Relationship Governance in a Vertical Network Context

Jan B. Heide and Kenneth H. Wathne

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The importance of customer relationship management is widely recognized by both marketing practitioners and academics. Indeed, the ability to show flexibility toward continuously changing customer needs has become a key source of survival in many industries. But while considerable consensus exists regarding the motivation for meeting customer needs in a flexible fashion, there is also evidence showing that such efforts often fail.

In this study, authors Heide and Wathne suggest that a firm's actual ability to provide flexibility vis-à-vis a focal customer depends on how other relationships in the firm's larger network context are governed. These relationships, which involve both (external) suppliers and (internal) departments within the firm itself, must be governed so that they permit the firm to adapt efficiently to changing customer demands. More specifically, the authors argue that if parties in these related relationships lack either the ability or motivation to support the firm's strategy in the downstream market, then the firm's ability to show flexibility in its customer relationships can be compromised.

Study and Findings

Heide and Wathne develop a conceptual framework that demonstrates how such problems with ability and motivation can be managed through the deployment of specific governance mechanisms. They develop three research hypotheses pertaining to supplier qualification, incentive design, and monitoring in the upstream supply market, and two hypotheses pertaining to organizational socialization and compensation within the firm. The hypotheses are tested empirically through surveys of U.S. apparel manufacturers and their retail customers.

Overall, the results show support for their main predictions. Specifically, while uncertainty in the downstream market motivates a manufacturer to show flexibility toward changing customer demands, the actual ability to do so is determined by the deployment of specific governance mechanisms in the relationships outside of the focal customer dyad. The authors find that uncertainty in the downstream market only has a positive effect on manufacturer flexibility for higher levels of supplier qualification efforts, monitoring of supplier behavior, and the dependence symmetry between the apparel manufacturer and the supplier. Dependence symmetry in the upstream market establishes an incentive structure that increases the supplier's motivation to support the relationship.

Interestingly, no support was found for the hypothesized effect of monitoring supplier outcomes. Furthermore, no significant effect was found for organizational socialization or compensation within the firm. Heide and Wathne discuss plausible explanations for these findings in a separate results section.

Managerial Implications

This study has two key implications for marketing practice. First, the authors identify specific governance mechanisms that can be used to promote flexibility at different levels in a vertical marketing network. Second, they link these mechanisms with a firm's strategy toward end customers. As noted in the paper, flexibility is not a goal in itself. In fact, because promoting flexibility requires investments on a firm's part (e.g., in qualification and monitoring), such efforts should be made selectively. The authors identify both the key conditions under which flexibility is required and the specific means by which flexibility can be achieved.

Jan B. Heide is the Churchill Professor of Marketing in the School of Business, University of Wisconsin-Madison. Kenneth H. Wathne is an Assistant Professor of Marketing, School of Business, University of Wisconsin-Madison.

Contents

Introduction

Current business marketing practice emphasizes the importance of developing strong relationships with customers (Dwyer, Schurr, and Oh 1987; Kalwani and Narayandas 1995; Wathne and Heide 2000). Practicing marketing managers consider relationship management a key source of competitive advantage (Houston and Johnson 2000). Indeed, some argue that relationship management has become a question of survival and that success in the 21st century marketplace will depend on the ability to build, retain, and expand strong customer relationships (Day 2000).

Although the importance of developing strong customer relationships is widely recognized, the practical barriers to developing such relationships are often considerable. As a starting point, consider that one of the defining characteristics of a strong relationship is showing flexibility in response to continuously changing customer demands (Achrol 1997; Fisher 1997; Narus and Anderson 1996; Noordewier, John, and Nevin 1990). For instance, manufacturers frequently need to respond to unanticipated changes in customers' volume requirements, delivery schedules, and product specifications. The importance of flexibility is evident in many industries, including electronics, food, toys, automobile manufacturing, apparel, and furniture (Abernathy et al. 1999; Kuglin 1998; Sheridan 1999).

Importantly, however, flexibility is not a naturally occurring phenomenon. In fact, firms are frequently constrained in their ability to show flexibility toward customers. We identify two possible constraints on a firm's ability to show flexibility in its customer relationships, namely a firm's upstream supplier relationships and interfunctional relationships within the firm itself. Specifically, we argue that these relationships involve interdependencies, which, unless properly managed, may limit the firm's ability to provide flexibility downstream.

This study is a direct response to the observation that a complete understanding of customer relationship management requires that attention be paid to interdependencies at different levels of a larger vertical network (Achrol and Kotler 1999; Anderson, Håkansson, and Johanson 1994). While manufacturers recognize the importance of being responsive to changing markets, poorly coordinated networks often undermine these strategies. Managers are realizing that it is insufficient to manage just their own organizations; they must also get involved in the coordination of all the other relationships that impact their ability to serve end customers (Handfield and Nichols 1998).

The remainder of this paper is organized in the following fashion: in the first section we discuss the theoretical importance of our research and present our conceptual framework and research hypotheses; in the following section, we describe the research methodology used to test the hypotheses and present the results; finally, in the last section we discuss the implications of our findings, the study's limitations, and possible topics for future research.

Theoretical Framework

Recall from our earlier discussion that a key element of a firm's strategy toward customers is to show flexibility in response to changing demands. Transaction cost analysis (TCA) suggests that flexibility becomes a particular concern when firms operate in uncertain environments in which complete contracts cannot be written that define a priori all of the relevant contingencies in a relationship (Williamson 1985, 1991). One of the key premises of TCA is that uncertain environments require firms to build flexibility into their trading relationships in order to facilitate adaptation to changing circumstances.

The main premise of this study is that a firm's actual ability to provide flexibility vis-à-vis a focal customer depends on how other relationships in the firm's larger network context are governed. These relationships, which involve both (external) suppliers and (internal) departments within the firm itself, must be governed so that they permit the firm to adapt efficiently to changing customer demands. More specifically, we argue that if parties in these related relationships lack either the ability or the motivation to support the firm's strategy in the downstream market, the firm's ability to show flexibility in its customer relationships can be compromised.

A hypothetical, vertical marketing network is shown in Figure 1. As will be explained below, in our research context the (upstream) supplier provides inputs to the manufacturer. The (downstream) customer is a retailer. Consider next how both the manufacturer's interaction with the supplier and inter-departmental relationships within the firm itself may impact the management of the customer relationship.

Figure 1. Governance in a Vertical Network Context
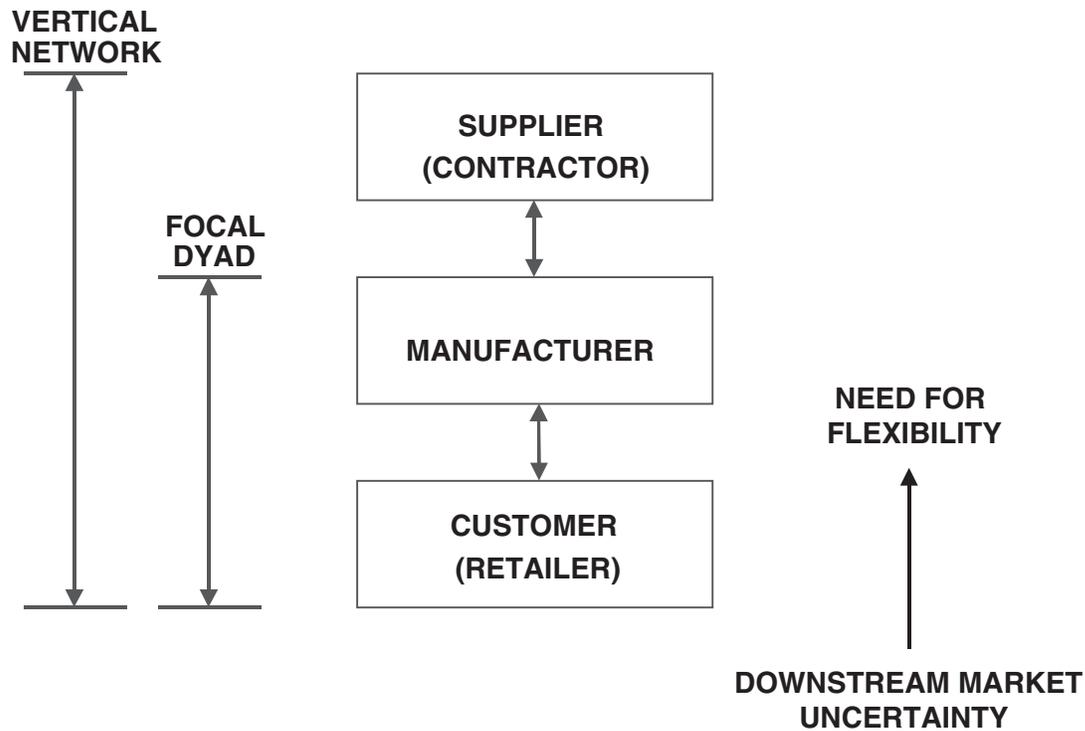
Unanticipated changes in circumstances surrounding the downstream customer relationship may arise in many ways. For instance, in industries like electronics, computers, and fashion apparel, retail sales are highly unpredictable because of rapid changes in consumer demand. For example, in the fashion apparel industry, apparel manufacturers need to respond quickly to changes in both style and quantity in order to remain competitive. Since apparel manufacturers increasingly are relying on subcontractors for the manufacturing of their products, relationship governance in the upstream supply market becomes a key concern. For instance, if the contractor in question lacks the necessary production capacity to meet changes in demand, the manufacturer's efforts toward a retailer (and, ultimately, the consumer) may be compromised. As noted in extant theory, such problems are not uncommon, and they may arise in different ways (Wathne and Heide 2000). Conceivably, the contractor may have misrepresented his or her production capacity when the relationship was being established (i.e., an adverse selection problem, as per Akerlof [1970]). Alternatively, the contractor may fail to make necessary capacity adjustments and opportunistically exploit the manufacturer's request for changes by demanding concessions (Masten 1988). Under either scenario, the contractor fails to show flexibility, and the manufacturer's ability to show flexibility in the downstream retail market is undermined.

A parallel scenario to the one described above may also exist within the firm itself. Frequently, different functional areas have conflicting objectives that serve as barriers to cooperative working relationships (Bouttes and Hamamdjian 1997; Jaworski

and Kohli 1993; Ruekert and Walker 1987). For instance, the sales department's desire to maintain certain levels of customer service may be inconsistent with the purchasing department's order schedule. In addition, a lack of cooperation may be due to differences in employee training, background, and terminology (Hutt 1995). While marketing professionals speak of market segmentation, cost-plus pricing, and degrees of market coverage, employees in purchasing and logistics use terms such as risk pooling, lead times, and delayed differentiation. While using such terms enhances the efficiency of intradepartmental communication, it may create problems in relationships between employees from different functional areas (Maltz 1997). Ultimately, interfunctional flexibility may suffer.

A lack of flexibility, either in the upstream supplier relationship or between internal departments, ultimately may impede a firm's ability to show flexibility in the downstream market. As a consequence, systematic efforts must be made at each level to promote flexibility. In the following section we describe the specific governance strategies that can be used.

Governance Strategies for Promoting Flexibility

Extant theory (Eisenhardt 1985) suggests that there are two general strategies that can be used to promote flexible trading relationships. First, flexibility can be accomplished either by identifying appropriate exchange partners a priori or by aligning their goals (Ouchi 1980). Alternatively, a firm can promote flexibility by designing incentive and monitoring systems that either reward flexibility or punish noncompliance (Telser 1980).

These general strategies for promoting flexibility are implemented somewhat differently in the supplier relationship and within the firm itself. Specifically, strategies to align goals take the form of *qualification programs* in the supplier relationship and of *organizational socialization* within the firm. Monitoring and incentive systems in the supplier relationship are implemented through performance verification, and through dependence structures which create supplier switching costs. The corresponding strategies within the firm involve using customer-based compensation systems.

Each of these mechanisms is discussed below. First we present the mechanisms that pertain to the supplier relationship. Next we discuss the mechanisms that pertain to interdepartmental relationships within the firm itself.

Interorganizational Governance Mechanisms

Supplier Qualification. Prior to establishing a relationship, a manufacturer can subject potential suppliers to formal qualification programs (Bergen, Dutta, and Walker 1992; Stump and Heide 1996). Traditionally, qualification programs have been designed to evaluate potential suppliers in areas like product quality, manufacturing capability, and financial strength (O'Neal 1989). But such assessments are limited in that they provide evidence only about a supplier's skills or ability to show flexibility. In themselves, such assessments do not guarantee that the supplier will actually apply these skills to the relationship in question. In fact, given that holding back efforts or resources is likely to produce cost savings for the supplier,

this scenario is not unlikely. Consequently, specific evaluations of supplier motivation must also be conducted (Stump and Heide 1996). Typically, such evaluations are based on examining a supplier's reputation or behavior in other relationships. Several researchers argue that the reputation of a potential trading partner is one of the most important signals of motivation (Ganesan 1994; Kumar, Scheer, and Steenkamp 1995; Rubin 1990).

For our purposes, the main benefits of a qualification program are the ability to identify suppliers from whom flexibility is likely and to eliminate from consideration those who fail to meet the relevant criteria. The more stringent a manufacturer's qualifications in the upstream supply market, the greater the likelihood of locating suppliers who will support the firm's strategy. Thus, when downstream market conditions require a high degree of flexibility, the manufacturer will be in a better position to show flexibility. We propose the following hypothesis:

> H_1: The effect of downstream market uncertainty on manufacturer flexibility toward customers will increase for higher levels of supplier qualification efforts.[1]

Incentive Design. Even suppliers who are identified ex ante as having the ability and motivation to show flexibility subsequently may fail to fully support a manufacturer in the ongoing relationship. One possible solution to this problem is to design an incentive structure that makes the upstream supplier's long term gains from maintaining the relationship exceed any short term payoffs from opportunistic behavior (Telser 1980). Such "self enforcing" agreements can be created in a variety of ways. For instance, the parties can make credible commitments to the relationship. These commitments can include dedicated physical and human assets and/or specialized procedures or routines to facilitate the exchange relationship (Buchanan 1992; Heide 1994).

To the extent that both parties make such commitments, a condition of mutual dependence is created in the upstream supply market. The consequence of this dependence condition is that the parties have constrained the alternatives open to them by virtue of making the other party irreplaceable, or replaceable subject to switching costs (Barney and Ouchi 1986). This creates an incentive to maintain the relationship, which in turn promotes behaviors that ensure the continuance of the relationship. Hence, the higher the level of mutual dependence in the upstream supply market, the greater the incentive for the supplier to maintain the relationship and show flexibility when circumstances require it. Ultimately, the ability to increase flexibility via a dependence symmetry in the upstream market should increase the manufacturer's ability to show flexibility in the downstream market. Stated formally:

> H_2: The effect of downstream market uncertainty on manufacturer flexibility toward its customers will increase for higher levels of symmetric dependence in the upstream supply market.

Monitoring. Systematic monitoring, of either supplier outcomes (e.g., quality) or behavior (e.g., production scheduling), also can serve to promote flexibility. In

principle, monitoring influences cooperation by eliminating information asymmetries that otherwise might permit noncompliance on the supplier's part (Celly and Frazier 1996; Eisenhardt 1985). Stated differently, monitoring increases the likelihood that a lack of cooperation will be detected. Flexibility is promoted due to either (1) the normative pressure that monitoring exerts on the supplier, or (2) the manufacturer's increased ability to appropriately match rewards or punishments to the supplier's behavior.

Consistent with our previous hypotheses, we predict that greater monitoring should increase supplier flexibility and ultimately enhance a manufacturer's ability to be responsive to customer requests. In hypothesis form:

> H_3: The effect of downstream market uncertainty on manufacturer flexibility toward its customers will increase for higher levels of supplier monitoring.

Intraorganizational Governance Mechanisms

A manufacturer's ability to show flexibility in the downstream market can also be constrained by conditions within the firm itself. As in the relationship with the supplier, internal flexibility can be promoted in general by aligning the objectives of the relevant parties or by using ongoing performance evaluations and rewards. In relationships between functional areas, these general strategies can be implemented by means of socialization processes and compensation systems, respectively. Each is discussed below.

Organizational Socialization. In general, organizational socialization efforts are designed to minimize goal divergence within a firm by establishing shared expectations about how individuals and departments should behave (Feldman 1981). Socialization efforts can take many forms. For instance, some firms have developed specialized training programs that explicitly teach employees about other departments' particular challenges and needs (Wanous 1980).

Successful socialization efforts, regardless of how they are implemented, will manifest themselves in the form of strong, interfunctional relational norms. Such norms are based on mutuality of interest (Macneil 1978) and prescribe cooperative behavior between the relevant parties. The stronger the norms that exist between the departments that serve a particular customer (e.g., a retailer), the more likely they are to respond to each other's needs. For instance, a manufacturer's ability to respond to unanticipated retailer requests is greatly enhanced in the presence of shared norms of flexibility between the sales and purchasing departments. Based on the above logic, we propose the following hypothesis:

> H_4: The effect of downstream market uncertainty on manufacturer flexibility toward its customers will increase for higher levels of interfunctional relational norms.

Compensation. As noted above, socialization serves to promote flexibility by aligning the goals of different functional areas ex ante. Ouchi (1980) also suggests that flexibility can be promoted by developing compensation systems that motivate employees to be responsive to the needs and demands of other functions.

Montgomery and Webster (1997) note: "Interfunctional conflict often has its roots in the firm's traditional evaluation and reward systems, geared to the old functional organization form with its emphasis on short term financial oriented measures of performance and the related need to define areas of responsibility tightly" (pp. 18-9).

As a response to the limitations of applying conventional performance measures, many firms have moved toward compensating employees on the basis of market inputs, such as customer responsiveness and satisfaction (Hauser, Simester, and Wernerfelt 1994). There are two main reasons for using such measures. First, adopting global goals such as customer satisfaction will nurture cooperation among employees from different departments (Pinto, Pinto, and Prescott 1993). Second, relying on customer inputs when evaluating and rewarding employees increases the responsiveness of the organization to changing market needs (Jaworski and Kohli 1993).

The greater a firm's reliance on organization-wide market goals in the overall compensation system, the greater the degree of interfunctional flexibility. In turn, the greater the manufacturer's ability to show flexibility in the downstream market. Specifically, we propose the following hypothesis:

H_5: The effect of downstream market uncertainty on manufacturer flexibility toward its customers will increase the greater the firm's reliance on customer-oriented compensation.

Methodology

Research Context

The empirical context for this study is the apparel industry. Specifically, our research setting comprises apparel manufacturers in SIC group 23 (Apparel Manufacturing) and their relationships with (upstream) contractors and (downstream) retailers. Industry group 23 comprises companies primarily engaged in manufacturing cut and sew apparel (men's, women's, children's, and infantwear) from woven fabric and purchased knit fabric. The contractors and retailers represent the suppliers and customers, respectively, in our conceptual framework (Figure 1).

Three main criteria were used in selecting this empirical context. First, all of our main independent variables had to manifest themselves in the setting to varying degrees. Most important, the context needed to exhibit substantial variation in market uncertainty (our key independent variable). Second, we required a context in which the customer's need for flexibility involved a significant and ongoing effort on the manufacturer's part, as opposed to ones in which manufacturers simply maintain excess inventory to meet demand fluctuations. Third, the manufacturer, the downstream customer, and the supplier should be independent (i.e., not integrated, no equity crossholdings, etc.).

With respect to our first two criteria, the U.S. apparel industry faces several categories of consumer demand. At the most basic level, the industry supplies consumers with utilitarian attire, which changes little in style from year to year. At the same time, for the more fashion-conscious part of the population, the industry is continually striving to produce new styles or features that can command higher prices (Ko and Kincade 1998).

Interestingly, fashion apparel poses considerable manufacturing and marketing difficulties. Highly unpredictable demand makes it difficult for retailers to select appropriate merchandise and to clearly specify terms of exchange with their suppliers. Further, since timing is a major determinant of customer value for these products, and since fashion apparel is characterized by very short life cycles, apparel manufacturers must continuously adapt their product lines. In this context, relationships between retailers and apparel manufacturers are not easily governed by complete or specific contracts. While long term relationships exist between apparel manufacturers and retailers, these relationships must be continuously adapted in response to changing circumstances (Abernathy et al. 1999).

With respect to our third criterion, apparel manufacturers increasingly are relying on contractors for the manufacturing of their products and independent retail outlets to sell these products. Regarding the former, most manufacturers receive a significant amount of their products from facilities that they do not own. Regarding

the latter, apparel is sold downstream through a variety of independent retail outlets, including discount stores, off price retailers, specialty stores, department stores, and major chains. Thus, the adaptation problems are managed in relationships between independent firms, not through vertical integration.

Questionnaire Development

Mail surveys of apparel manufacturers and their retail customers were used to measure the relevant, theoretical variables. While secondary data collection techniques have sometimes been used in previous studies on interfirm relationships (see Rindfleisch and Heide [1997] for a review of TCA studies), measures of the variables in our conceptual framework were not available.

The questionnaires were developed using the procedures recommended by Churchill (1979) and Gerbing and Anderson (1988). Initially, we conducted in-depth interviews with production managers in four different apparel companies, purchasing managers in two retail companies, and two directors of the American Apparel Manufacturers Association. In total, more than 15 hours were spent on personal interviews. The main objectives of these interviews were to better understand how the phenomena of interest existed in the apparel industry and to develop relevant measurement scales. Based on these interviews and a review of previous research on buyer-supplier relationships, preliminary versions of the questionnaires were developed. Where possible, existing scale items (Heide and John 1990; John 1984; Stump and Heide 1996) were adapted to the context at hand and used. The questionnaires then were sent to a sample of 10 production managers in order to verify the appropriateness of the terminology used, the clarity of the instructions, and response formats. Six questionnaires were returned, and no particular problems appeared to exist with the scales. We also conducted follow-up telephone interviews with all of the managers to verify the relevance and clarity of the survey questions

Measures

The key variables in our conceptual framework were operationalized using multi-item, reflective scales. Table 1 contains a description of response formats and specific items for each scale.

Table 1. Response Formats and Sample Items

Construct	Sample Items	α
Apparel Manufacturer Flexibility 7-point Likert-type scale: completely inaccurate description of apparel manufacturer/ completely accurate description of apparel manufacturer	Flexibility in response to requests for changes is a characteristic of this apparel manufacturer In this relationship, the apparel manufacturer is open to the idea of making changes, even after we have made an agreement In this relationship, the apparel manufacturer makes it possible for us to make adjustments to cope with changing circumstances This apparel manufacturer is open to modifying our agreement if unexpected events occur When an unexpected situation arises, this apparel manufacturer would rather sit down with us and work out a new deal than hold us to the original terms When disagreements arise in our relationship, this apparel manufacturer generally shows flexibility When unexpected situations arise and we disagree on how to proceed, this apparel manufacturer is open to working out a new deal that is acceptable to both of us	.93
Downstream Market Uncertainty 7-point semantic-differential scale: predictable/unpredictable	Consumer demand Sales forecasts Retail sales Consumer style preferences	.86
Supplier Qualification 7-point Likert-type scale: minimal qualification effort/extensive qualification effort	Garment quality (e.g., ability to meet specifications) Manufacturing capability (e.g., capacity) Financial strength Labor conditions (e.g., workers are treated fairly) Price competitiveness Contractor's performance in other relationships Contractor's general business philosophy Contractor's reputation among other apparel manufacturers Contractor's reputation among other contractors Contractor's reputation for on-time delivery	.87

Table 1. Continued

Construct	Sample Items	α
Contractor Dependence 7-point Likert-type scale: strongly disagree/strongly agree	If we canceled our sourcing agreement with this contractor, the contractor would be required to write off substantial investments If we canceled our sourcing agreement with this contractor, it would hurt this contractor's operations in the season in question If we canceled our sourcing agreement with this contractor, the contractor would have difficulty finding another apparel manufacturer to source for in the season in question If we canceled our sourcing agreement with this contractor, finding another apparel manufacturer to source for the same season would have a negative impact on the price this contractor could charge	.84
Manufacturer Dependence 7-point Likert-type scale: strongly disagree/strongly agree	Replacing this contractor for this particular garment would require us to write off substantial investments If we canceled our sourcing agreement with this contractor, we would have difficulty shipping the required quantity of this garment to the retailer on time for the season in question If we canceled our sourcing agreement with this contractor, we would be forced to compromise on the quality of this garment for the season in question If we canceled our sourcing agreement with this contractor, it would be difficult to find another contractor for this particular garment in the same season	.74
Supplier Monitoring: Behavior 7-point Likert-type scale: minimal monitoring of contractor/extensive monitoring of contractor	Contractor's production schedule Contractor's manufacturing processes Contractor's storage and handling practices Contractor's quality control procedures	.84
Supplier Monitoring: Outcomes 7-point Likert-type scale: minimal monitoring of contractor/extensive monitoring of contractor	Garment quality Delivery timeliness Price competitiveness Order accuracy	.88

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Table 1. Continued

Construct	Sample Items	α
Interfunctional Relational Norms 7-point Likert-type scale: completely inaccurate description/completely accurate description	*Norm of flexibility:* Flexibility in response to requests for changes is a characteristic of interdepartmental relationships within our company In relationships between different departments within our firm, the departments are generally open to the idea of making changes as new circumstances arise Departments within our firm are open to modifying their plans if unexpected events occur *Norm of information exchange:* In relationships between different departments within our firm, the departments expect that any information that might help other departments will be provided Frequent and informal exchange of information is a characteristic of interdepartmental relationships within our company Within our company, departments expect other departments to keep them informed about events or changes that may affect their operations *Norm of solidarity:* When problems occur between different departments within our firm, they are treated as joint responsibilities Departments within our company are committed to improvements that may benefit the company as a whole, and not only each individual department The departments within our company do not mind owing each other favors	
Compensation 7-point Likert-type scale: not at all important/ extremely important	Manager's ability to meet retailer's needs Manager's responsiveness to retailer's needs Manager's ability to provide superior value to the retailer Manager's ability to meet retailer's satisfaction objectives	.95

Table 1. Continued

Construct	Sample Items	α
Qualification by Retailer 7-point Likert-type scale: minimal qualification effort/extensive qualification effort	Garment quality Manufacturing capability (e.g., capacity) Financial strength Price competitiveness Apparel manufacturer's general business philosophy Apparel manufacturer's reputation among other apparel manufacturers Apparel manufacturer's reputation among other retailers Apparel manufacturer's quality reputation Apparel manufacturer's reputation for on-time delivery	.90
Monitoring by Retailer 7-point Likert-type scale: minimal monitoring of apparel manufacturer /extensive monitoring of apparel manufacturer	Garment quality Delivery timeliness Price competitiveness Order accuracy Apparel manufacturer's production schedule	.87
Apparel Manufacturer Dependence 7-point Likert-type scale: strongly disagree/strongly agree	If we canceled our purchase agreement with this apparel manufacturer, the apparel manufacturer would be required to write off substantial investments If we canceled our purchase agreement with this apparel manufacturer, it would hurt this apparel manufacturer's operations in the season in question If we canceled our purchase agreement with this apparel manufacturer, the apparel manufacturer would have difficulty finding another retailer to sell to in the season in question If we canceled our purchase agreement with this apparel manufacturer, finding another retailer to sell to in the same season would negatively impact the price this apparel manufacturer could charge	.89

Table 1. Continued

Construct	Sample Items	α
Retailer Dependence 7-point Likert-type scale: strongly disagree/strongly agree	Replacing this apparel manufacturer for this particular garment would require us to write off substantial investments If we canceled our purchase agreement with this apparel manufacturer, we would have difficulty obtaining the required quantity of this garment on time for the season in question If we canceled our purchase agreement with this apparel manufacturer, we would be forced to compromise the quality of this garment for the season in question If we canceled our purchase agreement with this apparel manufacturer, it would be difficult to find another apparel manufacturer for this particular garment in the same season	.83
Size X times smaller/equal size/X times larger	With respect to last year's sales volume (for all products), how large is your firm relative to this contractor? With respect to last year's sales volume (for all products), how large is your firm relative to this retailer?	
Postponement 7-point Likert-type scale: completely inaccurate description/completely accurate description	We try to delay product differentiation to the last possible moment (postponement)	
Inventory 7-point Likert-type scale: completely inaccurate description/completely accurate description	We hold sufficient inventory to meet the retailer's requests for changes in volume during season	
Characteristic of Garment Budget/mass, moderate, better, bridge, designer	Using the classification below, describe the garment that your firm is sourcing from this contractor	

Apparel Manufacturer Flexibility. This scale describes the retailer's perception of the apparel manufacturer's flexibility toward customer demands pertaining to both product design (style) and manufacturing (volume). Importantly, this particular measure, unlike many of the ones that pertain to the manufacturer's governance efforts, was obtained from the retailer. The items were developed on the basis of existing literature (Heide and John 1992; Wathne and Heide 2000) and the in-depth interviews.

Downstream Market Uncertainty. In our context, downstream market uncertainty follows from unpredictability in sales volume (demand) and design characteristics. More specifically, uncertainty exists to the extent that manufacturers are unable to forecast accurately the sales volume or style preferences in the downstream market. The actual items are based on the ones developed by Heide and John (1990) and Ko and Kincade (1998).

Supplier Qualification. Supplier qualification is defined as the scope and extent of the screening efforts undertaken by the manufacturer ex ante to verify the supplier's ability and motivation to perform as needed. The items were adapted from the ones used by Heide and John (1990) and Stump and Heide (1996) and modified on the basis of the in-depth interviews.

Incentives. As noted earlier, we captured the incentive structure in the relationship through the dependence condition that exists. Based on Emerson's (1962) definition, we captured this through the ease with which the firms could replace each other. Specifically, we measured the contractor's ability to replace the manufacturer and the manufacturer's ability to replace the contractor. A condition of symmetric dependence existed to the extent that both parties in a relationship had difficulty replacing the other. The items are based on the ones used by Heide and John (1988).

Monitoring. Monitoring is defined as the efforts undertaken by the manufacturer ex post to reveal the contractor's performance. In general, two different monitoring strategies are available to a manufacturer, namely the monitoring of supplier behaviors (process control) and monitoring of outcomes (Celly and Frazier 1996). Monitoring of behavior is defined as efforts to reveal whether the contractor's production operations and other activities are being conducted in the desired fashion. Monitoring of outcomes is defined as efforts to reveal the contractor's end results. Monitoring of behavior and outcomes were measured using two separate scales. The items are based on the ones developed by John (1984).

Organizational Socialization. We focus on the key outcome of organizational socialization, namely the development of organizational norms. Specifically, we measure the existence of interfunctional relational norms within the apparel manufacturer company. Such norms are based on mutuality of interest (Macneil 1978) and prescribe cooperative behavior between the relevant internal functions. We measure three different relational norms, namely flexibility, information exchange, and solidarity. The items are based on the ones used by Heide and John (1992), Noordewier, John, and Nevin (1990), and Mishra, Heide, and Cort (1998).

Compensation. The compensation scale describes the extent to which customer input is used to determine rewards for employees. The items were adapted from the ones used by Mishra, Heide, and Cort (1998).

Control Variables. In addition to the focal theoretical variables, nine control variables were included in the models. The first set pertains to the retailer's governance efforts vis-à-vis the apparel manufacturer. While our research hypotheses pertain to the manufacturer's governance efforts in the upstream supply market and within the firm, we expect that retailers can deploy similar governance mechanisms downstream toward the manufacturer. Hence, to control for the possibility that apparel manufacturer flexibility is partly due to governance efforts by the retailer, we included measures of qualification efforts by the retailer, dependence in the downstream relationship, and monitoring efforts by the retailer.

An additional set of control variables was included, namely the relative size of the apparel manufacturer vis-à-vis the contractor, the relative size of apparel manufac-

turer vis-à-vis the retailer, postponement, apparel manufacturer inventory, and the characteristics of the garment. We consider each in turn.

To account for the possibility that a large firm may be able to extract concessions from its exchange partner due to its superior bargaining position, we included measures of relative firm size (in both the upstream and downstream market). Further, to control for the possibility that manufacturer flexibility could be due to postponement or stockpiling of inventory, we also included a measure of each of these strategies. Finally, we included a measure describing the characteristics of the garment in question.

Data Collection

Measures of the key independent variables (downstream market uncertainty, supplier qualification, incentive design, monitoring, organizational socialization, and compensation) were obtained from the apparel manufacturers (see Figure 2). The key dependent variable, flexibility in the downstream market, was obtained from purchasing managers/buyers in retail companies.

Figure 2. Data Collection Strategy
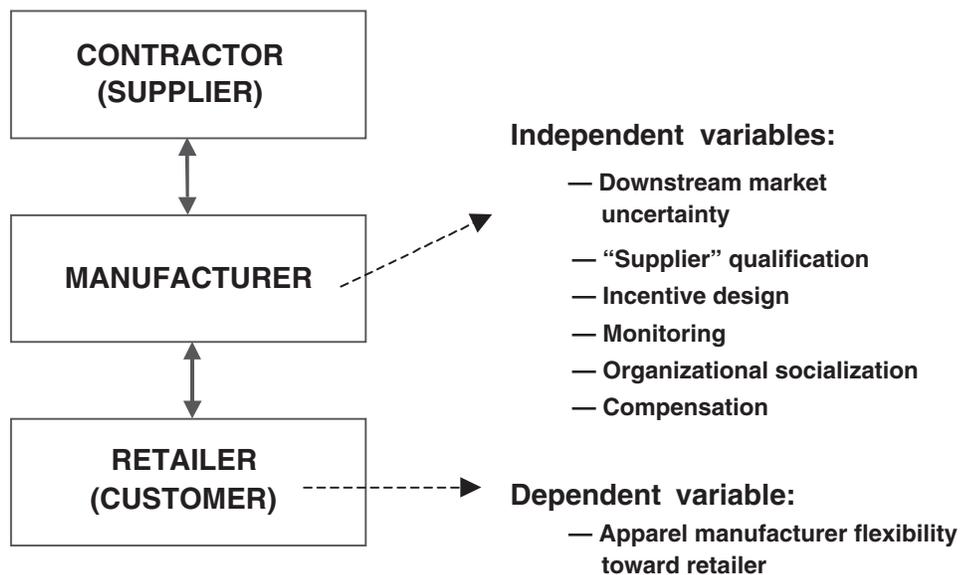
Apparel Manufacturers. The sampling frame for the study was a national mailing list purchased from List Source USA, which contained names of managers of independent U.S. apparel companies. The managers were contacted personally by telephone in order to screen their firm for eligibility and to locate a key informant within the production, planning, and control department. Campbell's (1955) criteria of being knowledgeable about the phenomena under study, and able and willing to communicate with the researcher, constituted the criteria for selecting infor-

mants. In many instances, our pre-survey screening process required multiple telephone calls or successive "snowballing" to locate an appropriate key informant.

On the basis of the telephone contact, each manager who met Campbell's criteria, and whose company was judged appropriate for the study according to the criteria discussed earlier (i.e., using independent contractors and selling to independent retailers), received a mail questionnaire and was requested to complete it with respect to one particular contractor and retailer about whom he or she was knowledgeable.[2] Ultimately, we identified 1,764 managers who were knowledgeable about the phenomena under study, worked in companies judged appropriate for the study, and agreed to complete the questionnaire. Only 8 percent of the companies contacted refused to participate. Of the remaining firms, 36 percent could not be reached and 38 percent were not eligible for the study based on the established criteria.

As an additional step toward increasing the quality of the informant reports, each questionnaire included post hoc checks on the informant's involvement and knowledge about the upstream and downstream relationships. The questionnaire packet consisted of a cover letter, a prepaid envelope, and the questionnaire itself. To motivate informants to respond, they were offered an incentive in the form of a report that summarized the results of the study.

Three follow-up phone calls were made to nonrespondents, and a second mailing was made to informants who had lost or not received the first survey. In total, 497 questionnaires were returned, which translates into an overall response rate of 28 percent. Although the response rate is somewhat low, it is consistent with recent distribution channel studies (Doney and Cannon 1997; Lusch and Brown 1996; Mishra, Heide, and Cort 1998). Of the 497 questionnaires received, 13 were discarded due to an excessive amount of missing information. In addition, based on the post hoc test of informant quality, 63 companies, with scores lower than 4 on either of the two knowledge scales, were eliminated.[3] These scales measured the informant's knowledge about their firm's dealing with the contractor and retailer, respectively (7-point scale). The average knowledge scores for the informants were 6.3 (standard deviation = .89) and 6.2 (standard deviation = .99) respectively, indicating that the selected informants were highly qualified to report on their firm's relationships with contractors and retailers. The final sample of apparel manufacturers consisted of 421 companies, yielding a usable response rate of 24 percent.

To assess whether nonresponse bias was an issue, we compared data from early and late survey respondents, following the procedure suggested by Armstrong and Overton (1977). Specifically, we tested the null hypothesis of no mean difference across the two groups (using t-tests) with respect to the independent variables in the conceptual framework (i.e., downstream market uncertainty, supplier qualification, incentive design, monitoring, organizational socialization, and compensation). In our final sample, approximately 32 percent of the questionnaires were received before two weeks and 68 percent were received after two weeks. No significant differences were found between the two groups on any of the variables, suggesting that nonresponse bias may not be a problem.

In addition to comparing early and late respondents, we were also able to compare our final sample of manufacturers with the overall population of U.S. apparel manufacturers with respect to the number of employees. Again, our hypothesis of no mean difference was supported, providing additional evidence that nonresponse may not be a problem.

Retailers. Since our research hypotheses pertain to an apparel manufacturer's degree of flexibility toward a downstream customer, the key dependent variable was obtained from the customer itself (the retailer). A similar procedure as the one described above was used to identify an informant within the retailer's firm. The informant from the apparel manufacturer's firm was asked to identify a person in the customer's firm who was knowledgeable about his or her firm's relationship with the apparel manufacturer. In total, 218 names were obtained and subsequently contacted with the objective of verifying the identity of the key informant. Of the 218 retailers that were contacted, 178 (82 percent) agreed to participate and were mailed a questionnaire. In total, 81 questionnaires were returned, a response rate of 46 percent. No cases were eliminated based on the post hoc test of informant quality. The final score on the involvement and knowledge scales were 6.4 (standard deviation = .96) and 6.5 (standard deviation = .74), respectively.

In our final sample, 36 percent of the retailer questionnaires were received before two weeks and 64 percent were received after two weeks. To evaluate nonresponse bias, these groups were compared based on four key control variables (supplier qualification by retailer, supplier monitoring by retailer, manufacturer dependence on retailer, and retailer dependence on apparel manufacturer). No significant differences were found between the groups on any of the variables, suggesting that nonresponse bias may not be a problem.

It is worth noting that this is a unique dataset. In general, collecting dyadic data requires a high level of interest and involvement on the part of the participating companies. In our case, we first needed to get a sufficient number of apparel manufacturers to agree to take part in the study and to complete the questionnaire. We were faced with the additional challenge of screening out companies that did not rely on independent contractors *and* did not sell to independent retailers. As it turned out, 38 percent of the targeted firms were not eligible for the study based on these criteria. Second, we relied on the same companies to provide us with the name of a person in the retailer firm who was knowledgeable about his or her firm's relationship with the apparel manufacturer. In order to get these names, we had to overcome confidentiality concerns on the part of the first group of informants. The retailer counterparts could only be contacted after we received the questionnaires and the contact names from the apparel manufacturers.

Measure Validation Procedure

The key variables in our theoretical model were operationalized using multi-item reflective scales. Each set of items was initially subjected to an examination of item-to-total correlations, in order to identify items that did not belong to the specific variable domain. The resulting pool of items subsequently was subjected to confirmatory factor analysis using LISREL 8.3 (Jöreskog and Sörbom 1995) to verify uni-

dimensionality. The fit indices from LISREL shown in Table 2 and Table 3 indicate an adequate fit to the data for all variables.[4] Furthermore, estimated coefficient alphas for the item sets (see Table 1) show satisfactory evidence of internal consistency (Nunnally 1978). Finally, a series of chi-square difference tests on the factor correlations provide evidence of discriminant validity between the variables.

Table 2. Properties of Multi-Item Scales: Apparel Manufacturers (n = 81)

Scale	χ^2	df	GFI	CFI
Supplier Qualification	65.17	35	.86	.91
Supplier Monitoring: Outcomes	4.22	2	.97	.99
Supplier Monitoring: Process	2.91	2	.98	.99
Contractor Dependence	6.33	2	.96	.96
Manufacturer Dependence	0.57	2	1.00	1.00
Downstream Market Uncertainty	5.84	2	.96	.98
Interfunctional Norms	31.64	24	.95	.98
Compensation	7.85	2	.95	.98

Table 3. Properties of Multi-Item Scales: Retailers (n = 81)

Scale	χ^2	df	GFI	CFI
Qualification by Retailer	46.24	27	.89	.94
Monitoring by Retailer	14.06	5	.93	.96
Apparel Manufacturer Dependence	3.28	2	.98	.99
Retailer Dependence	2.39	2	.99	1.00
Apparel Manufacturer Flexibility	44.13	14	.88	.94

Hypothesis Tests

The hypotheses were tested using multiple regression analysis. Five Ordinary Least Squares (OLS) regression models were estimated, using manufacturer flexibility as the dependent variable in each model. The first model, which tested the effects of the governance mechanism of qualification, involved regressing flexibility (as reported by the downstream customer/retailer) against downstream market uncertainty and supplier qualification (both reported by the apparel manufacturer) and the interaction between downstream uncertainty and supplier qualification. The interaction term provides the test of our first hypothesis; namely that the effect of

downstream market uncertainty on manufacturer flexibility toward its customers will increase for higher levels of qualification efforts in the upstream supply market. All five regression models were specified in the same fashion, although the terms in the models represent different governance mechanisms (e.g., monitoring of supplier behavior and mutual dependence).[5]

Table 4 shows the estimated coefficients (standardized and unstandardized) and associated t-statistics for the qualification model. First of all, the model explains a sufficient amount of variance to justify examining the individual coefficients (adjusted R^2 of .30). Second, the interaction between supplier qualification and downstream uncertainty is significant and positive ($t = 1.73$, p < .05). This result provides support for Hypothesis 1. The contingency proposition underlying Hypothesis 1 can also be examined more formally by graphing the partial derivative of the regression equation following the procedure suggested by Schoonhoven (1981). In Figure 3 the partial derivative of manufacturer flexibility with respect to downstream uncertainty is graphed over the range of supplier qualification. As can be seen from the figure, manufacturer flexibility in the downstream market is undermined by market uncertainty unless an appropriate governance mechanism (i.e. supplier qualification) is deployed in the upstream supply market. Specifically, market uncertainty has a negative effect on manufacturer flexibility in the qualification range below 1.71 and a positive effect when supplier qualification is greater than 1.71.[6]

Turning to the control variables, partner qualification by the retailer has the expected positive and significant effect on manufacturer flexibility ($t = 2.24$, $p <$ .025). In addition, size, as measured in both the upstream and downstream markets, has the predicted effect on manufacturer flexibility ($t = 1.53$, $p < .1$ and $t = -2.27$, $p < .025$, respectively). With regard to the impact of delayed product differentiation (postponement) and apparel manufacturer inventory on manufacturer flexibility in the downstream market, we found a positive and significant effect of postponement ($t = 1.86$, $p < .05$), while apparel manufacturer inventory had no significant effect on the dependent variable. Finally, high fashion garments gave rise to manufacturer flexibility ($t = 3.86$, $p < .025$).

Table 4. Regression Model for Qualification (H[1]) Dependent Variable: Apparel Manufacturer Flexibility ($n = 81$)

| Independent Variables	Unstandardized Coefficients	Standardized Coefficients	t-value
Supplier Qualification	.03	.03	.25
Downstream Uncertainty	-.35	-.33	-2.99[a]
Supplier Qualification x Uncertainty	.18	.19	1.73[b]
Size: AM > Contractor	.23	.16	1.53[c]
Characteristic of Garment	.45	.43	3.85[a]
Size: AM > Retailer	-.33	-.25	-2.27[a]
Postponement	.14	.22	1.86[b]
AM Inventory	.01	.02	.16
Qualification by Retailer	.20	.24	2.24[a]
	R^2 adjusted = .30		

[a]$p < .025$ (1-tailed test), [b]$p < .05$ (1-tailed test), [c]$p < .1$ (1-tailed test)

Figure 3. The Impact of Supplier Qualification on the Relationship Between Downstream Uncertainty and Manufacturer Flexibility

$$\frac{dFLEXIBILITY_{M-C}}{dUNCERTAINTY_{M-C}} = -.33 + .19\,(Qualification_{M-S})$$

$$\frac{dFLEXIBILITY_{M-C}}{dUNCERTAINTY_{M-C}}$$
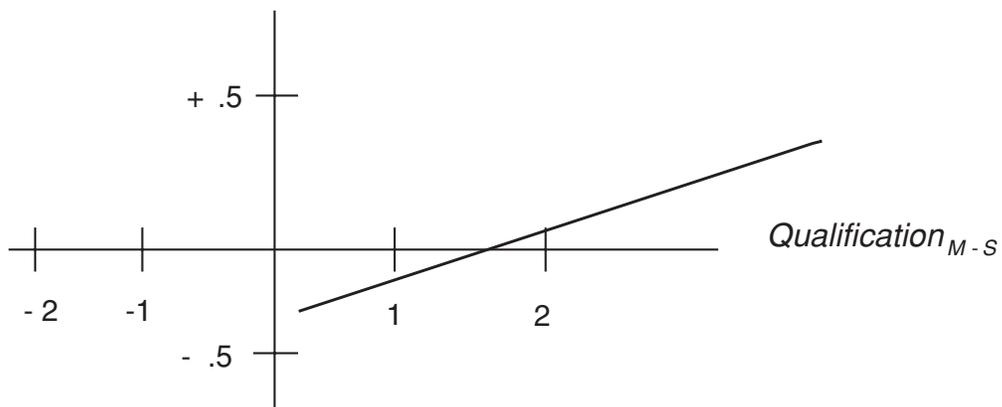
Our second model involved our hypothesis about incentive design (H$_2$). Recall from our earlier discussion that we captured incentives through the existence of a symmetric dependence condition in the upstream market. The statistical model that was used to test this regressed flexibility against downstream market uncertainty, contractor dependence on the manufacturer, manufacturer dependence on the contractor (both reported by the apparel manufacturer), the interaction between the two dependence measures (providing us with a measure of symmetric dependence), and the interaction between downstream uncertainty and symmetric dependence. In this model, the interaction term, which provides the test of Hypothesis 2, is a three-way interaction between the two dependence measures and downstream uncertainty. In addition to the focal theoretical variables, retailer dependence on the apparel manufacturer, apparel manufacturer dependence on the retailer, and the last five control variables in the previous model were added as covariates.

Table 5 shows the estimated coefficients (standardized and unstandardized) and associated t-statistics. The model explains a sufficient amount of variance to justify examining the individual coefficients (adjusted R^2 of .19). Further, the three-way interaction between dependence symmetry and downstream uncertainty is significant and positive ($t = 1.70$, $p < .05$). This result provides support for Hypothesis 2. In Figure 4 the partial derivative of manufacturer flexibility with respect to downstream uncertainty is graphed over the range of dependence symmetry. For low levels of symmetry, downstream uncertainty has a negative effect on apparel manufacturer flexibility. Specifically, market uncertainty has a significant and negative effect on manufacturer flexibility in the dependence range below 1.53 and a positive effect when dependence symmetry is greater than 1.53.

In terms of the control variables, neither retailer dependence nor apparel manufacturer dependence has a significant effect on manufacturer flexibility. Relative size in the downstream market has the predicted negative effect on manufacturer flexibility ($t = -2.44$, $p < .025$). The effect of relative size in the upstream supply market is in the expected direction, but not significant. With regard to the impact of delayed product differentiation (postponement) and apparel manufacturer inventory on manufacturer flexibility in the downstream market, we found a positive and significant relationship between postponement and apparel manufacturer flexibility ($t = 1.30$, $p < .1$), while inventory had no significant effect on the dependent variable. Finally, high fashion garments promoted flexibility ($t = 2.78$, $p < .025$).

Table 5. Regression Model for Incentive Design (H$_2$) Dependent Variable: Apparel Manufacturer Flexibility (*n* = 81)

Independent Variables	Unstandardized Coefficients	Standardized Coefficients	*t*-value
Supplier Dependence	-.05	-.07	-.59
Manufacturer Dependence	-.01	-.02	-.13
S x M Dependence	-.02	-.04	-.34
Downstream Uncertainty	-.27	-.28	-2.51[a]
S x M x Downstream Uncertainty	.05	.18	1.70[b]
Size: AM > Contractor	.19	.14	1.17
Characteristics of Garment	.33	.32	2.78[a]
Size: AM > Retailer	-.37	-.27	-2.44[a]
Postponement	.09	.15	1.30[c]
AM Inventory	.06	.09	.84
Retailer Dependence	-.01	-.02	-.18
AM Dependence	-.08	-.13	-1.14
	R^2 adjusted = .19		

[a]*p* < .025 (1-tailed test), [b] *p* < .05 (1-tailed test), [c] *p* <.1 (1-tailed test)

$$\frac{dFLEXIBILITY_{M-C}}{dUNCERTAINTY_{M-C}} = -.28 + .18\,(Symmetric\ Dependence_{M-S})$$

$$\frac{dFLEXIBILITY_{M-C}}{dUNCERTAINTY_{M-C}}$$
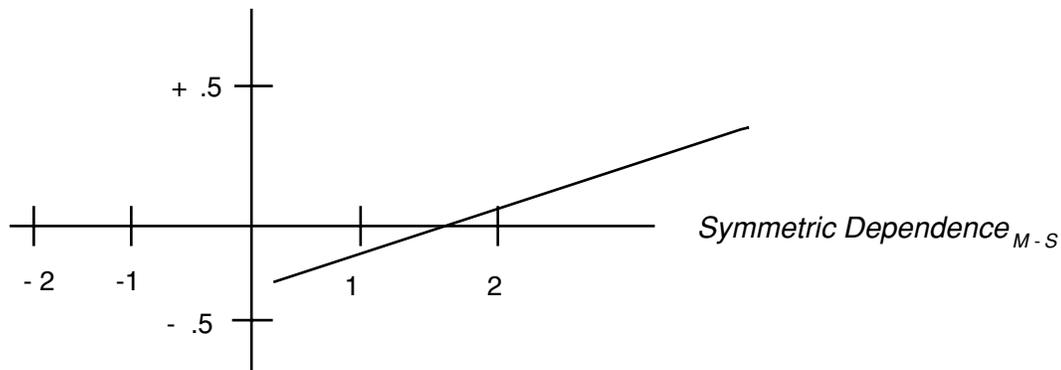
The third model involved regressing flexibility against downstream market uncertainty, monitoring of supplier outcomes, monitoring of supplier processes, and the interaction between downstream uncertainty and supplier monitoring (outcomes and processes). The two interaction terms involving monitoring provide the test of Hypothesis 3. In addition to the focal theoretical variables, retailer monitoring and the last five control variables, which were included in the first model, were added as covariates.

Table 6 shows the estimated coefficients (standardized and unstandardized) and associated t-statistics. Again, the model explains a sufficient amount of variance to justify examining the individual coefficients (adjusted R^2 of .33). Further, the interaction between monitoring of supplier processes and downstream uncertainty is significant and positive ($t = 2.32$, $p < .025$). This result provides support for Hypothesis 3. In Figure 4 the partial derivative of manufacturer flexibility with respect to downstream uncertainty is graphed over the range of monitoring of supplier processes. For low levels of supplier monitoring, downstream uncertainty has a significant and negative effect on apparel manufacturer flexibility towards its retail customers. Specifically, market uncertainty has a negative effect on manufacturer flexibility in the monitoring range below .85 and a positive effect when monitoring is greater than .85. The interaction between monitoring of supplier outcomes and downstream uncertainty is not significant.

With regard to the control variables, monitoring by the retailer has the expected positive and significant effect on manufacturer flexibility ($t = 1.96$, $p < .05$). In addition, size, both in the upstream and downstream market, has the predicted

effect on manufacturer flexibility ($t = 1.33$, $p < .1$ and $t = -2.99$, $p < .025$, respectively). With regard to the impact of delayed product differentiation (postponement) and apparel manufacturer inventory on manufacturer flexibility in the downstream market, we found a positive and significant effect of postponement ($t = 1.41$, $p < .1$), while inventory had no significant effect on the dependent variable. Finally, high fashion garments increased flexibility ($t = 3.45$, $p < .025$).

Table 6. Regression Model for Monitoring (H_3) Dependent Variable: Apparel Manufacturer Flexibility ($n = 81$)

| Independent Variables	Unstandardized Coefficients	Standardized Coefficients	*t*-value
Monitoring: Outcomes	.11	.13	.96
Monitoring: Process	.07	.10	.80
Downstream Uncertainty	-.28	-.26	-2.45[a]
M-Outcomes x Uncertainty	-.09	-.14	-1.04
M-Process x Uncertainty	.18	.31	2.32[a]
Size: AM > Contractor	.19	.14	1.33[c]
Characteristics of Garment	.38	.37	3.45[a]
Size: AM > Retailer	-.45	-.32	-2.99[a]
Postponement	.10	.16	1.41[c]
AM Inventory	.05	.07	.68
Monitoring by Retailer	.16	.20	1.96[b]
	R^2 adjusted = .33		

[a]$p < .025$ (1-tailed test), [b]$p < .05$ (1-tailed test), [c]$p < .1$ (1-tailed test)

Figure 5. The Impact of Supplier Monitoring on the Relationship Between Downstream Uncertainty and Manufacturer Flexibility

$$\frac{dFLEXIBILITY_{M-C}}{dUNCERTAINTY_{M-C}} = -.26 + .31 \, (Monitoring\ Processes_{M-S})$$

$$\frac{dFLEXIBILITY_{M-C}}{dUNCERTAINTY_{M-C}}$$
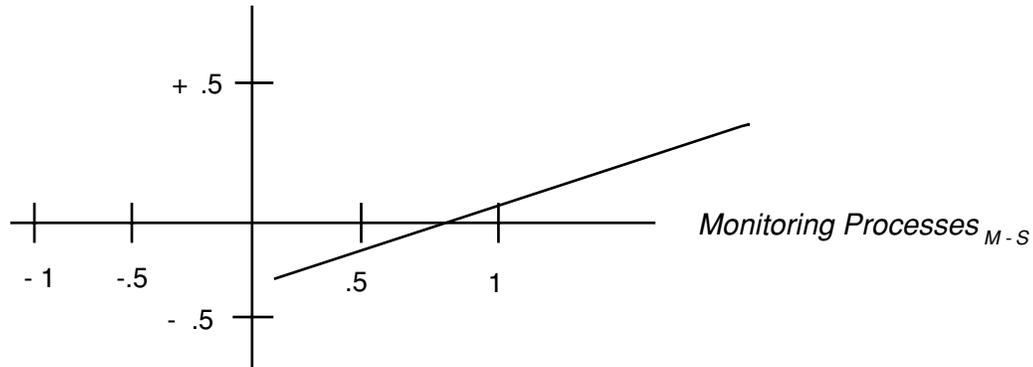
Our two last models tested the interactions involving interorganizational socialization and compensation, respectively. As shown in Table 7 and Table 8 both models explain a sufficient amount of variance to justify examining the individual coefficients (adjusted R^2 of .19 and .20, respectively). But while the relevant interaction terms are positive, as expected, they are not statistically significant. Hence, no support was found for hypotheses 4 and 5.

Table 7. Regression Model for Organizational Socialization (H$_4$) Dependent Variable: Apparel Manufacturer Flexibility (*n* = 81)

Independent Variables	Unstandardized Coefficients	Standardized Coefficients	*t*-value
Interfunctional Norms	.02	.02	.17
Downstream Uncertainty	-.31	-.29	-2.53[a]
Norms x Uncertainty	.11	.09	.72
Size: AM > Contractor	.21	.15	1.36[c]
Characteristic of Garment	.41	.40	3.40[a]
Size: AM > Retailer	-.36	-.26	-2.32[a]
Postponement	.12	.19	1.55[c]
AM Inventory	.02	.03	.25
		R^2 adjusted = .20	

[a] *p* < .025 (1-tailed test), [b] *p* < .05 (1-tailed test), [c] *p* <.1 (1-tailed test

Table 8. Regression Model for Compensation (H$_5$) Dependent Variable: Apparel Manufacturer Flexibility (*n* = 81)

Independent Variables	Unstandardized Coefficients	Standardized Coefficients	*t*-value
Compensation	.03	.04	.33
Downstream Uncertainty	-.29	-.27	-2.38[a]
Compensation x Uncertainty	.02	.02	.19
Size: AM > Contractor	.22	.15	1.36[c]
Characteristic of Garment	.39	.39	3.26[a]
Size: AM > Retailer	-.38	-.27	-2.40[a]
Postponement	.10	.17	1.37[c]
AM Inventory	.03	.04	.34
		R^2 adjusted = .20	

[a] *p* < .025 (1-tailed test), [b] *p* < .05 (1-tailed test), [c] *p* <.1 (1-tailed test)

Summary of Results

To summarize our empirical results, the statistical models generally show strong support for our hypotheses about the effects of governance in the upstream supply market on manufacturer flexibility toward customers. With respect to our first hypothesis, we found a positive and significant interaction between supplier qualification and uncertainty, indicating that the effect of uncertainty on manufacturer flexibility increases for higher levels of qualification efforts in the upstream supply market. Our second hypothesis, which addressed the moderating effects of dependence symmetry in the upstream market, was also supported, indicating that the effect of uncertainty on flexibility increases for higher levels of symmetric dependence in the upstream supply market. Finally, the interaction between monitoring of supplier processes and downstream uncertainty was significant and positive, showing that the effect of downstream uncertainty on manufacturer flexibility toward customers increases for higher levels of monitoring of supplier processes in the upstream market. We did not find such an effect for monitoring of supplier outcomes. Moreover, no significant effect was found for the two intraorganizational variables, socialization and compensation. Our a priori hypotheses and empirical results are summarized in Table 9. These results are discussed in further detail in the following section.

Table 9. Summary of Hypotheses and Results

Hypotheses	Independent Variable(s)	Dependent Variable	Hypothesized Effect	Result
H_1	Supplier Qualification x Downstream Uncertainty	Manufacturer Flexibility	+	Supported
H_2	Mutual Dependence x Downstream Uncertainty	Manufacturer Flexibility	+	Supported
H_3	Supplier Monitoring x Downstream Uncertainty	Manufacturer Flexibility	+	Partially Supported (Monitoring Process)
H_4	Organizational Socialization x Downstream Uncertainty	Manufacturer Flexibility	+	Not supported
H_5	Compensation x Downstream Uncertainty	Manufacturer Flexibility	+	Not supported

Discussion

Implications for Theory

Interfirm relationships and relationship management issues have recently received considerable attention from researchers in marketing. In particular, numerous empirical studies have made a strong case for the importance of creating strong relationships with key customers (Crosby and Stephens 1987; Dwyer, Schurr, and Oh 1987; Heide and John 1990; Kalwani and Narayandas 1995; Noordewier, John, and Nevin 1990). The predominant focus of this research has been on individual, dyadic relationships between two firms, such as a manufacturer and a customer.

Recently, some scholars have suggested that in order to understand dyadic relationships, greater attention must be directed to the network context within which these relationships exist (Achrol 1997; Anderson, Håkansson, and Johanson 1994; Levy and Grewal 2000; Wathne and Heide 2000). For instance, the industrial networks perspective, as presented by the IMP (Industrial Marketing and Purchasing) Group (Ford 1990; Håkansson and Snehota 1995), argues that the assumption of *ceteris paribus* in other relationships, which underlies much of the extant dyadic research, is an unrealistic one. This theoretical critique is reflected in the frequent observation made by managers that it is no longer sufficient to manage their own organizations; they must also get involved in the coordination of the other relationships that impact their ability to implement their firm's strategies (Handfield and Nichols 1998). For instance, a recent article in *The Economist* (2001) describes how a number of Internet companies are finding that their ability to effectively meet customer demand is dependent on the pace with which their supply chain partners are responding to their strategy changes in the downstream market. While there is considerable anecdotal evidence which supports the above critiques and observations, the implications remain unclear. For instance, no current theory has articulated what the consequences are of expanding the unit of analysis beyond dyadic relationships between two firms. Moreover, empirical evidence is almost nonexistent.

In this study, we draw on transaction cost analysis (TCA) to develop a theoretical framework of interdependencies among relationships in a vertical network context. TCA proposes that relationship performance depends on finding an appropriate match between the structure of a specific relationship and the characteristics underlying the exchange(s) taking place (Williamson 1985). One of the key exchange characteristics identified in TCA is environmental uncertainty. TCA argues that uncertain environments will motivate firms to build flexibility into their trading relationships in order to facilitate adaptation to changing circumstances (Williamson 1991).

Our general hypothesis is that while downstream uncertainty motivates a firm to build flexibility into a dyadic trading relationship (as per Williamson 1985), the actual ability to do so depends on how other relationships in the firm's larger net-

work context are structured. Specifically, these other network relationships must be governed so that they permit the firm to adapt efficiently to changing circumstances in the focal dyadic relationship. We identify two possible constraints on a firm's ability to structure a focal customer relationship in the desired fashion, namely a firm's upstream supplier relationships and interfunctional relationships within the firm itself. If parties in these related relationships lack either the ability or the motivation to support the firm's strategy in the downstream market, the firm's ability to show flexibility in its customer relationships can be compromised.

We identify three specific governance strategies which can be used to govern relationships in the upstream supply market, namely supplier qualification, incentive design, and monitoring, and two governance strategies which can be used to govern interfunctional relationships within the firm itself, namely organizational socialization and compensation. Overall, the results show support for our main predictions pertaining to the effects of governance efforts in the upstream supply market. Specifically, the effect of uncertainty in the downstream market on manufacturer flexibility toward customers was found to be contingent on the governance mechanisms deployed in the upstream supply market. We found that uncertainty in the downstream market only has a positive effect on manufacturer flexibility for higher levels of supplier qualification efforts, performance verification of supplier behavior, and dependence symmetry (our measure of incentive structure) between the apparel manufacturer and the contractor. In other words, while extant TCA theory suggests that downstream uncertainty creates motivation on the part of the manufacturer to show flexibility toward changing customer demands, we have extended the theory by showing that the actual ability to do so is determined by the deployment of specific governance mechanisms in the upstream supply market.

Interestingly, we did not find support for the hypothesized interaction between monitoring of supplier outcomes and downstream market uncertainty. One plausible explanation for this is that the effectiveness of monitoring of outcomes rests on the availability of good evaluation criteria. Under conditions of high market uncertainty, a manufacturer is unable to write a complete contract with the supplier that specifies all of the relevant outcomes. Consequently, the information that the manufacturer generates through the monitoring of outcomes may be of limited use.

While the interactions pertaining to the effects of organizational socialization and compensation within the firm itself are both positive as expected, they are not statistically significant. These nonsignificant results might be due to a lack of statistical power in the regression models. While we made significant efforts to recruit survey participants, as explained in the previous section, we ended up basing our analysis on a sample of 81 complete manufacturer-retailer dyads. This is a relatively small number of observations, which could account for a lack of statistical significance for the two intraorganizational governance mechanisms. It is noteworthy, however, that most of our hypotheses for interorganizational governance were supported. This may suggest that governance efforts directed at outside parties might be more important determinants of downstream flexibility than internal ones.

Implications for Practice

A managerial decision making framework that incorporates our results is shown in Figure 6. The framework focuses on a manufacturer's flexibility vis-à-vis a downstream customer (a retailer). As discussed earlier, the need for flexibility is determined by the degree of uncertainty that exists in the downstream market. Thus, the impetus to the decision process shown in Figure 6 is the assessment of the overall need for flexibility.

Figure 6. Managerial Decision Framework
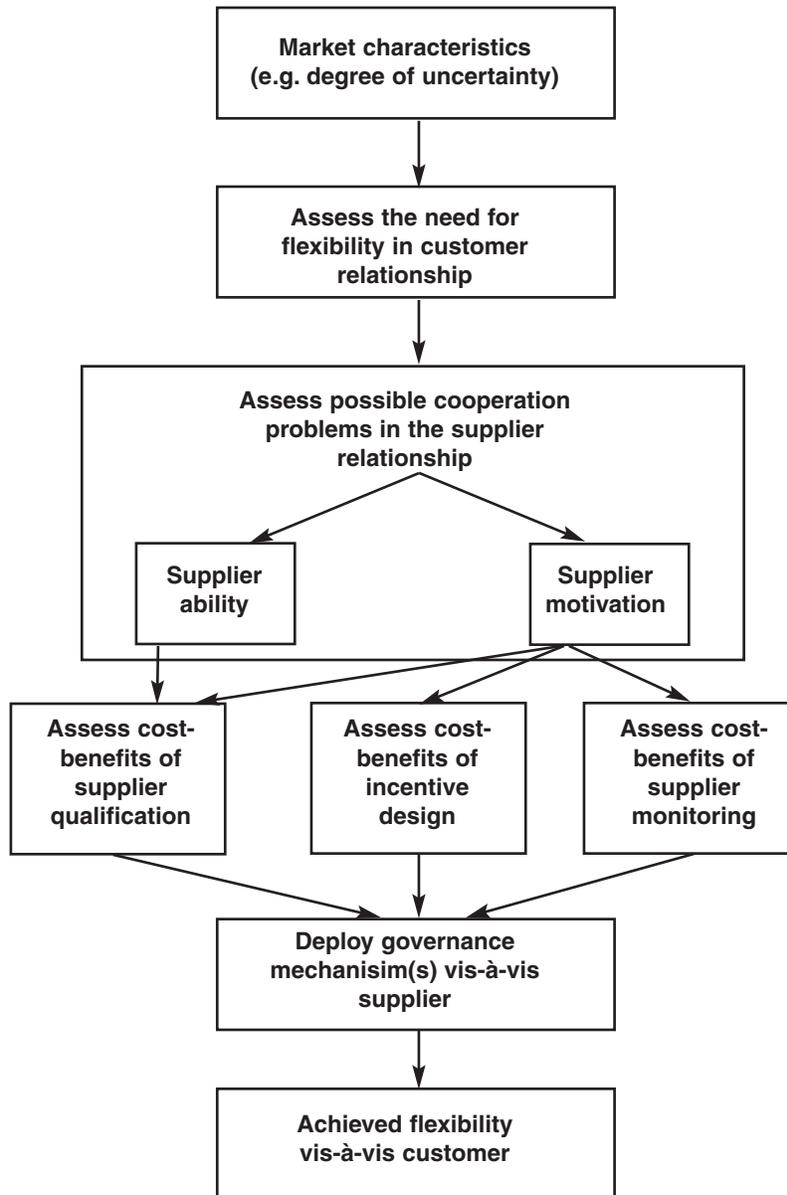
Next, the possible constraints on the ability to show flexibility are considered. Specifically, a firm must consider the possibility of cooperation problems due to a lack of ability and/or motivation by suppliers in the upstream market. Based on an assessment of the extant problems, a firm must deploy mechanisms that promote flexibility. As shown in Figure 6, problems related to the lack of supplier ability can be managed by investing in supplier qualification programs. Motivation problems can be addressed by increasing the amount of resources spent on supplier qualification and monitoring as well as by creating incentives that minimize the supplier's payoffs from behaving opportunistically. Deploying these mechanisms increases the likelihood of supplier flexibility and, ultimately, of the manufacturer's ability to actually show flexibility in the downstream market.

In our framework, flexibility in the vertical marketing network is not a goal in itself. In fact, because promoting flexibility requires investments on a firm's part, such efforts should be made selectively. For instance, both qualification programs and monitoring involve substantial costs. Under conditions of market uncertainty, however, when the need for flexibility is substantial, promoting flexibility throughout the vertical marketing network becomes an important part of a firm's overall strategy.

Limitations and Future Research

The results of our study must be interpreted in view of certain limitations. For theory testing purposes, we decided to test our hypotheses in one particular (and homogenous) context, namely the U.S. apparel industry. Restricting our sample in this fashion served the dual purposes of controlling extraneous sources of variation and developing grounded measures. But caution should be used in extrapolating our results to other contexts. A promising avenue for future research would be to test the effects of these relationships in other industries.

It is also worth noting that the governance mechanisms we identify to solve ability and motivation problems in the upstream supply market and within the firm do not represent an exhaustive list. As discussed previously, motivation problems can be solved through the use of incentives. In addition to committing dedicated physical and human assets, the manufacturer also may offer to pay the supplier a price premium to show flexibility (Klein and Leffler 1981; Rao and Bergen 1992; Rao and Monroe 1996). Furthermore, providing employees with wage premiums might promote flexibility within the firm (Mishra, Heide, and Cort 1998). Thus an important topic for future research is to specify in greater detail the governance mechanisms that can be used to manage potential cooperation problems both in interfirm and intrafirm relationships.

Notes

1. Our theoretical prediction is that a manufacturer's efforts to prequalify a supplier in the upstream supply market will have a positive effect on supplier flexibility. In turn, this will facilitate adaptation to uncertainty downstream. From a technical standpoint, H_1 involves a positive interaction between supplier qualification and uncertainty about downstream flexibility.

2. The managers were asked to select and describe a particular sourcing arrangement where the contractor was the largest source for a particular item (in terms of annual monetary value). If the item was sold to more than one retailer, the managers were asked to select the largest possible retailer of the item (in terms of annual purchase volume). As per the criteria discussed earlier, companies were considered inappropriate for the study if they did not rely on any independent contractors and retailers.

3. Since many of the informants were senior managers (e.g., president, owner, CEO), they frequently reported that their personal involvement in their firm's day-to-day dealings with the contractor and retailer was low, while their knowledge about their firm's dealing with these exchange partners was very high. Based on this, we decided to use the two knowledge scales for the post hoc testing of informant quality for apparel manufacturers.

4. The three interfunctional norms were modeled as a second-order, confirmatory factor model, in which the observed items are hypothesized to originate from the three first-order factors, and the first-order factors in turn originate from a second-order factor (as per Heide and John 1992). For the hypothesis tests, the three norm types were then combined into an equally weighted composite score.

5. To minimize the potential threat of multicollinearity among the interaction term and the other variables in the regression models, we mean-centered all independent variables (Aiken and West 1991).

6. On the mean-centered qualification scale

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MARKETING SCIENCE INSTITUTE

1000 Massachusetts Avenue
Cambridge, MA 02138 USA
Phone: 617.491.2060
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