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Many marketing exchanges are characterized by an information asymmetry between suppliers and customers. Specifically, customers are faced with both adverse selection and moral hazard problems that involve, respectively, uncertainty about supplier characteristics and the risk of quality cheating. Drawing on prior research, the authors propose that agency problems in a customer relationship can be resolved by means of customer bonds and price premiums, which serve as signals and supplier incentives, respectively. The authors also propose that adverse selection and moral hazard problems exist in relationships between suppliers and their employees. Similar to the customer relationship, these problems can be addressed with signals and incentives of various kinds. The authors present hypotheses regarding the agency problems in both of these relationships and test them empirically in the context of automotive service purchases. Data obtained from 287 service managers support the hypotheses. The data also suggest that institutional differences across service outlets (e.g., ownership structure and size) influence how the two types of agency problems are managed.

# Information Asymmetry and Levels of Agency Relationships

Marketing relationships between buyers and sellers often are characterized by information asymmetry, in the sense that the supplier possesses more information about the object of an exchange (e.g., a product or service) than the buyer. In Nelson's (1970) terminology, many products and services possess "experience" attributes whose quality can be ascertained only after purchase. For example, buyers of car repair services often face considerable ambiguity when trying to determine the true level of quality provided in a particular transaction.

Customers' inability to assess quality accurately can be opportunistically exploited by suppliers. Two potential problems exist. First, suppliers that do not possess the skills required to provide certain quality levels might misrepresent themselves by making false quality claims (Eisenhardt

1989). In Akerlof's (1970) terminology, a customer's inability to ascertain a supplier's inherent skills represents an "adverse selection" problem. Second, in some markets, a *moral hazard* problem (Holmstrom 1979) also might exist, because suppliers easily can influence the level of quality provided for each transaction (Rao, Qu, and Ruekert 1997).

Adverse selection and moral hazard problems represent concerns both for customers, who cannot evaluate the object of an exchange easily, and for those suppliers whose strategies are based on quality but whose offerings are indistinguishable from lower-quality ones.

The extant literature has identified some possible solutions to such problems. In general, adverse selection problems are resolved by signals designed to reveal parties' private information about their inherent characteristics. For example, nonsalvageable investments that serve as a customer bond or hostage (Milgrom and Roberts 1986) could serve this purpose. In contrast, moral hazard problems are solved through the use of incentives, which prevent subsequent quality cheating. As Kreps (1990, p. 577) notes, moral hazard problems can be managed by "structuring a transaction so that the party who undertakes the actions will, in his own best interests, take actions that the second party would prefer." For example, Klein and Leffler (1981) explore how price premiums, or prices that exceed the marginal cost for high quality, can be used to create incentives for quality provision. This argument has been applied to marketing contexts both conceptually (Rao and Monroe 1996) and empirically (Rao and Bergen 1992).

It should be noted, however, that strategies directed at end customers only constitute a partial solution to a supplier's agency problems. Any form of quality assurance program directed at customers is of limited value unless the supplier can ensure that promised quality actually will be delivered (Berry 1995; Bitner 1995). This might pose a problem if the focal product or service is delivered by a third-party service provider. From an agency-theoretic perspective, the problems faced by a supplier in a relationship with a service provider parallel those encountered in the customer relationship. An adverse selection problem exists, in the form of identifying providers a priori that possess the skills required to provide certain levels of quality. In addition, a moral hazard problem exists, in the form of preventing ongoing cheating. Klein and Leffler (1981, p. 633) note that firms' reputations can be undermined by agents who "create a severe quality-cheating problem" for the principal. Bowen and Schneider (1988) similarly discuss how service employees often "act alone," and Mills (1990, p. 34) notes that "service providers may not always act in the best interests of customers." Specific examples can be found in the fields of automotive repair (*The Wall Street Journal* 1993a), health care (Swedlow et al. 1992), franchising (Brickley and Dark 1987), and financial services (Dejong, Forsythe, and Lundholm 1985).

Similar to the agency problems in the customer relationship, adverse selection and moral hazard problems with respect to service providers are resolved with signals and incentives, respectively. In this context, however, signals also can take the form of qualification procedures that give appropriate providers the opportunity to reveal their true skills by self-selecting into the relationship. The moral hazard problem is managed by means of compensation systems and cultural values that reduce the likelihood of subsequent cheating.

The main purpose of this article is to develop a conceptual framework and provide empirical evidence regarding multilevel agency relationships involving suppliers, end customers, and service providers. With a few notable exceptions (e.g., Klein and Murphy 1988), multilevel agency problems have received limited attention in the literature. In particular, empirical evidence is virtually nonexistent.[1]

We seek to make two additional contributions. First, as was mentioned previously, we focus on the simultaneous presence of two types of information problems at each level, namely, adverse selection and moral hazard. Although such problems have begun to receive theoretical attention (e.g., Dearden, Ickes, and Samuelson 1990; Picard 1987), empirical evidence is scarce.[2] Second, we explore whether institutional differences between suppliers influence how the different information problems are managed. Specifically, we examine whether ownership structure (i.e., company-owned or franchised versus an independent outlet) influences how problems in the customer relationship are solved. Furthermore, we test the extent to which ownership struc-

ture, outlet affiliation (national/regional or local chain), and size determine the approaches used to manage relationships with service providers.

The remainder of this article is organized as follows: First, we present our conceptual framework and formulate a set of research hypotheses. We then discuss the research design, including the survey context, development of the survey instrument, sampling procedure, data collection, and construct validation procedures. In the following section, we describe the empirical tests of our hypotheses. Finally, we discuss the implications of this study for theory and managerial practice. We conclude by noting the limitations of our study and providing directions for additional research.

## CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESES

### Outlet–Customer Agency Problems

According to Jensen and Meckling (1976, p. 308), an agency relationship is "a contract under which one or more persons (principals) engages another person (the agent) to perform some service on their behalf which involves delegating some decision-making authority to the agent." Our conceptual framework, as is shown in Figure 1, encompasses agency relationships at two different levels. The first involves the relationship between a customer and a supplier. In our particular context, the supplier is an individual outlet that provides car repair services. In this relationship, the customer formally serves as the principal, whose task is to contract with the outlet (or agent). The second level involves the relationship between the outlet and its employees. At this level, the outlet technically serves as the principal, and the employee plays the role of the agent.

We consider, as a starting point, the customer's situation. The general problem faced by the customer is *information asymmetry*, or the inability to evaluate quality accurately prior to purchase. The inability to assess quality represents exposure to two different forms of supplier opportunism, namely, (1) misrepresentation of an outlet's true characteristics and (2) actual quality cheating. As is noted previously, these scenarios describe adverse selection and moral hazard problems, respectively.

We consider first the adverse selection problem. Under conditions of information asymmetry, the customer will have difficulty distinguishing between high- and low-quality outlets a priori. In addition, high-quality outlets face difficulty, to the extent that their offerings at a given point in time are indistinguishable from those of low-quality ones. In the context at hand (i.e., car repair), in which quality pertains to a service rather than to a tangible product, the adverse selection problem involves certain fixed characteristics of the supplier firm that have the potential to influence the level of quality delivered but that are unobservable to the customer (Levinthal 1988). These characteristics include organizational procedures, process knowledge, and equipment.

In general, adverse selection problems are resolved by signals, which give high-quality agents the opportunity to reveal their private information or self-identify to the principal. To be effective, the signal should be differentially costly to provide for agents of different quality (Rao and Ruekert 1994; Spence 1973). One possible signal is investment in nonsalvageable assets such as signs and logos. Such "conspicuous" items (Klein and Leffler 1981) do not necessarily

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[1]Another exception is researchers in the franchising area who have studied so-called "two-sided" moral hazard problems (Lafontaine 1992; Lal 1990). In such situations, franchisees might shirk in quality provision, and franchisors might underinvest in the brand.

[2]For an exception, see Stump and Heide (1996). These authors examine how adverse selection and moral hazard problems in industrial purchasing relationships can be managed with supplier qualification programs and hostages, respectively.

Figure 1
CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESES[a]
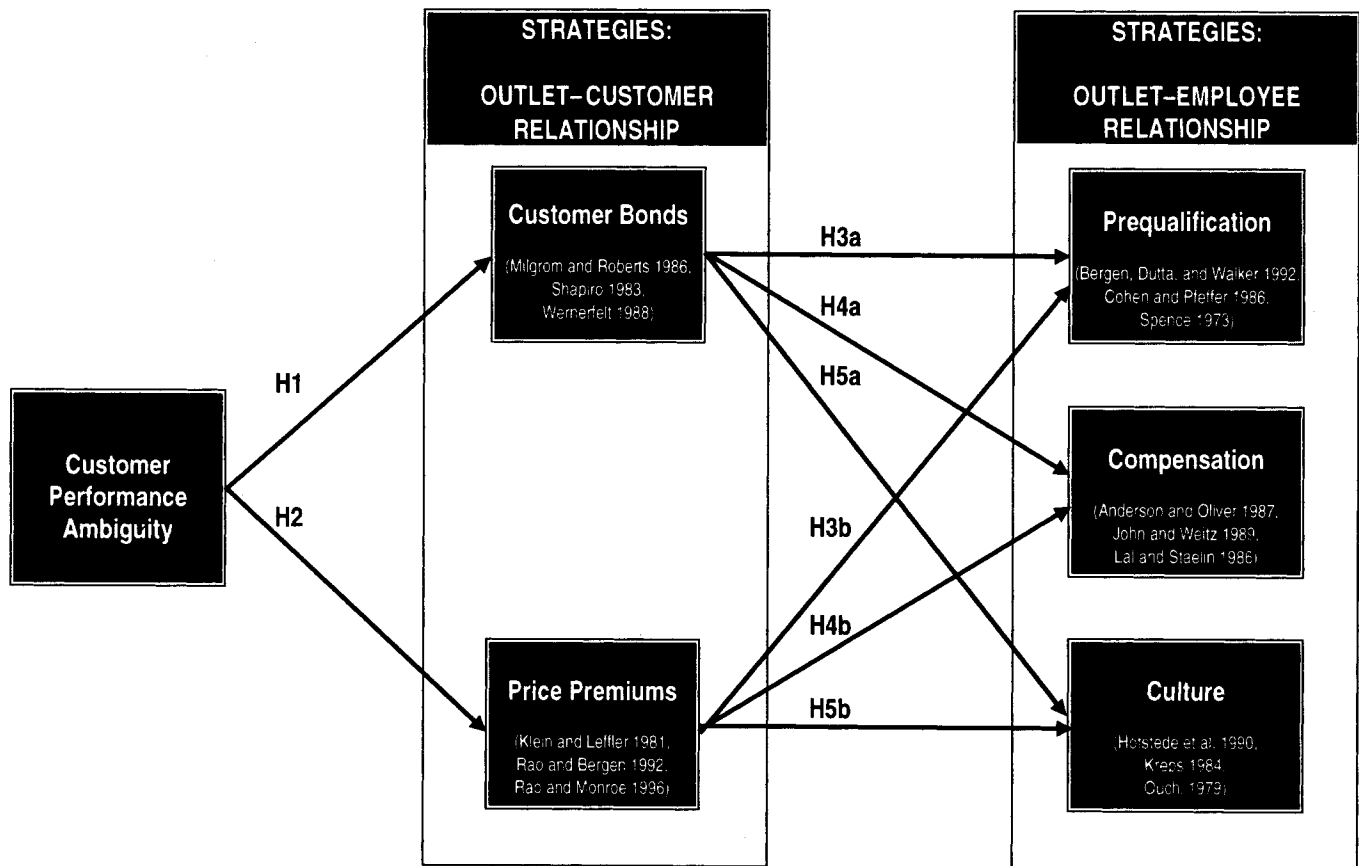


[a]Representative literature pertaining to each construct is shown in parentheses.

serve demand-enhancing or cost-minimizing purposes (Milgrom and Roberts 1986); rather, their main purpose is to serve as a customer bond or "hostage" (Schelling 1960). The signal sent to consumers is that such investments would not be worthwhile for a low-quality supplier that would not enjoy repeat purchases. Low-quality suppliers that made such investments would face a capital loss and be worse off than if no signal had been sent (Wernerfelt 1988). In contrast, high-quality suppliers that can expect repeat business will enjoy a return on such investments (Rubin 1990; Tirole 1989). However, such signals are valuable only in conditions of information asymmetry. If no information gaps exist, or if customers can evaluate quality easily, the utility of signals is attenuated (Shapiro 1983). We summarize the preceding discussion with the following hypothesis:

$H_1$: The greater the level of customer performance ambiguity, the greater the outlet's investments in customer bonds will be.[3]

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[3]This hypothesis represents a different perspective on the role of supplier investments than those offered in previous research. For example, the services literature (e.g., Bitner 1992) argues that ambient conditions affect customers psychologically. In a similar vein, Hui and Bateson (1991) study how a customer's "perceived control" mediates his or her behavioral responses to the physical environment. Although we acknowledge the possible psychological effects of supplier assets on customers, our present prediction pertains to their effect as a supplier signal.

We consider next the customer's moral hazard problem. In the context of services such as car repair, suppliers have the capability to change the level of quality provided for each transaction (Rao, Qu, and Ruekert 1997). Suppliers also have the motivation to undersupply quality, because quality reduction both provides immediate cost savings and is difficult to detect. As is noted by Tirole (1989), one of the key attributes of quality in service contexts is durability. Unless the cheating is extreme, quality debasement will only manifest itself after a substantial time lag.[4] In summary, information asymmetry creates a severe moral hazard problem because suppliers have both the ability and the motivation to cheat.

For high quality to be supplied in such a situation, suppliers must be given appropriate incentives for quality maintenance (Shapiro 1983). Klein and Leffler (1981) argue that market mechanisms such as price premiums, or prices above marginal costs, might serve such a purpose. By pricing above what is warranted by a product's or service's "true" quality (Rao and Bergen 1992), an incentive structure is created that motivates suppliers to provide high quality. If the price premium is sufficiently high, the possibility of repeat

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[4]Rao and Bergen (1992) provide empirical evidence for the effect of evaluation lags on the need for price premiums.

sales makes suppliers forego the short-term profits from producing low quality. In Telser's (1980) terminology, the combination of positive markups and repeat sales creates a quasi-rent stream that is lost in the event of cheating and that serves to discipline suppliers. Quality-conscious customers (or principals, in this context) who face information asymmetry are willing to pay a premium to ensure that quality actually is provided (Rao and Bergen 1992).

The magnitude of the price premium should be a function of the information problem the customer faces. In general, the poorer the information that is available to a customer *ex ante*, or the higher the degree of performance ambiguity surrounding the transaction, the greater the required premium (Klein and Leffler 1981; Wolinsky 1983). If quality is readily observable, price premiums are not needed (Rao and Monroe 1996). On the basis of the preceeding discussion, we propose the following hypothesis:

H$_2$: The greater the level of customer performance ambiguity, the greater the magnitude of the price premium will be.

## Outlet–Employee Agency Problems

The main premises of the preceding discussion are that information asymmetry creates a need for price premiums and investments in customer bonds. The effect of such efforts is that a supplier makes a promise to its customers. We argue, however, that such efforts in themselves are insufficient. The actual fulfillment of promises may be impeded to the extent that the delivery process is outside the supplier's control (Steenkamp and Hoffman 1994). To the extent that delivery takes place through intermediate agents, another set of agency problems arises. In our present context, the agents are automotive mechanics who perform repair and maintenance work on behalf of a particular outlet.

Multilevel agency problems were recognized first by Klein and Murphy (1988). They examined a distribution channel setting in which a manufacturer relies on independent retailers to provide certain services to end users. The retailer's actions ultimately influence the quality of the product supplied to end users. However, at the time of purchase, customers are unable to evaluate product quality accurately. In addition, the manufacturer cannot monitor the retailer easily. Thus, information asymmetry exists at two levels, and two types of agency problems exist.

We consider the specific nature of the problem that exists with the agent. A supplier's strategy can be compromised in two different ways. First, a supplier's quality delivery might be impeded if it uses agents who lack the needed skills or abilities. Theoretically, this is another manifestation of the adverse selection problem we discussed previously. Second, a supplier faces a moral hazard problem to the extent that the agent cheats or fails to make the necessary efforts. Empirical evidence from contexts such as fast-food restaurants (Brickley and Dark 1987), financial services (Dejong, Forsythe, and Lundholm 1985), and real estate (Valley et al. 1992) shows that service providers often fail to act in the best interest of the service supplier.

As in the supplier–customer relationship, the general solution to the adverse selection problem involves the use of signals. However, potential employees cannot invest in non-salvageable assets as easily as firms can. Similar to the way people can self-select health insurance plans and thus reveal private information about their state of health (Kreps 1990),

firms can design qualification programs that permit appropriate agents to self-identify.

Consistent with our prior discussion, strategies for managing the moral hazard problem with the employee involve reducing the likelihood that quality cheating will take place. In the following section, we focus on two specific strategies, namely, (1) explicit compensation packages that make cheating unprofitable and (2) the development of cultural values that align the goals of the employee with those of the outlet. Each strategy is discussed subsequently.[5]

### Prequalification Efforts

As is noted by Bergen, Dutta, and Walker (1992), adverse selection or "hidden information" (Arrow 1985) problems can be managed by implementing qualification processes that identify agents *ex ante* who have the skills necessary to support a firm's strategy. The screening can be implemented through personal interviews, aptitude tests, or cues of various kinds (Bergen, Dutta, and Walker 1992). For example, investment bankers carefully select auditors on the basis of their affiliation to maintain the quality of the financial services promised to customers in the first place. Balvers, McDonald, and Miller (1988) note that, with the exception of Merrill Lynch, none of the top five investment bankers has used a non-Big Eight auditor more than once; they thus conclude that "high reputation bankers tend to hire high reputation auditors" (p. 618). Similar examples can be found in the organizational hiring literature (e.g., Cohen and Pfeffer 1986).

One of the consequences of qualification efforts is obvious. They enable an outlet to eliminate from consideration persons who fail to meet the prespecified criteria. At a more subtle level, however, qualification also serves a signaling purpose by allowing "appropriate" employees to self-identify by showing their willingness to undergo qualification. The adverse selection problem exists because potential employees possess private information about their true ability levels. Thus, there is a risk that opportunisitic persons might misrepresent themselves to the outlet (Spence 1973). Because going through a qualification process represents a cost to a person, only those who possess the required skills will be motivated to complete the process. Unlike the customer relationship, in which the informed party (i.e., the outlet) engages in signaling by investing in nonsalvageable assets, the signaling effect of qualification happens because the uninformed party (the outlet) structures a contract that causes private information from the employee to be revealed.

Designing and administering qualification programs are also costly for the outlet. As such, they are not desirable per se. Rather, we propose that such programs are used selectively, in situations in which the strategy toward end customers could be compromised if employees did not possess the appropriate skills. In such situations, the need for qualification increases.

As was discussed previously, an outlet's quality strategy toward customers is implemented through customer bonds and price premiums. Such efforts give rise to contracting

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[5]In some situations, wage premiums may be used to solve the moral hazard problem in the employee relationship, similar to the use of price premiums in the customer relationship. However, in the context at hand, prior research (i.e., Krueger and Summers 1988) suggests that wage premiums are not commonly used.

problems in their own right. The motivation for using bonds and price premiums is tied to repeat purchases by customers. If an unskilled employee provides low quality and a customer fails to engage in repeat purchases, the outlet might lose both the bond and the price premiums on future sales. We summarize the preceding discussion with the following hypothesis:

$H_3$: The greater an outlet's effort to ensure quality through (a) customer bonds and (b) price premiums, the greater its efforts to prequalify service providers will be.

## Compensation

In addition to a lack of agent ability, quality provision to customers also might be compromised because of cheating or lack of agent effort. This moral hazard or "hidden action" (Arrow 1985) problem can be addressed by designing compensation systems that align the agent's interests with those of the principal (Lal and Staelin 1986). In agency theory, the compensation decision boils down to accurately and cost-lessly measuring and rewarding the performance of agents so that the principal's objective is attained (Eisenhardt 1985). Prior literature traditionally has framed the compensation decision as a choice between outcome- and behavior-based compensation, or some combination of the two (John and Weitz 1989). The optimal choice depends on the extent to which appropriate outcome levels or behaviors can be specified in advance (Anderson and Oliver 1987).

In the context at hand, behavior-based compensation systems often are infeasible because of the costs of specifying appropriate actions ex ante and measuring and linking them to rewards ex post. In the context of automotive repair, it is impractical to identify the behaviors involved in a particular service task and subsequently monitor agent compliance. Similarly, conventional outcome-based systems often fail because they motivate service providers to deliver nonoptimal service levels to customers (Swedlow et al. 1992; Wolinsky 1993). For example, commission systems (an outcome-based system) frequently motivate agents to prescribe services that are not needed by the customer As a consequence, many service firms have moved toward compensating service providers on the basis of customer input, such as satisfaction measures (Dranove and White 1987). For example, The Wall Street Journal (1993b) describes how hospitals have started to compensate doctors in such a fashion. In Milgrom and Roberts's (1992) terminology, satisfaction measures represent a "proxy" that can overcome the limitations of other methods.

In practice, outlets' compensation systems will be based on a combination of different measures and instruments. However, we propose that the importance of incorporating customer input in the overall compensation system follows from the outlet's general approach to the market. Specifically, outlets that rely on a quality strategy, and to that end use customer bonds and price premiums, will have a greater incentive to compensate their employees in this fashion. In turn, such a system increases the likelihood that (1) customers will receive quality and (2) the outlet will benefit from its investments. In hypothesis form,

$H_4$: The greater an outlet's effort to ensure quality through (a) customer bonds and (b) price premiums, the greater its reliance on customer-oriented compensation for its employees will be.

*Service culture.* The logic behind the preceding hypothesis is to solve the moral hazard problem through economic incentives that make certain actions attractive, even for self-interested agents. Organization theory suggests another strategy that is based on socialization processes that make employees internalize or "buy into" the firm's culture in the first place (Chu and Desai 1995; Ouchi 1979). In recent years, a sizable body of literature on the topic of culture has emerged in the fields of marketing (e.g., Deshpandé, Farley, and Webster 1993), organizational behavior (Hofstede et al. 1990), and strategic management (e.g., Camerer and Vep-salainen 1988). *Culture* typically is defined in these literature as shared meanings about events and situations among organization members (Deshpandé, Farley, and Webster 1993). For example, Hofstede and colleagues (1990, p. 303) note that culture can be described in part by the organization's "major emphasis on meeting customer needs."

The effect of culture as a control mechanism derives from employees' substitution of their individual goals with the collective goals of the firm (Davis, Schoorman, and Davidson 1997). In other words, potential agency problems are managed by eliminating goal incongruencies between the parties in the first place (Kreps 1984; White 1985).

As with the previous hypotheses, we propose that efforts to develop a customer-oriented service culture are a function of the overall strategy used. The greater the efforts made to promote a quality strategy, the greater the need to exercise control through an appropriate culture is. In hypothesis form,

$H_5$: The greater an outlet's effort to ensure quality through (a) customer bonds and (b) price premiums, the greater its reliance on a customer-oriented service culture will be.

## Institutional Effects on Agency Problems

As was mentioned previously, the research hypotheses were tested empirically in the context of automotive repair services. In this general context, some interesting institutional differences exist that might influence how agency problems at different levels are managed.

First, the automotive repair outlets we study differ in terms of *ownership structure*, namely, company-owned, franchised, or independent outlets. Second, outlets differ in their *affiliation*, or whether they belong to a national, regional, or local chain. Third, they differ in terms of *size*, determined by annual sales and number of employees.

We consider first the outlet–customer relationship. Recall from our previous discussion that outlets may use signals in the form of nonsalvageable investments to manage adverse selection problems. We consider next the possibility that company-owned and franchised outlets have additional tools available to solve this problem, in the form of national advertising and sponsorships of various kinds. As such, we expect independent stores to exhibit a greater reliance on nonsalvageable investments in solving customers' information problems.

We next consider the outlet–employee relationship and the use of control mechanisms (i.e., prequalification, compensation, and culture). The basic premises underlying the use of these controls are that (1) employees can benefit monetarily by cheating, which undermines the outlet's strategy toward its end customers, and (2) explicit monitoring is costly. We consider next the possibility that the different institutional setups vary in terms of both the ease with which

Table 1

RESPONSE RATES

|  | Categories | | | |
| --- | --- | --- | --- | --- |
|  | Transmission | Brake | Lubrication | Overall |
| Firms in sample | 2892 | 2916 | 2800 | 8608 |
| Firms in random sample | 965 | 990 | 988 | 2943 |
| Firms precontacted | 760 | 715 | 800 | 2275 |
| Firms agreeing to participate | 514 | 443 | 506 | 1463 |
| Firms dropped from sample[a] | 18 | 12 | 26 | 56 |
| Firms targeted | 496 | 431 | 480 | 1407 |
| Surveys returned by post office as undeliverable | 21 | 26 | 17 | 64 |
| Completed responses | 89 | 98 | 117 | 304 |
| Response rate | 18.7% | 24.19% | 25.26% | 22.60% |

[a]Firms with unqualified informants.

monitoring can be carried out and the relative effectiveness of the three forms of control. If so, we expect to find differences across the institutional categories in terms of the reliance on qualification, compensation, and culture in structuring employee relationships. Monitoring might be easiest for independent stores (Brickley and Dark 1987), which should lead to a relatively smaller emphasis on all forms of control, compared with the chains. A similar pattern can be expected for local chains compared with regional and national ones. Finally, larger outlets might have greater monitoring problems in general but be particularly constrained in their ability to use culture as a control mechanism (Ouchi 1979). As we explain subsequently, we formally examine these possible differences as part of our analysis.

## RESEARCH DESIGN

A mail survey was used to measure the constructs described previously. Customer service managers in automotive service outlets provided data about the focal constructs. The use of a mail survey is justified because data pertaining to the relevant constructs (e.g., performance ambiguity) are not found in company reports or accounting data.

*Survey context.* The context for this research involves firms that specialize in providing automotive services to customers. We chose three different service categories: (1) lubrication services (Standard Industrial Classification [SIC] code 7549-03), (2) brake services (SIC code 7539-14), and (3) transmission repair services (SIC code 7537-01). Per accepted research practice, two major considerations guided the selection of the research context, namely, (1) whether the concepts and phenomena being investigated (e.g., agency problems and resulting strategies) naturally occurred and (2) whether adequate variation and covariation among the theoretical concepts could be found.

A careful consideration of academic and trade literature showed that agency problems exist in these settings. First, consumers experience considerable difficulty in evaluating automotive services in general (e.g., Andaleeb and Basu 1994). However, Iacobucci (1992) notes that the evaluation problem differs in magnitude across service categories. Second, there is ample evidence that customers' inability to assess performance accurately puts them at the mercy of their service providers (e.g., *The Wall Street Journal* 1992). According to Wolinsky (1993, p. 380), in the automotive repair industry, "information asymmetry creates obvious incentives for opportunistic behavior."

Prior research also documents firms' strategies in these industries. For example, considerable differences in both pricing (e.g., Nayyar and Templeton 1994) and use of customer bonds (e.g., Grove, Fisk, and Bitner 1992) have been observed in these settings.

On the basis of interviews with customer service managers, certain service categories were excluded from the sampling frame. For example, automated services (e.g., car washes) were excluded because agency problems are largely absent. Likewise, services such as body repair were not considered because pricing issues in those settings involve insurance companies.

*Sampling frame.* Three different national mailing lists, corresponding to transmission, brake, and lubrication services, were obtained from a commercial list broker. Each list provided the name and address of outlets, selected demographic data (i.e., sales and number of employees), and the name and telephone number of a prospective key informant (i.e., service manager) for each outlet. The purchased list for each category consisted of 3042 names. Given the time and resources needed to conduct a census of each list and keeping in mind prior response rates and overall sample size requirements for obtaining robust statistical results, the initial list for each category was trimmed in a systematic manner. Duplicate and dummy variables from each list and outlets providing multiple automotive services that were cross-listed were removed. After this exercise, the final sampling frame consisted of 2892 outlets in the transmission category, 2916 in the brake category, and 2800 in the lubrication sector. Every third name from this trimmed list was chosen to derive a systematic random sample.

*Questionnaire administration.* Before mailing the questionnaires, telephone calls were made to identify key informants in each company, using the procedures recommended by Heide and John (1990) and Kumar, Stern, and Anderson (1993). Questionnaires were mailed to all firms that agreed to participate in the survey. The questionnaire packet consisted of a cover letter, a prepaid envelope, and the questionnaire itself. To motivate firms to respond, they were offered an incentive in the form of a report that summarized the results of the study. Five weeks after the initial mailing, a reminder postcard was sent to all nonrespondents.

*Response rate and assessment of nonresponse bias.* The effective response rates obtained for the study appear in Table 1. The demographic characteristics of the responding

sample appear in Table 2. As is shown in Table 1, the overall response rate for the study is 22.6%. Although the response rate is somewhat low, it is consistent with recent distribution channel (Heide and John 1990) and service (Zeithaml, Berry, and Parasuraman 1996) studies.

To investigate whether nonresponse bias was an issue, we conducted t-tests to examine differences between early and late respondents (Armstrong and Overton 1976). On the basis of these tests, we could not reject the null hypothesis of no mean differences across the early (n = 170) and late (n = 117; received after week 4) responding groups with respect to "number of employees" (t = 1.43, p = .15) and "annual sales volume" (t = 1.36, p = .17). We obtained further evidence of the lack of nonresponse bias from the results of t-tests that compared the responding sample (n = 287) with actual nonrespondents (n = 1029). We could not reject the null hypothesis of no mean differences across these groups for "number of employees" (t = 1.27, p = 1.54) and "annual sales volume" (t = 1.32, p = .17). In summary, nonresponse bias does not appear to be a concern in this study.

## Measures

*Price premium* refers to the prices in excess of marginal costs or the competitive market prices for a particular service (Klein and Leffler 1981; Rao and Monroe 1996). Six items were used. *Performance ambiguity* denotes the difficulties faced by customers in evaluating a service offering. Three items were used to measure this construct, based on ones previously developed by Jones (1987). *Customer bonds* are investments made by the outlet in physical assets

and facilities of various kinds (i.e., décor) that are nonsalvageable or outlet-specific (Klein and Leffler 1981). Five items were used to measure this construct. *Service culture* refers to employees' beliefs about service conduct in the outlet. More specifically, the items describe the extent to which employees have adopted a collective or team-oriented orientation rather than an individual one (Davis, Schoorman, and Donaldson 1997). The final scale is based on items from Deshpandé, Farley, and Webster's (1993) study. *Compensation* describes the extent to which customer input is used to determine rewards for employees. Informants were given a list of the various instruments used to compensate employees (e.g., John and Weitz 1989) and asked to indicate the importance of customer input in determining an employee's total compensation. The final scale consists of three items. *Prequalification efforts* refer to *ex ante* strategies that are used by the outlet to evaluate the capabilities and skills of service providers (Bergen, Dutta, and Walker 1992). Four items were developed to measure this construct, based on the conceptual discussions of Bergen, Dutta, and Walker (1992) and Eisenhardt (1985).

*Examination of construct validity.* A procedure was used to assess the reliability and validity of the various multi-item scales, based on the guidelines of Churchill (1979) and Gerbing and Anderson (1988). Prior to carrying out the data analysis, we inspected all responses to check for missing data. Of the 304 responses we obtained, 17 questionnaires were discarded because they contained excessive missing data. By excessive missing data, we mean questionnaires that were so incomplete that any standard procedure for handling missing data, such as means substitutions (e.g., Hertel

## Table 2
### FIRM CHARACTERISTICS
(In Percent of Responding Sample)
N = 287[a]

| Variable | Mean | Categories | Frequency (Percent) |
|---|---|---|---|
| Store ownership | NA | Company-owned | 13.3 |
| | | Franchised | 26.6 |
| | | Independent | 60.1 |
| Affiliation | NA | National chain | 26.2 |
| | | Local chain | 5.2 |
| | | Regional chain | 14.3 |
| | | Others | 54.3 |
| Number of employees | 11.99 | > 20 | 3.4 |
| | (16.66) | 15 to 20 | 11.6 |
| | | 10 to 14 | 69.1 |
| | | < 10 | 15.9 |
| Annual sales[b] | 1.275 | > 2 | 4.7 |
| | (897,743.6) | 1.5 to 2 | 26.4 |
| | | 1.1 to 1.4 | 58.3 |
| | | < 1 | 10.6 |

[a]Note that the total number of respondents in the sample analyzed here (287) does not correspond to the total number of responses received (304). This is because 17 surveys were discarded because they contained missing data about the variables of interest.
[b]In millions of dollars.

1976), could not be implemented. Thus, the results of the present study are based on 287 responses.[6]

Construct validity was assessed by submitting sets of items to a common factor analysis procedure. In deciding which items to pool for inclusion in a particular factor model, we considered items that were expected a priori to share common variance (Gerbing and Anderson 1988).

The factor analysis was implemented by using a systematic five-step procedure.[7] First, the Bartlett test of sphericity (the population correlation matrix is identity; Bartlett 1951) and KMO (Kaiser-Meyer-Olkin measure of sampling adequacy; Kaiser 1974) were inspected for each factor analysis to determine whether items shared a common core. For each analysis, it was possible to reject the Bartlett hypothesis and obtain high KMO values (ranging from .81 to .96). Therefore, it is proper to infer that variables included in factor analyses indeed shared a common core and that statistical assumptions were not violated. Second, a range of factor solutions was obtained for each set to evaluate the hypothesized structure. For example, a three-factor model was successively respecified as a four- and five-factor model. The best solution was chosen from the alternatives by first comparing the average off-diagonal residuals in the reproduced correlation matrix for each analysis and then selecting the one with the lowest residual estimate (Norusis 1991). Furthermore, for each analysis, the scree plot of factors was inspected to determine whether sharp breaks in the plot were observed for the number of hypothesized factors. Third, factor loadings for each solution were inspected by examining the pattern matrix. As is suggested by Stevens (1992, p. 383), a significant loading is determined by sample size, as well as by the need to control overall alpha. Based on Stevens's criteria, a cutoff value of .36 was adopted for deciding which variables to retain in further analysis. Items that did not exhibit significant loading on any one factor or that exhibited significant cross-loading were deleted. Fourth, Cronbach's alpha values for each scale were computed, and items that exhibited poor item-to-total correlations (less than .6) were deleted, per Peterson's (1994) recommendation. Deleted items were inspected to ensure that the original meaning of the construct remained unchanged. Steps three and four were repeated successively until the factor solution for each group of variables appeared clean and the scales exhibited acceptable reliability. Fifth, a restricted factor analysis was conducted on each group of variables, using the EQS program (Bentler 1993). Following the recommendation of Sharma, Durvasula, and Dillon (1989),

the elliptically reweighted least squares estimation procedure was used.

*Results of construct validation.* The final scale items, together with their item means, standard deviations, and reliability, appear in Table 3. The correlation matrix of all the items appears in Table 4. As Table 3 demonstrates, all multi-item scales exhibit acceptable reliability values, ranging from a low of .69 for service culture to a high of .87 for customer bonds. The parameter estimates for the measurement models are depicted in Tables 5 and 6. Table 7 presents the overall goodness-of-fit estimates and results of discriminant validity checks.

As Tables 5 and 6 show, all items load on their hypothesized factors, and the estimates are positive and significant, which provides evidence of convergent validity (Bagozzi and Yi 1988). For example, the parameter estimates depicted in Table 5 for the three-factor measurement model comprising performance ambiguity, price premiums, and customer bonds range from .47 (t = 8.10) to .91 (t = 19.16). Likewise, for the parameter estimates reported in Table 6 for agent prequalification, culture, and compensation, loadings range from .54 (t = 8.54) to .90 (t = 15.60).

Discriminant validity was assessed by restricting factor intercorrelations pairwise to unity and subsequently computing a $\chi^2$ difference statistic with 1 degree of freedom (df). The overall goodness-of-fit measures for the two models, as well as statistics for assessing discriminant validity, are depicted in Table 7.

As is indicated by the results in Table 7, all model comparison statistics are significant, which provides evidence of discriminant validity. For example, the statistic for examining discriminant validity between performance ambiguity and price premiums is significant ($\Delta\chi^2 = 263.18$, df = 1, $p < .001$), which suggests that these measures are distinct. Furthermore, overall goodness-of-fit estimates of the measurement models suggest that the hypothesized factor structures reproduce the observed correlations within sampling error, which thereby suggests a good fit between theory and data. For example, the average off-diagonal squared residual (AOSR) for each unrestricted factor structure is within acceptable limits ($\leq.05$) and Bentler's (1993) comparative fit index (CFI) for each model is greater than .9. In summary, all key criteria for construct validity were satisfied.

## TESTS OF HYPOTHESES

The substantive hypotheses described previously were tested using structural equation modeling. Figure 2 shows the structural model that was estimated. We first tested our general hypotheses by estimating the model in the entire sample. Subsequently, we conducted comparisons among the various institutional setups (i.e., ownership structure, chain affiliation, and outlet size). The strength of some of the general relationships was expected to differ among some of the institutional arrangements.

### Parameter Estimates for Aggregate Analysis

The parameter estimates corresponding to the empirical model estimated for the sample as a whole appear in Table 8. The estimated $\chi^2$ statistic for the structural model is significant ($\chi^2 = 551.06$, df = 245, $p < .001$), which suggests that the hypothesized model does not reproduce the sample correlations within sampling error. However, given that $\chi^2$

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[6]To determine if data obtained from the three different service categories could be pooled for subsequent analysis, we investigated whether different sample covariance matrices obtained from these categories would be estimates of a single population covariance matrix. We estimated a multigroup confirmatory factor analysis model in which factor loadings were constrained to be equal across the three groups. The comparative fit index estimate of .89 suggests that the hypothesized model of relationships between observed measures and their corresponding latent constructs reproduces the sample data of each group to within sampling accuracy, justifying the pooling of data.

[7]The sample of 287 observations was split randomly into an analysis (n = 143) and a validation sample (n = 144), as per recommendations by Breckler (1990). The factor structure in the analysis sample was subjected to cross-validation in the validation group using confirmatory factor analysis. The results of this cross-validation exercise are omitted for space reasons but are consistent with the confirmatory factor analysis results reported here for the entire sample (n = 287).

## Table 3
### SCALE ITEMS AND RELIABILITY

| Construct | Scale Items | $\mu^a$ | $\sigma^b$ | $\alpha^c$ |
|---|---|---|---|---|
| Performance Ambiguity | Customers have to assume that they are getting good service from us because there is no other way they can tell. | 4.14 | .82 | .80 |
| 7-point Likert scale with Strongly Disagree (SD) and Strongly Agree (SA) as anchors. | It would be very time consuming for a customer to check up on how well a mechanic is performing his or her job. | 4.55 | 1.12 | |
| | Customers can easily determine the amount of service that is needed by them (reverse coded). | 5.40 | .92 | |
| Price Premium | Our service commands a price premium in the market. | 5.07 | 1.60 | .87 |
| | Our customers are willing to pay us a price premium for our service. | 4.98 | 1.58 | |
| 7-point SD/SA | The typical price that we charge for our service is considerably higher than what our competitors charge for the same service. | 2.98 | 1.71 | |
| | How would you describe the price of the service provided by your location (anchored at much below market, market, and much above market)? | 3.04 | 1.70 | |
| | We earn gross margins for our service that are higher than normal in general. | 5.66 | 1.44 | |
| | Customers do not mind paying us a price premium as long as they get good service from us. | 4.38 | 1.11 | |
| Customer Bonds | We have undertaken significant investments in the decor of our surroundings. | 3.09 | 1.90 | .76 |
| 7-point SD/SA | From time to time we undertake extensive investments in the interior and exterior modeling of our buildings. | 3.97 | 1.66 | |
| | We have spent significant amounts of money in designing and displaying signs in our buildings. | 5.33 | 1.59 | |
| | We have undertaken significant investments in our facilities, dedicated to the needs of our customers. | 5.62 | 1.56 | |
| | If this particular location closed down it would be very difficult for us to recover the investments that we have made in the decor our buildings. | 4.82 | 2.03 | |
| Agent Prequalification | We place a large weight on the educational qualifications of mechanics before hiring them. | 4.44 | 1.80 | .78 |
| | Assessing the professional skills of mechanics before hiring them is an important part of our selection process. | 5.19 | 1.66 | |
| 7-point SD/SA | Even if a mechanic with considerable experience applies to us, we still undertake a thorough screening process for him or her. | 4.43 | 1.72 | |
| | We do not incur considerable costs on hiring mechanics (reverse coded). | 4.91 | 1.81 | |
| Service Culture | When customer problems occur they are treated as joint responsibilities of all employees rather than individual responsibilities. | 4.92 | 1.89 | .69 |
| 7-point SD/SA | In our company, mutual consultation among employees about all aspects of the service is the norm. | 5.15 | 1.61 | |
| | All employees are committed to working together so that the company benefits as a whole rather than an individual employee. | 5.83 | 1.20 | |
| Agent Compensation | The mechanic's record of courteous service to customers. | 3.93 | 1.54 | .77 |
| | The mechanic's ability to resolve customer complaints or service problems in an efficient manner. | 3.81 | 1.37 | |
| The introductory section for these questions read as follows: | The mechanic's ability to deal with unique situations and/or meet customer needs. | 6.00 | 1.60 | |

Which of the following
factors are important
considerations in
deciding upon
financial rewards
for mechanics?

Financial rewards may
include salary
increases, commission
payments, or bonus.

7-point scale
anchored at
Not at all important
and Extremely
important

[a]Denotes item mean.
[b]Denotes standard deviation.
[c]Denotes composite scale reliability (Cronbach's alpha).

Table 4
CORRELATION MATRIX OF VARIABLES INCLUDED IN THE STUDY[a]
(N = 287)

| | X1 | X2 | X3 | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 | Y7 | Y8 | Y9 | Y10 | Y11 | Y12 | Y13 | Y14 | Y15 | Y16 | Y17 | Y18 | Y19 | Y20 | Y21 |
|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| X1 | 1.00 | | | | | | | | | | | | | | | | | | | | | | | |
| X2 | .66 | 1.00 | | | | | | | | | | | | | | | | | | | | | | |
| X3 | .54 | .54 | 1.00 | | | | | | | | | | | | | | | | | | | | | |
| Y1 | .27 | .28 | .35 | 1.00 | | | | | | | | | | | | | | | | | | | | |
| Y2 | .33 | .24 | .23 | .32 | 1.00 | | | | | | | | | | | | | | | | | | | |
| Y3 | .40 | .36 | .44 | .40 | .48 | 1.00 | | | | | | | | | | | | | | | | | | |
| Y4 | .33 | .26 | .25 | .15 | .38 | .36 | 1.00 | | | | | | | | | | | | | | | | | |
| Y5 | .52 | .46 | .42 | .36 | .42 | .52 | .41 | 1.00 | | | | | | | | | | | | | | | | |
| Y6 | .27 | .34 | .28 | .27 | .16 | .18 | .15 | .25 | 1.00 | | | | | | | | | | | | | | | |
| Y7 | .22 | .30 | .28 | .30 | .15 | .20 | .11 | .20 | .81 | 1.00 | | | | | | | | | | | | | | |
| Y8 | .12 | .17 | .09 | .14 | -.002 | .07 | .05 | .13 | .51 | .56 | 1.00 | | | | | | | | | | | | | |
| Y9 | .22 | .27 | .21 | .19 | .09 | .13 | .10 | .17 | .62 | .68 | .65 | 1.00 | | | | | | | | | | | | |
| Y10 | .12 | .12 | .12 | .14 | .20 | .16 | .06 | .11 | .59 | .58 | .46 | .55 | 1.00 | | | | | | | | | | | |
| Y11 | .18 | .13 | .15 | .16 | .07 | .12 | .19 | .17 | .36 | .40 | .30 | .42 | .38 | 1.00 | | | | | | | | | | |
| Y12 | .13 | .18 | .38 | .09 | .08 | .12 | -.01 | .08 | .22 | .18 | .14 | .15 | .13 | .08 | 1.00 | | | | | | | | | |
| Y13 | .22 | .29 | .06 | .09 | .08 | .15 | -.06 | .09 | .18 | .16 | .13 | .14 | .06 | .10 | .47 | 1.00 | | | | | | | | |
| Y14 | .15 | .23 | .14 | .07 | .05 | .16 | -.04 | .07 | .23 | .23 | .14 | .23 | .18 | .17 | .46 | .49 | 1.00 | | | | | | | |
| Y15 | .20 | .29 | .21 | .11 | .07 | .17 | .07 | .17 | .41 | .41 | .27 | .38 | .26 | .20 | .38 | .37 | .67 | 1.00 | | | | | | |
| Y16 | .12 | .14 | .10 | .19 | .13 | .17 | .08 | .16 | .21 | .14 | .13 | .26 | .12 | .12 | .15 | .18 | .06 | .07 | 1.00 | | | | | |
| Y17 | .10 | .14 | .21 | .19 | .07 | .17 | .13 | .15 | .22 | .16 | .10 | .25 | .14 | .20 | .08 | .01 | .04 | .12 | .62 | 1.00 | | | | |
| Y18 | .07 | .16 | .24 | .15 | .17 | .18 | .001 | .13 | .28 | .20 | .11 | .20 | .15 | .20 | .20 | .13 | .14 | .21 | .42 | .55 | 1.00 | | | |
| Y19 | .21 | .20 | .08 | .08 | .11 | .11 | .01 | .13 | .25 | .21 | .23 | .27 | .19 | .17 | .22 | .26 | .20 | .21 | .10 | .08 | .10 | 1.00 | | |
| Y20 | .22 | .26 | .20 | .18 | .14 | .18 | .12 | .19 | .30 | .25 | .16 | .31 | .28 | .29 | .14 | .18 | .10 | .18 | .23 | .37 | .26 | .45 | 1.00 | |
| Y21 | .25 | .34 | .21 | .12 | .11 | .18 | .20 | .22 | .38 | .31 | .28 | .40 | .29 | .33 | .20 | .21 | .25 | .30 | .17 | .29 | .26 | .33 | .52 | 1.00 |

[a]The nonscale dependent correlation matrix is shown. However, the variance-covariance matrix was used to estimate the various models.

Labels
X1, X2, X3                              Performance ambiguity items
Y1, Y2, Y3, Y4, Y5,                     Customer bonds items
Y6, Y7, Y8, Y9, Y10, Y11                Price premium items
Y12, Y13, Y14, Y15                      Agent prequalification items
Y16, Y17, Y18                           Agent compensation items
Y19, Y20, Y21                           Service culture items

## Table 5
### PARAMETERS FOR MEASUREMENT MODEL
Model for Performance Ambiguity, Price Premiums, and Customer Bonds

| Construct | Estimate[a] | t |
|---|---|---|
| Performance Ambiguity ($\xi_1$) | | |
| $\lambda_{11}$ | .82 | 15.38 |
| $\lambda_{12}$ | .80 | 14.74 |
| $\lambda_{13}$ | .70 | 12.39 |
| Price Premiums ($\xi_2$) | | |
| $\lambda_{21}$ | .86 | 17.86 |
| $\lambda_{22}$ | .91 | 19.16 |
| $\lambda_{23}$ | .65 | 11.92 |
| $\lambda_{24}$ | .77 | 15.13 |
| $\lambda_{25}$ | .68 | 12.56 |
| $\lambda_{26}$ | .47 | 8.10 |
| Customer Bonds ($\xi_3$) | | |
| $\lambda_{31}$ | .51 | 8.33 |
| $\lambda_{32}$ | .60 | 10.10 |
| $\lambda_{33}$ | .72 | 12.78 |
| $\lambda_{34}$ | .52 | 8.60 |
| $\lambda_{35}$ | .76 | 13.72 |

[a]Standardized factor loadings computed by EQS using the iteratively reweighted generalized least squares method.

## Table 6
### PARAMETERS FOR MEASUREMENT MODEL
Model for Agent Prequalification Effort, Customer-Oriented Service Culture, and Agent Compensation

| Construct | Estimate[a] | t |
|---|---|---|
| Agent Prequalification Effort ($\xi_1$) | | |
| $\lambda_{11}$ | .57 | 9.65 |
| $\lambda_{12}$ | .59 | 10.00 |
| $\lambda_{13}$ | .86 | 15.66 |
| $\lambda_{14}$ | .75 | 13.44 |
| Customer-Oriented Service Culture($\xi_2$) | | |
| $\lambda_{21}$ | .54 | 8.54 |
| $\lambda_{22}$ | .79 | 12.51 |
| $\lambda_{23}$ | .67 | 10.72 |
| Agent Compensation ($\xi_3$) | | |
| $\lambda_{31}$ | .69 | 11.68 |
| $\lambda_{32}$ | .90 | 15.60 |
| $\lambda_{33}$ | .62 | 10.42 |

[a]Standardized factor loadings computed by EQS using the iteratively reweighted least squares method.

is not a reliable statistic for assessing fit in large samples (Bollen 1989), an attempt was made to evaluate model fit by examining additional criteria, such as AOSR and Bentler's (1993) CFI index. The relatively low value (.05) of the AOSR in the reproduced correlation matrix, together with the high CFI value of .95, suggests that the hypothesized structural model provides a good fit to the data (Anderson and Gerbing 1988; Bagozzi and Yi 1988).

Turning to the statistical estimates of the hypothesized structural paths, we note that customer performance ambiguity has a statistically significant impact on the magnitude of investments in customer bonds ($\gamma 11 = .76$, t = 7.69). Therefore, our first hypothesis ($H_1$) is supported.

Customer performance ambiguity also is significantly related ($\gamma 21 = .42$, t = 6.57) to the magnitude of price premiums, consistent with our second hypothesis ($H_2$). Thus, both hypotheses pertaining to the outlet–customer level of agency problems are supported.

As was discussed previously, an outlet's quality strategy toward end customers involves investments in customer bonds. Our results show that outlets that make such investments also undertake prequalification of employees ($\beta 31 = .14$, t = 1.86), rely on customer-based compensation practices ($\beta 41 = .22$, t = 2.95), and craft customer-oriented cultures ($\beta 51 = .26$, t = 3.33). Thus, $H_{3a}$, $H_{4a}$, and $H_{5a}$ are supported.

## Table 7
### SUMMARY GOODNESS-OF-FIT MEASUREMENT MODELS AND RESULTS FO DISCRIMINANT VALIDITY TESTS[a]

| Constructs | | Goodness-of-Fit | | | | Model Comparisons (Discriminant Validity) | | |
|---|---|---|---|---|---|---|---|---|
| | AOSR[b] | $\chi^2$ | df | p | CFI[c] | $\Delta\chi^2$ | $\Delta df$ | p |
| Performance Ambiguity ($\xi 1$), Price Premium ($\xi 2$), Customer Bonds ($\xi 3$) | .05 | 172.16 | 74 | < .001 | .97 | | | |
| $\phi(\xi 1, \xi 2)$[d] | .08 | 435.34 | 75 | < .001 | .88 | 263.18 | 1 | < .001 |
| $\phi(\xi 1, \xi 3)$ | .06 | 261.16 | 75 | < .001 | .92 | 89.00 | 1 | < .001 |
| $\phi(\xi 2, \xi 3)$ | .09 | 558.05 | 75 | < .001 | .84 | 385.89 | 1 | < .001 |
| Agent Prequalification ($\xi 1$) Service Culture ($\xi 2$), Agent Compensation ($\xi 3$) | .05 | 103.01 | 32 | < .001 | .94 | | | |
| $\phi(\xi 1, \xi 2)$ | .07 | 232.25 | 33 | < .001 | .83 | 129.25 | 1 | < .001 |
| $\phi(\xi 1, \xi 3)$ | .09 | 338.14 | 33 | < .001 | .73 | 235.14 | 1 | < .001 |
| $\phi(\xi 2, \xi 3)$ | .08 | 227.53 | 33 | < .001 | .83 | 124.53 | 1 | < .001 |

[a]All models were estimated with EQS by using elliptical reweighted least squares extraction.
[b]Average off-diagonal squared residuals of the reproduced correlation matrix.
[c]Comparative fit index, per Bentler (1993).
[d]This correlation was restricted to one.
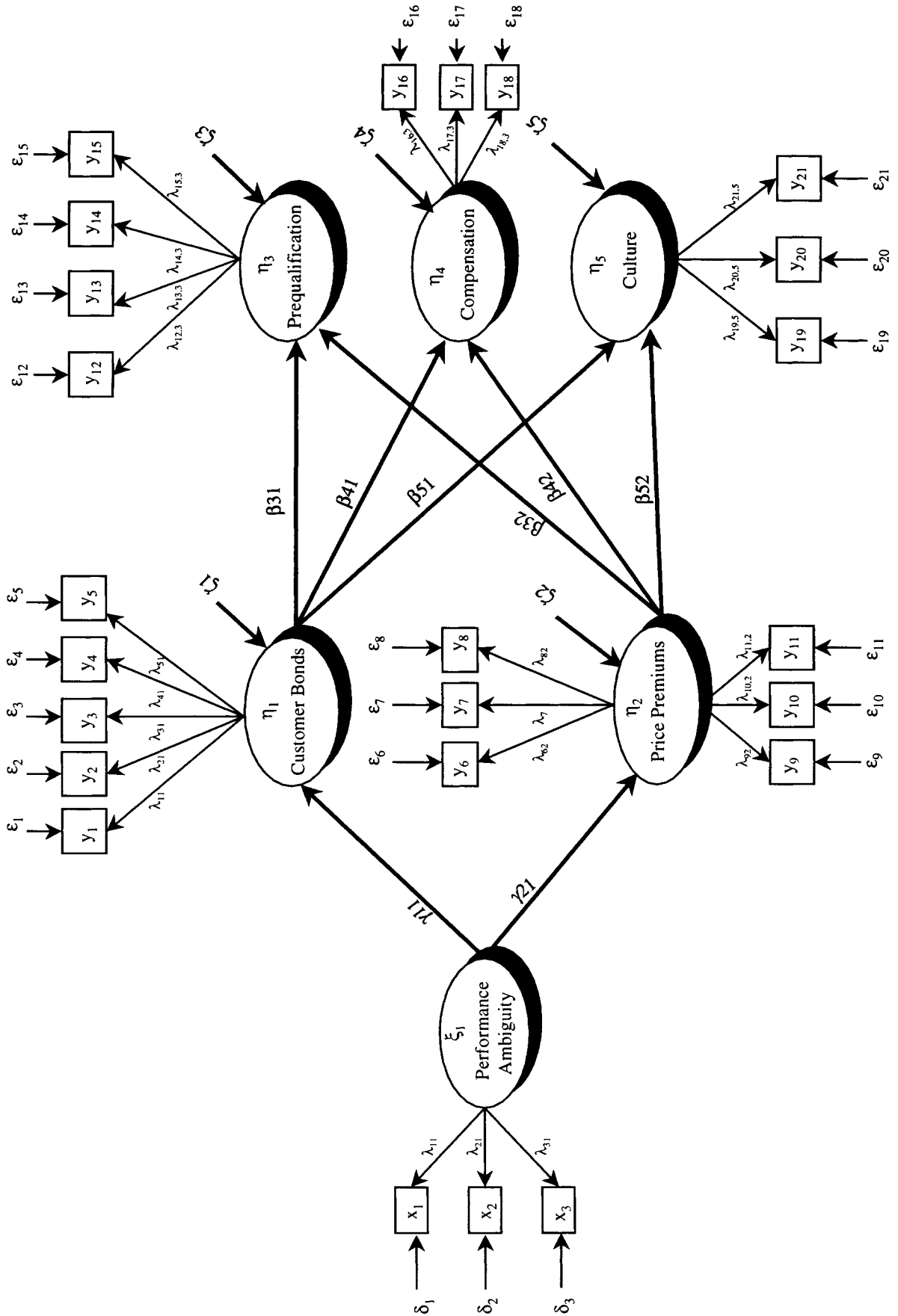
Figure 2
EMPIRICAL MODEL

## Table 8
### PARAMETER ESTIMATES FOR STRUCTURAL MODEL

| | | Measurement Paths | | | Structural Paths | | | | | |
| Item | Construct | Path | Estimate[a] | t | Independent Variable | Dependent Variable | Path | Estimate | t | $R^{2b}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| x1 | Performance ambiguity | $\lambda 11$ | .82 | 17.25 | Performance ambiguity | Customer bonds | $\gamma 11$ | .76 | 7.69 | .58 |
| x2 | | $\lambda 21$ | —[c] | | | | | | | |
| x3 | | $\lambda 31$ | .71 | 13.82 | Performance ambiguity | Price premium | $\gamma 21$ | .42 | 6.57 | .18 |
| y1 | Customer bonds | $\lambda 11$ | —[c] | | | | | | | |
| y2 | | $\lambda 21$ | .60 | 7.11 | Customer bonds | Agent prequalification | $\beta 31$ | .14 | 1.86 | .21 |
| y3 | | $\lambda 31$ | .73 | 7.87 | Price premium | Agent prequalification | $\beta 32$ | .39 | 5.08 | |
| y4 | | $\lambda 41$ | .53 | 6.56 | Customer bonds | Agent compensation | $\beta 41$ | .22 | 2.95 | .14 |
| y5 | | $\lambda 51$ | .77 | 8.02 | Price premium | Agent compensation | $\beta 42$ | .24 | 3.49 | |
| y6 | Price premium | $\lambda 62$ | .87 | 19.63 | Customer bonds | Service culture | $\beta 51$ | .26 | 3.33 | .36 |
| y7 | | $\lambda 72$ | —[c] | | Price premium | Service culture | $\beta 52$ | .46 | 6.26 | |
| y8 | | $\lambda 82$ | .66 | 12.64 | | | | | | |
| y9 | | $\lambda 92$ | .79 | 16.78 | | | | | | |
| y10 | | $\lambda 10,2$ | .68 | 13.38 | | | | | | |
| y11 | | $\lambda 11,2$ | .49 | 8.56 | | | | | | |
| y12 | Agent prequalification | $\lambda 12,3$ | .57 | 7.47 | | | | | | |
| y13 | | $\lambda 13,3$ | —[c] | | | | | | | |
| y14 | | $\lambda 14,3$ | .84 | 9.24 | | | | | | |
| y15 | | $\lambda 15,3$ | .78 | 9.10 | | | | | | |
| y16 | Agent compensation | $\lambda 16,4$ | .71 | 10.04 | | | | | | |
| y17 | | $\lambda 17,4$ | —[c] | | | | | | | |
| y18 | | $\lambda 18,4$ | .63 | 9.37 | | | | | | |
| y19 | Service culture | $\lambda 19,5$ | .55 | 7.59 | | | | | | |
| y20 | | $\lambda 20,5$ | —[c] | | | | | | | |
| y21 | | $\lambda 21,5$ | .71 | 8.71 | | | | | | |

[a]Standardized path estimates computed using EQS.
[b]Coefficient of determination for the system of equations.
[c]This path was fixed to one for identifying the corresponding parameter.

Price premiums are related positively to an outlet's pre-qualification efforts ($\beta32 = .39$, t = 5.08), compensation ($\beta42 = .24$, t = 3.49), and culture ($\beta52 = .46$, t = 6.26), consistent with $H_{3b}$, $H_{4b}$, and $H_{5b}$. In other words, outlets that use price premiums as a quality-assurance device also undertake prequalification efforts, craft appropriate cultural values, and rely on customer-oriented compensation systems. In summary, all our hypotheses pertaining to the outlet–employee relationship are supported.

### Parameter Estimates for Multigroup Analysis

We expected institutional differences (ownership format, affiliation, and size) to influence how different agency problems are solved. To formally investigate the possible differences, we analyzed the data separately for different subgroups (e.g., company-owned and franchised outlets versus independent outlets) using a series of multiple-sample covariance structure analyses (Bentler 1993). This procedure enables us to both obtain parameter estimates for each subgroup and investigate whether differences in path coefficients obtained for the relevant samples are statistically significant. For space reasons, we do not show the entire set of parameter estimates for each subgroup analysis.

Some interesting differences exist between the groups. As per accepted research practice (Breckler 1990), differences in path coefficients were investigated by estimating a series of nested models and computing a sequential $\chi^2$ difference test. The initial baseline model was estimated by allowing all model parameters to be free estimates. In the first nested model, a particular path (e.g., performance ambiguity $\rightarrow$ customer bonds, or $\gamma11$ in the empirical model) was fixed to be equal across the relevant subgroups. The difference in the $\chi^2$ value between the original baseline model and the restricted model computed for 1 degree of freedom permits the investigation of a significant difference in path coefficient in the two groups. This nested procedure was implemented systematically for all the paths in the empirical model that were hypothesized to differ. All significant path comparisons are described subsequently.

We consider first the outlet–customer relationship and our expectation that independent outlets would rely to a greater extent on store-level sunk investments as customer signals than would chains (company-owned and franchised outlets) because of the other forms of sunk investments available to the latter. As was expected, the performance ambiguity $\rightarrow$ customer bonds path is stronger in the independent sample (N = 155) than in the chain sample (N = 132) ($\gamma11$ indep = .89 versus $\gamma11$ chain = .62; $\Delta\chi^2 = 5.08$, $p = .024$).

We consider next the subgroup results for the outlet–employee relationship. The price premium $\rightarrow$ culture path differs between large (greater than the median size of six employees) and small outlets. Specifically, larger outlets (N = 165) rely less on culture as a control mechanism than smaller outlets do (N = 118) ($\beta52$large = .56 versus $\beta52$small = .76; $\Delta\chi^2 = 6.93$, $p = .008$). However, no differences were found when outlets were broken into smaller and larger sizes on the basis of a median split of sales volume (median = $.45 million). Furthermore, the price premium $\rightarrow$ prequalification ($\beta32_{franchised} = .53$ versus $\beta32_{independent} = .36$; $\Delta\chi^2 = 6.02$, $p = .014$) and the price premium $\rightarrow$ compensation ($\beta42_{franchised} = .44$ versus $\beta42_{independent} = .15$; $\Delta\chi^2$

= 3.99, $p = .046$) paths differ between the franchised (N = 76) and independent (N = 155) groups. In other words, to manage relationships with employees, franchised outlets rely more on prequalification and compensation than do independent ones. No significant path differences were uncovered for other comparisons of ownership structure (i.e., franchised versus company-owned and independent versus company-owned). Moreover, none of the comparisons involving affiliation was significant (national versus regional, national versus local, and local versus regional chain). Finally, none of the comparisons involving customer bonds at the outlet–employee level was significant.

## DISCUSSION

### Theoretical Implications

The basic premise of this study is that information asymmetry gives rise to two problems at two different levels. Specifically, adverse selection and moral hazard problems manifest themselves in the relationship between both end customers and the outlet and between the outlet and its employees. Although researchers have recognized both the multilevel nature of agency relationships (e.g., Klein and Murphy 1988) and the simultaneous presence of adverse selection and moral hazard problems (e.g., Picard 1987), to the best of our knowledge, this article is the first to provide empirical evidence.

We consider next our specific findings. Consistent with prior research (e.g., Montgomery and Wernerfelt 1992; Rao and Bergen 1992), our results show that a customer's information problems are managed by signals (i.e., nonsalvageable investments) and incentives (i.e., price premiums). These results suggest that if adverse selection and moral hazard problems coexist, nonsalvageable assets and price premiums serve complementary purposes. This raises an interesting question, in light of Rao and Bergen's (1992) and Montgomery and Wernerfelt's (1992) findings that reputations and price premiums serve as substitutes. As is noted by Rao and Monroe (1996), though reputations normally are associated with adverse selection and signals, they also can address moral hazard problems because of the potential loss quality debasement imposes on a supplier.

Although we did not study reputations per se, we could argue that nonsalvageable investments create similar effects. As such, we might hypothesize that investments, once deployed, will have a negative effect on price premiums. We expanded our empirical model to include such a path. The relationship is nonsignificant, which suggests that nonsalvageable investments do not substitute for price premiums in terms of solving the moral hazard problem. Why might this be the case? We conjecture that sunk investments in the context at hand are insufficient to manage the incipient moral hazard problem. Suppliers in these markets have both the ability and motivation to debase quality. Thus, price premiums might be needed for even high-reputation suppliers to maintain quality over time.

Our research adds to the existing literature on agency relationships by showing how the strategies used to manage relationships with end customers influence how an outlet manages its employee relationships. By focusing only on quality problems with regard to end customers, some of the existing literature implicitly assumes that a firm has complete control over the delivery process. However, to the ex-

tent that delivery takes place through third-party providers, additional agency problems must be solved. For a service outlet, this involves using qualification, compensation, and culture in its employee relationships. Our results show strong support for this general hypothesis. To the best of our knowledge, this study represents the first empirical evidence of interdependencies across agency relationships.

The multigroup analysis produced some interesting results. We consider first the outlet–customer relationship. As was expected, the relationship between performance ambiguity and customer bonds was stronger for independent than for chain outlets. Presumably, chains are able to rely on national advertising as a sunk expenditure (Klein and Leffler 1981), which thereby makes customer bonds less important. This suggests that different mechanisms in certain contexts serve as functional substitutes. We note, however, that because advertising was not measured explicitly in our study, these conclusions should be considered tentative.

We consider next the outlet–employee relationship. As we discussed previously, we expected the different institutional arrangements to differ in terms of (1) the ease with which direct monitoring could be carried out and (2) the feasibility of exercising control using qualification, compensation, and culture.

As was expected, larger outlets rely less on culture than do smaller ones. Presumably, the greater the number of employees, the more difficult it becomes to establish a single shared set of beliefs. Furthermore, our results suggest that franchised outlets rely to a greater extent on prequalification procedures and customer-oriented compensation systems than do independents. These differences might reflect that independent outlets, because of their local ownership, enjoy inherently superior monitoring capabilities (Agrawal and Lal 1995; Brickley and Dark 1987). They also might reflect the inherent control problems that exist in franchise systems, in that quality problems might have systemwide spillover effects.

The multigroup analyses reveal no significant differences between company-owned and franchised outlets in terms of how employee relationships are managed. At a first glance, this finding is somewhat surprising, given the tendency in prior research to define institutional arrangements as bundles of control and incentive mechanisms (e.g., Brickley and Dark 1987; Lafontaine 1992; Norton 1988). It is conceivable, however, that certain processes exist in these systems that mask these differences. In a recent study, Bradach (1997) noted that certain forces in the franchising environment give rise to institutional isomorphism (Dimaggio and Powell 1983) and produce homogeneity between company-owned and franchised outlets. For example, the tendency toward multiple ownership of franchisees (or franchisee-developed outlets) creates a new level of agency relationship and increases the need for control. As such, a franchisee who owns multiple outlets might manage the group of franchisees as a quasi-hierarchy. Consequently, there would be no necessary correspondence between institutional form and the use of controls. Dwyer and Oh (1988) find similar evidence in their study of channel dyads.

## Managerial Implications

We consider next the implications of our study for management decision making. As a starting point, we consider the general decision framework in Figure 3. This framework illustrates the perspective on the various types of agency problems that follow from extant theory. Subsequently, we discuss our specific results in light of this framework.

The starting point is an assessment of the customer's information problem. Next, the specific ways in which quality can be compromised must be established. In principle, information asymmetry exposes a buyer to two types of problems. These are misrepresentation of supplier characteristics (adverse selection) and quality cheating (moral hazard). As is shown in Figure 3, adverse selection and moral hazard problems are resolved, in general, by signals and incentives, respectively.

In our study, customer signals took the form of nonsalvageable investments ($H_1$), and incentives were created by price premiums ($H_2$). In many situations, a supplier may have a choice among different signals and incentive schemes. For example, a brand name might be an alternative to nonsalvageable investment as a signaling device. Ultimately, each available mechanism should be subjected to a cost-benefit analysis, involving its likely effect on customers and the cost of deployment. A particular issue here is whether certain mechanisms, such as reputations, might serve dual roles as signals and incentive devices (e.g., Rao and Bergen 1992).

When a strategy is deployed toward customers, the next step involves assessing whether the strategies used to provide quality to customers can be compromised by employees or service providers. A similar scenario to the one described previously exists. Quality can be compromised by (1) relying on providers who misrepresent their true characteristics (adverse selection) and (2) actual cheating (moral hazard). Again, the task faced by the firm is to select an appropriate package of signals and incentive schemes on the basis of cost-benefit criteria. Some general comments are needed here. First, any type of control mechanism directed at employees involves costs for a firm and therefore should be used in a selective fashion (i.e., when the strategy toward end customers requires it). This is consistent with the support found for $H_3$, $H_4$, and $H_5$. Second, for the customer relationship, firms might have choices among mechanisms that possess different properties. For example, our multigroup analysis suggests that franchised outlets are more constrained than independent stores in terms of their ability to use direct monitoring and, consequently, must rely more heavily on customer-based compensation systems to mitigate cheating. An unresolved question, however, is whether other mechanisms exist that either are cheaper for the firm to deploy or afford greater control over employees.

Finally, we consider the implications of our findings for the services literature. This literature frequently suggests that marketers use "tangible" cues, such as signs and physical surroundings, in their communications efforts (Abernathy and Butler 1992). From a practical standpoint, however, it is unclear what the specific effects of tangibility are. Recent studies have suggested that making a service tangible does not reduce customers' evaluation problems. For example, Iacobucci (1992, p. 33) notes that "much ado is made in the literature about 'tangibility,' yet these respondents did not consider these stimuli (services) to be highly differentiable with respect to this property."

Our results for customer bonds suggest why efforts at tangibility have an effect. Investments in customer bonds serve a specific purpose for end customers by providing evidence

Figure 3
GENERAL DECISION FRAMEWORK
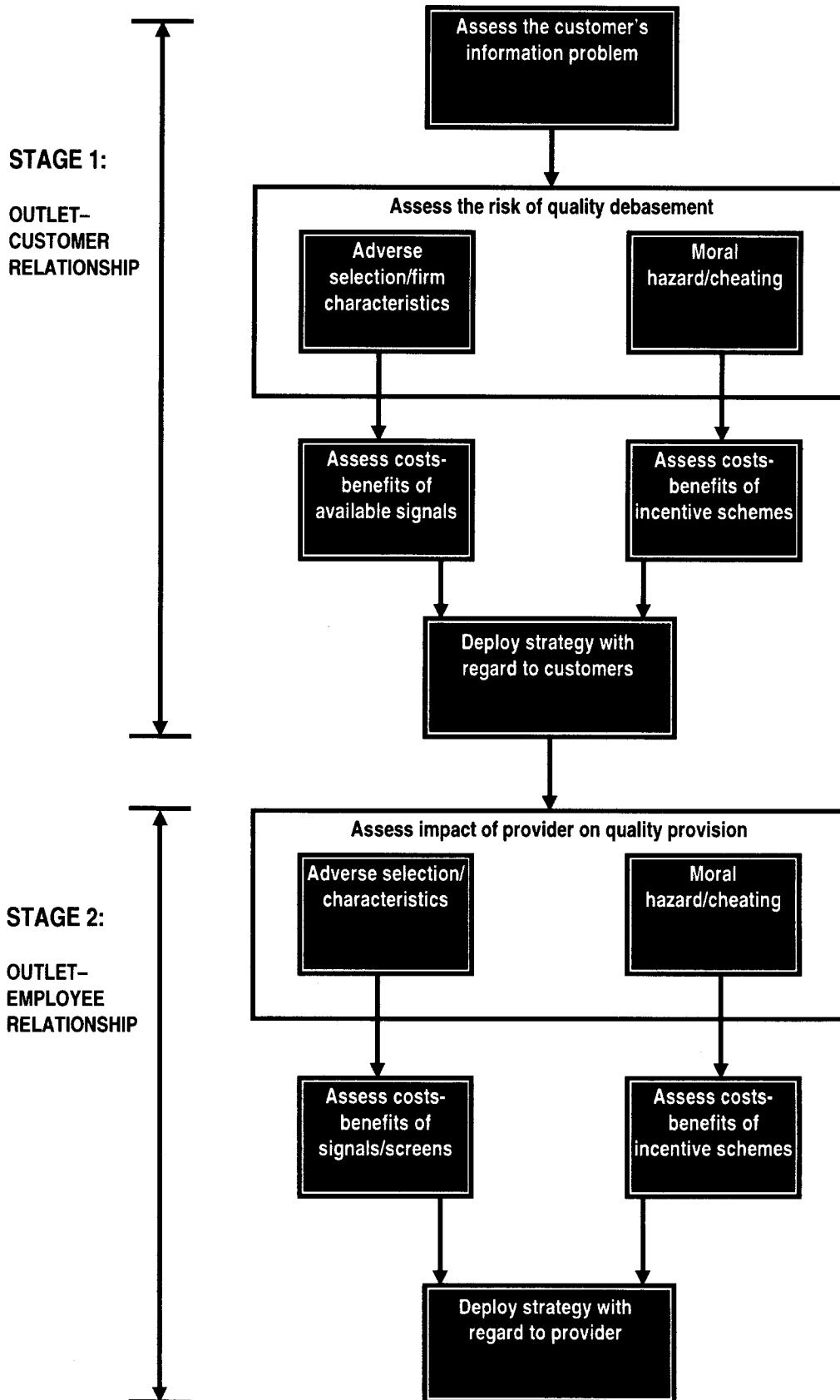
about a firm's commitment to the market. This might explain why competition in many markets takes on a nonprice dimension and requires firms to invest in seemingly peripheral assets. For example, lawyers rent fashionable "Beverly Hills" addresses for their offices, investment bankers talk about their connection with "Wall Street," and retailers "rent" the reputation of entrenched firms (Weigelt and Camerer 1988).

## Limitations and Further Research

The results of our study must be interpreted in view of certain limitations. A potential shortcoming of this study is the use of a single service context and the resulting effect on generalizability. A second limitation involves the relatively small size of the firms that responded to this survey and the resulting concern that our findings might not be readily applicable to larger service firms.

We also note that the mechanisms we identify to solve agency problems at the two levels do not represent an exhaustive list. For example, branding strategies (Montgomery and Wernerfelt 1992; Rao and Ruekert 1994) and reputations (Rao and Bergen 1992) might play a role in relationships between firms and customers. Furthermore, employees might be controlled by wage premiums (Krueger and Summers 1988). An important topic for additional research is to specify in greater detail the mechanisms that can be used to manage various types of agency problems and their specific properties.

Several other avenues for further research are also available. For example, the investigation of agency problems might be conducted from the customer side of the relationship and the results compared with the ones obtained here. It is possible that buyers and sellers harbor fundamentally different views about the effects of different strategies. In other words, as Wright (1986) notes, buyers and sellers might have different "schemas" that can be explored fruitfully in further research.

Furthermore, agency problems and control issues should be examined in different settings. For example, in companies such as Avis Rental Car and United Airlines, the service providers have actual ownership interest. As such, the ability to achieve control by means of culture and incentives is enhanced greatly. Ultimately, this also might facilitate quality provision to end customers.

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