



Reports

What Drives Customer Relationship Value in Business-to-Business Exchanges? (07-118)

Robert W. Palmatier

Customer Relationship Management in Virtual Communities (07-119)

Constance Elise Porter and Naveen Donthu

Superstars and Underdogs: An Examination of the Long-Tail Phenomenon in Video Sales (07-120)

Anita Elberse and Felix Oberholzer-Gee

Global Takeoff of New Products: Culture's Consequences, Wealth of Nations, or Vanishing Differences? (07-121)

Deepa Chandrasekaran and Gerard J. Tellis

The Determinants and Outcomes of Internet Banking Adoption (07-122)

Lorin M. Hitt, Mei Xue, and Pei-yu Chen

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What Drives Customer Relationship Value in Business-to-Business Exchanges?

Robert W. Palmatier

Managers need to direct relationship marketing efforts not only toward customers that generate the highest return on their investment but also toward the relational drivers that offer the greatest return.

Report Summary

In this report, author Palmatier integrates social network theory and social exchange theory to develop a model that explores three drivers of customer relationship value: relational quality (caliber or nature of relational bonds), relational breadth (span or number of relational bonds), and relational composition (decisionmaking capability of relational contacts). In addition, the model evaluates synergies among these relational drivers (the relational quality \times relational breadth interaction, which captures relational strength, and the relational quality \times relational composition interaction, which captures relational efficacy). Finally, the model posits that certain factors leverage the effect of relational drivers: turnover in customer contacts, service content, and difficulty accessing the customer are levers suggested from the customer's side of the interaction, while longevity of seller contacts, industry dynamism, and new product launches are levers suggested from the seller's side.

Customer relationship value reflects the present value of all future profits generated from a customer relationship. Applying this model to dyadic data from 446 business-to-business

exchanges involving representatives of companies selling industrial products and services and their customers in a wide range of markets, Palmatier finds that the value generated by interfirm relationships derives not only from the quality of customer bonds (e.g., trust, commitment, norms), as typically modeled, but also from the number of interfirm relationships (breadth) and the ability of the contacts to affect outcomes (relational composition). Additionally, there is support for a synergy between relational quality and relational breadth, though not for the synergy between relational quality and relational composition. As for levers of relational drivers, the study shows that high employee turnover rates leverage relational breadth, whereas frequent product launches and difficulty accessing customers are levers for relational composition.

The results have many managerial implications. Broadly speaking, they suggest that managers need to build both high-quality bonds and contact portfolios with sufficient breadth and diversity. Furthermore, if managers understand that relational breadth and quality behave synergistically, they can take steps to avoid unbalanced relationships. ■

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Introduction

The positive effect of strong customer relationships on the seller's financial performance in business-to-business markets is widely accepted by both business managers and academics (McKenna 1991; Morgan and Hunt 1994). Marketers spend their limited budgets building strong customer relationships, and firms make costly acquisitions when they "buy" new relationships. Despite research into the lifetime value of customers, according to their past purchase behaviors, brand strength, and customer perceptions (e.g., Rust, Lemon, and Zeithaml 2004; Venkatesan and Kumar 2004), the specific drivers of customer relationship value or factors that leverage their effect have not been isolated (Bolton, Lemon, and Verhoef 2004). Thus, relationship marketing practitioners have little idea about which relational drivers they should target to optimize customer value creation.

A review of two decades of relationship marketing research suggests that the positive effects of relationship building are not fully captured by relationship quality (i.e., the caliber or nature of relational bonds such as trust and commitment); there must be other, additional, relational performance drivers (Palmatier et al. 2006). This article integrates social network and social exchange theories to develop a model of customer relationship value (CRV) in business-to-business exchanges that suggests three key drivers of relational value: relational quality (caliber or nature of relational bonds), relational breadth (span or number of relational bonds), and relational composition (decisionmaking capability of relational contacts), which themselves may experience synergies (or interactions). The value generated from interfirm relationships derives from not only the quality of the customer bonds (e.g., trust, commitment, norms; Morgan and Hunt 1994; Siguaw, Simpson, and Baker 1998) but also the number of interfirm relationships, the composition of the contact portfolio, and the interaction among relational drivers.

A more fine-grained model of the drivers of CRV elucidates moderating factors across specific relational drivers—factors that act as levers of CRV in different contexts (e.g., given different products, customers, sellers, or industry factors). Understanding both the drivers and the levers of CRV provides more targeted guidance to managers who must improve the return on investments in relationship marketing.

This article evaluates the effect of relational drivers on CRV—in terms of the discounted cash flow attributable to a customer's relationship—across 446 business-to-business relationships to provide insight into three research questions. First, what are the key relational drivers of CRV? Identifying, measuring, and testing the three relational drivers mentioned above (i.e., quality, breadth, and composition) will offer insight into which relationship characteristics have the greatest impact on long-term value. Second, what are the synergies among those relational drivers? Synergies may affect allocation decisions, for example, whether to spend money improving relational quality with existing contacts or developing relationships with new contacts. Third, what factors leverage the impact of relational drivers on CRV? (Relational levers are key characteristics of an exchange that enhance the impact of relational drivers.) Understanding the moderating effect of contextual factors should enable managers to alter their relational strategies in specific exchange conditions.

Customer Relational Value

Research into the financial value of customers has been conducted from various perspectives, but often provides only limited insight into key relational factors (Gupta, Lehmann, and Stuart 2004). The customer lifetime value (CLV) approach uses the discounted cash flow of a customer's purchases and models customer value according to margin, marketing costs, purchase frequency, expected duration, and

discount rates (Berger and Nasr 1998; Rust, Zeithaml, and Lemon 2000).

This approach has several strengths but typically uses data from a single selling firm within a single industry, which prevents any investigation of seller or industry factors and does not integrate customer perceptual data. Thus, it provides only limited insight into the underlying reasons or theoretical mechanisms for why customers behave as they do. In addition, the influence of customer–seller relationships on CLV often gets overwhelmed by nonrelational factors. For example, in modeling the lifetime value of a customer (customer equity) to a specific firm’s brand Rust, Lemon, and Zeithaml (2004) demonstrate the important role of customer perceptions and attitudes, but they do not isolate the portion of customer value attributable to the customer–seller relationship (i.e., rather than to brand or product effects), specific relational drivers, or potential moderators of the impact of these drivers on CLV. In contrast, customer relationship value (CRV) represents the present value of future profits generated from a seller’s relationship with a customer.

Most research argues that the customer’s commitment and/or trust in the seller mediates the influence of relationship-building activities on exchange outcomes (e.g., Doney and Cannon 1997; Morgan and Hunt 1994). A recent synthesis of more than 38,000 relationships challenges this perspective (Palmatier et al. 2006), finding that the direct effect of relationship investment is *greater* than the impact of relationship quality on financial performance. Thus, after 20 years of relationship marketing research, a critical question remains: What other relational attribute(s) or mechanism(s), in addition to relationship quality, account for relationship marketing’s effect on performance? As suggested above, I propose relational breadth and relational composition as the additional key attributes.

Social exchange theory, the foundation for most relationship research, applies to dyadic

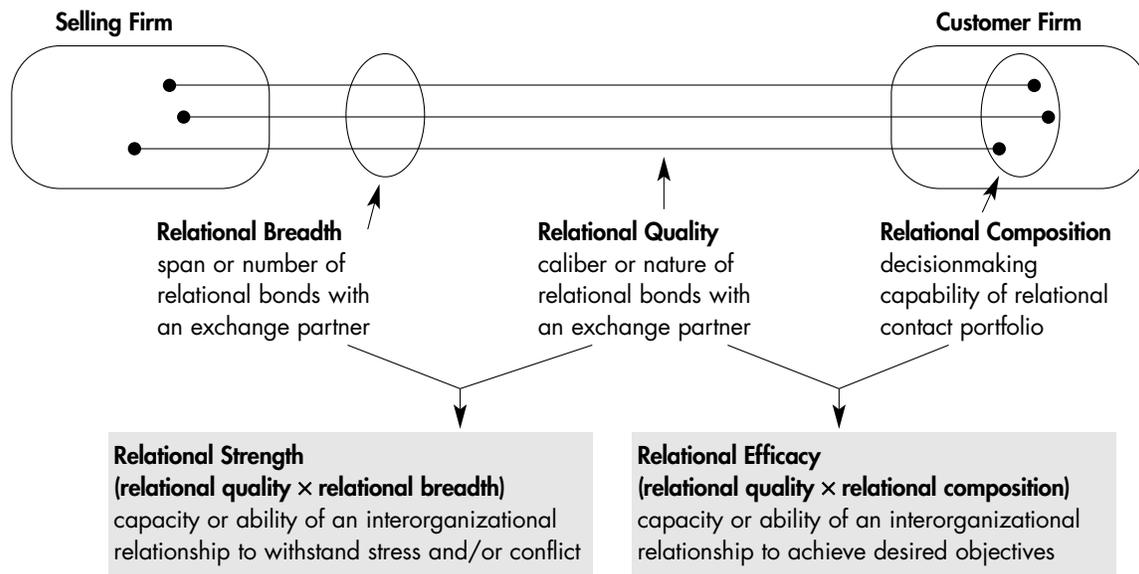
interactions (Morgan and Hunt 1994), but interfirm relationships often involve groups of people from both buying and selling organizations (Bendapudi and Leone 2002; Bonoma and Johnston 1978). Viewing these firms as groups, with multiple intergroup relationships, may provide insight into other performance-enhancing mechanisms. In addition, social network theory offers a valuable perspective for modeling interaction among multiple entities (e.g., individuals, firms) within an overall network (Borgatti and Foster 2003; Houston et al. 2004). Because customer–seller inter-organizational relationships lie on the spectrum between one-to-one dyads and multifirm networks in terms of relational complexity, network characteristics may inform the study of interfirm relationships. Figure 1 shows the relational attributes that drive interfirm relationship performance, which were identified by applying social network theory to a relationship dyad between two firms.

Relational quality

Relational quality, or the caliber or nature of relational bonds with an exchange partner, affects partner performance (Palmatier et al. 2006); it parallels the concept of tie strength in network theory and captures the relational embeddedness, closeness, and degree of reciprocity in social bonds (e.g., Rindfleisch and Moorman 2001). Prior research has determined that relational quality is a composite of the diverse aspects of an interaction, such as commitment, trust, reciprocity norms, and exchange efficiency (Crosby, Evans, and Cowles 1990; Kumar, Scheer, and Steenkamp 1995). Each construct, though related, captures a unique aspect of the relational bond that may enhance specific exchange outcomes; in aggregate, they indicate overall relational quality.

Commitment represents a desire to maintain a valued relationship and thus an exchange partner’s relational motivation. Trust involves a favorable evaluation of a partner’s reliability and integrity, generating confidence that the

Figure 1
Drivers of Interorganizational Relationship Performance



partner's future actions will support cooperation. Reciprocity norms, that is, internalized beliefs and expectations about the balance of obligations in an exchange, take longer to develop but pervasively affect exchange behaviors. Exchange efficiency—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” (Williamson 1981, p. 574). Thus, high-quality relationships feature not only high levels of trust, commitment, and reciprocity but also an appropriate cost of maintaining the relationship with a “minimum of hassles” (De Wulf, Odekerken-Schröder, and Iacobucci 2001, p. 37). Relational quality as a composite construct and its individual components affect multiple seller outcomes, including loyalty, sales growth, and financial performance (Crosby, Evans, and Cowles 1990; De Wulf, Odekerken-Schröder, and Iacobucci 2001; Palmatier et al. 2006; Siguaw, Simpson, and Baker 1998).

Relational breadth

The second driver of CRV is relational breadth, or the span or number of relational bonds with an exchange partner. Interorganizational relationships that include many interpersonal ties better uncover key information, find profit-enhancing opportunities, and withstand disruptions to individual bonds. For example, interfirm relationships with many relational ties can more easily recover from the departure of a key contact person (Bendapudi and Leone 2002) by socializing the replacement quickly into existing relational norms—an example of norm persistence (Jacobs and Campbell 1961).

Relational breadth is similar to the concept in social network theory 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). These forms of network interconnectedness positively affect cooperation, knowledge transfer, communication efficiency, and product develop performance (Rowley 1997; Tsai 2001; Walker, Kogut, and Shan 1997). A seller with

more interpersonal ties (i.e., greater breadth) with its customer should have better access to information and sales opportunities and be less affected when contact personnel turn over, and therefore should experience increased exchange performance.

Relational composition

Relational composition indicates the decision-making capability of the relational contacts; diversity and authority in the seller's contact portfolio should increase its ability to effect change in the customer organization. Greater diversity and authority provide the seller with information triangulated across different perspectives and access to critical decisionmakers (Katrachis 1998). For example, during a new product sale, the approval process may progress through engineering, manufacturing, quality, and purchasing. Access to a vice president of purchasing is of little help when the product is sitting on a quality technician's desk for certification. Thus, relational composition recognizes that even high-quality relationships with multiple contacts (breadth) cannot ensure that things happen. If the relationships do not include key decisionmakers or are only with similar types of personnel, they may not effect change. In turn, relational breadth and composition should correlate positively, because sellers with more contacts likely have diverse contacts (horizontally and vertically); however, these constructs can diverge, because sellers may have many homogeneous contacts or a few very different contacts.

Overall, relational composition captures the aggregate ability of a contact portfolio to influence decisions and acknowledges that key decisions often spread across different areas and are not just influenced by a small set of people with authority—so-called key decisionmakers. For example, Arora and Allenby (1999) argue that “instead of exclusively focusing on the group members with a higher overall influence, it may be more beneficial to communicate to members who have lower overall influence but higher influence on specific aspects of the decision” (p. 476).

Thus, relational composition is similar to the concepts of diversity (Wasserman and Faust 1994) and attractiveness (Anderson, Hakansson, and Johanson 1994) in social network theory. More diverse network partners increase the value and complementarity of information (Burt 1992) and the performance and efficiency of the networks (Baum, Calabrese, and Silverman 2000). Although relational composition receives limited attention in relationship marketing literature, its positive effect on sales performance is consistent with sales research into buying centers with multiple decisionmakers (Bonoma and Johnston 1978) and solution selling (e.g., Rackham 1996) approaches. A seller with a well-structured customer contact portfolio should have access to valuable, nonredundant information that is helpful in identifying and overcoming barriers, which results in improved performance.

Synergies among relational drivers

The three relational drivers capture different aspects of interfirm relationships, but optimum relationship value results when they reinforce one another, and therefore, as my colleagues and I have noted elsewhere, the scope of relationship marketing research “should be expanded to investigate potential interactions among relational mediators in order to identify relational synergies” (Palmatier et al. 2006, p. 152). In addition to relational quality's direct effect on CRV, it may positively moderate the effect of relational breadth and composition on CRV in conceptually meaningful interactions (see Figure 1).

Relational strength

The relational quality \times relational breadth interaction represents relational strength, or the capacity of an interorganizational relationship to withstand stress and/or conflict, such that high-quality relational bonds result in a strong, resilient relationship. Thus, relational quality and breadth behave synergistically. Many cursory contacts (high breadth, low quality) with a customer provide little protection against the stress of a service failure (e.g.,

poor delivery performance), because the low-quality contacts will not support the seller during a problem period (there is lack of relational motivation). Similarly, one high-quality contact (high quality, low breadth) may not want to risk being a sole supporter or may be unable to influence a decisionmaking group (Brown 2000). Evidence from service literature appears to support this argument: both relationship duration and breadth of prior encounters positively affect service recovery (Bejou and Palmer 1998; Hess, Ganesan, and Klein 2003). Thus, relationship strength should positively affect CRV by increasing the ability of the interfirm relationship to withstand problems and conflict while continuing to function effectively.

In many ways, this conceptualization parallels engineering concepts: the strength of a bridge and its ability to withstand wind or load stress depends on the quality of the individual cables (quality) multiplied by the number of cables (breadth) used to build the structure. It would be misleading to try to assess or indicate the strength of the bridge by looking solely at the quality of the cable or the number of cables. Extant research that models the strength of an interfirm relationship using just the quality of the relational bonds may provide an equally incomplete picture of true strength.

Relational efficacy

The relational quality \times relational composition interaction represents relational efficacy (the capacity of an interorganizational relationship to achieve desired objectives), because sellers with high-quality bonds across well-structured contact portfolios are in the best position to execute their selling strategies. If a seller's contact portfolio includes key decisionmakers (high composition), but its interpersonal bonds are poor (low quality), the contacts are less likely to disclose information (Crosby, Evans, and Cowles 1990) or to be influenced by the seller's needs (reciprocity debts). By the same token, if the seller enjoys high-quality relationships with many contacts (high breadth), but

these contacts are concentrated in an area with little decisionmaking ability (low composition), the seller cannot access nonredundant information or orchestrate change. According to social network theory, "It is critical to separate the issue of tie strength from that of network diversity," because "the most desirable ties are both *strong* and *diverse*" (Li 2007, p. 239) and lead to enhanced performance. In summary, "A large network of strong ties to nonredundant actors is the best sort to have" (Rangan 2000, p. 826). To take another example, relational ties increase a person's chance of finding a new job only when the ties exist with someone "who is well placed in the occupational structure" (Granovetter 1983, p. 207). Thus, both bonds with and the position of the contact determine relational efficacy.

Relational composition reflects the latent ability of the contact portfolio to institute change; this potential gets actualized by building high-quality relationships, which enable the seller to achieve its objectives. Relational composition describes the decisionmaking power of the contacts and the degree of access, whereas relational quality describes how motivated the contacts are to help and the degree of confidence one has that they will cooperate (Anderson and Narus 1991; Morgan and Hunt 1994). Thus, relational efficacy should positively affect CRV, because contacts who possess decisionmaking ability are more likely to cooperate and reciprocate past favors when they experience high-quality relational bonds.

Leveraging the Effects of Relational Drivers on Customer Relationship Value

Identifying key relational drivers of CRV is essential, but these drivers may not be equally important in all situations. It is important to ask what factors leverage the impact of relational drivers on CRV. The resource-based view (RBV) of interfirm exchange provides a

theoretical lens for identifying factors that make customer relationships more valuable, rare, and difficult-to-duplicate and thus moderate the effects of relational drivers on value and generate competitive advantages and superior performance (Dyer and Singh 1998; Palmatier, Dant, and Grewal 2007; Wernerfelt 1984).

Relational quality may have a greater impact on customer purchasing behaviors in exchanges that contain service elements (Palmatier et al. 2006; Zeithaml, Parasuraman, and Berry 1985) because services entail a higher degree of performance uncertainty, and customers depend more on sellers in a service context, so the enhanced flexibility and cooperation resulting from high-quality relationships should be more valuable to service customers (Pfeffer and Salancik 1978).

Similarly, in industries with higher levels of dynamism (i.e., a rapidly changing environment), the flexibility and cooperativeness of high-quality customer–seller relationships may be more valuable. Relational quality has a greater effect on performance as uncertainty increases (Cannon, Achrol, and Gundlach 2000; Noordewier, John, and Nevin 1990), so the flexibility and cooperation of high-quality relational bonds may be valuable resources in an RBV sense and have greater effects on seller performance in such exchanges.

Building multiple customer–seller bonds (e.g., team selling) may help mitigate the negative impact of boundary spanner turnover on performance (Bendapudi and Leone 2002); Lovett, Harrison, and Virick (1997) argue that because customer–seller relationships are difficult to replace, any disruption increases the likelihood of negative financial consequences. A seller with more interfirm ties (relational breadth) can replace the loss of a specific relational bond more easily by shifting the transaction or quickly rebuilding the bond with a new contact (Brown 2000). Relational breadth should have a greater impact on performance

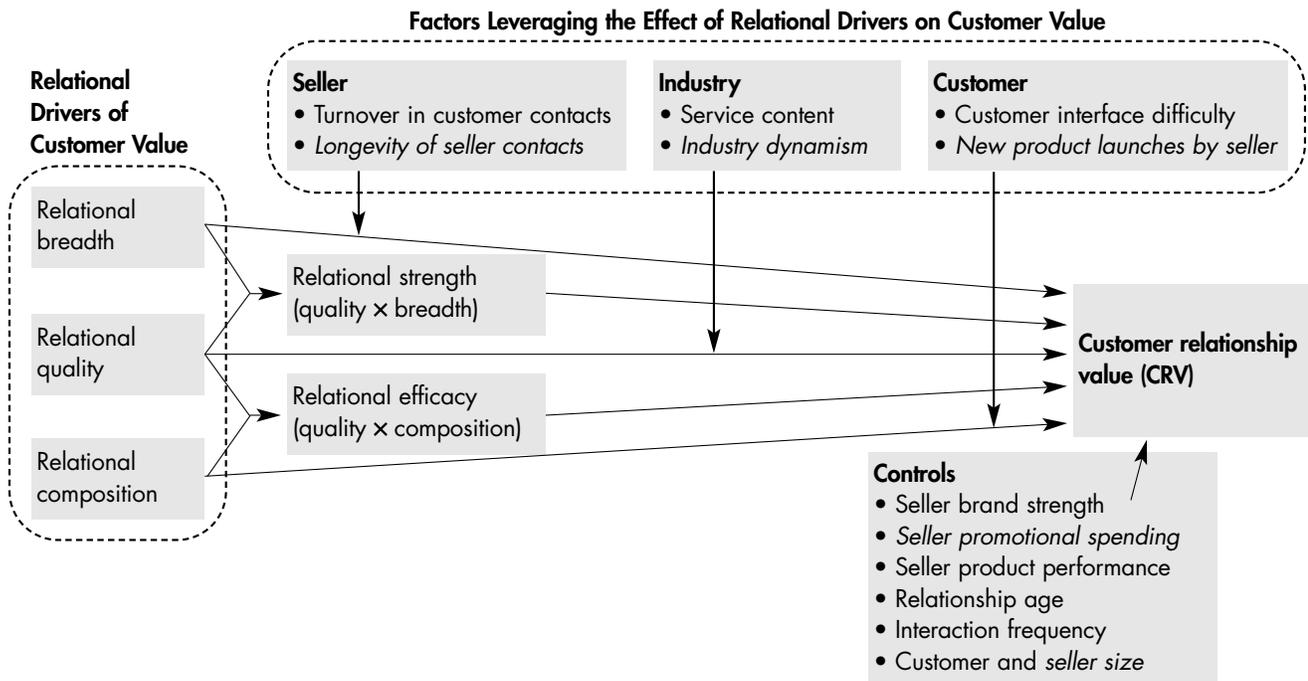
in situations characterized by boundary spanner turnover, because in such situations it softens the blow caused by the loss of key relational resources. When there is low turnover (high longevity), relational breadth has less to offer.

According to the RBV, a contact portfolio with good relational composition also represents a more valuable resource in relationships marked by difficulty accessing key decision-makers, because good relational composition is more difficult to duplicate. For example, a seller that can access decisionmakers that other sellers have trouble accessing should gain a sales advantage from its better information, reduced competition, and greater ability to overcome selling barriers.

Furthermore, difficult customer interfaces represent a customer variable that makes relational composition more difficult to duplicate, whereas seller variables make relational composition more valuable. For example, firms that launch many new products may generate more value from a well-structured contact portfolio because launching new products often requires dealing with diverse departments and decision-makers within the customer organization, so access to a (horizontally and vertically) diversified contact portfolio is critical.

Applying the RBV to the proposed model of drivers of interfirm relationship performance leads to various product, customer, seller, and environmental factors that can enhance or suppress the effects of relational drivers. Six moderators (or levers) spanning product (service content), customer (turnover in customer contacts, customer interface difficulty), seller (longevity of seller contacts, number of new products launched), and environmental (industry dynamism) perspectives provide a robust empirical test of the proposed theoretical rationale (including value enhancements and the difficulty of duplicating aspects of RBV) and the overall conceptual model (Figure 2).

Figure 2
Customer Relational Value



Note: Constructs in italics reported by seller; all other constructs reported by customer.

Research Methodology

This study examines interorganizational relationships between sellers of industrial products and services and their customers in a wide range of markets (e.g., telecommunications, electronic components, plumbing supplies, cleaning supplies, office products, toys) in North America. The selling firms are manufacturers' representatives (rep firms) and are relatively small (\$5–\$200 million), selling multiple products and services for 10–30 different suppliers on a commission basis. In typical exchanges, the value of interfirm relationships are difficult to isolate from other drivers of exchange value, but rep 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 their relationships with their customers (Palmatier, Gopalakrishna, and Houston 2006). Because rep firms receive a commission on sales, it is

relatively easy to determine customers' discounted cash flows.

Sample and data collection

Owners or senior managers of rep firms participated in the academic study by providing contact information for 100–200 randomly selected customers per rep firm. Owners selected the customer contact person who was most knowledgeable about the relationship; 31 rep firms provided contact data for 2,554 customers. A three-wave mailing (survey, follow-up postcard, and second survey) to these customers generated 527 responses, a 20.6% response rate. Each survey included a cover letter asking the customer to report on its relationship with the rep firm. At the beginning of the next calendar year, rep firm owners provided sales and commission rate data for each customer for the previous year and completed a survey about their firm. This effort resulted in 487 customer surveys matched with performance and rep firm survey data. Removal

of responses with missing data and low levels of knowledge about the relationships resulted in a sample totaling 446 different customers and 27 rep firms.

Measurement

The measures come from existing scales, adapted to the focal context. When that was not possible, interviews with customers and salespeople drove scale development, testing, and refinement. All measures use seven-point Likert scales unless otherwise noted (1 = strongly disagree; 7 = strongly agree). For each scale, information on final measurement items and whether the respondent was the customer or seller appears in Appendix A. Appendix B presents evaluations of possible response bias.

Customer-Reported Measures. The measure of relational quality with the seller employs a composite scale that captures the caliber or nature of the interfirm relational bonds with eight items (Crosby, Evans, and Cowles 1990; De Wulf, Odekerken-Schröder, and Iacobucci 2001; Kumar, Scheer, and Steenkamp 1995). Relational breadth is the number of different relational ties connecting employees of the two firms. A natural log transformation of relational breadth corrects for non-normality. Relational composition is captured by four items that reflect the decisionmaking capability of the relational contacts at the customer firm.

Customers report the level of turnover in customer contacts within their firm and whether the seller's sales included any service content (i.e., nonproduct sales). Customers who only bought products were coded as 0, and all other customers were coded as 1. The measure of customer interface difficulty, which captures how hard it is for a seller to access decisionmakers and navigate through the purchasing process, uses four items developed for this study. Customer data used to calculate CRV include sales growth, share expansion, and expected relationship duration. Finally, customers report on certain control variables that might affect a customer's value, such as seller

brand strength, customer size, seller product performance, relationship age, and interaction frequency.

Seller-Reported Measures. Each seller provided data about its firm. The average number of years a sales contact is with the selling firm captures longevity of seller contacts. A scale adapted from Jap (1999), which uses three items to measure the level of change in the seller's industry, captures industry dynamism. Seller data used to calculate CRV include customer-specific sales, commission rate, and the selling firm's contribution margin, as outlined subsequently. Sellers also report on several control variables, including seller promotional spending and seller size.

Customer Relationship Value. Customer relationship value reflects the present value of all future profits generated from a customer relationship. To determine a customer's future profits, researchers may use a discounted cash flow based on the expected margin and lifetime (e.g., Gupta, Lehmann, and Stuart 2004):

$$CRV_i = \sum_{t=1}^T M_{it} (1 + d)^{-t}, \quad (1)$$

where M_{it} is the margin (\$) for the i^{th} customer in period t , d is the discount rate, and T is the expected life of the customer. However, this leaves the problem of predicting customers' future margins and expected lifetime; many different methodologies and simplifying assumptions attempt to deal with this problem (Berger and Nasr 1998; Gupta and Lehmann 2003; Rust, Zeithaml, and Lemon 2000; Venkatesan and Kumar 2004). Because rep firms receive a commission on total sales to each customer and the commission rate for each customer remains relatively stable over time (e.g., contractually defined), as do rep firms' costs, they have a good understanding of the contribution margin for the commissions they receive. Adapting Equation 1 by decomposing margin into the product of sales

(changing over time) and customer-specific commission and contribution margin percentage (assumed stable over time) results in

$$CRV_i = \sum_{t=1}^T S_{it} C_i m_i (1 + d)^{-t}, \quad (2)$$

where S_{it} is sales to the i^{th} customer in period t , C_i is the commission rate, and m_i is the contribution margin (%) for the i^{th} customer.

To account for changes in customer sales over the lifetime of the relationship, the customer's estimation of its firm's future sales growth and changes in the selling firm's share of wallet appear in the model. The proposed model accounts for both these processes:

$$CRV_i = \sum_{t=1}^T S_{i0} (1 + g_i)^t (1 + SE_i)^t C_i m_i (1 + d)^{-t}, \quad (3)$$

where S_{i0} is sales to the i^{th} customer in period $t = 0$, g_i is the customer firm's sales growth over the life of the customer, and SE_i is the expected share expansion (or contraction) during the next three years. These measures provide a means to calculate an annualized share expansion growth rate, applied to the first three periods, after which SE equals 0 to represent a constant share of wallet for subsequent periods. The rationale for fixing the share after three years is that customers have difficulty estimating share beyond this time period and there are inherent limits to long-term changes in share (bounded by 0% and 100%). Consistent with previous research, the discount rate is 12% (Gupta, Lehmann, and Stuart 2004).

Both customers and sellers provide data that appear in the model to determine CRV. Details regarding construct validity, reliability, and overall fit of the measurement mode are provided in Appendix B. Table 1 provides descriptive statistics and correlations for all constructs.

Analysis and Results

A unique aspect of these data is their nested structure: multiple customers are nested within a single selling firm. To overcome the limitations of traditional methods for analyzing nested data, the model analysis uses hierarchical linear modeling (HLM), which accounts for the lack of independence across different cases (Raudenbush and Bryk 2002), HLM full maximum likelihood, empirical Bayes procedures, with restrictive iterative generalized least squares algorithm in MLwiN 2.02 (Rasbash et al. 2000). For evaluations of the customer, seller, and cross-level determinants of CRV, this study employs 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 χ^2 distribution in which the degrees of freedom equal the difference in the number of parameters between any two incrementally nested models (Ang, Slaughter, and Yee Ng 2002). Variables were mean centered and variance inflation factors are less than 2.0, suggesting multicollinearity is not a major issue.

The HLM estimations

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 ($\Delta \text{deviance}_{(1)} = 95.12; p < .01$) over an empty model without any random effects, in support of the premise that variables at the selling firm level have a direct effect on CRV (Model 1). The evaluation of the empty model across these two levels suggests that 74.6% of the variance in CRV occurs at the customer level, and 25.4% occurs at the selling firm level.

The main effects of customer-level variables added to the empty model explain 15.2% of the

Table 1
Descriptive Statistics and Correlations

| Constructs | Mean | Std. Dev. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|--|-------|-----------|--------|--------|-------|--------|--------|-------|-------|--------|------|------|-------|-------|-------|-----|-----|----|
| 1. Customer relationship value (thousand \$) | 25.33 | 50.73 | — | | | | | | | | | | | | | | | |
| 2. Relational quality | 5.54 | 1.05 | .15* | .92 | | | | | | | | | | | | | | |
| 3. Relational breadth ¹ | 1.70 | .83 | .27** | .11* | — | | | | | | | | | | | | | |
| 4. Relational composition | 5.10 | 1.28 | .19** | .45** | .32** | .77 | | | | | | | | | | | | |
| 5. Industry dynamism | 4.23 | 1.52 | .06 | .17** | .06 | .09 | .84 | | | | | | | | | | | |
| 6. Turnover in customer contacts | 2.48 | 1.62 | .11* | -.19** | .02 | -.19** | .08 | — | | | | | | | | | | |
| 7. Longevity of seller contacts (no. of years) | 10.31 | 4.60 | -.12** | -.11* | -.02 | -.06 | -.17 | -.08 | — | | | | | | | | | |
| 8. Customer interface difficulty | 2.92 | 1.29 | .14** | -.23** | .06 | -.26** | -.07 | .29** | .07 | .78 | | | | | | | | |
| 9. New product launches by seller (no. per year) | 13.53 | 10.78 | .11* | -.00 | .14** | .13** | -.04 | .02 | -.01 | .01 | — | | | | | | | |
| 10. Customer size | 3.26 | 2.08 | .28** | .05 | .30** | .04 | .01 | .14** | -.06 | .30** | .10* | — | | | | | | |
| 11. Relationship age (no. of years) | 15.08 | 9.37 | .08 | .07 | .25** | .27** | -.12** | -.05 | .07 | -.17** | -.04 | .08 | — | | | | | |
| 12. Interface frequency (no. per month) | 4.37 | 5.97 | .23** | .12* | .28** | .27** | -.03 | .01 | -.10* | .07 | .10* | .12* | .10* | — | | | | |
| 13. Seller brand strength | 5.59 | 1.24 | .06 | .40** | .15** | .33** | .12* | -.03 | -.09* | -.11* | .10* | .07 | .12** | .13** | — | | | |
| 14. Seller product performance | 5.37 | 1.37 | .08 | .32** | .04 | .22** | .16** | -.09 | -.10* | -.09 | .12* | .07 | .01 | .05 | .37** | — | | |
| 15. Seller promotional spending | 4.89 | 1.57 | .21** | .12** | .09 | .13** | .29 | -.00 | -.31 | -.06 | .04 | -.01 | -.02 | .04 | .08 | .06 | — | |
| 16. Seller size (million \$) | 52.83 | 56.88 | -.13** | .09 | .16** | .20** | .03 | -.11 | .00 | -.11* | .21 | .02 | .17** | .14** | .15** | .04 | .32 | — |

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 firm-level variables (i.e., among constructs 5, 7, 9, 15, and 16). Cronbach's alphas reported along the diagonal for all multi-item scales.

¹Natural logarithmic transformation.

** $p < .01$; * $p < .05$.

variance in CRV and significantly improve model fit (Model 2; Δ deviance₍₁₁₎ = 85.69; $p < .01$). Model 3 adds the five hypothesized customer-level interactions, which significantly improve model fit (Δ deviance₍₅₎ = 16.38; $p < .01$) and explain 17% of the variance in CSR. Next, when the main effects of variables at the selling firm level join the model, in aggregate, they marginally improve the model (Model 4; Δ deviance₍₅₎ = 10.68; $p < .10$) but explain an additional 5.3% of the variance in CRV.

These first four models, which include random-intercept effects, assume the coefficients of customer-level variables remain constant across different selling firms. This assumption

can be tested by adding random effects to customer-level parameters in Model 4 and comparing the outcome to an unmodified Model 4, then testing the random effects for each relational driver. Adding random effects to relational composition is significant and results in the greatest improvement in model fit (Δ deviance₍₂₎ = 42.25; $p < .01$). Models that add a second random-slope effect do not result in significantly better-fitting models. However, Model 5, which adds the random-slope effects for relational composition and the three hypothesized cross-level interactions, provides a significantly better fit (Δ deviance₍₅₎ = 47.75; $p < .01$) than Model 4 and explains 23.7% of the variance in CRV.

Table 2

Results: Hierarchical Linear Model Estimation for Customer Relationship Value

| Variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---|------------------|-------------------|--------------------|------------------|------------------|
| Intercept | 27.79* (5.50) | 30.32* (13.73) | 32.03** (13.75) | -1.75 (20.63) | 21.81 (15.92) |
| Relational quality | | 6.69** (2.33) | 5.82** (2.50) | 5.63* (2.51) | 6.05** (2.33) |
| Relational breadth | | 5.65* (2.74) | 4.09† (2.77) | 4.34† (2.77) | 4.10† (2.63) |
| Relational composition | | 5.37** (1.97) | 4.94** (1.99) | 4.90** (1.99) | 6.14* (2.65) |
| Service content | | -2.16 (4.36) | -2.95 (4.32) | -2.70 (4.32) | 1.07 (3.99) |
| Turnover in customer contacts | | 1.05 (1.30) | 1.47 (1.32) | 1.45 (1.32) | .72 (1.26) |
| Customer interface difficulty | | 3.44* (1.75) | 3.84* (1.75) | 3.73* (1.75) | 3.57* (1.68) |
| Customer size | | 3.35** (1.06) | 3.41** (1.06) | 3.54** (1.06) | 4.27** (.96) |
| Relationship age | | .10 (.23) | .19 (.23) | .22 (.23) | .20 (.22) |
| Interface frequency | | 1.29** (.36) | 1.17** (.36) | 1.19** (.36) | 1.22** (.34) |
| Seller brand strength | | -3.52* (1.82) | -4.17* (1.82) | -.98 (1.81) | -3.04* (1.70) |
| Seller product performance | | -.18 (1.59) | -.04 (1.58) | -.01 (1.58) | .01 (1.48) |
| Relational quality x relational breadth | | | 5.00* (2.34) | 4.81* (2.34) | 4.02* (2.26) |
| Relational quality x relational composition | | | .60 (1.61) | .57 (1.61) | 1.32 (1.48) |
| Relational quality x service content | | | 7.02† (4.51) | 6.62† (4.52) | 1.54 (4.24) |

*continued***Effects of relational drivers on CRV**

Relational quality ($\beta = 6.05$; $p < .01$) and relational composition ($\beta = 6.14$; $p < .05$) positively affect CRV (Table 2, Model 5). Relational breadth relates marginally to CRV ($\beta = 4.10$; $p < .10$). These results require careful interpretation; each relational driver is significantly moderated.

Of the five customer-level interactions, three are supported. Specifically, the positive effects of relationship quality \times relational breadth ($\beta = 4.02$; $p < .05$), relational breadth \times turnover in customer contact ($\beta = 2.67$; $p < .05$), and relational composition \times customer interface difficulty ($\beta = 2.16$; $p < .05$) are significant. Neither the relationship quality

Table 2
Continued

| Variables | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---|---------|---------|------------------|------------------|-----------------|
| Relational breadth x turnover in customer contact | | | 2.67* (1.46) | 2.62* (1.46) | 2.67* (1.39) |
| Relational composition x customer interface difficulty | | | 2.64** (1.12) | 2.52* (1.12) | 2.16* (1.04) |
| Industry dynamism | | | | -.84 (3.33) | .21 (1.91) |
| Longevity of seller contacts | | | | -.00 (1.13) | -.90 (.63) |
| New product launches by seller | | | | .05 (.43) | .12 (.50) |
| Seller promotional spending | | | | 9.20** (3.41) | -.18 (1.95) |
| Seller size | | | | 3.54** (1.06) | -.04 (.07) |
| Relational quality x industry dynamism | | | | | -.12 (1.27) |
| Relational breadth x longevity of seller contacts | | | | | -.51 (.52) |
| Relational composition x new product launches by seller | | | | | .42* (.23) |
| Deviance (-2 log likelihood) | 4672.00 | 4586.31 | 4569.93 | 4559.25 | 4511.50 |
| Deviance difference | | 85.69** | 16.38** | 10.68† | 47.75** |
| Degrees of freedom for evaluating deviance differences | | 11 | 5 | 5 | 5 |
| Proportion of variance explained | | 15.15% | 17.00% | 22.27% | 23.37% |

Note: Unstandardized coefficients are reported with standard errors in parentheses.
** $p < .01$; * $p < .05$; † $p < .10$.

× relational composition ($\beta = 1.32$; n.s.) nor the relationship quality × service context ($\beta = 1.54$; n.s.) interaction is significant.

Of the three seller-level interactions, only relationship composition × new product launches by seller ($\beta = .42$; $p < .05$) is significant. The relationship quality × industry dynamism ($\beta = -.12$; n.s.) and relationship breadth × longevity of seller contacts ($\beta = -.51$; n.s.) interactions do not relate significantly to CRV.

Of the control variables and direct effects of the proposed moderating variables, four are significant. Customer interface difficulty ($\beta = 3.57$; $p < .05$), customer size ($\beta = 4.27$; $p < .01$), and interaction frequency ($\beta = 1.22$; $p < .01$) relate positively to CRV, whereas seller brand strength ($\beta = -3.04$; $p < .05$) relates negatively. With the exception of the negative impact of brand strength, these effects are intuitive. In discussing the negative impact of brand strength on CRV, owners

claimed that many established rep firms with strong brands were “milking their lines and living off of their reputations.” Thus, firm brand may be confounded with firm maturity and lack of aggressive selling effort, and in this context, brand strength appears to provide a poor indicator of the value of a firm’s customer portfolio.

Discussion

Most researchers and managers believe that building strong relationships with customers is an effective strategy, if not a core aspect of successful marketing (Berry 1995), and that the effects of relationship marketing can be captured by the customer’s trust, commitment, and relational norms, or some composite (Morgan and Hunt 1994; Siguaw, Simpson, and Baker 1998). This perspective has been challenged by a recent meta-analysis (Palmatier et al. 2006) that finds the direct effect of relationship-building activities on financial outcomes is greater than the indirect effect mediated by relationship quality, a finding that highlights the need to identify relational mechanisms, beyond trust and commitment, by which relationships may drive performance.

The current study addresses this issue by using findings from social network theory to develop and empirically test a holistic model of interorganizational relationships that includes three key drivers (relational quality, breadth, and composition) of customer value. In addition, this research evaluates interactions between the relational drivers and contextual variables to identify ways firms might better leverage or target their relationship-building investments. To capture the full impact of relationship marketing effects, this study uses an aggregate measure of CRV and a context in which nonrelational factors are less important. The discussion of the results is structured around the three focal research questions.

What are the key relational drivers of customer relationship value?

As shown in Table 2, relational quality, breadth, and composition all have direct effects on CRV, in addition to their indirect effects through significant interactions. The robustness of these effects receives support from the stability of the findings across models 2–5, even as variance gets absorbed across multiple interaction terms. Previous research proposing that the performance-enhancing effects of interfirm relationships can be captured by quality, trust, or commitment alone may therefore miss important relationship aspects. Such research would predict similar relationship benefits for two suppliers with similar levels of customer trust and commitment, but what if one supplier engages in an interfirm relationship with only a few contacts in purchasing, whereas the other enjoys a multitude of contacts across departments and levels? In this case, most people would predict performance differences, which intuitively supports the need to account for other relational drivers.

The choice of this study’s interfirm relational drivers is theoretically well grounded because the drivers derive from characteristics identified by social network theorists as critical to relationships among multiple network members (Houston et al. 2004; Wasserman and Faust 1994). Social network theory thus offers a potentially rich source of insights that could strengthen interorganizational research (Anderson, Hakansson, and Johanson 1994). Future interfirm relationship research should expand the number of relational mediators modeled to capture the full range of relationship effects: results could vary depending on the antecedent, mediator, or outcome measure. For example, prior research indicates that commitment is the strongest predictor of customer loyalty, whereas trust better predicts cooperation, and relationship quality drives objective performance (Palmatier et al 2006). This research has several implications for such claims.

First, measuring only one aspect of a bond (e.g., trust, commitment, norms) may not capture its true nature or caliber; various aspects of the bond offer specific strengths. In addition, respondents often have “difficulty making fine distinction[s] 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, composite measures of relational quality may be appropriate for capturing the true nature of the relational bond and its overall impact (Palmatier et al. 2006), whereas individual relational elements can isolate the effects of specific relational constructs. Second, although the connection between trust, commitment, and relationship quality on the one hand and different performance outcomes on the other is well known (i.e., commitment \times loyalty), the linkage between relational breadth or composition and specific performance outcomes is less clear. Strong or insignificant effects between specific relational drivers and specific outcomes may depend on the constructs evaluated: relational breadth may be the best predictor of successful cross-selling of commodity products, and novel information critical to radical product innovation may receive the greatest push from relational composition (Rindfleisch and Moorman 2001). Additional research must test these predictions.

Third, previous research has investigated CLV on the basis of many factors, but means of understanding the impact of customer-seller relationships on customer value remain noticeably absent. Because relationships can affect customer behaviors in a multitude of ways (cooperation, repurchase intention, pricing, share expansion), only aggregate measures of financial performance uncover the “full” effect of relationship marketing. Research that uses narrowly focused outcome measures may systematically underestimate the impact of relationship marketing’s effect on performance. Fourth, understanding the relational drivers of CRV has many managerial implications,

including the fact that managers need to build both high-quality bonds and contact portfolios with sufficient breadth and diversity. Adding measures of relational quality, breadth, and composition to customer satisfaction or loyalty surveys or to sales audits may provide a more complete picture of the seller’s exchange relationships, and such diagnostic information may enable sales managers to develop salesperson objectives that target relational weaknesses.

What are the synergies among relational drivers?

Synergies exist among relational drivers. For example, relational quality \times relational breadth positively influences CRV across multiple models (Table 2), which suggests that relationships with multiple high-quality bonds better withstand stress and conflict. An ad hoc test provides additional support for the importance of this interaction: the average of customers’ responses to two items (“In total, I think my firm’s relationship with this rep is very strong,” and “A single conflict or disagreement would have little effect on our overall relationship”) showed a correlation with the interaction of relational quality and breadth of $r = .57$ ($p < .01$).

Theories focused on group decisionmaking and norms may provide insight into this interaction as well as future research directions (Brown 2000). Building a large portfolio of high-quality contacts with a customer creates a group within the customer firm that possesses positively biased norms toward the seller. The norms for such a group may generate seller benefits, because they quickly socialize new employees with a positive attitude toward the seller, support positive causal attributions about seller actions, and generate positive “groupthink” about future seller decisions. Moreover, relational breadth increases as multiple people from the customer and seller engage, so such group-level phenomena may occur within both firms. Additional research should determine which group decision mechanisms operate and if a critical mass is needed to engage them, as well as evaluate if group

norms within the seller have any negative consequences (e.g., poor pricing discipline).

The results do not support the proposed effect of relational efficacy, perhaps because when customers respond to the relational composition items, they do not just report knowledge or access but also impute a certain level of relational quality. Although relational quality and composition are empirically distinct, their inter-correlation is $r = .45$ (the highest of any two constructs in the study; Table 1), so their interaction may get captured partially by the relational composition construct. Although this suggestion is just conjecture, additional research might use measures similar to those employed here to assess relational breadth to provide a purer measure of relational composition and reduce halo effects with relational quality.

Once managers understand that relational breadth and quality behave synergistically, they can take steps to avoid unbalanced relationships and resultant degraded performance. For example, for customers with whom they have narrow contact portfolios but strong relational bonds, managers could reallocate relationship marketing investments away from existing relationships and toward new contacts. Similarly, though not explored herein, trade-offs might exist among the subcomponents of relational quality, such that additional relationship marketing activities could minimally increase trust or commitment but also generate perceptions of exchange inefficiency.

When does relationship marketing pay off?

The results support applications of the RBV to customer–seller relationships as a means to identify contextual factors that may make a relational linkage (i.e., resource) more valuable, rare, or difficult to imitate (Wernerfelt 1984). Specifically, two customer and one seller factor leverage the effect of relational drivers on CRV.

First, relational breadth has a greater effect on the CRV of customers for whom contact turnover is high: multiple interfirm ties are more

valuable when they can mitigate the loss of an interfirm bond. 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 effective for customer turnover. Sales managers dealing with companies that experience high employee turnover should aggressively expand the breadth of their contact portfolio and effectively build a “customer team.”

Second, relational composition has a greater impact on CRV among customers with whom interfacing with decisionmakers is difficult. Sellers that overcome this hurdle possess a rare, difficult-to-imitate resource that has a significant impact on performance. This finding represents an interesting conundrum: Customers and contacts that are the most difficult to access and deal with may be the most valuable; customers that are easy to access may generate the lowest returns. Thus, busy salespeople making their rounds to friendly customers might increase CRV by shifting resources to contacts that are more difficult to access.

Third, relational composition generates higher levels of CRV among sellers that launch many new products. In other words, access to decisionmakers in itself does not generate CRV; only by using this relational resource’s decision-making capability can a seller enhance performance. The relational composition \times new product launches interaction shows the impact of a selling firm variable on a customer variable. This result, as well as the finding that 25% of the variance in CRV is due to effects at the selling firm level, supports the need to look beyond customer factors when evaluating levers of relationship value. The large extant body of single-firm research thus is inherently limited in its ability to study firm-level variables, but the difficult in collecting data (sales, profits, CLV) across multiple firms should be acknowledged.

The identification of factors that leverage the effect of specific relational drivers on CRV 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 accounting for interactions among those relational drivers and contextual factors. Managers should direct relationship marketing efforts not only toward customers in which they can generate the highest return on their investment but also toward the relational driver that offers the greatest return.

Limitations and Future Research Directions

This research context offers some important advantages for investigating the drivers and levers of CRV: relationships are these firms' primary assets, so isolating their customer value is relatively straightforward. However, it is also a limitation, because specific parameter estimates for rep firms cannot be generalized without further testing, though there is no reason to expect that the underlying theoretical rationale or conceptual framework differs. 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 relationship quality is more important for services than for product exchanges. Additional research should investigate this model in a more service-centered context.

The RBV suggests many potential factors that may moderate the effect of relational drivers on CRV, but this study investigates only a subset of them. Further research should explore a wider range of factors across relational quality (e.g., seller's brand strength, environmental uncertainty, customer dependence), breadth (e.g., customer decisionmaking processes, team selling, industry maturity), and composition (e.g., commodity versus innovative products, number of competitors, multifunctional customer decisionmaking) to understand the relative importance of each driver on exchange

performance in different situations. It may also be fruitful to evaluate how the impact of relational drivers on exchange outcomes varies as the relationship life cycle progresses. According to network research, “densely tied networks produce strong constraints” (Rowley 1997, p. 897), which suggests that relational breadth may constrain customer actions. Future research might look at how suppliers could counteract known weaknesses in relational breadth or composition by leveraging a channel member's contact portfolio.

Research also might identify the relationship marketing tactics and strategies that are most effective across relational drivers. For example, one-on-one social programs and a high degree of similarity among boundary spanners may be effective for building relational quality, whereas group social events, training seminars, and telemarketing may be best for expanding breadth. The correlations in Table 1 suggest that launching many new products relates to relational breadth and composition ($p < .01$) but not quality ($p > .10$). Thus, launching new products may help sellers find and access relational contacts, but by itself, it does not improve the quality of the relational bond. Earlier relationship marketing research promoted strategies for building trust and commitment; that thinking should expand to include strategies for all the relational drivers.

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

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Appendix A

| Constructs | Measures (Respondent) | Item Loadings |
|--|------------------------|---------------|
| Relational quality | (Reported by customer) | |
| We are willing to “go the extra mile” to work with this rep. | | .80 |
| We view the relationship with this rep as a long-term partnership. | | .82 |
| We have trust in this rep. | | .85 |
| This rep is trustworthy. | | .80 |
| There is a norm of reciprocity guiding our relationship with this rep. | | .72 |
| We would help each other without expecting an immediate favor in return. | | .70 |
| Our interactions with this rep are often inefficient. (Reverse) | | .62 |
| Our dealings with this rep are very efficient. | | .81 |
| Relational breadth | (Reported by customer) | |
| How many different relationship ties are there among employees at this rep and your firm? | (Number) | _____ |
| Relational composition | (Reported by customer) | |
| This rep knows the key decisionmakers at our firm. | | .69 |
| This rep deals with people across many different functional areas in our firm. | | .68 |
| This rep deals with the important decisionmakers in our company. | | .74 |
| This rep only knows people in a few areas of our firm. (Reverse) | | .60 |
| Turnover in customer contacts | (Reported by customer) | |
| We have a high level of turnover of employees at my firm. | | _____ |
| Service content | (Reported by customer) | |
| Exchanges with sales from services (versus products) > 0% coded as “1” whereas exchanges with 100% product sales coded as “0.” | | _____ |
| Customer interface difficulty | (Reported by customer) | |
| It is very difficult to meet with the important decisionmakers at our firm. | | .84 |
| Suppliers feel that dealing with our firm is very easy. (Reverse) | | .45 |
| It is hard to meet with the decisionmakers at our firm. | | .84 |
| Our approval and purchasing processes are very complex. | | .60 |
| Longevity of seller contacts | (Reported by seller) | |
| How many years does a salesperson typically stay at your rep firm? | (Number of years) | _____ |
| Industry dynamism | (Reported by seller) | |
| The practices in our industry are constantly changing. | | .86 |
| Our firm’s industry is very volatile and uncertain. | | .89 |
| The industry my firm operates in is very dynamic. | | .76 |
| New product launches by seller | (Reported by seller) | |
| On average how many new products or services are introduced by your rep firm every year? | (Number per year) | _____ |
| Control variables | (Reported by customer) | |
| Seller brand strength: this rep firm has a very strong brand. | | _____ |
| Customer size: my firm is a very large company. | | _____ |
| Seller product performance: this rep offers very high-performance products. | | _____ |
| 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) | | _____ |

Seller size: What will be your rep firm's approximate annual sales
for calendar year 2006?

(million \$)

Note. All items use seven-point scales anchored by 1 = "strongly disagree" and 7 = "strongly agree" unless otherwise indicated.

Appendix B

Response Bias

Comparisons of early and late responses (first 150 and last 150) across study variables show no significant differences ($p > .05$). In comparing customer responses for cases included in the final data set with those excluded because of missing rep firm data, the study variables reveal no significant differences ($p > .05$). Rep firm-provided performance data for customers included in the final data set compared with those pertaining to firms excluded because customers failed to respond indicate that neither sales nor commission rates differ significantly across these two groups ($p > .05$). According to these analyses, response bias is not a major concern.

Measurement

All latent constructs included in a confirmatory measurement model indicate good fit indices (Byrne 1998): $\chi^2_{(146)} = 340.82$ ($p < .01$), comparative fit index = .95, goodness-of-fit index = .93, root mean square of approximation = .05. All factor loadings are significant ($p < .01$) and demonstrate convergent validity. (See Appendix A for the factor loadings.) A factor analysis performed on each multi-item scale results in a single factor for each case. The average variance extracted by each construct is greater than its shared variance (squared intercorrelation) with other constructs (Fornell and Larcker 1981). For each pair of latent constructs, a model in which the factors' correlation varies gets compared with a model in which the correlation is fixed to 1, and in each case, the χ^2 difference test ($p < .01$) supports discriminant validity (Anderson and Gerbing 1988). The reliability of each multi-item scale is greater than .70. Thus, the measures appear acceptable.

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