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Relational value creation and appropriation in buyer-supplier relationships

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Abstract

Purpose – Interfirm relationships create value, but buyers and suppliers can appropriate this value in different amounts. Using the relational-view of strategy, the purpose of this paper is to explain value creation and determine the portion of that value appropriated by each organization.

Design/methodology/approach – The data source was a survey with 166 respondents covering two industries. The authors used confirmatory factor analysis to validate construct measurement and structural equation modeling to test the hypotheses. A parallel qualitative investigation composed of 31 interviews assisted in interpreting the findings.

Findings – Based on the relational view of strategy, the authors found support for only two of the four hypotheses that sought to explain value creation. This result calls into question the applicability of this theory to contexts other than the automotive industry, in which it was developed. Only a joint construct combining Relational Governance and Resource Complementarity had a significant effect on relational value creation. With respect to value appropriation, although both buyers and suppliers captured part of the relational value created, the buyers tended to receive the great majority of this value.

Research limitations/implications – The focussed context of this study (Brazilian companies in the personal care/cosmetics and food/beverage industries) limits its generalizability but provides deeper insight into the interpretation of its results.

Practical implications – Both buyers and suppliers can benefit from collaborative relationships, but buyers appear to capture a larger share, forcing suppliers to continuously seek new sources of value.

Originality/value – This paper bridges the gap between the buyer-supplier literature and the definition of competitive advantage as value creation found in the strategic management literature. This study proposes and tests an integrative definition of the relational value that is created and appropriated in a dyad.

Keywords Buyer-supplier, Relational-view of strategy, Value creation and appropriation

Paper type Research paper

Resumen

Objetivo – Las relaciones entre empresas generan valor, pero los compradores y proveedores puede apropiarse de este valor en cantidades diferentes. Usando una perspectiva relacional (*relational-view*) de la estrategia, este articulo explica la creación de valor y determina la proporción de ese valor asignado por cada organización.

Diseño/metodología/enfoque – Nuestra fuente de datos fue una encuesta con 166 respuestas abarcando dos industrias. Usamos el Análisis Factorial Confirmatorio para validar los factores construidos y modelos de ecuaciones estructurales para evaluar las hipótesis. Una investigación cualitativa paralela compuesta por 31 entrevistas ayudó a interpretar los hallazgos.

Hallazgos – Basados en la perspectiva relacional de la estrategia, encontramos respaldo sólo para dos de las cuatros hipótesis que buscaban explicar la creación del valor. Este resultado invita a preguntar

la aplicabilidad de esta teoría a contextos más allá de la industria automotriz, en donde se desarrolló. Solo un factor conjunto que combina la Gobernanza Relacional y Complementariedad de Recursos tuvo un efecto significativo en la Creación De Valor Relacional. En cuanto a la apropiación de valor, aunque ambos compradores y proveedores capturan parte del valor relacional creado, los vendedores tendieron a recibir la gran mayoría de este valor.

Limitaciones/implicaciones del estudio – El contexto en el cual se focalizó este estudio (Empresas Brasileñas de cosméticos y cuidado personal e industrias de comidas/bebidas) limita su generalización pero provee un conocimiento más profundos a la interpretación de sus resultados.

Implicaciones practices – Ambos, compradores y proveedores pueden beneficiarse de una relacion de colaboración, pero los compradores parecen capturar una mayor proporción, forzando a los proveedores a continuamente buscar nuevas fuentes de valor.

Originalidad/valor – Este articulo acerca la brecha entre la literatura del comprador y proveedor y la definición de la ventaja competitiva como creación de valor hallada en la literatura de estrategia de administración. Este estudio propone y prueba una definición integradora del valor relacional que es creado y apropiado en la díada.

Tipo de papel Trabajo de investigación

Resumo

Objetivo – As relações entre empresas criam valor, mas os compradores e fornecedores podem apropriar-se deste valor em quantidades diferentes. Usando a Visão Relacional da Estratégia, este artigo explica a criação de valor e determina a proporção deste valor apropriado por cada organização.

Desenho/metodologia/enfoque – A base de dados foi uma *survey* respondida por 166 empresas de dois setores industriais. Foi utilizada uma Análise Fatorial Confirmatória para avaliação dos constructos e Modelagem de Equações Estruturais para teste de hipóteses. Uma pesquisa qualitativa paralela composta de 31 entrevistas ajudou a interpretar os resultados.

Achados – Baseado na Visão Relacional da Estratégia, foram confirmadas apenas duas das quatro hipóteses que buscavam explicar a criação de valor. Este resultado questiona assim a aplicabilidade desta teoria a outros setores que não a indústria automobilística, no qual esta abordagem originalmente foi desenvolvida. Somente um construto resultante da combinação dos construtos de Governança Relacional e de Complementaridade de Recursos teve um efeito significativo na criação de Valor Relacional. Quanto à apropriação de valor, embora compradores e fornecedores capturam parte do valor relacional criado, os compradores tendem a ficar com maior parte deste valor.

Limitações/implicações da pesquisa – O foco desta pesquisa (empresas brasileiras dos setores de alimentos, bebidas e higiene pessoal) limita a sua generalização, embora forneça um conhecimento mais profundo à interpretação dos resultados.

Implicações práticas – Tanto compradores e fornecedores podem se beneficiar de uma relação de colaboração, mas os compradores parecem capturar uma maior proporção forçando os fornecedores a continuamente buscar novas fontes de valor.

Originalidade/valor – Este artigo preenche uma lacuna na literatura de comprador-fornecedor e a definição da vantagem competitiva como resultado do valor. Esta pesquisa se propõe a testar uma definição integrada do valor relacional criado e apropriado dentro de uma díade.

Tipo de papel Trabalhos de pesquisa

Introduction

The buyer-supplier relationship literature has emphasized that collaborative relationships can result in value creation and superior performance for each participant and for the relationship as a whole (Cooper *et al.*, 1997; Mentzer *et al.*, 2001; Daugherty, 2011). Nevertheless, the empirical research on this topic continues to confront important challenges. First, benefits for the involved firms have been measured in different ways, making the results firm- and context-dependent and thus difficult to compare and generalize. Second, rather than investigating a dyad, several works have examined a focal firm and its relationships with suppliers (or customers). Third, the issue of how benefits are divided between buyers and suppliers has been underexplored (Crook and Combs, 2007).

The debate in the field of strategy with respect to the definition of competitive advantage is converging toward superior economic value creation rather than simply superior performance (Hoopes *et al.*, 2003; Peteraf and Barney, 2003). Through its operations, a firm creates economic value for itself, its customers and its suppliers. Economic value is defined as the wedge between customers' willingness-to-pay and suppliers' opportunity cost (Brandenburger and Stuart, 1996; Bowman and Ambrosini, 2000). We applied this definition to a dyad to propose the idea of relationship value as the additional value, jointly generated in an interfirm exchange, that cannot be individually created. This approach has several advantages for the study of buyer-supplier relationships. Both the notions of willingness-to-pay and opportunity cost perceptually integrate all perceived benefits, which addresses the first problem concerning several context- and firm-dependent benefits of such a relationship. Our proposed concept of relationship value is defined in terms of the dyad, not the firm, to address the second issue of focussing on the dyad. This approach also enables us to conceptualize the value appropriated by each party, thus addressing the third issue of who gains from this relationship.

We also used the concept of economic value creation and appropriation to test the effects of relational resources proposed by the relational view (RV) of strategy on value creation. As Dyer and Singh (1998, p. 661) have asserted, "idiosyncratic interfirm linkages may be a source of relational rents and competitive advantage." The potential sources of superior relational rents in a dyad are: investments in relation-specific assets, knowledge sharing (KS), complementary resources (CR) and effective governance mechanisms (Dyer and Singh, 1998), which are defined here as relational resources.

Therefore, the research question is investigated in this study is:

RQ1. Do relational resources create relationship value and value to both organizations within such a relationship?

The specific objective of this research is to integrate the RV (Dyer and Singh, 1998) into the discussion of competitive advantage as superior economic value and to test the causal relationship between the proposed sources of competitive advantage and relationship value. This research also aims to verify whether this relationship value has a positive effect on the value appropriated by both buyers and suppliers. To answer these questions, a survey was conducted with buyer and supplier companies from two different industries: personal care and cosmetics (PC&C) and food and beverage (F&B).

Interorganizational relationships and competitive advantages
Companies can adopt various structural arrangements with other supply chain members, depending on the relationship developed, their interdependence and/or the level of trust between partners. The type of governance varies from market relations (arm's length), based on price and transactions, to relational, which assumes close integration, trust and past experience between companies (Gereffi *et al.*, 2005).

Interest in these relational mechanisms has been based on the assumption that collaboration can result in cost savings, enhanced customer satisfaction and value creation (Cooper *et al.*, 1997; Mentzer *et al.*, 2001).

One theoretical approach that is helpful for understanding relationships as a source of competitive advantage is the RV of strategy (Dyer and Singh, 1998). As extension of the resource-based view, which states that a firm's competitive advantage has its roots in its idiosyncratic resources (Barney, 1991), the RV states that some dyads perform

better than others due to unique, jointly owned resources (Dyer and Singh, 1998; Dyer and Hatch, 2006; Holcomb and Hitt, 2007). In this context, the collaborative performance leads to the achievement of relational rents that cannot be acquired by the firms individually but are a result of their joint resources (Dyer and Singh, 1998). Accordingly to this approach, there are four relational resources that can lead to competitive advantage: interfirm asset specificity (AS), KS, CR and relational governance (RG) mechanisms. A definition for of each construct is provided in Table I.

The RV can be used to interpret some independent constructs in the buyer-supplier relationship literature. Trust and reputation are informal safeguards of RG mechanisms and are developed primarily in long-term relationships. Past experience contributes to developing KS and to assuring investments in specific assets, which maps directly onto risk and rewards sharing. Cooperation and process integration lead to investments in specific assets and in CR. According to Dyer and Singh (1998), the existence of these resources can create relational rents.

Competitive advantage, value creation and appropriation

Despite its centrality in the field of strategy, the concept of competitive advantage has often lacked a precise definition (Arend, 2003; Rumelt, 2003). However, there has been a clear movement toward defining competitive advantage as superior economic value creation rather than as superior performance (Rumelt, 2003; Peteraf and Barney, 2003). It is even possible to have competitive advantage but not superior performance if a firm is unable to appropriate the value that it has created (Coff, 1999, 2010). Understanding and precisely defining economic value creation is critical in discussing competitive advantage.

The most comprehensive definition of economic value that has influence throughout the current discussion (Lepak *et al.*, 2007; Peteraf and Barney, 2003) is the definition proposed by Brandenburger and Stuart (1996). These authors stated that the value created by a firm is the difference between its customers' willingness-to-pay and the opportunity cost of its suppliers, as represented in Figure 1.

Willingness-to-pay and opportunity costs are two subjective concepts based on the principle that every good has both a perceived value and an effective value (Bowman and Ambrosini, 2000). A customer's willingness-to-pay can be defined as the maximum amount of money that the customer is prepared to pay for a product or service, including an aggregation of all perceived benefits. When a firm operates and sells

Concept	Definition	Reference
Asset specificity	"Asset specificity occurs when one partner in an exchange invests in assets that are specialized to the needs of that particular exchange and have little or no value in an alternative use"	Hobbs (1996)
Knowledge sharing	"Regular pattern of interfirm interactions that permits the transfer, recombination, or creation of specialized knowledge"	Dyer and Singh (1998)
Complementary resources	"Distinctive resources of alliance partners that collectively generate greater rents than the sum of those obtained from the individual endowments of each partner"	Dyer and Singh (1998)
Relational governance mechanisms	Structural arrangements to control interfirm relationships based on informal safeguards, as goodwill trust or embeddedness	Dyer and Singh (1998), Poppo and Zenger (2002), Li *et al.* (2010)

Table I.
Relational
resources constructs

products or services to a customer for a price, the customer agrees to the transaction because it recognizes an advantage in paying the requested price *vis-à-vis* the perceived benefits of the good (i.e. willingness-to-pay is always higher than price). If a customer does not value the offer more highly than the price, then the transaction does not occur. The wedge between willingness-to-pay and price is the value that is created by the firm and captured by the customer – the customer's share.

A firm sells its products for a price and incurs an economic cost. The difference between price and cost (including all components) is the value that is captured directly by the firm – the firm's share.

A supplier conducts business with a firm because it perceives certain benefits compared with other alternatives. If the cost can be taken to represent what the supplier receives (the price charged to a customer), then the difference between this cost and the supplier's second-best alternative (opportunity cost) is the portion of value created by the buyer and captured by its supplier – the supplier's share.

A company creates additional value either by increasing its customers' willingness-to-pay or by reducing its suppliers' opportunity costs. This value can be created by its internal resources and capabilities (Bowman and Ambrosini, 2000) or through its interorganizational relationships by the relational resources.

This model applies to a firm that has several buyers and suppliers. We now apply this same model to a specific buyer-supplier relationship by juxtaposing the value model for a supplier and a buyer, and we integrate the RV into the discussion of value creation and appropriation.

Value creation and appropriation in a specific buyer-supplier relationship
Figure 2 shows the value created by two organizations (a buyer and a supplier). The lower line in Figure 2 represents the supplier. The supplier sells its product to the buyer at a certain price, and the buyer has a willingness-to-pay higher than this price. The difference between the willingness-to-pay and the price is the value captured by the buyer in this relationship, adding to its value creation. For the sake of simplicity, this value portion is indicated as A, based on the assumption that the price is equal to the buyer's cost.

The upper line in Figure 2 represents the buyer, which purchases goods or services from the supplier, incurring a cost. The supplier continues to conduct business with the buyer because it considers the relationship advantageous relative to other alternatives. The supplier's second-best alternative is represented by the opportunity cost given in the buyer line. The wedge between this opportunity cost and the cost is the value created by the buyer and captured by the supplier, contributing to the supplier's individual value creation (lower line). Segment B indicates this value portion.

An extreme example of this value creation is the relationship between Formula 1 racing teams and their engine suppliers (Castelluci and Ertug, 2010). Although
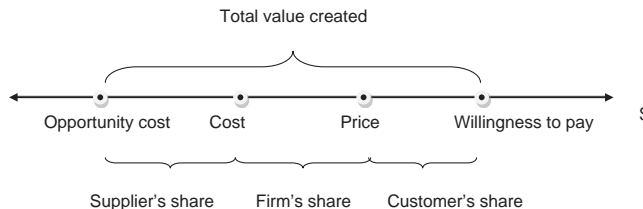
Source: Brandenburger and Stuart (1996, p. 10)

Figure 1.
Value creation

Figure 2.
Value created
in a relationship

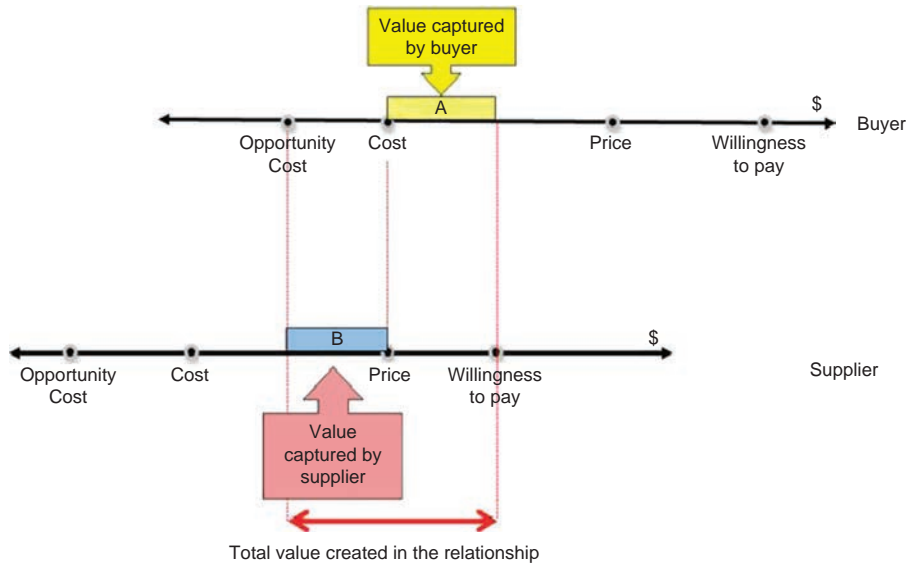a racecar's engine is a critical element of team competitiveness, its manufacturer benefits from supplying the most prestigious teams because of the media exposure and image of the team and its drivers. The benefit is so large that the manufacturer actually supplies the engine below cost.

The set A + B is the total value created by the transaction. This value has two different origins. The resources that are owned by each individual firm constitute one of the sources. This value created by each firm's resources spills over to the other through the act of transacting. However, cooperation and effective coordination between the firms can increase this value over time (Crook and Combs, 2007), thus creating additional value. We define this added value as relationship value. Relationship value is the result of synergies and joint efforts that accelerate the learning curve and conflict resolution in a relationship and simultaneously promote mutual commitment. Through an exchange of information, the partners may be able to customize a product or process, making it perform better or making it less expensive to manufacture (Dyer, 1996, 1997; Dyer and Hatch, 2006). The trust that develops through the relationship implies a reliable supply for the buyer and thus increases its willingness-to-pay. For the supplier, this trust may mean continued business and eventual compensation for occasionally less profitable projects (Dyer, 1996, 1997), causing the supplier to value this relationship more than the alternatives through the reduction of opportunity cost and the creation of additional value.

Any buyer-supplier relationship creates value, but the most relevant issue involves how to create more value. By increasing the total value created in a relationship, relational value can increase the portion captured by each party. For example, if the supplier is able to increase the buyer's willingness-to-pay, then new value is created and captured by the buyer. The buyer may be able to reciprocate this additional value by either pushing the opportunity cost boundary or shifting volume from another supplier.

The RV of strategy (Dyer and Singh, 1998) argues that relational resources (AS, KS, resource complementarity and RG mechanisms) are the sources of additional value creation. Our proposed framework (Figure 3) integrates both approaches, as discussed in the next section.
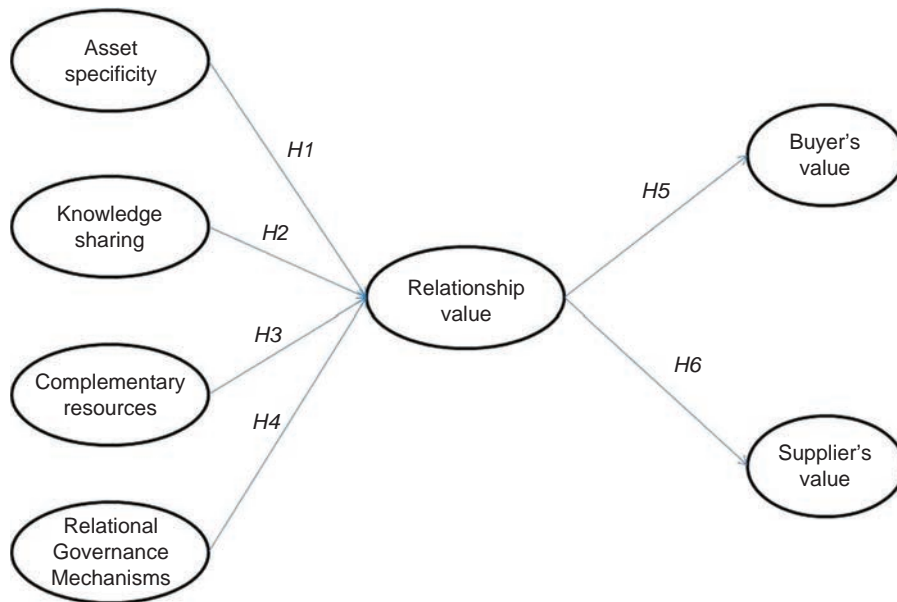
Figure 3.
Proposed model

Hypotheses development

According to the research framework, AS, KS, CR and RG mechanisms have a positive effect on relationship value. This framework also considers that relationship value can be captured by both organizations.

Investments in relation-specific assets, such as R&D, facilities and testing investments, in addition to adjustments in products and processes can be made by one or both organizations. The critical point is that such assets are less valuable when used outside of the relationship (Dyer and Singh, 1998; Kwon and Suh, 2004; Lavie, 2007; Mesquita *et al.*, 2008).

AS can reduce the transaction costs in the dyad in two ways. First, the expectation of a long-term relationship tends to reduce opportunism, the need for new contracts and contract maintenance, thus reducing transaction costs. Second, AS also implies a greater number of transactions, more efficient processes and easier conflict resolution. Hence, AS can lead to value creation through cost reduction, product differentiation, faster product development cycles and fewer defects (Dyer, 1996, 1997; Dyer and Singh, 1998):

H1. AS has a positive effect on relationship value.

The establishment of KS routines, which have been associated with environments in which transparency is encouraged, can be a source of value creation. This value creation stems from mutual learning through training and innovation development programs on how to improve operational processes and use materials or packaging (Dyer and Hatch, 2006; Dyer and Singh, 1998; Kale *et al.*, 2000; Mesquita *et al.*, 2008).

KS can improve the competence of the companies by translating customer needs into innovative products and services and by promoting an environment of frequent transfer and assimilation of knowledge. Through the sharing of valuable information, new and innovative goods can be released earlier (Cheung *et al.*, 2010; Dyer, 1997;

Dyer and Singh, 1998; Rollins *et al.*, 2011) and uncertainty can be reduced, resulting in better planning and control (Christopher and Lee, 2004):

H2. KS has a positive effect on relationship value.

CR result from the interaction of both companies and depend not only on finding a partner to work with but also on developing organizational compatibility, which creates interdependency and better conditions for accessing those resources (Dyer and Singh, 1998; Rungtusanatham *et al.*, 2003; Holcomb and Hitt, 2007).

The RV states that CR enable mutual exploration of the benefits of individual characteristics, which results in higher gain than would be achieved separately (Dyer and Singh, 1998; Kale *et al.*, 2000), promotes a coordinated and integrated environment that strengthens the relationship, expedites the learning curve and results in a more efficient partnership (Dyer and Singh, 1998; Krause *et al.*, 2007). By combining resources, organizations can expedite development of new products and processes, anticipate customer needs and reduce development costs. Thus, organizations can enhance customer value, while promoting greater operational efficiency (Dyer, 1996, 1997; Dyer and Singh, 1998):

H3. CR have a positive impact effect on relationship value.

The effective governance of a relationship helps to reduce transaction costs (e.g. contract and monitoring costs), leading organizations to adopt initiatives that result in value creation, such as investing in specific assets and sharing knowledge and CR (Dyer and Singh, 1998). Governance is also important in evaluating the organizational fit between firms by increasing trust and reputation, which are enablers of the CR sharing process (Cheung *et al.*, 2010). RG develops a long-term environment of cooperation and welfare that results in arrangements that minimize the use of resources and time and that promotes maximum efficiency (Johnston *et al.*, 2004; Fynes *et al.*, 2005):

H4. RG mechanisms have a positive effect on relationship value.

The total value that is created in a dyad is the sum of the value appropriated by both the buyer and the supplier (Figure 2) and can be divided into two components: the value added by individual firms and the value generated by the interaction of the firms (Crook and Combs, 2007).

This additional value relates to the benefits that are created by the relationship's joint efforts, not simply by its existence. These benefits require time and develop gradually. The contributions of the relational resources posited by the RV of strategy can manifest themselves in the value that is appropriated by the buyer and supplier only if relationship value does exist.

If relationship value is created as a result of a collaborative interorganizational relationship, then the degree of conflict and its threat to the chain's coordination are expected to be reduced as a consequence of the decision of the strongest company not to exercise its bargaining power (Crook and Combs, 2007). In this case, one can expect that both organizations share and benefit from the value that the relationship generates:

H5. Relationship value has a positive effect on the buyer's value.

H6. Relationship value has a positive effect on the supplier's value.

The measurement scales for the constructs discussed here are presented in the next section.

Methodology

The current study was conducted in two different phases: qualitative interviews and a survey. In the first stage of the research, interviews were conducted with 31 key respondents of buyer or supplier companies, with the aim of understanding whether and how companies develop interfirm relationships in the studied segments and identifying both how bargaining power has been used to create value and how firms benefit from the relationship. Although the interviews are not the focus of this paper, they were useful in developing the questionnaire and interpreting the results.

The survey covered buyers and suppliers of the PC&C and F&B industries. The first industry was chosen because of its new product development and high innovation rates, which increase the value perceived by customers. According to the interviews, suppliers have a major influence on final products, especially packaging and fragrances. To increase the number of respondents, the F&B industry was included in the survey, as suppliers are common to both segments. Despite efforts in the F&B industry to increase customers' willingness-to-pay, its surplus is dependent on the price of the final product, and the development of a close relationship with suppliers is necessary because of the scarce resources and the need to minimize the total costs in the chain.

Although the questionnaires were applied to individual companies, the theoretical constructs reflected the initiatives taken by both parties (Chen and Paulraj, 2004). Therefore, the unit of analysis was the buyer-supplier dyad, whereas the unit of observation was the firm.

The constructs of relational resources were developed based on an extensive literature review, and scales were adapted from validated measures (the Appendix). Each construct was measured using a five-point Likert scale, with anchors ranging from strongly disagree (1) to strongly agree (5).

New scales were developed for value creation and appropriation. Relationship value depends on the degree of commitment of both organizations to the relationship and on how their actions result in benefits for both players in terms of common projects planning and processes. The respondents were asked to evaluate how the benefits of their relationships (learning curve, joint developments, transparency, rework reduction and common projects) had evolved in the last two years using a five-point scale. The use of the time evolution perspective allowed us to capture this additional value.

The buyer's and supplier's values were measured using two alternative approaches, which generated two models. One approach involved conceptualizing value as perceived benefits, and the second approach used the notion of switching cost to alternatives, which is closer to the concepts of willingness-to-pay and opportunity cost (Cheung *et al.*, 2010; Crook and Combs, 2007; Ulaga and Eggert, 2006; Walter *et al.*, 2001). Table II presents the indicators used to measure direct benefits and switching costs for both buyers and suppliers. The questionnaire was pretested before it was made available to the respondents.

Our main sources of contacts were drawn from the directory of Brazilian commercial associations: the Packaging Association; the Association of Essential Oils, Aromatic Chemicals, Fragrances and Flavors; the Association of Food; and the

Association of Cosmetic, Toiletry and Fragrance Industry. The respondents were contacted primarily by email, followed by additional phone contacts. A reminder message was sent ten days later to improve the response rate. To increase the number of respondents, questionnaires were also sent via the mailing list of a cosmetics industry magazine.

In total, 774 questionnaires were sent (446 to suppliers and 328 to buyers), and 166 responses (99 and 67, respectively) were considered valid and complete. The final response rate was 21 percent. Tables III-V show the respondents' profile, firm size per sector and their firms' annual sales, respectively.

Construct	Indicators	Reference
Expected benefits for buyers	Better quality of product/service; delivery reliability and flexibility, good price, greater responsiveness and assistance in delivering the specifications, lower transaction costs, innovation capacity, shorter development time, competence to deliver cheaper or more efficient products	Crook and Combs (2007), Ulaga and Eggert (2006)
Switching cost of buyers	How much the organization would lose if the relationship ends, in terms of higher price; investments in new synergies and developments and time and efforts to replace the supplier	Crook and Combs (2007)
Expected benefits to suppliers	Profitability and growth, safeguards against emergencies, operational performance (time, costs, delivery reliability, flexibility, quality), financial health, innovation capacity	Walter *et al.* (2001)
Switching cost to suppliers	How difficult it will be to survive or reallocate the volume to a different buyer, how much it will lose for not having access to important information and knowledge, impact to its reputation	Crook and Combs (2007)

Table II.
Measurement indicators for buyer's and supplier's value

	PC&C buyers (%)	F&B buyers (%)	Suppliers (%)
Partner	0	2	11
President/VP	15	0	4
Director	15	12	28
Manager	34	36	39
Supervisor	22	36	10
Other	12	16	6

Table III.
Sample firms profile

Employees	PC&C buyers (%)	F&B buyers (%)	Suppliers (%)
<250	69	56	55
250-1,000	17	16	25
>1,000	14	28	20

Table IV.
Size by number of employees

Data analysis

Measurement models

A variety of statistical tools were employed to assure the quality of the research and the validity of the findings (using SPSS and Amos 16.0). The descriptive statistics proved adequate, as the means of the items ranged from 2.1 to 4.4 (with the majority having means between 3 and 4). To assess univariate normality, the skewness and kurtosis coefficients were calculated, and the results indicated that the deviations were small and acceptable when compared to the recommended values (Kline, 2005). Moreover, the test for multivariate normality based on the Malahanobis distance did not show significant deviations. Non-response bias was assessed by comparing the responses of early and late waves of returned questionnaires, and the results yielded no relevant evidence of such bias (Armstrong and Overton, 1977).

Confirmatory factor analysis was used to evaluate the measurement model. The analysis considered both constructs (relational resources and value) separately. Some items were deleted after the initial tests. Multiple indices (Table VI) were used to achieve a better comparison among the models (Hair *et al.*, 2005): the normed χ^2 (per degree of freedom), the comparative fit index (CFI), the incremental fit index, the normed fit index (NFI), the goodness-of-fit index and the root mean square error of approximation (RMSEA).

The discriminant validity between constructs was tested by measuring the χ^2 differences between the unconstrained and constrained models for all pairs of constructs (Bagozzi *et al.*, 1991). The tests showed significant χ^2 differences, suggesting discriminant validity, except for RG mechanisms and CR. A detailed analysis of the final measurement scales suggested that a new construct represented the existence of social mechanisms of control, which relies on informal means to regulate exchanges (Li *et al.*, 2010) or, more broadly, RG mechanisms. The measurement model for value reached an acceptable level, presenting a χ^2 equal to 146.54 and a probability level that was also non-significant.

Construct reliability was assessed using composite reliability (ρ_c). All of the value creation constructs presented values > 0.70 (Fornell and Larcker, 1981). Although

Employees	PC&C buyers (%)	F&B buyers (%)	Suppliers (%)
$<$US\$1.2 MM	48	4	48
US\$1.2 MM-8 MM	14	26	14
US\$8 MM-150 MM	19	42	29
$>$US\$150 MM	19	28	19

Table V.
Average annual sales

Model fit	RV	Value creation	Recommended values
χ^2/df	1.01	1.17	Below 2.0
p-value	0.46	0.09	Above 0.05
CFI	1.00	0.98	Above 0.90
NFI	0.91	0.87	Above 0.90
GFI	0.96	0.92	Above 0.90
RMSEA	0.01	0.03	Below 0.05

Sources: Hair *et al.* (2005) and Kline (2005)

Table VI.
Model measurement indexes

some relational resources constructs presented composite reliability values below 0.70, the factor loadings were all above 0.50, which indicated a satisfactory level of construct reliability (Hair *et al.*, 2005). Despite the results showing that the average variance extracted (AVE) of some constructs were lower than expected (Fornell and Larcker, 1981), the convergent validity was considered satisfactory because the results showed high levels of internal consistency and the scale items were obtained from previously validated scales.

Causal model fit

Two final models were tested, as presented in Figure 4. Figure 4(a) considered value to involve benefits for both partners, whereas in Figure 4(b), switching cost was used as a proxy for value.

Both models showed an acceptable fit (χ^2/df 1.402 and 1.443, $p < 0.001$; CFI 0.942 and 0.925; NFI 0.827 and 0.787; and RMSEA 0.049 and 0.052). In the switching cost model, the path from RG to relationship value had a value of 0.60 (standardized) and was statistically significant ($p < 0.01$), providing support for hypothesis *H4* and confirming that organizations need mutual trust and common objectives to jointly create value.

The path from KS to relationship value was also positive (0.39 standardized) but did not reach statistical significance ($p = 0.174$), thus failing to provide support for hypothesis *H2* in both models. This finding is inconsistent with a large stream of literature (Hult *et al.*, 2006; Mesquita *et al.*, 2008; Rollins *et al.*, 2011). To explain this difference, one possibility is that, in the context investigated here, the mechanism of value creation does not need partners to work together in multifunctional teams that exchange information to create value. In fact, the qualitative portion of this research indicated that value creation is largely driven by the application of a supplier's specific technical knowledge to the buyer's needs, which could be achieved by a few members of the supplier's team.

The path from AS to relationship value was close to zero (-0.09) with no statistical significance, thus failing to provide support for *H1* in either model. This result indicates that having specific assets does not in itself create value. The role of AS in value creation may be more complex and its effect may be moderated by other constructs. Another possibility is derived from the qualitative interviews: suppliers typically invest in interfirm equipment, whereas buyers invest in training and technical support for their partners. It is rare that suppliers need to build dedicated plants or processes for each customer. Most ingredient customization occurs through adjustments of possible formulations in existing plants. A supplier must have technical expertise combined with the commitment and dedication to engage in a deeper understanding of its buyer's needs. These findings call into question the generalization of the RV through application to settings other than the automotive industry, in which it was developed.

In both models, the paths from relationship value to buyer value and supplier value were positive and statistically significant. This result provided strong support for both *H5* and *H6*. Although limited to the context studied, in relationships that jointly create value, both buyers and suppliers appropriate part of this value. This finding provides a partial answer to the call of Crook and Combs (2007) and supports the findings of previous studies indicating that both parties can gain from a more integrated relationship (Frohlich and Westbrook, 2001).

A closer analysis of the results can also generate further insights for the buyer-supplier debate. Considering only the benefits for each party, one may observe that both organizations capture value in a balanced manner (Figure 4(a)). However, the different
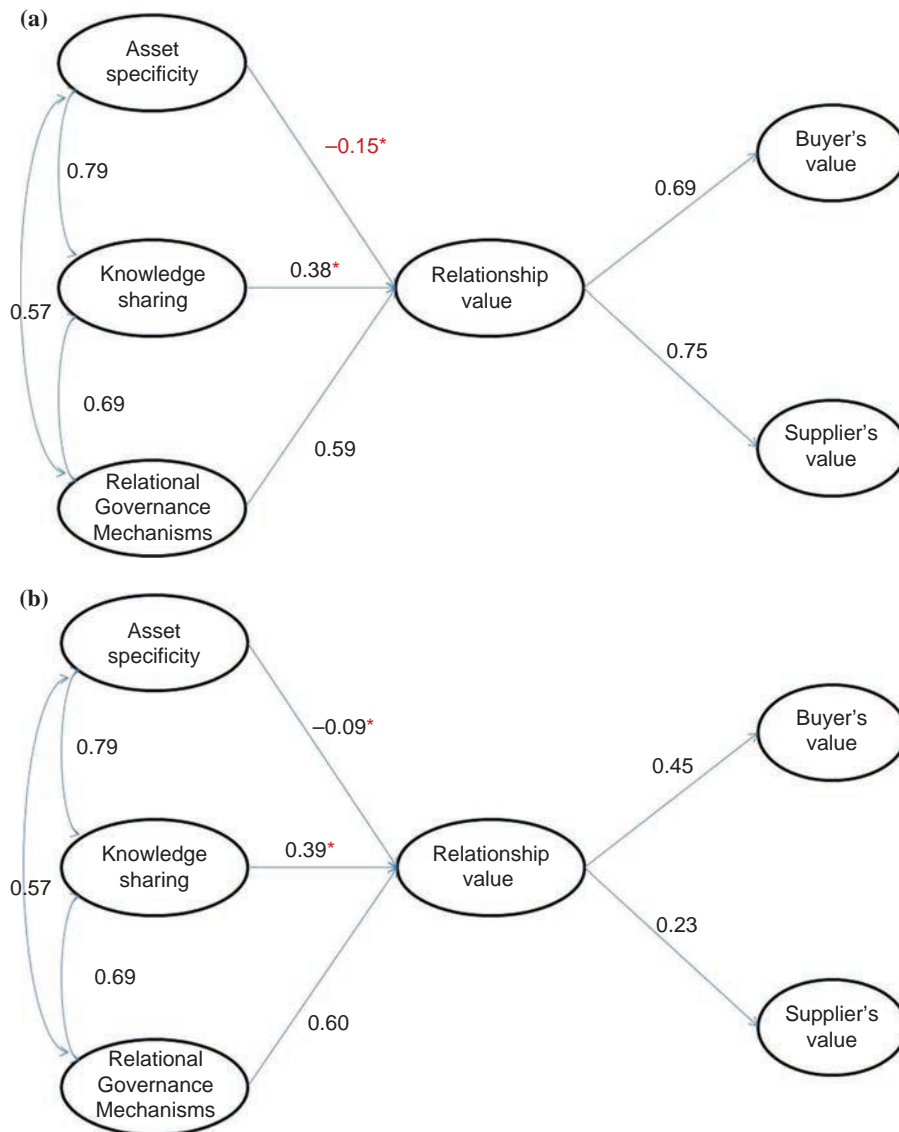
Notes: (a) Value as benefit; (b) value as switching cost. *Not statistically significant

Figure 4.
Causal model

magnitude of the coefficient on the switching cost model (the buyer's path coefficient is nearly double that of the supplier) suggests that buyers may be receiving the lions' share of the value created (Figure 4(b)). Although the difference cannot be proved to be statistically significant, the qualitative part of this research indeed indicates that the shares are disproportionate. Buyers continually demand new development from suppliers and frequently encourage fierce competition, capturing previous developments through price reductions. Suppliers must continually provide new development and capture value at the early stages only as a temporary advantage.

Conclusions

This study contributes to the buyer-supplier debate by integrating two streams of literature: RV and economic value creation. The research tested the effects of relational resources (RG mechanisms, CR, AS and KS) on value creation for both suppliers and buyers. By highlighting some effective ways to develop competitive advantage, this research offers a more meaningful perspective than if it had evaluated only the effects of relationships on performance.

The analysis of the measurement models indicated that CR cannot be considered individually but should be considered as part of RG mechanisms. Furthermore, only this construct had a positive, significant effect on relationship value. We were unable to find significant positive effects of KS and AS on relationship value.

The results also provided evidence of value appropriation by both organizations. Although both organizations benefit directly from their relationship, the buyer appears to be capturing a larger amount of the indirect surplus, as measured by the switching cost. These findings provide a managerial implication for supplier firms, indicating the need to deeply analyze which activities must be emphasized in value propositions for different buyers to improve cost efficiencies.

It is also important to highlight the limitations of this study. The survey was applied to both suppliers and buyers from two specific sectors, and its results cannot be generalized from this context. Multi-method research could contribute to expanding the research achievements concerning generalization. A longitudinal survey could also bring more insight to the debate. Finally, although the questionnaire was designed to consider both the buyer's and supplier's perspectives within a single dyad, a new survey could consider applying the same questionnaire to both members of a relationship to compare perceptions.

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Appendix. Measurement scales
For each scale, we reported the AVE and the composite reliability (ρ_c). Numbers in parentheses indicate the measurement model loadings for each item. Some items show only the supplier's perspective of the questionnaire, but there were correspondent items in the buyer's questionnaire.

Asset specificity (supplier's perspective): adapted from Kwon and Suh (2004); Lavie (2007); Mesquita *et al.* (2008) (AVE $= 0.49$; $\rho_c = 0.74$).
AS1: Our company has made significant R&D investments to meet this buyer's needs (0.72).
AS2: Our company has made significant investments in facilities and testing dedicated to this buyer (0.73).
AS3: Our company has made significant adjustments in our products and processes in order to meet the needs and technical specifications of this buyer (0.65).

Knowledge sharing (supplier's perspective): adapted from Kale *et al.* (2000); Mesquita *et al.* (2008) (AVE $= 0.33$; $\rho_c = 0.60$).
KS1: Our company offers technological upgrade projects and/or improvement of operational processes for this buyer (0.56).
KS2: There are formal training programs dedicated to the other part's employees (0.58).
KS3: There are frequent visits from our employees to their facilities to enhance the use of the materials or packaging in our process (0.58).

Relational governance (supplier's perspective): adapted from Cheung *et al.* (2010); Kale *et al.* (2000); Liu *et al.* (2009); Mesquita *et al.* (2008) (AVE $= 0.40$; $\rho_c = 0.66$).
RG1: The benefits arising out of the relationship are shared between both organizations (0.78).
RG2: In emergency situations, both firms rely on the support of the other part (0.54).
RG3: The management and corporate styles of the firms are similar (0.54).

Relationship value: New (AVE $= 0.47$; $\rho_c = 0.78$)
RB1: Transparency in negotiations (0.82).
RB2: Proposals for projects aiming to reduce costs (0.65).
RB3: Priority in the assistance related to other buyers (0.62).
RB4: Priority in offering innovations related to other buyers (0.65).

Buyer's benefit: adapted from Crook and Combs (2007); Ulaga and Eggert (2006) (AVE $= 0.53$; $\rho_c = 0.77$)
BB1: Flexibility in response to market changes (0.67).
BB2: Delivery reliability/dependability (0.72).
BB3: Delivery speed (0.80).

Supplier's benefit: adapted from Walter *et al.* (2001) (AVE $= 0.54$; $\rho_c = 0.82$).
SB1: Quality conformance to products and services (0.70).
SB2: Rapid conrmation of buyer orders (0.76).
SB3: Financial health (0.64).
SB4: Flexibility to meet requests for changes (0.81).

Buyer's switching cost (buyer's perspective): adapted from Crook and Combs (2007) (AVE $= 0.45$; $\rho_c = 0.70$).
BSC1: We could pay a higher price for an equivalent offer (0.43).
BSC2: We should invest in new synergies and developments (0.78).
BSC3: We should spend relevant time and efforts to replace this supplier (0.75).

Supplier's switching cost (buyer's perspective): adapted from Crook and Combs (2007) (AVE $= 0.46$; $\rho_c = 0.77$).
SSC1: The supplier will have significant losses (0.76).
SSC2: The supplier will have difficulty in replacing the volume with other buyers (0.73).
SSC3: The supplier will suffer damages to its reputation (0.58).
SSC4: The supplier will lose achieved synergies and developments (0.63).

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