between any two interacting parties as they learn to deal with each other. The interaction process that characterizes relationships can be said to be productive for the parties involved in the sense that they correct and develop their knowledge of the counterpart and learn to exploit each other and the relationship better. Some different types of bonds, however, have been identified (Dwyer *et al.*, 1987; Easton and Araujo, 1986; Ford, 1990; Müller and Wilson, 1988; Wilson and Mummalaneni, 1986). Different bonds could be classified as social, technical, timing, knowledge, planning, and legal/economic bonds. These bonds can have two different impacts on the relationship. One is the formulation of trust and commitment as relationship develop (Håkansson and Snehota, 1995), and the other is the constitution of the existing barriers (Liljander and Strandvik, 1995). Legal/economic, technical and time bonds, can constitute effective existing barriers for the customer. They can also be seen as contextual factors that cannot easily be influenced by the customer but can be observed and managed by the supplier firm. These bonds can prevent the customer from switching suppliers even when the actions taken or service given is of low quality. Social and knowledge bonds represent perceptual factors which are difficult to measure and manage by the firm. A social bond can be a very effective exit barrier and prevent the customer from breaking the relationship even when the

quality of actions taken or service given is lower, compared with other suppliers. Thus, we propose that bonds lead to relationship commitment. The relationship between bonds and trust is not that obvious.

Relationship termination costs

Establishing a new relationship represents some sort of investment of effort, time and money which constitutes a significant exit barrier to the customer's taking action when dissatisfied with a distinct interaction during a relationship. If supplier-dealer relationships are substantial, they are not easy to change quickly and changes are likely to incur significant costs both in disruption and in developing new relationships. A common assumption in the "relationship literature" is that a terminated party will seek an alternative relationship and have "switching costs", which lead to dependence. Such costs are exacerbated by idiosyncratic investments, that is, investments that are difficult to switch to another relationship (Heide and John, 1988). Dwyer *et al.* (1987) propose that "the buyer's interest in maintaining a quality relationship". Termination costs are all expected losses from termination and result from the perceived lack of comparable potential alternative suppliers or partners, substantial switching costs and/or relationship dissolution expenses. These termination costs lead to an ongoing relationship being viewed as important, thus generating commitment to the existing relationship (Morgan and Hunt, 1994). Accordingly, we propose that high termination costs generate commitment.

Shared values

Shared values is a variable of great interest to organizational researchers, in particular in the organizational commitment literature (Anderson *et al.*, 1994; Meyer and Allan, 1984; Chatman, 1991). Kelman (1961) hypothesized that people's attitudes and behaviors result from having the same values as another person or group. Shared values influence relationship commitment and trust. We mean that the partners have common beliefs about what behaviors, goals, and policies are important or unimportant, appropriate or inappropriate, and right or wrong. Dwyer *et al.* (1987) theorize that shared values contribute to the development of commitment and trust. Thus, we posit that when collaborative partners share values, they

are likely to be more committed to their relationships.

Communication

A major factor influencing trust is communication which can be defined broadly as the formal, as well as, informal sharing of meaningful and timely information between partners. Anderson and Narus (1990) note that past communication is an antecedent of trust, but "In subsequent period . . . this accumulation of trust leads to better communication". Although "communication can be described as the glue that holds together a channel of distribution, . . . empirical research on channel communication is sparse" (Mohr and Nevin, 1990). In addition, Anderson and Narus (1990) find that, from both the manufacturer's and distributor's perspectives, past communication was positively related to trust. Anderson and Weitz (1989) also find that communication was positively related to trust in channels. The frequency and quality of information exchange is a significant factor in determining the degree to which the parties understand each other's goals and coordinate their efforts to achieve those goals (Anderson *et al.*, 1987). Feedback and mutual participation in goal setting are two critical factors to achieving goal compatibility and mutual trust. Thus, we posit that a partner's perception that past communications from another party have been frequent and of high quality – that is, relevant, timely, and reliable – will result in greater trust and commitment.

Opportunistic behavior

One of the key behavioral variables that drives transactions costs analysis is opportunism. Opportunism is defined as "self-interest seeking with guile" (Williamson 1985). Examples of opportunistic behavior are such acts as withholding or distorting information and shirking or failing to fulfill promises or obligations (John, 1984). Dwyer *et al.* (1987) suggest that incorporating trust in models of distribution channel relationships provides a unique vantage point for treating opportunism as an explanatory variable. Thus, we believe and posit that when a party believes that a partner engages in opportunistic behavior, such perceptions will lead to decreased trust. We propose that such opportunistic behavior results in decreased relationship trust and commitment because

partners believe they can no longer trust their partners.

Satisfaction; loyalty and commitment

One way to achieve strong relationship and, thus, long relationship is to ensure that customers are satisfied. Satisfaction would refer to an insider perspective, the customer's own experiences of a relationship where the outcome has been evaluated in terms of what value was received, in other words what the customer had to give to get something. Satisfaction according to Anderson and Narus (1990) is the overall evaluation of the relationship between two channel members. The level of satisfaction experienced is the outcome of the interorganizational relationship (Anderson and Narus, 1984, 1990; Frazier, 1983; Frazier *et al.*, 1988; Robicheaux and El-Ansary, 1975). Previous channel researchers have suggested that there is a positive relationship between cooperation and satisfaction (Anderson and Narus, 1984, 1990; Dwyer, 1980; Mallen, 1963; Sibley and Michie, 1982). The cooperative efforts of channel members should result in greater trust and channel efficiency and the achievement of goals, which leads to a higher level of satisfaction. Reichheld (1993), on the other hand, argues that customer satisfaction may not lead to retention. Grønhaug and Gilly (1991) argue that dissatisfied customers may remain loyal because of high switching costs. Liljander and Strandvik (1995) define loyalty as only repeated purchasing behavior within a relationship and commitment as the parties' intention to act and their attitude towards interacting with each other. Loyalty can occur with three different types of commitment: positive, negative or no commitment. A negatively committed customer shows a negative attitude but might still buy repeatedly because of bonds. This also means that customer loyalty is not always based on a positive attitude, and long-term relationships do not necessarily require positive commitment from the customers. This distinction is important as it challenges the idea that customer satisfaction (the attitude) leads to long-lasting relationships (the behavior). A committed relationship can be dependent on perceived or contextual bonds that function as exit barriers. It is, however, important to note that the use of contextual barriers can generate latent dissatisfaction which emerges as the

importance of the contextual bonds (for instance the legal bonds) decreases. In short, we posit that customer satisfaction is only one dimension in increasing relationship trust, strength or commitment.

Cooperation

Past interorganizational studies have recognized cooperation as a necessary component in channel relationships (Brown, 1981; Frazier and Rody, 1991). Suppliers and distributors need to understand how cooperation is developed and maintained to experience a long-term satisfying relationship (Zineldin *et al.*, 1997; Childers and Ruckert, 1982). Skinner *et al.* (1992) argued that only a limited number of empirical studies have directly addressed the issue of cooperation, and most studies that have directly confronted the issue of cooperation have viewed the phenomena as either a form of satisfaction (Anderson and Narus, 1984, 1990), or the inverse of conflict (Gattorna, 1978; Pearson and Monoky, 1976; Ross *et al.*, 1982). We suggest that neither conflict nor cooperation in isolation describe the dominant sentiments of the supplier-distributor relationships. Cooperation can be viewed broadly as occurring within the relationship maintenance and commitment process. Cooperation is a part of the intention to develop relationship trust and hence commitment. Cooperation is defined as "situations in which parties work together to achieve mutual goals" (Anderson and Narus, 1990). Effective cooperation actions promote commitment and trust. Cooperative activities represent a primary means for each firm to maintain, or improve on, its outcomes. Because conflicting behaviors can coexist temporally with cooperative actions, cooperation is not simply the absence of conflict (Frazier, 1983). For example, partners can have ongoing disputes about goals but continue to cooperate because both parties' relationship termination costs are high. The parties in a relationship always have some levels of conflict, which create potential coordination benefits. Robbins (1990), for example, argues that the most productive and developing relationships are characterized by as high level of conflict as of cooperation.

2.5 Hypotheses

Based on the literature review and the foregoing discussion, the following

hypotheses, stated in formal fashion, are proposed:

Relationship and trust

H1: There is a positive relationship between adaptation and relationship trust.

H2: There is a positive relationship between shared values and trust.

H3: There is a positive relationship between communication and trust.

H4: There is a negative relationship between opportunistic behavior and trust.

H5: There is a positive relationship between satisfaction and trust.

H6: There is a positive relationship between relationship cooperation and trust.

H7: There is a positive relationship between trust and relationship commitment.

Relationship and commitment

H1: There is a positive relationship between adaptation and relationship commitment.

H2: There is a positive relationship between relationship bonds and commitment.

H3: There is a positive relationship between relationship termination costs and commitment.

H4: There is a positive relationship between shared values and commitment.

H5: There is a positive relationship between communication and commitment.

H6: There is a negative relationship between opportunistic behavior and commitment.

H7: There is a positive relationship between satisfaction and commitment.

H8: There is a positive relationship between relationship cooperation and commitment.

3. Methodology

3.1 Research design

Recall that our hypothesized relationships are presumed to be relevant to any long-term interorganizations relationship which is difficult to terminate quickly. Data were collected through a mail survey administered to purchasing managers at Swedish timber

merchants (lumber dealers). The wood industry was chosen because experiences and field interviews (conducted by the Research Center for Wood Design and Technology at Växjö University) revealed that purchasing behavior in this industry was characterized by high speculation tendency and tremendous pressure on dealers to stock more and more wood lines which causes inefficient use of working capital, often price fluctuation which may lead to trust and commitment problems, difficulty in planning to match demand and supply, and lack of communication and information exchange between suppliers and distributors, and high transaction costs. Although the wood industry is one of the main strategic sectors in Sweden, there is a very limited or a lack of empirical research of the nature of supplier-dealers relationships in this sector. Thus, this industry provided an excellent setting in which to examine the determinants of the supplier-dealers relationships.

From the literature review discussed previously and the above mentioned interviews, a draft questionnaire was constructed and tested on some dealers and other researchers. Respondents were encouraged to identify unclear items, comment on the importance of the research issues, if the respondents could/would complete the questionnaire in the absence of a researcher, and suggest changes. No major problems were presented, and after making the required modifications, the final draft of the questionnaire was developed.

3.2 The sample

As the research setting, we used a census (total population) of national lumber dealers. Our entire population contained 431 dealers in Sweden. A research using a census contains no sampling error, frame error, or selection error and provides more accurate data than a sample (e.g. Tull and Hawkins, 1990). Because these dealers have a small number of construction material and wood lines, their relationships with suppliers are potentially important, which is enough for the research issues to be meaningful.

A two wave mailing and reminding phone call that was mainly based on Dillman's (1978) recommendations were employed. Each purchasing manager of the firms was mailed an introductory letter, a questionnaire, and a postage-paid reply

envelope. The introductory letter explained the purpose of the research, assured the anonymity of their replies, and promised a summary of the results to all who returned their completed questionnaires. A total of 20 of the 431 dealer firms returned the questionnaires, indicating the reason for not answering. Two had gone out of business, 14 had their own wood plants and did not deal with wood suppliers, and four did not any longer deal with wood articles/products. Therefore, the effective population number was reduced to a maximum of 411 firms. A total of 68 dealers responded to the first mailing, 61 of which provided complete and usable responses. To increase the response rate, a second mailing to non-respondents was undertaken three weeks after the first wave. A total of 45 dealers responded, 29 of which provided complete, usable responses. Two weeks after the second mailing, 100 randomly selected non-respondents were phoned, reminded of the survey, and encouraged to complete and return the questionnaire. The reminding phone call yielded 50 respondents, 24 of which provided complete, usable responses, and 13 with just background/descriptive information which described the main characteristics of the non-respondents to be compared to the respondents in order to assess the potential non-response bias. The entire process yielded 163 (39.4 per cent) responses, 114 of which provided complete, usable questionnaires (a 27.5 per cent response rate). The relatively low response rate is typical of such industrial surveys (e.g. Han *et al.*, 1993; Skinner *et al.*, 1992; McGinnis, 1999). Thus the 27.5 per cent response was deemed adequate for analysis. The wood industry is considered to be quite a conservative industry, with an educational level below average. This may explain why it was difficult to receive a very high response rate.

Respondents were primarily male (97.5 per cent), and averaged 17 years of purchasing experience. The contact time with the focal supplier averaged 15 years. The average purchasing manager was older than 55 years. The average purchasing percentage of the focal supplier was 50 per cent of the total purchasing value of the identified wood lines. Respondents varied widely in their education (lack of formal education 17 per cent, low education 28 per cent, high school degree 46 per cent, and university degree 9 per cent).

The firms represented in the investigation varied in size, but most were small and medium sized (as measured by employees 1-10, 53 per cent; 11-50, 42 per cent; and > 100, 5 per cent). The sample profile is further described in Table I.

3.3 Scales

Scales consisting of multiple items were developed to measure each construct. Given our conceptualization of relationship trust and commitment, it was essential that the measures captured both the importance of the relationship to respondents and their beliefs about working to maintain the collaborative relationship. To the extent possible we draw upon scales which had been used in marketing and management literature to further the process of validation for established scales. Most scales identified were not complete or not applicable to our study, though. We, therefore, had to develop new, or adjust present, scales to perfectly suit the present study and be able to conduct high quality empirical research. All constructs were measured through multiple-item scales and a seven-point Likert-type response format. Sample items for each scale are presented in the Appendix.

Focal constructs

Trust was operationalized through eight item scales as the extent to which a dealer relies on the behavior and actions (reliability, integrity, confidence, and belief) of a supplier (Garbarino and Johnson, 1999; Larzwellere and Huston, 1980; Moorman *et al.*, 1993). The measure of trust exhibits high reliability ($\alpha = 0.90$). Most of the existing measures of commitment focus on organizational commitment and consumer commitment scales and therefore are not directly generalizable to the interorganizational relationships. An exception is the work of Morgan and Hunt (1994), in which they model trust and commitment as key variables that mediate successful relationship marketing. However, seven items in the organizational commitment scales of Meyer and Allen (1984), Morgan and Hunt (1994), Mowday *et al.* (1979), reflected our definition of interorganizational relationship commitment ($\alpha = 0.72$).

Factors affecting trust/commitment

Adaptation was measured using five scales developed by Doney and Cannon (1997).

Table I Sample profile

	Lower percentile	Median	Upper percentile	Mean (Std dev.)
Years of participation with focal supplier	7.5	12	20	14.2 (8.8)
Focal supplier's percentage of total purchasing value	25	50	70	49.5 (25.7)
Number of employees	6	10	23	18.9 (26.6)
Number of people involved in the purchasing process	2	2	3	2.7 (2.1)
Number of employees needing college degree	0	1	1	1.0 (1.7)

This measure also exhibits high reliability (alpha 0.90). Based on our literature review (e.g. Dwyer *et al.*, 1987; Easton and Araujo, 1986; Ford, 1990; Gadde and Håkansson, 1993; Liljander and Strandvik, 1995), we developed new scales to measure the relationship bonds (technical, time, knowledge, legal, economic and social). This measure exhibits the lowest value of coefficient alpha (0.62) for all scales used. The reliability is considered good enough, though, because the scale is new and because it measures somewhat different variables. Most of the items in the Mayer and Allen (1984) continuance commitment scale focus on employment termination costs at the organizational level. We modified Mayer and Allan's (1984) items and developed five new items to measure termination costs using different sources (e.g. Heide and John, 1988; Dwyer *et al.*, 1987; Morgan and Hunt, 1994). These measures exhibit highest reliability (alpha = 0.96). Shared values were measured through items previously developed by Morgan and Hunt (1994). The measure of the shared values included five items (alpha = 0.78). Several of the items in the Anderson *et al.* (1987) communication scale focused on the impact of variables associated with a financial portfolio model (marginal returns, growth, etc.) and characteristics of the channel relationships (power, organizational climate, etc.). We modified and developed seven of its items to measure dealer-supplier communication. The new measure exhibits also high value of coefficient alpha (alpha = 0.88). Two items were borrowed from John (1984) and two new were developed to measure the opportunistic behavior (alpha = 0.79). For satisfaction, we used Skinner *et al.*'s (1992) three scales (alpha = 0.83). Cooperation was measured through four scales previously developed by Childers and Ruekert (1982). The measure of dealer-

supplier cooperation exhibit was developed from the theoretical review and the new measure showed high alpha (0.80).

3.4 Reliability and validity

One of the major concerns which must be addressed is whether there is a systematic difference between people/companies who choose to respond to the survey and those who do not. Systematic differences between respondents and non-respondents may comprise the generalizability of the results (Flynn *et al.*, 1990). It also necessary that the scales measure what they are supposed to measure. Three reliability tests and one validity test was conducted.

First the reason for the non-respondents not answering the questionnaire was analyzed. Based on telephone interviews and written refusals, a total of 33 explanations of non-respondents were received. Of these 62 per cent of them had no available time to fill in the questionnaire, 15 per cent stated that the questionnaire was not relevant because they dealt with a considerable number of suppliers and had not enough number of employees (one-three), 17 per cent were not willing to participate in the investigation, 4 per cent wrote that their main business objective was to serve their customers and not to answer such questionnaires. A total of 2 per cent said that they had to get compensation for their time if they were to answer the questionnaire. These reasons are similar to those often cited in the literature for similar studies (e.g. Jonsson, 1999). Second, following Doney and Cannon (1997), we assessed potential non-response bias by comparing early versus late respondents. Almost half (48 per cent) of the completed questionnaires, in addition to the 13 who provided just descriptive information about the respondents, were returned in response to the second wave and reminding phone call.

Early and late respondents were compared on several dimensions: characteristics of the respondents (gender, age, education, and purchasing experience), purchasing situation (number of people from the dealer firm involved in the decision), age of the relationship with the supplier, and size of the firm. Chi-square tests could not reveal any statistically significant difference between the early and late respondents. The two tests, consequently, suggest that non-response bias is not a serious concern.

A second aspect of reliability which was tested concerned the degree of internal consistency, or degree of inter-correlation among several measures for the same construct. Cronbach's coefficient alpha was used to assess the degree of internal consistency within a particular scale. In general alpha values of 0.70 or higher are considered to be acceptable, with 0.60 being acceptable for new scales (Churchill, 1979). As shown in Table II, all scales exceeded this threshold. BONDS showed the lowest alpha value (0.62). That measure, however, did not measure one construct, but was the mean of five more or less independent constructs. We therefore did not expect high reliability measure.

Construct validity was tested through factor analysis by principal components for respective scale, except for BONDS which measures an average of different types of bonds. All scales loaded on single factors. The eigenvalues were all larger than one and the individual item loadings exceeded 0.48, with many loading in the 0.70 to 0.90 range. The results indicate that every scale used in the analysis will have good construct validity. The results of the factor analyses are presented in Table III.

4. Analysis and results

This section presents the results of the tests of the research hypotheses, based on the propositions that high emphases on the variables adaptations, relationship bonds, relationship termination costs, shared values, communication, opportunistic behavior, satisfaction and cooperation lead to high trust and commitment in a relationship. Table IV shows the correlations between each of the dependent and independent variables. All bivariate correlations are positive and several of them are statistically significant. In particular, the correlations between the independent variables are all positive. This collinearity could make the interpretation of the regression analysis somewhat difficult.

Three separate regressions were conducted; one for each of the two dependent variables TRUST and COMMIT, and one for the mean of trust and commitment (T&C). Each regression model will be discussed in the following sections. The collinearity between several of the independent variables, and the high bivariate correlations between the independent variables and the dependent variables, resulted in the fact that several strong regression models could be developed. The models presented here only contain statistically significant variables, and explain high levels of variance in the dependent variable.

4.1 Regression with TRUST as dependent variable

Table V shows a resulting regression model with TRUST as the dependent variable, and the identified independent variables entered in backward and forward procedures (with the same final model). The model only involves statistically significant variables. It explains 78 per cent of the variance in TRUST, and the associated F statistic indicates that it is significant at the $p < 0.01$ level.

Satisfaction (SATISF) is the most important variable in the model. It is not very surprising that a customer that is satisfied with a supplier also trusts the supplier to a great extent. We find it more interesting that shared values about behaviors, goals and policies (SHVAL), and formal and informal sharing of meaningful and timely information (COMMUN), between the partners are the other two significant variables in the model.

Table II Descriptive and reliability data for scales

Construct	Scale	Mean	Cronbach's alpha
Trust	TRUST	5.07	0.90
Commitment	COMMIT	4.76	0.72
Adaptations	ADAPT	4.01	0.90
Relationship bonds	BONDS	3.12	0.62
Relationship termination costs	TCOSTS	4.64	0.96
Shared values	SHVAL	5.41	0.78
Communication	COMMUN	3.48	0.86
Opportunistic behavior	OPPORT	5.68	0.79
Satisfaction	SATISF	5.23	0.83
Cooperation	COOP	3.84	0.80

Table III Results of construct validity analysis

Scale	Item number												E-value	
	1	2	3	4	5	6	7	8	9	10	11	12		
TRUST	0.84	0.80	0.85	0.77	0.84	0.85	0.77	0.45						4.90
COMMIT	0.60	0.68	0.59	0.65	0.84	0.86	0.76							3.57
ADAPT	0.80	0.87	0.91	0.82	0.85									3.62
TCOST	0.86	0.81	0.78	0.84	0.88	0.84	0.72	0.72	0.81	0.87	0.86	0.82		8.16
SHVAL	0.75	0.68	0.66	0.86	0.72									2.71
COMMUN	0.75	0.55	0.80	0.84	0.87	0.80								3.62
OPPORT	0.53	0.68	0.79	0.57	0.69	0.71								3.15
SATISF	0.86	0.91	0.84											2.27
COOP	0.83	0.87	0.80	0.66										2.51

Table IV Correlations between scale variables

	TR	CO	AD	BO	TC	SH	C	OP	SA	COOP
TRUST and COM	0.93*	0.92*	0.64*	0.30*	0.46*	0.60*	0.52*	0.39*	0.73*	0.72*
TRUST		0.66*	0.53*	0.21*	0.43*	0.56*	0.43*	0.43*	0.75*	0.66*
COMMIT			0.51*	0.35*	0.35*	0.58*	0.54*	0.30*	0.62*	0.69*
ADAPT				0.18	0.34*	0.57*	0.51*	0.30*	0.50*	0.47*
BONDS					0.27*	0.28*	0.36*	0.02	0.17	0.31
TCOSTS						0.16	0.43*	0.33*	0.59*	0.33*
SHVAL							0.39*	0.18	0.44*	0.60*
COMMUN								0.32*	0.36*	0.44*
OPPORT									0.43*	0.18
SATISF										0.63*

Notes: * $p < 0.05$

Table V Regression model for TRUST

Variables	b	R ²	F
		0.76	79.0**
Satisfaction	0.47**		
Shared values	0.17*		
Communication	0.17*		

Notes: * $p < 0.05$; ** $p < 0.01$

These findings verify previous research (Dwyer *et al.*, 1987; Anderson and Weitz, 1989) and further emphasizes the importance of the two variables to achieve a high trust relationship. The fact that a large proportion of the communication between parties in the wood industry is carried out through mouth-to-mouth communication (fax, phone, etc.), in absence of automatic and IT supported information sharing and transactions, also supports the finding that those companies that successfully communicate information at the same time as they share vital values are those that most likely will develop high-trust relationships. All the other independent

variables are correlated with the dependent variable (TRUST) and the three independent variables SATISF, SHVAL and COMMUN. Although, the three identified variables make up a very strong model for TRUST, the other independent variables may also be important for high-trust relationships.

4.2 Regression with COMMIT as dependent variable

Table VI shows the results of a regression with the same independent variables as in

Table VI Regression with COMMIT as dependent variable

Variables	b	R ²	F
		0.68	33.0**
Adaptations	0.29**		
Satisfaction	0.24**		
Cooperation	0.23*		
Communication	0.20*		
Relationship bonds	0.16*		

Notes: * $p < 0.05$; ** $p < 0.01$

Table IV, but with COMMIT as dependent variable. The two models (Tables V and VI) both contain SATISF and COMMUN as important underlying variables. SHVAL is not statistically significant in the model with COMMIT as dependent variable, but it is still positively correlated with COMMIT (see bivariate correlation in Table II). ADAPT, COOP and BONDS are on the other hand significant variables in the second model. Omitting SHVAL from the model does not mean that the variable is not affecting COMMIT. It is significantly correlated with COMMIT and with all independent variables in the model.

As expected, satisfaction is significant in this regression model, as well. Communication is important for high commitment for the same reason as for high trust. The most important variable, though, is the supplier's willingness to adapt to the buying company (ADAPT). Willingness to adapt demonstrates a supplier's commitment, and the importance of adaptations for high-commitment relationships have been argued by several authors (e.g. Ford *et al.*, 1998). These findings further verify this proposition. The relationships in the present study often contain strong and powerful suppliers, and small buyers. It is, therefore, likely that very high commitment will be developed in those relationships where the more powerful supplier adjusts its processes to the smaller buyer. Such behavior will likely create a very strong commitment from the dealer. The statistics verify that this is true. Cooperation and relationship bonds are two other significant variables in the regression model. Cooperation may be an intention to develop commitment, but companies may also be forced into cooperation because of high built-up bonds. The latter should not be the primary case in the present study, because the correlation between BONDS and COOP is not significant.

4.3 Regression with TRUST and COMMIT as dependent variable

The last regression model (Table VII) uses the mean value of TRUST and COMMIT as dependent variable.

The results are very similar to those obtained with TRUST and COMMIT as single dependent variables. Satisfaction (SATISF) is again the very most important underlying variable and shared values

Table VII Regression model for T&C (TRUST and COMMIT)

Variables	<i>b</i>	<i>R</i> ²	<i>F</i>
		0.72	64.4**
Satisfaction	0.62**		
Shared values	0.28**		
Communication	0.14*		

Notes: * $p < 0.05$; ** $p < 0.01$

(SHVAL) between the parties is also significant at the $p < 0.01$ level. The third included independent variable is opportunistic behavior (OPPORT). It is interesting that both SHVAL and OPPORT are quite informal and behavioral in nature. Trust and commitment in the studied wood industry are, consequently, affected by more or less behavioral variables. It is possible that the prerequisites for creating trust and commitment will change in the future, if the relationships within the industry are becoming more automatic and computerized (in accordance with the supply chains in more developed industries).

4.4 Pairwise *T*-tests between high and low trust and commitment

To analyze the characteristics of companies with high and low trust and commitment, respectively, the cases were divided into two groups based on their relative achievement of trust and commitment ("High trust and commitment": $T\&C \geq 5$; "Low trust and commitment": $T\&C < 5$). The means of the "independent variables" in the two groups were compared in independent *t*-tests (Table VIII). The *t*-tests show that all tested variables are significantly higher for "high trust and commitment companies" than for the "low trust and commitment companies". These findings support the previous findings and all identified hypotheses. Contrary to the regression models, the *t*-tests do not say anything about cause-and-effect relationships. The hypotheses were stated in terms of correlation relationships, but the theory identified cause-and-effect relationships. The correlation tests in section 4 and *t*-tests in this section clearly show that correlation relationships exist. The regression models in sections 4.1 to 4.3 also verify some of the cause-and-effect relationships identified in the theory.

Table VIII Bi-variate *t*-tests for high and low TRUST and COMMIT companies

Construct		High T&C	Low T&C	t-value
Trust	TRUST	5.90	4.20	11.32**
Commitment	COMMIT	5.58	3.89	11.79**
Opportunistic behavior	OPPORT	5.94	5.42	3.06**
Satisfaction	SATISF	5.90	4.51	6.96**
Shared values	SHVAL	5.88	5.01	4.75**
Relationship termination costs	TCOSTS	4.92	4.33	3.06**
Cooperation	COOP	4.69	2.96	6.78**
Adaptations	ADAPT	4.68	3.28	5.31**
Relationship bonds	BONDS	3.46	2.82	2.42*
Communication	COMMUN	3.42	2.38	4.61**

Notes: * Significant at the $p < 0.05$ level; ** Significant at the $p < 0.01$ level

5. Conclusions

5.1 Achieving high trust and commitment

In order to examine the effects of the interaction between a set of variables and the achievement of high trust and commitment within the wood industry, correlation analysis, regression analysis and pairwise *t*-tests were used to identify key variables. The results indicate that relationships where the buying party is satisfied (SATISF) with the supplier is likely a high-trust and high-commitment relationship. This finding was fully expected and corresponded to the findings of, for example, Anderson and Narus (1984). More interesting, though, was that the behavioral variables, shared values (SHVAL) and opportunistic behavior (OPPORT), are quite important for creating high trust and commitment. Dwyer *et al.* (1987), for example, focused on the importance of shared values and no opportunistic behavior to achieve high trust and commitment. These findings are “in-sync” with the situation in the studied industry, where the relationships are characterized by informal contacts, rather than formal and automated transactions, and where the suppliers often are more powerful than the customers. A situation where the supplier adapts to the needs of the dealer was also identified as quite important for achieving high-commitment relationships. Adaptations, such as willingness of the supplier to adjust to the customer, was identified as the most important variable for COMMIT, but it was not included in the models of TRUST and T&C. It makes sense that a supplier that adjusts its processes to the

needs of the customers creates commitment in the relationship.

The fact that there are statistically significant positive relationships between most independent variables and the trust and commitment variables makes it difficult to conclude exactly what mix of independent variables that lead to trust and commitment. It is obvious, however, that they are important for creating trust and commitment. The conducted correlation tests and *t*-test further showed that there are significant positive relationships between trust/commitment and the identified “underlying variables”. No hypothesis could consequently be rejected.

5.2 Development and validation of measures

In addition to the substantial findings, this paper contributes to the development and validation of several empirical measures. The fact that most proposed hypotheses were verified provide evidence of the predictive validity of the scales used. Furthermore, these scales are shown to have good internal consistency. We believe that our contribution toward the validation of scales is important because it helps build a common framework for conducting research and disseminating results. Parts of the developed and used measures had previously been used in other settings, in other industries and in other countries. Our research shows that the measures should be as general to be used in different contexts.

Although we designed the study to provide reliable and valid measures, it is important to realize that all studies are limited to some extent in terms of generalizability. The results of this study should be applicable to industries

other than wood and timber, because of the general nature of trust and commitment. It should also be generalizable outside Sweden.

5.3 Future research

A few problems for future research have arisen from this research. Our study focused on high trust and commitment within a relationship, but it did not say anything about successful and unsuccessful relationships. A high-trust and high-commitment relationship is not necessarily a successful relationship. Further research measuring success, in terms of competitive strength and/or economic profit and growth, in a collaborative relationship could investigate whether success results from trust and commitment, or from other contextual variables.

The underlying variables that makes a relationship successful are likely more or less important in various contexts. In this paper, for example, we hypothesized that adaptations were especially important in relationships, where the customer part has less power than the supplier. In well developed relationships, with integrated and synchronized supply chains, EDI communication and mutual supply chain planning system, the behavioral aspects may be less important compared to the relationships in the present study. Similar propositions could be derived for several other variables and contexts. Empirical research that study the relationships between underlying variables and various contexts would improve the understanding of how to create collaborative relationships in various environments.

Satisfaction was identified as the most important variable for achieving trust and commitment. Therefore, it is important to understand how to achieve high satisfaction. What variables lead to relationship satisfaction?

Most empirical research on collaborative relationships are static and describe the content of specific relationships. They do not explain the process of building up strong relationships. In the present study, we identified important underlying variables for creating high trust and commitment, but we did not identify how to fulfill the variables, or in what order the variables should be fulfilled to achieve trust and commitment in the fastest and easiest way. Such findings can hardly be generated from broad based survey studies, but should instead be approached in longitudinal case studies.

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Appendix

Table A1 Items in measurement scales

Construct ^a	Items
Dependent variables	
Trust (TRUST) (8 items)	We can always trust the supplier The supplier has high integrity The supplier keeps promises When the supplier makes important decisions it also considers our interests The supplier is always honest with us High level of trust has been developed between the personnel in our organization and the supplier The supplier considers it important that our company is successful There is no reason for us to be suspicious of the supplier
Commitment (COMMIT) (7 items)	We have strong commitment to this supplier We have intention to maintain and develop this relationship This relationship requires maximum effort and involvement Our company is fully open and honest in the relationship with the supplier The supplier spends enough energy in our relationship We often feel very satisfied in the cooperation with the supplier Deciding to work with this supplier was a definite mistake by my firm
Independent variables	
Adaptations (ADAPT) (5 items)	This supplier is willing to customize its products for us This supplier is willing to adjust its production process for us This supplier is willing to change its inventory procedures for us This supplier is willing to adjust its distribution/delivery procedure for us This supplier is willing to invest in tools/equipment to better adjust to our processes
Relationship Bonds (BONDS) (5 items)	Technical bonds – The design of our manufacturing equipment is based on purchased material from a specific supplier Timing bonds – Administrative routines are coordinated (e.g. EDI) Knowledge bonds - Knowledge and confidence in each other are built up Social bonds - Personal contacts and confidence between employees exist Economical and juridical bonds – Long-term general agreements exist
Relationship termination costs (12 items)	<i>If you could not buy your wood stock from your present major supplier, you would likely be purchasing from some supplier (alternative supplier). Please compare your major supplier with this alternative supplier concerning the following items: (anchors: present supplier is much better/present supplier is much worse).</i>

(continued)

Construct ^a	Items
	Transaction costs Administrative leadtime Tied-up capital Delivery time Delivery reliability Delivery security Delay of information Planning data Product quality Customer satisfaction Flexibility Supplier coordination
Shared values (SHVAL) (5 items)	To succeed in this business/relationship, it is often necessary to understand and comprise one's ethics, customs and norms If an employee is discovered to have engaged in unethical behavior that results primarily in personal gain (rather than corporate gain), he or she should be promptly reprimanded Employees at the other company (supplier) have values similar to ours To succeed in this relationship, it is often necessary to have common goals To succeed in this relationship, it is often necessary to have common policies
Communication (COMMUN) (6 items)	The supplier keeps us informed of new developments (R&D) The supplier gives us information about delivery problems at once when they occur The supplier's sales personnel frequently visit our place of business The supplier spends lots of time to get to know our personnel and employees The supplier frequently discusses new possibilities with us The supplier gives us opportunities to participate in goal setting for performance
Opportunistic behavior (OPPORT) (7 items)	<i>To accomplish his own objectives, sometimes our major my supplier (strongly agree/strongly disagree) – OBS! Items 1 to 4 with reversed scales!</i> Does not give us appropriate and important data/facts Promises to do things without actually doing them later Only concerns with (itself) its own interest Does not seem to be concerned with our best (interest) Has a reputation of being honest It is well-known that the supplier cares about its customer The supplier has a good reputation on the market
Satisfaction (SATISF) (3 items)	I would recommend that other dealers do business with this supplier I feel this supplier provides the services needed to perform my business operations I would not stop buying products manufactured by this supplier even if I could have the opportunity to buy from others
Cooperation (COOP) (4 items)	If we contribute to improve the supplier's performance in the future, this supplier will better assist and take care of us Our future goals are best reached by working with this rather than against this supplier Our future profits are dependent on maintaining a good working relationship with this supplier The supplier will support our marketing activities

Notes: ^a All scales are measured on seven-point Likert scales. Please indicate your level of agreement or disagreement with the following statements about trust to your focal supplier. (1 = Strongly disagree, 4 = Neither disagree nor agree, 7 = Strongly agree)

Commentary

Useful findings from Sweden on how to maximise trust and commitment.