Robert W. Palmatier

Interfirm Relational Drivers of Customer Value

This article integrates social network and exchange theory to develop a model of customer value based on three relational drivers: relationship quality (the caliber of relational ties), contact density (the number of relational ties), and contact authority (the decision-making capability of relational contacts). The results suggest that the value generated from interfirm relationships derives not only from the quality of customer ties (e.g., trust, commitment, norms), as is typically modeled, but also from the number and decision-making capability of interfirm contacts and the interactions among relational drivers. Moderator analysis of customer characteristics suggests that increasing contact density benefits sellers that have customers with high employee turnover rates, whereas building relationships with key decisions makers generates the highest returns among customers that are more difficult to access. The conceptual model of the impact of interfirm relational drivers on customer value receives support from dyadic data across 446 business-to-business exchanges.

Keywords: relationship marketing, interorganizational relationships, business-to-business marketing, network theory, customer value

The positive effect of strong customer relationships on seller financial performance in business-to-business markets has been widely accepted by both business managers and academics (McKenna 1991; Palmatier, Dant, and Grewal 2007). Marketers spend their limited budgets on "building" strong customer relationships, and firms often make costly acquisitions by "buying" new relationships. Researchers investigating the effects of relationships typically apply social exchange theory to relationship dyads to model the influence of trust, commitment, or relationship quality on performance (Crosby, Evans, and Cowles 1990; Morgan and Hunt 1994), but the results from a recent meta-analysis indicate that the effects of relationships on performance are not fully captured by these relational mediators (Palmatier et al. 2006). More specifically, as Palmatier and colleagues (2006, p. 152) recommend, "Research should expand the constructs included in the [relational]-mediated framework and determine which aspects or dimensions should be included to obtain a multifaceted view of relationship exchanges." Thus, after 20 years of relationship marketing research, a critical question remains: What other relationship attributes or mechanisms, in addition to relationship quality (trust and/or commitment), can account for relationship marketing's effect on performance?

The current research addresses this question by integrating social network and exchange theories to develop a model for customer value (CV) in interfirm exchanges. Because interfirm exchanges often entail relationships between groups of decision makers at both buying and selling firms and fall on the continuum between one-to-one dyads and large networks of firms in terms of interaction complexity, social network theory may provide insight into these "missing" drivers of relationship performance. For example, social exchange theory using a dyadic perspective suggests that commitment and trust between two firms is the key relational driver of performance, whereas social network theory suggests that other attributes, such as the level of interconnectedness among network entities, can also be critical determinants of performance (Van Den Bulte and Wuyts 2007).

Synthesizing these two theoretical perspectives in the interfirm context identifies three relational drivers of CV: relationship quality (the caliber of relational ties), contact density (the number of relational ties), and contact authority (the decision-making capability of relational contacts). In addition, proposing multiple relational drivers enables the evaluation of synergies (interactions) among the drivers of relationship performance. This research finds support for the premise that the value generated from interfirm relationships derives not only from the quality of the customer ties (e.g., trust, commitment, norms), as is typically modeled (Morgan and Hunt 1994; Siguaw, Simpson, and Baker 1998), but also from the number of interfirm ties, the authority of the contact portfolio, and the interaction among relational drivers.

A more fine-grained model of the relational drivers of CV supports the investigation of customer factors, which may leverage specific relational drivers. For example, relationship quality has a greater impact on performance for service than for product sales (Palmatier et al. 2006), but what factors leverage the impact of contact density and authority on CV? Understanding both the drivers and the levers of CV may provide more targeted guidance to managers tasked with improving the return on their relationship marketing investments.

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This article evaluates the effect of relational drivers on CV across 446 business-to-business relationships. It contributes to existing literature by providing insight into three research questions. First, what are the key relational drivers of CV? Identifying, measuring, and testing a spectrum (e.g., quality, density, authority) of relational drivers can provide managers with insights into which relationship characteristics have the greatest impact on seller performance. Second, what are the synergies among relational drivers? The interactions among different relational drivers may affect allocation decisions between improving relationship quality with existing contacts and developing relationships with new contacts. Third, what customer factors leverage the impact of relational drivers on CV? Understanding the moderating effect of customer factors should enable managers to target their relationship strategies according to specific customer characteristics. In the aggregate, this expanded framework for interfirm relationships provides a theoretical platform for guiding future interfirm and relationship marketing research.

Drivers of Customer Relationship Value

Sellers invest in building relationships with customers because of their expectation that these efforts will increase customers' contributions to the seller's sales and profits and thus, in essence, will increase the overall value of customers to the seller. In line with this logic, CV is the utility the customer provides the selling firm (Berger et al. 2002). Therefore, a key focus of this research is to identify the aspects of an exchange (i.e., relational drivers) that influence the interfirm relationship's ability to generate value for the seller.

Extant research based on social exchange theory shows that a customer's commitment to and trust in the seller (e.g., Doney and Cannon 1997; Morgan and Hunt 1994) are important drivers of performance, but a recent synthesis of more than 38,000 relationships suggests two refinements to this perspective (Palmatier et al. 2006). First, neither trust nor commitment has the greatest impact on seller performance; rather, the composite measure of relationship quality affects objective measures of performance most. Thus, researchers argue that because "no single or best relationship mediator can capture the full essence" of a relationship, marketers should use a more holistic, higher-order aggregate measure of relationship quality (Palmatier et al. 2006, p. 149). Second, even relationship quality fails to capture the effects of an interfirm relationship on performance fully. This supports "a multidimensional perspective of relationships" to identify the "missing" relationship attributes and thereby better understand the spectrum of performance-relevant aspects of interfirm relationships (Palmatier et al. 2006, p. 150).

Because interfirm relationships often involve groups of people who represent both buying and selling organizations (Bonoma and Johnston 1978), viewing these firms as groups with multiple intergroup ties and applying social network theory may provide insight into other performance-relevant aspects of relationships. This claim is consistent with Achrol's (1997, p. 56) view that one of the major "changes in the theory of interorganizational relations in marketing" is "moving from a dyadic view of exchange to a network view." Network theory has emerged as a valuable perspective for modeling the interaction among multiple entities within an overall network (Borgatti and Foster 2003; Houston et al. 2004). Because customer–seller interfirm relationships lie on the spectrum between one-to-one dyads and multifirm networks, some network characteristics identified by network theorists may inform the study of interfirm relationships. Specifically, in addition to relationship quality, two network characteristics may influence performance in theoretically meaningful ways in interfirm relationships: network density (contact density) and network diversity/attractiveness (contact authority). Integrating these theoretical perspectives yields three key drivers of interfirm relationship performance that may capture a more complete constellation of relational attributes: relationship quality, contact density, and contact authority.

Relationship Quality

The first driver of CV, relationship quality, captures the caliber of relational ties with an exchange partner; relational "ties" are the connecting links between exchange partners that influence or restrain a partner's actions. Relationship quality parallels the concept of tie strength in network theory (Van Den Bulte and Wuyts 2007). Consistent with previous research (Crosby, Evans, and Cowles 1990; De Wulf, Odekerken-Schröder, and Iacobucci 2001; Kumar, Scheer, and Steenkamp 1995), relationship quality may be conceptualized as a higher-order latent construct with multiple first-order factors (commitment, trust, reciprocity norms, and exchange efficiency). Researchers often include different first-order factors, but they are consistent in arguing that relationship quality is a higher-order, holistic view of a relational exchange composed of multiple facets. Thus, each first-order factor, though related, captures unique aspects of the relationship and, in the aggregate, indicates the overall caliber of the relational ties.

More specifically, commitment represents a desire to maintain a valued relationship and, thus, an exchange partner's relationship motivation toward a partner. Trust involves the evaluation of a partner's reliability and integrity, which generates confidence in the partner's future actions that support cooperation. Reciprocity norms, or internalized beliefs and expectations about the balance of obligations in an exchange, may take longer to develop but have a pervasive impact on many exchange behaviors. Exchange efficiency—an assessment of the time, effort, and resources needed to maintain a relationship—positively influences exchange performance because "governance structures that have better cost economizing properties will eventually displace those that have worse, ceteris paribus" (Williamson 1981, p. 574). Thus, high-quality relationships not only are indicated by high levels of trust, commitment, and reciprocity but also entail an appropriate or efficient cost of maintaining the relationship with a "minimum of hassles" or waste of time and effort (De Wulf, Odekerken-Schröder, and Iacobucci 2001, p. 37).

Overall, relationship quality enhances both cooperative and adaptive behaviors because a trusted partner in an

exchange with strong reciprocity norms will accept risk by providing a benefit, making an investment, or changing the terms of the interaction without an immediate concession or formal guarantee of repayment in the future. Customers' cooperative and adaptive behaviors create value for the sellers because these customers are more willing to adapt to the seller's product changes, test new products, and invest in reducing the seller's costs, with the expectation that the seller will reciprocate in the future. Moreover, partners involved in high-quality, committed relationships are more willing to disclose proprietary information, which enables sellers to cross-sell additional products more effectively and properly price products, which in turn increases sales to and profits from customers. In the aggregate, consistent with extant literature, relationship quality and its individual components positively affect a wide range of seller outcomes that increase the customer's value to the seller (Crosby, Evans, and Cowles 1990; De Wulf, Odekerken-Schröder, and Iacobucci 2001; Palmatier et al. 2006; Siguaw, Simpson, and Baker 1998).

H_1: Relationship quality is positively related to CV.

Contact Density

The second driver of CV is contact density, or the number of relational ties with an exchange partner. Contact density is similar to the network concepts of network density, or the level of interconnectedness among network members, and degree centrality, or the number of direct ties between a specific member and other network members (Houston et al. 2004). Network research shows that these forms of network interconnectedness positively affect cooperation, knowledge transfer, communication efficiency, and product development performance (Rowley 1997; Tsai 2001; Walker, Kogut, and Shan 1997).

Thus, in an interfirm context, relationships that include many interpersonal ties can better uncover and verify key information, find profit-enhancing opportunities, and build and maintain strong interfirm relationships. A key goal of any selling organization is to understand a customer's needs and problems to position its product offering appropriately in terms of price and, thus, to maximize the seller's profitable sales. Sellers that have a wide breadth of contacts have multiple sources to identify and refine sales opportunities and to price the offering optimally for maximum value creation and appropriation. In addition, employees change (e.g., promotions, retirement), and sellers that have a dense contact portfolio can more efficiently maintain and build relationships as new people move into the organization, because the new employees are quickly socialized into the existing relationship norms through word of mouth by those who remain with the firm, which reflects "norm persistence" (Jacobs and Campbell 1961). Overall, a seller that has more interpersonal ties (i.e., contact density) with a customer should gain better access to information and sales opportunities and be more efficient at building and maintaining customer relationships, thus increasing the seller's ability to generate profits.

H_2: Contact density is positively related to CV.

Contact Authority

The third driver of CV, contact authority, indicates the decision-making capability of the relational contacts with an exchange partner. Contact authority is similar to the network concepts of attractiveness and social capital of network partners, which capture the extent to which network partners have unique knowledge, skills, and capability to influence resource decisions (Anderson, Hakansson, and Johanson 1994; Wasserman and Faust 1994). More attractive network partners provide access to and control more valuable information and resources, which supports increased value creation from network ties (Baum, Calabrese, and Silverman 2000; Burt 1992).

In an interfirm context, the authority of the seller's contact portfolio increases the seller's ability to effect change in the customer organization. Greater authority in its contact portfolio provides the seller with both information about and access to the critical decision maker throughout the sales cycle to achieve desired outcomes. Thus, contact authority accounts for the inability of even high-quality relationships with multiple contacts within the customer firm to ensure that things happen. If a seller's relationship portfolio does not include key decision makers, it may not be able to effect change. Overall, a seller with a contact portfolio that includes the key decision makers in the customer firm should have greater access to valuable, nonredundant information and be better able to identify and overcome barriers. Better information improves a seller's decision making, including which new products to launch, cross-sell, or up-sell, and enables better pricing decisions, with the overall effect of increasing profitable sales to a customer. Access to high-level decision makers also enables a seller to counter competitors' actions more effectively by increasing understanding of the key decision parameters, adapting offerings, and applying interpersonal persuasion. A competitor that has access to contacts with less authority will have less relevant information and less opportunity to persuade decision makers. Overall, sellers that have access to key decision makers will be better able to increase sales and profits by leveraging their better information and ability to influence the decision process.

H_3: Contact authority is positively related to CV.

Synergies Among Relational Drivers

Each of these three relational drivers captures a different aspect of an interfirm relationship, but relationship performance is further enhanced when the drivers reinforce one another. As Palmatier and colleagues (2006, p. 152) suggest, "the scope of [relationship marketing] research should be expanded to investigate potential interactions among relational mediators in order to identify relational synergies." The premise of synergies among relational drivers is consistent with research in social networks. As Van Den Bulte and Wuyts (2007, p. 31) summarize, different aspects of network structure capture the "ability, opportunity, and motivation" of network partners, and these characteristics reinforce one another to enhance performance. Specifically in the interfirm context, in addition to relationship quality's

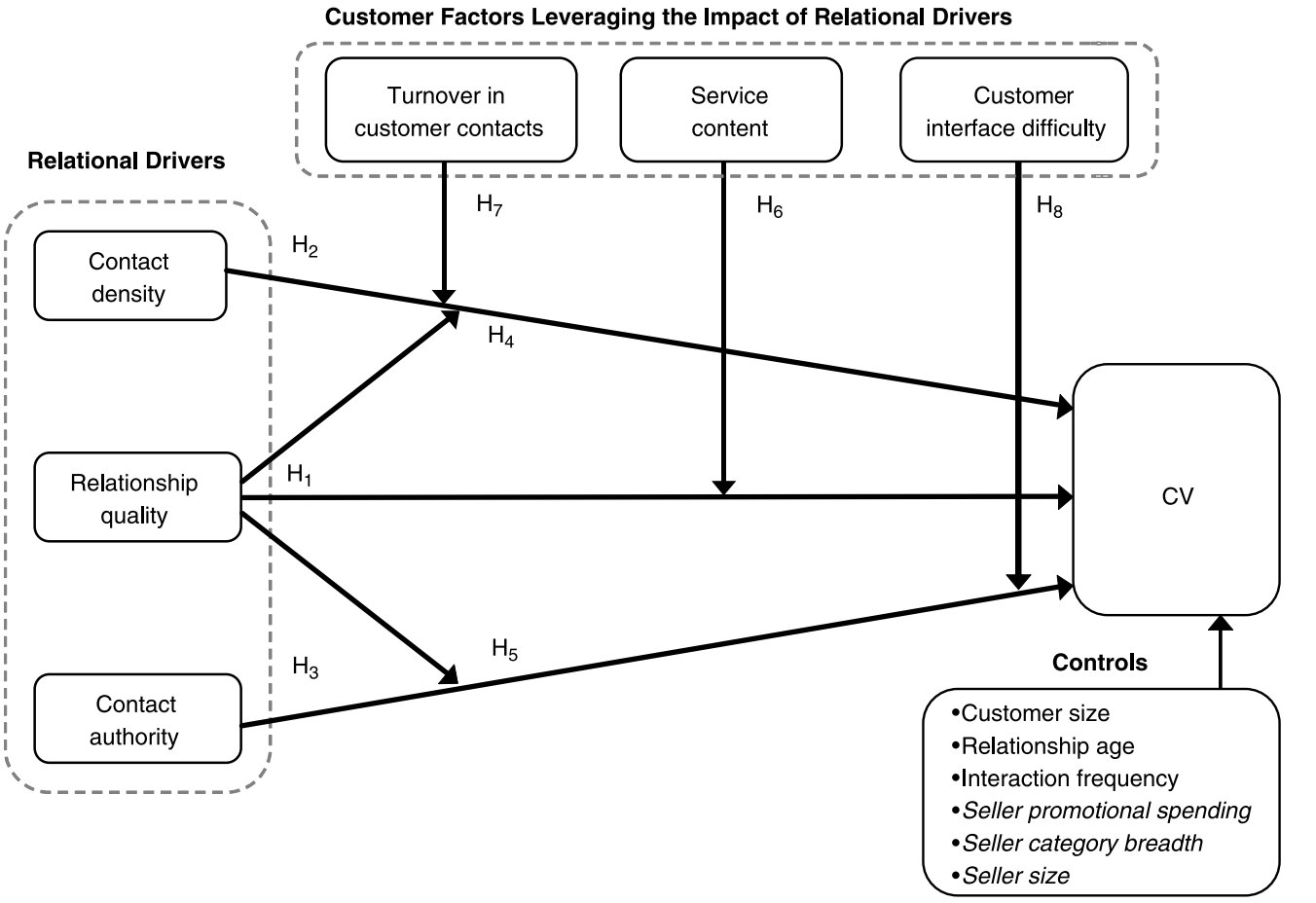
direct effect on CV, it may positively moderate the effect of contact density and authority on CV (see Figure 1).

Relationship quality may enhance the positive main effects of contact density and authority on CV by increasing the "motivation" of customer contacts to take risks, respond to sellers' requests (cooperate and adapt), and be empathic to the seller's perspective (reciprocity). For example, relationship quality leverages contact density because many cursory contacts (high density, low quality) with a customer provide little protection against the stress of a service failure; none of these low-quality contacts are likely to support the seller during a problem period (because of the lack of relational motivation). Similarly, one high-quality contact (high quality, low density) may not want to take the risk of being a sole supporter or may be unable to influence a decision-making group (Brown 2000). Alternatively, multiple high-quality contacts (high density, high quality) should give these many contacts the relational motivation (commitment, reciprocity norms) and confidence (trust) to support the seller during a service recovery.

A similar argument can be made for relationship quality enhancing the impact of contact authority on seller performance because sellers that have high-quality ties with key decision makers are best positioned to execute their selling strategies. For example, if a seller's contact portfolio includes key decision makers (high authority) but the interpersonal ties across these contacts are poor (low quality), these contacts are less likely to disclose information (Crosby, Evans, and Cowles 1990) or be influenced by the seller's needs (reciprocity debts). Even if the seller enjoys high-quality relationships with many contacts, if these contacts have little decision-making ability (low authority), the seller cannot access key information or orchestrate change within the customer. In some ways, the proposed interaction is similar to the finding that relationship ties increase the likelihood of a person finding a new job only when the tie exists with someone "who is well placed in the occupational structure" (Granovetter 1983, p. 207). Thus, both the quality of ties and the decision-making capability of the contact determine how well the relationship can help a seller achieve its objectives.

Moreover, contact authority reflects only the latent capability or potential of the contact portfolio to institute profit-enhancing change; this potential becomes actualized

FIGURE 1
Interfirm Relational Drivers of CV



Notes: Constructs in italics were reported by sellers; all other constructs were reported by customers.

by building high-quality relationships with contacts, which provides the motivation for these contacts to act. For example, contact authority identifies the key decision makers and offers some level of access, but relationship quality provides the contacts with the motivation and confidence to cooperate with the seller (Anderson and Narus 1991; Morgan and Hunt 1994).

Overall, parallel to social network research in which network characteristics, which capture the ability, opportunity, and motivation of network partners, interact to drive performance (Van Den Bulte and Wuyts 2007), in interfirm relationships, authority reflects the partners' ability, and density reflects opportunity, which can best be leveraged by relationship quality that provides the partners' motivation.

H_4: The positive association between contact density and CV is greater as relationship quality increases.

H_5: The positive association between contact authority and CV is greater as relationship quality increases.

Leveraging the Effects of Relational Drivers on CV

Identifying the key relational drivers of CV is essential, but these drivers may not be equally important for all customers. Thus, another focal issue this research considers involves understanding which customer factors leverage the impact of relational drivers on CV. Classical contingency theory argues that the effectiveness of a firm's actions depends on the fit with structural and contextual factors (Donaldson 2001; Drazin and Van de Ven 1985). Network researchers apply contingency theory to show that the impact of network characteristics on performance also depends on contextual factors (Mohrman, Tenkasi, and Mohrman 2003; Stevenson and Greenberg 2000). Thus, for each relational driver, a customer characteristic may be identified, which represents a potential contingency condition for the impact of that relational driver on CV. Relevant contextual variables may stem from multiple levels (e.g., environment, industry, customer), but the current research focuses only on customer-level variables based on the managerial relevance criterion because customer characteristics best support sellers' efforts to segment and target marketing investments.

Relationship quality increases a partner's willingness to accept risk, enhancing both cooperative and adaptive behaviors, which affects customer decisions and can result in enhancements to the seller's sales and profits. Because services entail a higher degree of performance uncertainty than products because of their intangibility, customers depend more on sellers of services, so the enhanced flexibility and cooperation resulting from high-quality relationships should be more important to service customers (Pfeffer and Salancik 1978). More specifically, because customers are less able to evaluate services fully *ex ante*, they prefer to procure services from sellers with which they have high-quality, flexible relationships. That is, customers should exhibit preferential treatment (e.g., expanded sales, premium prices) toward sellers with which they experience higher levels of relationship quality in exchanges involving services than in those involving only products. Consistent with extant literature, relationship quality should have a greater impact on a seller's sales and profits among customers whose purchases involve higher levels of service content (Palmatier et al. 2006; Zeithaml, Parasuraman, and Berry 1985).

Contact density can enhance a seller's profits by providing access to information sources and sales opportunities and by mitigating the negative effect of contact personnel turnover through the diversification of customer contact points. Thus, a key benefit of a seller having many relational ties is conditional on turnover in customer contacts. This argument mirrors the recommendation to use team selling to reduce the negative effect of salesperson turnover on performance (Bendapudi and Leone 2002). A seller with more interfirm ties (contact density) should be able to replace the loss of any specific relational tie more easily by either shifting the transaction to another existing tie or rebuilding a bond with a new contact (accelerated by norm diffusion from other relational contacts; see Brown 2000). In summary, contact density should have a greater impact on performance in situations characterized by a high level of customer contact turnover.

Contact authority increases the seller's access to valuable, nonredundant information and ability to identify and overcome selling barriers, which enhances the seller's ability to grow sales and profits with a customer. If a customer's decision makers are easily approachable, competitors can access the same information, respond to sales positioning, and build their own relational ties, which undermines some of the benefits to the seller. For example, a seller that knows and can access key decision makers who other sellers have trouble accessing should gain a sales advantage from its better information, reduced competition, and greater ability to overcome selling barriers. Thus, contact authority should have a greater impact on the seller's ability to generate sales and profits from a customer as the difficulty to interface with the customer increases.

H_6: The positive association between relationship quality and CV is greater as the service content of customer sales increases.

H_7: The positive association between contact density and CV is greater as turnover in customer contacts increases.

H_8: The positive association between contact authority and CV is greater as customer interface difficulty increases.

Research Methodology

The sample for this study involves interorganizational relationships between sellers of industrial products/services and their customers across a wide range of markets (e.g., telecommunication equipment, electronic components, cleaning supplies, office products, toys) in North America. The selling firms are all manufacturers' representative firms, and the average representative firm is relatively small ($5–$200 million) and sells multiple products/services for different suppliers (typically 15 to 30) on a commission basis. In most exchanges, the value of interfirm relationships is difficult to isolate from other drivers of exchange value, such as the firm's brand equity or specific product/service attributes. However, this research context is well

suited for investigating the value generated from interfirm relationships because representative firms do not manufacture products, have little brand strength, possess few other tangible assets, and typically can be terminated with only 30–60 days' notice; therefore, their primary assets are relationships with their customers (Palmatier, Gopalakrishna, and Houston 2006). Furthermore, because representative firms receive a commission on sales to customers with few variable costs, a representative firm's "commissions" are the primary indicator of a customer's value. For example, representative firms do not manufacture or inventory products, so the profit contribution of sales increases to specific customers remains independent of varying manufacturing levels or carrying costs.

Sample and Data Collection

Owners/senior managers of 110 representative firms attending a training program were requested to participate in an academic study by providing contact information for 100–200 randomly selected customers. Representative firm owners selected the customer contact person who was most knowledgeable about the customer firm's relationship with their firm. As a result of these solicitations, 31 representative firms provided contact data for 2554 customers. A three-wave mailing (survey, follow-up postcard, and second survey) to these customers generated 527 responses, for a 20.6% response rate. Each survey included a cover letter asking the customer to report on its relationship with the specific representative firm listed. At the beginning of the next calendar year, representative firm owners/managers provided sales and commission rate data for each customer for the previous year (i.e., the year the survey was conducted) and completed a survey about their own firm. This effort resulted in 487 customer surveys matched with performance data and representative firm survey data. After the removal of responses with missing data and cases for which customer respondents reported low levels of knowledge about the relationships that this representative firm had with people at their firm, the sample included 446 different customers from 27 representative firms.

Evaluations of response bias include several methods. Comparisons of early and late responses (first 150 versus last 150) across study variables resulted in no significant differences ($p > .05$). After a comparison of customer responses for cases included in the final data set with those excluded because of missing representative firm data, the study variables revealed no significant differences ($p > .05$). Representative firm–provided performance data for customers who were included in the final data set compared with those for customers who were excluded because they failed to respond indicated that neither sales nor commission rates differed significantly across these two groups ($p > .05$). According to these analyses, response bias is not a major concern.

Measurement

The reflective measures come from existing scales, adapted to the focal context whenever possible; otherwise, interviews with customers and sellers drove scale development, testing, and refinement. All measures use seven-point Likert scales unless otherwise noted (1 = "strongly disagree," and 7 = "strongly agree"). Final measurement items and the respondent (i.e., customer or seller) for each scale appear in the Appendix.

Customer-reported measures. Relationship quality with the seller is a second-order formative scale that captures the caliber of the interfirm relational ties based on the first-level reflective indicators of trust, commitment, reciprocity norms, and exchange efficiency (Crosby, Evans, and Cowles 1990; De Wulf, Odekerken-Schröder, and Iacobucci 2001; Kumar, Scheer, and Steenkamp 1995). Each first-level indicator uses two items. Contact density is the number of different relational ties among employees between the two firms, and contact authority consists of three items that reflect the decision-making capability of the relational contacts with the customer.

Customers report the level of service content as the percentage of overall sales related to services compared with products and the level of turnover in customer contacts within their firm. The measure of customer interface difficulty uses four items developed for this study to capture how difficult it is for a seller to access decision makers and navigate through the purchasing process. Finally, the customers report on several control variables that might affect seller performance or relationship, such as customer size, relationship age, and interaction frequency.

Seller-reported measures. Each seller reports objective data to calculate CV, such that representative firm earnings from a specific customer equal its sales to that customer times its average commission rate for that customer (see the Appendix). The sellers also report on several control variables, including seller promotional spending, seller category breadth, and seller size.

Measurement models. The confirmatory measurement model for the second-order formative relationship quality construct with the first-order reflective factors of commitment, trust, reciprocity norms, and exchange efficiency and two global measures to achieve identification indicates acceptable fit indexes (Byrne 1998; Jarvis, MacKenzie, and Podsakoff 2003): $\chi^2_{(24)} = 83.06$, $p < .01$; comparative fit index = .98; goodness-of-fit index = .96; and root mean square error of approximation = .07.[1] Next, an overall confirmatory measurement model including all reflective constructs indicates good fit (Byrne 1998): $\chi^2_{(75)} = 158.02$, $p < .01$; comparative fit index = .98; goodness-of-fit index = .96; and root mean square error of approximation = .05. All factor loadings are significant ($p < .001$), demonstrating convergent validity (for the factor loadings, see the Appen-

[1]Evaluating the validity of the structure of the relationship quality construct requires demonstrating that the four first-order factors affect CV through the second-order formative construct of relationship quality (Diamantopoulos and Winklhofer 2001). Therefore, I compared a baseline model with a path from relationship quality to CV with a modified model with paths added from each first-order factor to CV. The additional four paths failed to improve model fit significantly, in support of the proposed second-order formative structure for relationship quality ($\Delta\chi^2(4) = 8.4$, not significant).

dix). The average variance extracted by each construct (50.2%–71.4%) is greater than its shared variance (squared intercorrelation) with other constructs (Fornell and Larcker 1981). The reliability of each multi-item reflective scale is between .68 and .82. Thus, the measures appear acceptable. Table 1 provides descriptive statistics and correlations for all constructs.

Analysis and Results

Analysis and Model Development

A unique aspect of these data is their nested structure, such that multiple customers are nested within a single selling firm. To overcome the limitations of traditional methods for analyzing nested data, the model analysis uses hierarchal linear modeling (HLM), which accounts for the lack of independence across different cases (Raudenbush and Bryk 2002). Therefore, the model estimation relies on HLM full maximum likelihood, empirical Bayes procedures, with the RIGLS (restrictive iterative generalized least squares) algorithm in MLwiN 2.02 (Rasbash et al. 2000). The evaluations of the determinants of CV employ an incremental model-building approach that balances model parsimony and theory (Kreft and De Leeuw 1998; Palmatier, Gopalakrishna, and Houston 2006). Incremental nested models can be evaluated by comparing the deviance (–2 log-likelihood criterion) with a chi-square distribution in which the degrees of freedom equal the difference in the number of parameters between the two models (Ang, Slaughter, and Yee Ng 2002). Variables are mean centered, and the variance inflation factors are less than 2.0, which suggests that multicollinearity is not a major issue.

Table 2 provides a summary of the HLM estimations for each model. The comparison of two nested, empty (no predictor) models with only intercept terms indicates that adding a random intercept effect at the selling-firm level significantly improves model fit ($\Delta\text{deviance}_{(1)} = 39.63$, $p < .01$) over an empty model without any random intercept effects. The evaluation of the empty model across these two levels suggests that 77.7% of the variance in CV occurs at the customer level and 22.3% occurs at the selling-firm level (Model 1).

Next, the main effects of customer- and seller-level variables and random slope effects are added to the empty model. Adding random effects to interface frequency is significant and results in the greatest improvement in model fit of any variable. Models that add a second random-slope effect do not result in significantly better-fitting models. Model 2 explains 13.0% of the variance in CV and significantly improves model fit ($\Delta\text{deviance}_{(14)} = 200.92$, $p < .01$). Model 3 adds the five hypothesized interactions, which significantly improve model fit ($\Delta\text{deviance}_{(5)} = 18.94$, $p < .01$) and explain 14.8% of the variance in CV.

Results

Relationship quality ($B_1 = 3.03$, $p < .01$), contact density ($B_2 = .20$, $p < .05$), and contact authority ($B_3 = 3.20$, $p < .01$) are positively related to CV, in support of H_1, H_2, and H_3 (Table 2, Model 3). These results require careful interpretation because each relational driver is significantly moderated.

Of the five hypothesized interactions, three receive support. Specifically, the hypothesized positive effects of the relationship quality × contact authority ($B_5 = 1.71$, $p < .05$), contact density × turnover in customer contact ($B_7 = .18$, $p < .05$), and contact authority × customer interface difficulty ($B_8 = 1.66$, $p < .01$) interactions on CV are all significant, in support of H_5, H_7, and H_8. The relationship quality × contact authority interaction and relationship quality × service content interaction are not significant; thus, H_4 and H_6 are rejected.[2]

To clarify these results, the effect of interactions on CV is plotted for the high and low conditions of each significant interaction (i.e., one standard deviation above and below the mean). Figure 2, Panel A, documents the high degree of leverage gained from building high-quality relationships with key decision makers. High-quality relationships with customers for which sellers have access only to low-authority contacts generates little improvement in CV, and customers with low-quality relationships with key decision makers also underperform.

Figure 2, Panel B, shows that building dense interfirm relationships offers little payoff for customers with low levels of turnover. However, for these customers, CV is slightly lower in relationships with denser interfirm ties, which indicates that there may be some negative effects of highly linked interfirm relationships, possibly due to relational inertia or cognitive lock-in (Grabher 1993). Alternatively, for customers with high levels of turnover, increasing contact density has a strong impact on CV. Figure 2, Panel C, indicates that building a portfolio of high-authority contacts appears to be superior in all conditions, though among customers that are difficult to interface, contact authority's effect on CV is the most leveraged.

Of the control variables and direct effects of the proposed moderating variables, two are significant. Service content ($B = –.18$, $p < .05$) and customer size ($B = 1.95$, $p < .01$) are related to CV. The overall stability of effects across the models tested and post hoc sensitivity analysis increase confidence in the results. Even after relationship quality is reformulated; the control variables are dropped; and alternative estimation, model specification, and dependent variables are used, the model estimations show no substantial changes in the results.

Discussion

A general agreement among researchers and managers indicates that building "strong relationships" with customers represents an effective strategy for, if not a core aspect of,

[2]Moderation hypotheses result only when a strong theoretical rationale exists; a post hoc test examines every combination of relational driver and moderator variable included in Model 3, one at a time. Of these seven additional tests, only one significantly improves model fit (relationship quality × customer interface difficulty); the other results remain the same, except that the contact authority × customer interface difficultly interaction drops to marginally significant.

TABLE 1
Descriptive Statistics and Correlations

Constructs	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. CV (in thousands of dollars)	13.94	31.61	—												
2. Relationship quality	5.54	1.05	.15*	—											
3. Contact density	7.52	16.02	.22**	.06	—										
4. Contact authority	5.39	1.32	.16**	.49**	.07	.77									
5. Service content	4.92	12.90	−.00	−.00	.02	−.09	—								
6. Turnover in customer contacts	2.48	1.62	.03	−.19**	.05	−.21**	.01	—							
7. Customer interface difficulty	2.92	1.29	.12*	−.23**	.11*	−.30	.01	.29**	.78						
8. Customer size	3.26	2.08	.17**	−.05	.18**	−.05	.03	.14**	.30**	—					
9. Relationship age (number of years)	15.08	9.37	.03	.07	.06	.25**	−.01	−.04	−.17**	.08	—				
10. Interface frequency (per month)	4.37	5.97	.26**	.12*	.17**	.19**	−.00	.01	.07	.12*	.10*	—			
11. Seller promotional spending	4.89	1.57	.05	.12**	.09	.11*	−.03	−.00	−.06	−.00	−.02	.04	—		
12. Seller category breadth	25.33	15.03	.06	.05	−.04	.06	.02	−.03	−.02	.01	.07	.01	−.10	—	
13. Seller size (in millions of dollars)	52.83	56.88	−.09	.09	.04	.16**	−.09	−.11*	−.11*	.02	.17**	.14**	.32	.28	—

*$p < .05$.
**$p < .01$.
Notes: N = 446 for evaluating pairwise correlations among customer-level variables and customer- and selling firm–level variables; N = 27 for evaluating pairwise correlations between selling-firm-level variables (i.e., among Constructs 11, 12, and 13). Cronbach's alphas are reported along the diagonal for all multi-item reflective scales.

TABLE 2
Results: Hierarchal Linear Model Estimation for CV

Variables	Model 1	Model 2	Model 3	Hypotheses
Intercept	17.12**	2.91	2.14	
	(3.42)	(7.87)	(8.08)	
Relationship quality		2.59*	3.03**	H_1
		(1.30)	(1.30)	
Contact density		.33**	.20*	H_2
		(.07)	(.09)	
Contact authority		2.98**	3.20**	H_3
		(1.07)	(1.07)	
Service content		–.13	–.18*	
		(.09)	(.09)	
Turnover in customer contacts		.66	.98	
		(.74)	(.77)	
Customer interface difficulty		.68	1.17	
		(1.01)	(1.02)	
Customer size		1.71**	1.95**	Control
		(.59)	(.60)	
Relationship age		.09	.09	Control
		(.13)	(.13)	
Interface frequency		.85	.77	Control
		(.65)	(.65)	
Seller promotional spending		.92	.84	Control
		(1.37)	(1.40)	
Seller category breadth		.05	.05	Control
		(.14)	(.14)	
Seller size		–.07*	–.07	Control
		(.04)	(.05)	
Relationship quality × contact density			.12	H_4
			(.08)	
Relationship quality × contact authority			1.71*	H_5
			(.86)	
Relationship quality × service content			–.05	H_6
			(.10)	
Contact density × turnover in customer contact			.18*	H_7
			(.09)	
Contact authority × customer interface difficulty			1.66**	H_8
			(.62)	
Deviance (–2 log-likelihood)	4305.44	4104.52	4085.58	
Deviance difference		200.92**	18.94**	
Degrees of freedom for evaluating deviance differences		14	5	
Proportion of variance explained		12.97%	14.75%	

*$p < .05$.
**$p < .01$.
Notes: Unstandarized coefficients are reported with standard errors in parentheses.

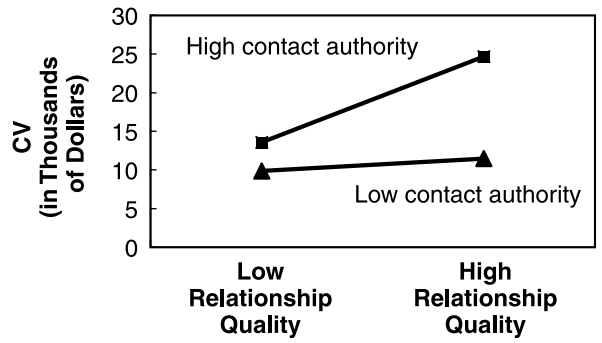
successful marketing (Berry 1995). Most research based on social exchange theory uses a dyadic perspective and captures the performance-enhancing effects of interfirm relationships through trust, commitment, and relationship norms, or some combination of these constructs (Morgan and Hunt 1994; Siguaw, Simpson, and Baker 1998). However, this perspective is being challenged. Achrol (1997) argues that interfirm researchers must transition from a dyadic perceptive to a network perspective, and Palmatier and colleagues (2006) suggest that models of relational exchange need to integrate additional mediators beyond trust and commitment to capture the full effects of interfirm relationships. This study attempts to address these recommendations by integrating findings from network theory to develop and test empirically a holistic model of interorganizational relationships that includes three key relational drivers—quality, density, and authority—of CV. In addition, this research evaluates interactions among these relational drivers and between relational drivers and customer factors to identify ways firms might better leverage or target their relationship-building investments. The following discussion of the results is structured around the three research questions: (1) What are the key relational drivers of CV? (2) What are the synergies among relational drivers? and (3) What customer factors leverage the impact of relational drivers on CV?

What Are the Key Relational Drivers of CV?

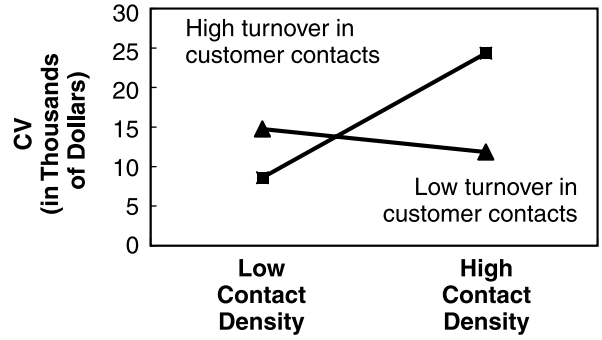
As Table 2 shows, relationship quality, density, and authority all have direct effects on CV, in addition to their indirect effects through significant interactions. Therefore, previous research indicating that the performance-enhancing effects

FIGURE 2
Analysis of the Effect of Interactions on Customer Value

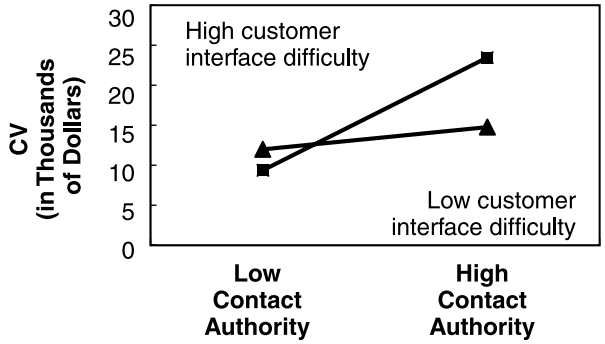
A: Effect of Relationship Quality × Contact Authority Interaction



B: Effect of Contact Density × Turnover in Customer Contacts Interaction



C: Effect of Contact Authority × Customer Interface Difficulty Interaction



of interfirm relationships can be captured by relationship quality, trust, or commitment may be omitting important relationship attributes. The selection of these interfirm relational drivers is theoretically well grounded, because they are derived from characteristics identified by social network theorists as critical to relationships among multiple network members (Houston et al. 2004; Wasserman and Faust 1994). The results presented herein suggest that network theory offers a potentially rich source of insights that could strengthen interorganizational research (Anderson, Hakansson, and Johanson 1994; Van Den Bulte and Wuyts 2007). In any case, interfirm relationship researchers should expand the nomological model to capture a wider range of relationship attributes (quality, density, authority) because their results could vary depending on the specific antecedent, mediator, or outcome measure selected. This issue has several implications.

First, the true caliber of relationship quality may be best captured as a more holistic, high-order construct formed by multiple first-order factors (e.g., trust, commitment, norms, efficiency), such that each factor offers specific "relationship strengths." Turning to an engineering metaphor, this approach is conceptually similar to blending different metals, each with its own specific characteristic, to build an alloy with enhanced properties (e.g., stronger, more flexible, longer lasting). Truly high-caliber relationships might represent blends across multiple dimensions. This view is also consistent with researchers' suggestions that respondents often have "difficulty making [the] fine distinction between [trust, commitment, and relationship satisfaction] and tend to lump them together" (De Wulf, Odekerken-Schröder, and Iacobucci 2001, p. 36; see also Crosby, Evans, and Cowles 1990). Thus, relationship quality may be most appropriate when researchers want to capture the overall caliber of relationship ties and their overall impact on outcomes, whereas using individual relational elements can isolate the effects of specific relationship constructs.

Second, although the linkage between trust, commitment, and relationship quality and different performance outcomes is well known (i.e., commitment → loyalty), little research investigates the linkage between contact density or authority and specific outcomes. Contact density may be the best predictor of successful cross-selling of commodity products because sellers that have many customer contacts have more occasions to identify unique sales opportunities. Collecting novel information that is critical to radical product innovation may receive the greatest push from contact authority, which offers access to key nonredundant sources of knowledge (Rindfleisch and Moorman 2001). Although additional research must test these predictions, strong or insignificant effects between relational drivers and outcomes may depend on the specific constructs evaluated.

Third, understanding the relational drivers of CV has many managerial implications. Identifying multiple drivers of CV provides managers with insight into their need to build not only high-quality bonds but also contact portfolios with sufficient density and authority. Including measures of relationship quality, density, and authority in existing customer satisfaction and loyalty surveys or sales audits might provide managers with a more complete picture of the seller's exchange relationships (e.g., evaluating relative competitive position across drivers may be especially informative). Using this diagnostic information could enable sales managers to develop salesperson objectives targeted toward specific relationship weaknesses (e.g., relationship scorecard).

What Are the Synergies Among Relational Drivers?

The results support the premise that synergies exist among relational drivers. First, the relationship quality × contact authority interaction positively influences CV. Inspection of Figure 2, Panel A, suggests that if a seller's relational contacts have low decision-making capabilities, building high-quality relationships with them will have little impact on CV, but increasing the quality of high-authority contacts will strongly leverage their impact on CV. Sellers attempting to penetrate a new customer might need to employ a transition strategy, moving from low to sequentially higher authority contacts. Nevertheless, the strong main and interaction effects of relationship quality and authority reinforce the sellers' need to concentrate their relationship marketing investments on targeted decision makers to achieve their objectives.

Second, the interaction of relationship quality × contact density achieves only marginal significance ($p < .10$), which suggests that additional research should investigate alternative measures of interconnectedness or centrality to understand the trade-offs in different operationalizations and potential moderating conditions. In addition, theories focused on group decision making and norms may provide insight into how quality and density might work together to enhance performance, as well as suggest new research directions (Brown 2000). Investigating the impact of this interaction on different exchange outcomes may be valuable because building a "large" portfolio of quality relationships results in a group within the customer firm that possesses positively biased norms toward the seller. These in-customer group norms may generate many seller benefits because they quickly socialize new employees with a positive attitude toward the seller, support positive causal attributions about ambiguous seller actions, and generate positive "groupthink" about seller decisions. Moreover, group-level phenomena may occur within both seller and customer firms. Additional research should determine which group decision mechanisms operate and whether a critical mass is needed to engage these mechanisms (i.e., the effects may be nonlinear), as well as evaluate whether group norms within the seller have any negative consequences (e.g., failure to maintain pricing discipline).

Understanding that relationship quality and authority behave synergistically is important to managers because unbalanced relationships result in degraded performance. For example, for customers with which they have low authority contact portfolios but strong relational bonds, managers may want to reallocate relationship marketing investments away from enhancing existing relationships (e.g., entertaining customers) and toward making new contacts with key decision makers (e.g., asking customers for referrals to new "higher-level" contacts, bringing in senior executives from the seller). Similarly, although not explored herein, trade-offs might exist among the subcomponents of relationship quality, such that additional relationship marketing activities could have small effects on increasing trust or commitment but also generate unwanted perceptions of exchange inefficiency.

What Customer Factors Leverage the Impact of Relational Drivers on CV?

The results also provide support for the need to take a contingent approach to customer relationship and portfolio management. More specifically, two customer factors leverage the effect of relational drivers on CV. First, contact density has a greater effect on CV for customers that have high contact turnover, in support of the notion that multiple interfirm ties are more valuable when they can mitigate the loss of an interfirm bond by shifting the interaction to another bond or quickly rebuilding the bond with a replacement (assisted by norm diffusion). Thus, in line with the suggestion in existing literature to use team selling to respond to high salesperson turnover (Bendapudi and Leone 2002), a similar strategy appears to be effective for customer turnover. Sales managers dealing with companies that experience high employee turnover should aggressively expand the breadth of their contact portfolio to build a "customer team."

Second, contact authority has a greater impact on CV among customers for which interfacing with decision makers is difficult. Sellers that overcome this hurdle enjoy a significant competitive advantage, which leverages the seller's access with a key decision maker on performance. This finding represents a conundrum: Customers and contacts that are the most difficult to access and deal with may be the most valuable, whereas customers that are easy to access may generate the lowest returns, all else being equal. Thus, busy salespeople making their rounds to their favorite customers (that are often open to meetings with them and their competitors) might be able to enhance performance by shifting their resources to firms or contacts that are more difficult to access. This finding is consistent with a resource-based view of interfirm exchange, which asserts that relational assets are most valuable when they are difficult to imitate (Palmatier, Dant, and Grewal 2007).

Identifying customer factors that leverage the effect of specific relational drivers on CV reinforces the need for a more fine-grained approach to the theory of relationship marketing in both academia and practice. Theorists should include multiple aspects of relationships in models of interfirm customer–seller exchanges while still accounting for interactions of those relational drivers and among drivers and contextual factors. Managers should target their relationship marketing efforts not only toward customers that generate the highest returns on their investments but also to the relational driver that offers the greatest return.

Limitations and Future Research Directions

The research context of this study offers some important advantages for investigating the relational drivers of CV because relationships represent these firms' primary assets; representative firms do not manufacture or inventory products but rather receive commissions, so CV is highly linked to the representative's commissions. However, this context also represents a limitation because specific parameter estimates for representative firms cannot be generalized to *Fortune* 500 firms without further testing, though there is no reason to expect that the underlying theoretical rationale or

the conceptual framework would differ. These customer–seller exchanges are mainly product based, and only 30% of the transactions tested have any service content, which may explain the failure to replicate previous research that indicates that relationship quality is more important for services than for product exchanges. Additional research should investigate this model in a more service-centric context.

A contingent perspective suggests many potential factors that could moderate the effect of relational drivers on CV, but this study investigates only a limited subset of them. Therefore, further research should explore a wider range of factors across relationship quality (e.g., sellers' brand strength, environmental uncertainty, customer dependence), density (e.g., customer decision-making processes, team selling, industry maturity), and authority (e.g., commodity versus innovative products, number of competitors, multifunctional nature of customers' decision making) to gain a better understanding of the relative importance of each driver on exchange performance across different situations. Moreover, evaluating how the impact of relational drivers on exchange outcomes varies across the relationship life cycle may represent a fruitful line of inquiry. For example, in the initial stages, the quality of the bonds may be most critical because these initial bonds form the seeds of interfirm norms. During the growth stage, however, contact authority may become more critical as sellers attempt to enhance their sales penetration, which requires action by diverse decision makers. Finally, contact density may be especially important as relationships mature and sellers shift from share expansion to share protection, such that a web of relationship ties can provide a barrier against customer switching behaviors and competitive pressures. Network research supports this premise by noting that "densely tied networks produce strong constraints," which suggests that contact density could constrain customer switching behavior (Rowley 1997, p. 897). Further research might explore how suppliers could supplement known weaknesses in contact density or authority by leveraging a channel member's contact portfolio. Moreover, additional research should investigate the underlying mediating mechanisms for contact density and authority to understand how they affect performance.

Another potential line of research might identify the relationship marketing tactics and strategies that are most effective across the relational drivers. For example, one-on-one social programs and a high degree of similarity among boundary spanners may be especially effective for building relationship quality, whereas group social events, training seminars, and telemarketing or direct-mail campaigns that attempt to generate new prospects at existing customers may be best for expanding the breadth or density of relational contacts. Contact authority may require alternative marketing strategies, such as using senior executives or functional experts to penetrate new levels and areas within the customer firm. Overall, these findings suggest that prior relationship marketing research that promotes strategies for building trust and commitment (relationship quality) should be expanded or reevaluated to include strategies across all relational drivers.

Finally, extending other network variables into interorganizational research could increase researchers' ability to explain interfirm exchange performance. For example, aspects of network centrality, network timing, and network resources may capture other performance-leveraging characteristics of interfirm exchanges.

APPENDIX

Constructs	Measures (Respondent)	Item Loadings
Relationship Quality (Reported by Customer)		
	Commitment (Cronbach's α = .82)	
	•We are willing "to go the extra mile" to work with this rep.	.82
	•We view the relationship with this rep as a long-term partnership.	.85
	Trust (Cronbach's α = .82)	
	•We have trust in this rep.	.86
	•This rep is trustworthy.	.82
	Reciprocity norms (Cronbach's α = .71)	
	•There is a norm of reciprocity guiding our relationship with this rep.	.76
	•We would help each other without expecting an immediate favor in return.	.74
	Exchange efficiency (Cronbach's α = .68)	
	•Our interactions with this rep are often inefficient. (reverse scored)	.63
	•Our dealings with this rep are very efficient.	.84
Contact Density (Reported by Customer)		
	•How many different relationship ties are there among employees at this rep and your firm? (number)	—
Contact Authority (Reported by Customer)		
	•This rep knows the key decision makers at our firm.	.74
	•This rep deals with the important decision makers in our company.	.74
	•This rep has relationships with the important gatekeepers at our firm.	.73
Service Content (Reported by Customer)		
	•What % of your sales from this rep are for services (versus products)?	—

APPENDIX
Continued

Constructs	Measures (Respondent)	Item Loadings
Turnover in Customer Contacts (Reported by Customer)		
	•We have a high level of turnover of employees at my firm.	—
Customer Interface Difficulty (Reported by Customer)		
	•It is very difficult to meet with the important decision makers at our firm.	.84
	•Suppliers feel that dealing with our firm is very easy. (reverse scored)	.45
	•It is hard to meet with the decision makers at our firm.	.84
	•Our approval and purchasing processes are very complex.	.60
CV (Reported by Seller)		
	•CV = (sales to customer [in thousands of dollars]) × (average commission rep earns at customer [%])	—
Control Variables (Reported by Customer)		
	•*Customer size*: My firm is a very large company.	—
	•*Relationship age*: How many years has your firm dealt with this rep firm? (number of years)	—
	•*Interaction frequency*: How often does someone from this rep communicate with your firm in a typical month? (number per month)	
Control Variables (Reported by Seller)		
	•*Seller promotional spending*: Our rep firm spends little on advertising and promotion. (reverse scored)	—
	•*Seller category breadth*: How many suppliers did you represent in 2006? (number)	—
	•*Seller size*: What will be your rep firm's approximate annual sales for calendar year 2006? (in millions of dollars)	—

Notes: Unless otherwise indicated, all items were assessed on seven-point scales anchored by 1 = "strongly disagree" and 7 = "strongly agree."

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