WHERE ARE WE NOW AND WHERE DO WE GO FROM HERE? A REVIEW OF THE TRANSACTION COST-BASED BUYER-SELLER RELATIONSHIP LITERATURE

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Over the past two decades, marketing researchers have used transaction cost analysis (TCA) to make important advancements in our knowledge and understanding of interorganizational buyer-seller relationships. Interestingly, though a great deal of research has been done to date, no comprehensive review of the TCA-based buyer-seller relationship literature beyond that provided by Rindfleisch and Heide (1997) currently exists. Taking note of their landmark paper, we consider how Williamson's (1975; 1986; 1996) original framework has been extended to model buyer-seller relationships. We then evaluate the current state of the marketing literature and identify an agenda for future research.

INTRODUCTION

Over the past two decades, transaction cost analysis (TCA) has received considerable attention in the marketing literature (Rindfleisch and Heide 1997). TCA has been used to study a wide variety of phenomena such as foreign market entry strategy (Anderson and Coughlan 1987; Brouthers, Brouthers and Werner 2003; Klein, Frazier and Roth 1990), sales force control and compensation (Anderson and Oliver 1987; John and Weitz 1988; Krafft 1999; Oliver and Anderson 1994), franchise governance (Agrawal and Lal 1995; Dahlstrom and Nygaard 1999; Srinivasan 2006), and industrial purchasing strategy (Noordeweir, John and Nevin 1990; Stump and Heide 1996). For this reason, TCA is considered by many researchers to be a widely accepted and important framework in marketing. In their comprehensive review of the TCA framework, Rindfleisch and Heide (1997) found that much of the empirical work in marketing and other related disciplines can be classified within one of four main contextual domains: (1) vertical integration, (2) vertical interorganizational relationships, (3) horizontal interorganizational relationships, and (4) tests of TCE's assumptions. Here we specifically focus on the research that has been done on vertical interorganizational relationships or more specifically, interfirm buyer-seller relationships.

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Buyer-seller relationships play a critical role in the strategic initiative of firms by providing them with access to resources and capabilities that are needed to improve their performance and competitive position (Gadde and Snehota 2000; Grant 1998; Anderson and Weitz 1989). Firms like Cisco and Nokia are well recognized for their ability to use supplier relationships to realize sources of strategic advantage (Hamel 2000). For instance, Cisco's revenue per employee is about 76 percent higher than those of its average competitor in the communications equipment industry (Skilling 2001). Unfortunately, many businesses are not as successful as Cisco and Nokia in managing their supplier relationships. Kim and Michell (1999) found that U.S. automakers, which traditionally have taken a more adversarial posture regarding their supplier relationships (McCracken and Glader 2007), have significantly higher overall procurement costs than their Japanese competitors. In fact, Dyer (1997) estimated that General Motors's procurement costs were more than six (6) times higher than those of the Toyota Motor Corporation. Thus, the management of supplier relationships has important ramifications on a firm's bottom line performance and for this reason, merits continued academic attention.

Though a great deal of research has been done to date, to the best of our knowledge, no comprehensive review of the TCA-based buyer-seller relationship literature beyond that provided by Rindfleisch and Heide (1997) currently exists. This is unfortunate since major insights and theoretical advancements have been made since they published their comprehensive review of the TCA literature. In this paper, we contribute to the continued advancement of the buyer-seller relationship literature by:

1. examining how the TCA framework has been extended by marketing researchers to model buyer-seller relationships,
2. reviewing and integrating the extant research to identify areas that are in need of further empirical and theoretical development, and
3. identifying a number of potential research streams that appear to merit further academic attention.

Through our efforts, we hope to encourage continued academic interest in the empirical testing and theoretical development of TCA in a buyer-seller relationship context. We begin our review of the marketing literature by briefly describing Williamson's (1975; 1985; 1996) original framework. We extend our discussion to consider how the original framework has been extended to model buyer-seller relationships, and then examine the current state of the marketing literature. Finally, we summarize our findings and identify areas for future research.

TRANSACTION COST ANALYSIS: THEORETICAL OVERVIEW

Transaction Cost Analysis (TCA) (Williamson 1975; 1985; 1996) is part of the "New Institutional Economics" paradigm that, unlike traditional neoclassical economics that views the firm as a production function, considers the firm a governance structure (Rindfleisch and Heide 1997; Barney and Hesterly 1996). Generally speaking, TCA was initially developed to model a firm's selection of an *institutional* governance mechanism (e.g., market, hierarchical, or hybrid) to efficiently (e.g., minimize transaction costs) govern a particular transaction or type of transaction (David and Han 2004; Geyskens, Steenkamp and Kumar 2006; Rindfleisch and Heide 1997; Shelanski and Klein 1995). TCA is built upon two key behavioral assumptions: bounded rationality and opportunistic behavior. Bounded rationality is the assumption that decision makers have limited cognitive capabilities and as such, are "intendedly rational, but only limitedly so" (Simon 1961, p. xxiv). Because of bounded rationality, complex agreements such as those involved in long-term purchasing relationships will typically be incomplete (Buvik and John 2000; Radner 1968) providing opportunities for one or both parties to take advantage of contractual "gaps" to suit their own best interest.

In contrast to bounded rationality, which finds its origin in the cognitive limitations of decision makers, opportunistic behavior is more strategic in nature. Williamson (1985, p. 47) defines opportunistic behavior as "self-interest seeking with guile" (Williamson 1985, p. 47). Opportunism implies that given the opportunity, one or both parties may resort to behaviors such as lying, cheating, deceitful concealment of information, or violating formal or informal agreements to further their own self-interest (Wathne and Heide 2000). Thus, a major concern of relationship participants is how to protect themselves from the potential opportunism of their partner. Williamson operationalized these two behavioral assumptions as three sources of transaction costs: asset specificity, uncertainty, and frequency.

Asset specificity (Williamson 1996, p. 377) involves "specialized investments (in assets) that cannot be redeployed to alternative uses or by alternative users except at a loss of productive value." The primary issue related to specific assets (referred to as transaction specific assets (TSAs) throughout the remainder of this text) involves their transferability to other relationships. Assets with a high degree of specificity relative to a particular exchange partner have dramatically lower value when used in other uses or with alternative exchange partners and therefore, create interdependencies between them.

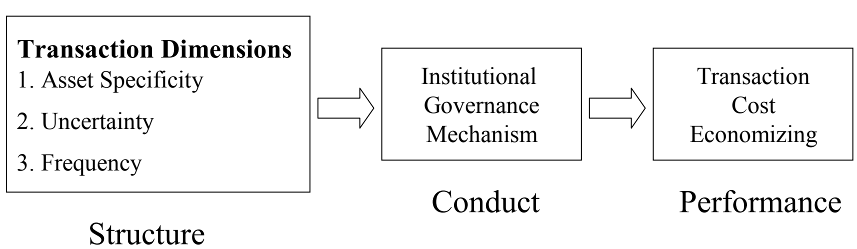
Williamson (1975; 1985; 1996) identifies four types of specific assets: 1) physical assets whose engineering or physical properties are specifically designed to support a particular relationship; 2) human assets involving worker skills, know-how, and information; 3) site specific assets that are located in close proximity to a particular exchange partner; and 4) dedicated assets in plant and equipment. Because the development of these assets requires one or both parties to make considerable investments, much of the extant literature addresses how parties should protect themselves from being expropriated when they had made investments in TSAs.

The second dimension, uncertainty, is a major problem facing all economic organizations. Archol and Stern (1988) define uncertainty as the extent to which a firm has enough information to make a decision, can predict the outcomes of that decision, and has confidence in the decision that it makes. Williamson (1975; 1985; 1996) identifies three basic types of uncertainty that firms should address. Primary uncertainty involves acts of nature or changes in customer preferences. In contrast, secondary uncertainty is derived from the inability of firms to ascertain the concurrent decisions and actions of their exchange partner. Secondary uncertainty increases the potential that one party could make decisions that unknowingly have a negative impact on those of its exchange partner; moreover, it facilitates the maintenance of redundant activities that reduce relationship efficiency. The final type, behavioral uncertainty, involves the potential that one or both parties would take advantage of its exchange partner if given the opportunity (i.e., opportunistic behavior).

The final dimension, frequency, refers to the repeatability of a particular transaction or type of transaction. Firms are predicted to internalize frequently occurring transactions because internalization costs can be amortized over a larger number of transactions (Williamson 1985). According to the "discriminating alignment hypothesis" (Williamson 1991, p. 277), represented in Figure 1, economic parties attempt to match transactions, which differ along these three dimensions, with governance structures that differ in their costs and competencies in a transaction cost economizing way.

The primary driver of TCA (Williamson 1998) is asset specificity (Geyskens et al. 2006). Transactions with low asset specificity are expected to be undertaken in the market while those with intermediate and high levels of asset specificity are expected to be undertaken by hybrid (or relational) and hierarchical (i.e., vertical integration) forms of governance (David and Han 2004; Geyskens et al. 2006). In contrast to asset specificity, uncertainty's effect on buyers' governance decisions is more conditional in nature. Under conditions of low asset specificity, market governance is preferred regardless of the degree of uncertainty since alternative transaction arrangements can be readily made; however, at higher levels of asset specificity and uncertainty, hierarchical governance should be preferred because of its

FIGURE 1
TCA Relationship Framework



improved adaptive capabilities (David and Han 2004). Finally, because overhead costs will be easier to recover for recurring transactions, higher levels of frequency tends to move transactions away from the market and toward hierarchies when asset specificity is present. Thus, all three transaction cost dimensions play an important role in a firm's selection of an institutional governance form.

Though TCA provides considerable insights into a firm's selection of institutional governance, the theory as proposed by Williamson (1975; 1985; 1996) provides limited insights into the governance of any particular institutional form once it is selected. To address this limitation, marketing researchers looked to TCA to gain insights into the operational aspects of buyer-seller relationships.

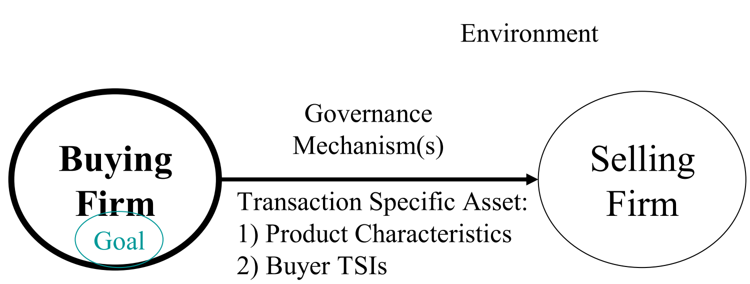
Extending TCE to Buyer-Seller Relationships

In the marketing literature, TCA has been predominantly applied from the perspective of one of the participants, typically the buying firm (Corsten and Kumar 2005; Kalwani and Narayandas 1995), who attempts to identify and implement efficient controls over its exchanges with suppliers. The model described here is represented in Figure 2 with the buyer's goal (i.e., the primary driver of the model) being identified by "G" and the unidirectional arrow emanating from the buyer to the seller representing the application of TCA from the buyer's perspective.

Consistent with the original framework, the buyer's goal is to minimize its transaction costs. Arrow (1969, p.48) defines transaction costs as the "costs of running the economic system." Transaction costs include a wide variety of costs such as those involved in searching for new suppliers, monitoring the environment, and negotiating and enforcing agreements (Dyer 1997; North 1990). Buying firms minimize transaction costs by establishing efficient controls over the three transaction cost dimensions identified earlier (i.e., the TSA, uncertainty, and frequency). However, in contrast to the original framework described earlier, the dimensions making up the model must be redefined as described here to suit the buyer-seller relationship context.

The first dimension, the Transaction Specific Asset (TSA), involves the product that is being purchased as well as any investments made by the buying firm to facilitate that product's exchange. The product, or more specifically the characteristics of the product, has a major impact on the costs associated with a particular exchange transaction. For instance, if a standard product (i.e., a commodity) is exchanged, the transaction costs associated with that product should be fairly small (Pilling, Crosby and Jackson 1994). In contrast, if a highly specialized product is exchanged, the buyer will attempt to establish controls to reduce any potential problems that may arise in its exchange resulting in higher transaction costs (Pilling et al. 1994). In addition to the product's characteristics, the parties' physical

FIGURE 2
TCE-Based Relational Model



and social investments to the relationship represent an additional source of transaction costs. Because such investments have substantially lower value when redirected to other uses or to alternative relationships, they make the investing party, in this case the buyer, more dependent on the focal relationship leaving it vulnerable to supplier expropriation (Heide and John 1990; Klein 1996). Therefore, when buying firms make such investments, they will attempt to protect themselves from higher potential supplier opportunism resulting in higher transaction costs.

The second source of transaction costs is uncertainty. From the buyer's perspective, there are two sources of uncertainty: 1) the selling firm and 2) the environment. The first source, the selling firm, involves how much the buyer knows about the selling firm and then, given what they know about the seller, does the buyer believe that the seller would take advantage of them if given an opportunity (i.e., to behave opportunistically). If the buyer has extensive experience with the seller and has found them to consistently behave in a fair and honest manner, the buyer may be able to reduce its usage of more costly governance mechanisms resulting in lower transaction costs. The second source, the environment, involves how much the buyer knows about its operating environment as well as the overall volatility of that environment. If the buying firm is involved in a volatile or unfamiliar market environment, higher transaction costs will be incurred as it searches for information and actively monitors the environment.

The final source, frequency, involves the volume of transactions that the buyer expects to occur in the future (Pilling et al. 1994). If the buyer expects that a particular transaction or type of transaction will occur frequently in the future, policies and procedures may be established to more efficiently control them resulting in higher transaction costs (Pilling et al. 1994). Thus, the current relationship framework (consistent with the discriminating alignment hypothesis) posits that buyers will assign governance mechanisms to transactions, which vary along the three sources of transaction costs identified earlier, such that their transaction costs will be minimized (i.e., the buyers' goal). However, because the framework described here models the buying firms' perspective (Corsten and Kumar 2005; Kalwani and Narayandas 1995) of individual exchange transactions (Dwyer, Schurr and Oh 1987; Zajac and Olsen 1993), what is being modeled in much of the current literature is not the buyer-seller *relationship* but the buyer's *control* over the seller. For this reason, much of the research focuses on the governance aspects of buyer-seller relationships (Narayandas and Rangan 2004). Despite this tendency, marketing researchers have effectively extended TCA to study the influence of relational governance on relationship outcomes. In the remainder of this paper, we review the marketing literature in order to identify the current state of the buyer-seller relationship research and to better establish what empirical and theoretical work remains to be done.

EMPIRICAL RESEARCH: BUYER-SELLER RELATIONSHIP LITERATURE

Transaction Cost Analysis (TCA) has been widely used to study the governance aspects of interorganizational buyer-seller relationships since the mid 1980s. A summary of the key empirical studies is provided in Table 1.

The objective of this review is to provide a representation rather than an exhaustive collection of the empirical studies that have used TCA as the primary relationship-modeling framework. In this paper, the relationship literature has been organized according to how it has addressed each of the transaction cost dimensions (e.g., TSA, uncertainty, and frequency) beginning with the TSA.

Transaction Specific Asset (TSA)

In the marketing literature, substantial effort has been devoted to examine the effect that TSAs have on the governance decisions of buyers. In a relationship setting, the TSA involves both the characteristics of the product being exchanged and the investments made by the parties to facilitate that exchange. Though both are addressed in the marketing literature,

TABLE 1
Summary of TCA-Based Empirical Studies

Author(s)	Sample	Independent Variable(s)	Dependent	Key Findings
Heide, Wathne & Rokkan (2007)	105 matched buyer-seller dyads in building materials industry	Supplier output monitoring; supplier behavior monitoring; microlevel social contract for output; microlevel social contract for behavior	Supplier opportunism	Output monitoring decreases supplier opportunism. In contrast, behavior monitoring increases opportunism. The existence of microlevel output oriented social contracts (i.e., product quality, delivery timeliness, order accuracy) enhances the effect of output monitoring on opportunism whereas microlevel behavior oriented social contracts (i.e., production schedules, quality control procedures, storage and handling practices) offset the effect of behavior monitoring on supplier opportunism.
Ghosh & John (2005)	193 purchasing managers/directors of manufacturing firms from the general machinery, electronic, and transportation equipment industries	Incomplete ex ante contracting; buyer specific investments. Moderating variable: buyer end market strength	End product enhancement (EPE) outcomes; cost reduction (CR) outcomes	CR outcomes are higher when OEM specific investments (SIs) are aligned with complete contract terms whereas EPE outcomes are higher when OEM SIs are aligned with incomplete contracts. OEMs with stronger positions in their end markets reduced their EPE outcomes were lower for OEMs with stronger end market positions when they had SIs that were not supported by complete contracts.
Wuyts & Geyskens (2005)	177 purchasing managers from small/ medium sized firms from the Netherlands in the general machining and electronic equipment industries	Uncertainty avoidance; collectivism; power distance. Mediating variables: detailed contract drafting; close partner selection	Supplier opportunism	Supplier opportunism is reduced when buyers enter into close partnerships with suppliers. However, detailed contract drafting and close supplier partnerships are not compatible and actually increase supplier opportunism. A greater propensity to write explicit contracts was noted for firms that were more collectivist, more uncertainty avoidant, and more tolerant of power distance. Collectivist firms are more likely to select partner with whom they share close ties.
Corsten & Kumar (2005)	266 suppliers of a large supermarket chain	Supplier transaction specific investments; cross-functional teams and supportive incentive systems in supplier organization. Moderating variables: efficient customer response (ECR). Mediating variables: trust; complementary retailer capabilities	Supplier economic performance; supplier perceived equity; supplier capability development	Suppliers who participate in ECR programs with large retailers experience enhanced economic performance and capabilities development; however, ECR participation increases suppliers' inequity perceptions. Moreover, as suppliers' trust in the retailer increase, greater adoption of ECR further increases suppliers' feelings that they are inequitably treated. Retailer capabilities also have an enhancing effect on supplier perceived inequity. These results hold regardless of differences in supplier size and type of product provided (branded versus private labeled products).
Wathne & Heide (2004)	421 managers of U.S. apparel companies	Downstream market uncertainty; contractor qualification; contractor hostages; apparel company (upstream) hostages; and various interaction terms	Apparel company flexibility	Downstream market uncertainty has a negative effect on apparel company flexibility for lower levels of contractor qualification and a positive effect for higher levels of contractor qualification. Reciprocal hostages by the apparel company and the contractor promote flexible adaptation to uncertainty. Qualification of the retailer has a positive effect on apparel company flexibility and apparel company (downstream) hostages have a negative effect on apparel company flexibility. Retailer hostages do not have a significant effect on apparel company flexibility.
Rokkan, Heide & Wathne (2003)	198 matched buyer-seller dyads of manufacturers of building materials	Buyer specific investment; extendedness; norm of solidarity	Supplier's perception of own opportunism; buyer's perception of supplier opportunism	Expectation of relationship extendedness did not discourage opportunism on the part of the supplier; however, the norm of solidarity did discourage opportunism. The investing party tends to overestimate the effect of extendedness on discouraging supplier opportunism.
Jap & Anderson (2003)	At time 1, 220 buyers from the procurement divisions of 4 Fortune 50 manufacturing companies: PC manufacturer, photography equipment manufacturer, chemical manufacturer and a brewery. At time 2, 154 buyers	Ex post opportunism. Moderating variable: bilateral investments; goal congruence; interpersonal trust	Evaluation of the counterpart's performance; competitive advantages; joint profit performance; expectation of relationship continuity	In the face of ex post opportunism, goal congruent parties judge their partners' performance more favorably and anticipate a longer time horizon to their relationship; however, these benefits are not realized when all is well. Interpersonal trust has the reverse effect in that when all is well, the confidence that the two parties have in each other makes the relationship perform better; however, these effects diminish as ex post opportunism increases. In contrast, bilateral idiosyncratic investments improve relationship performance with or without ex post opportunism.

Table 1 continued on next page

TABLE 1 (*continued*)

Heide (2003)	155 purchasing agents/ directors of manufacturing firms from the general machinery, electronic, and transportation equipment industries	Information asymmetry (i.e., buyer information deficiencies about the supplier). Moderating variables: augmentation of supplier relationship with internal organization (plural governance)	Degree of supplier relationship centralization; degree of supplier relationship formalization	Buyer information deficiencies increase the likelihood of the buyer augmenting the supplier relationship with internal production. Plural governance involving both market and internal production increase the degree of centralization (concentration of decision-making) and formalization (reliance on rules and standard operating procedures) of the supplier relationship.
Buvik (2002)	160 industrial buyers from firms in chemical and engineering production	Frequency of exchange; manufacturing specific assets; interaction of frequency; manufacturing specific assets	Formalized purchase contracting; buyer hierarchical control	Higher frequency of transactions is needed to support the financial obligations associated with hierarchical governance.
Wathne, Biong & Heide (2001)	114 Customer and 37 selling firms (commercial banks) of corporate financial services	Interpersonal relationship; switching costs; price of alternative supplier; product breadth of alternative supplier	Switching behavior; intention to switch	Buyers emphasize firm level switching costs as opposed to interpersonal relationships in deciding to remain with an existing supplier. Also, the positive effect of a potential supplier's superior price or product breadth on buyer switching behaviors decrease for higher levels of switching costs.
Cannon, Achrol & Gundlach (2000)	424 members of the National Association of Purchasing Management	Transaction uncertainty X Relationship specific adaptation (consisting of (1) market dynamism X RSA and (2) task ambiguity X RSA); legal bonds; cooperative norms	Supplier performance: price, product quality, and after-sales service	If uncertainty is high, explicit contracts result in reduced performance; however, at low levels of uncertainty, contracts provide higher levels of performance. Relational norms result in improved performance whether uncertainty is high or low. When uncertainty is high, plural governance consisting of an explicit contract and relational norms provides improved performance.
Jap & Ganesan (2000)	1457 retailers of a major chemical product manufacturer	Retailer's Transaction Specific Investments (TSIs); control mechanisms (supplier TSI, relational norms & explicit contracts). Control mechanisms and relationship phase act as moderating variables.	Evaluation of supplier's performance; conflict level; relationship satisfaction	Both supplier TSIs and relational norms enhance retailers' perception of supplier commitment whereas explicit contracts reduce retailers' perception of supplier commitment. Retailer perception of supplier commitment is positively related to its evaluation of supplier performance and satisfaction and negatively related to conflict.
Buvik & John (2000)	161 buyers for manufacturers	Vertical coordination; environmental uncertainty; supplier asset specificity	Ex post transaction costs	Vertical coordination reduces transaction costs in highly uncertain environments when supplier specific investments are low. However, vertical coordination increases transaction costs in highly uncertain environments when supplier specific investments are high.

Table 1 continued on next page

TABLE 1 (*continued*)

Houston & Johnson (2000)	107 suppliers (89 contract, 18 joint ventures).	Supplier asset specificity; supplier's performance ambiguity; supplier's reputation; stock price for announcement of contract versus joint venture	Contract; joint venture	Joint ventures (rather than explicit contracts) are more likely to occur when suppliers have higher levels of firm specific investments, performance ambiguity, and weaker reputations.
Joshi & Stump (1999)	184 purchasing managers of Canadian OEMs from the non-electronic, electronic, and transportation equipment industries	Manufacturer specific asset investment. Mediating variables: supplier asset specificity; decision making uncertainty; and manufacturer trust in supplier	Joint action	Decision-making uncertainty and trust enhance the impact of manufacturer asset specificity on joint action.
Stump & Joshi (1998)	161 buyers from manufacturing firms in the chemical and allied product markets	Situational factors (supplier dedicated investments); contextual factors (technology uncertainty, supply uncertainty, market uncertainty and procurement strategy)	Buyer dedicated investments	Buyer relationship specific investments (RSIs) are positively effected by 1) the extent of supplier RSIs, 2) the extent of past adaptations made within the pre-existing relationship, and 3) the size of procurement. However, buyer RSIs are lower when the buyer is pursuing a multi-sourcing purchasing strategy.
Stump & Heide (1996)	164 buyers for firms in the chemical industry	Qualification of supplier ability; qualification of supplier motivation; supplier's specific investment; buyer's specific investment; technological unpredictability; performance ambiguity; purchase importance	Monitoring	Firm control mechanism choices are heavily influenced by contextual factors. Specific investments by buyers are positively associated with buyer qualification of supplier ability and motivation and with supplier specific investments. Performance ambiguity is negatively associated with buyer monitoring and qualification of suppliers' abilities.
Heide & Weiss (1995)	215 U.S. firms that had recently purchased computer workstations	Buyer uncertainty (consisting of pace of technological change, technology heterogeneity, and lack of buyer experience); switching costs (technology and vendor related); situational factors (consisting of buying process centralization and purchase importance)	Consideration set (open or closed); switching behavior	Rapid technological change increases buyers' information collection efforts while reducing their tendency to switch suppliers.
Norris & McNeilly (1995)	148 buyers from large steel service centers in the Midwest	Supplier capacity; supplier concentration; market diversity; market dynamism; product characteristics; supplier specific investments; buyer specific investments	Buyer commitment to the supplier	Buyers' commitment to suppliers is increased when they need technical, unique, or high quality products, major differences in the order size of the buyer's end customers, and the supplier has made higher RSIs. Commitment to suppliers is reduced when there is a shortage of suppliers and when the buyer's end customers' demands change frequently.
Dahlstrom, Dwyer & Chandrashekran (1995)	94 mainframe computer group members in 6 major midwestern cities	Decision making structure (consisting of formalization and participation). Moderating variable: transaction characteristics (consisting of technological uncertainty and specific assets)	Effectiveness; opportunism	Formalization and limited participation raise effectiveness and reduced opportunism in relationships involving specialized investments. Relationship length does not affect opportunism.

Table 1 continued on next page

TABLE 1 (*continued*)

Heide (1994)	155 purchasing agents/ directors and 60 suppliers of manufacturers from the general machinery, electronic, and transportation equipment industries	Buyer dependence; supplier dependence	Flexible adjustment processes	For dependence to lead to bilateral interaction, both parties must be locked into the relationship. Symmetric and high dependence promote flexibility. Also, unilateral dependence between buying and selling firms reduces flexibility.
Pilling, Crosby & Jackson (1994)	229 midlevel purchasing personnel in the aerospace, electronics, and defense industries	Asset specificity; environmental uncertainty; transaction frequency. Mediating variables: level of ex ante and ex post transaction costs	Relationship closeness	Asset specificity is positively related to buyers' efforts to monitor suppliers and to develop and maintain relationships; similar results were found for uncertainty relative to buyers' relationship development efforts but only under conditions of high frequency. Frequency was not related to buyer monitoring or relationship development efforts. Buyer relationship development efforts are positively related to relational closeness; in contrast, supplier opportunism had the opposite effect on relational closeness.
Sriram, Krapfel & Spekman (1992)	65 purchasing managers from a large, multidivisional manufacturing firm	Transaction importance; buyer transaction specific investments. Moderating variable: perceived buyer dependence	Propensity to collaborate; perceived transaction costs	Transaction importance is positively related to buyer dependence; supplier transaction specific investments have the opposite effect on buyer dependence. Buyer dependence has a positive effect on buyers' propensity to collaborate with suppliers and on buyer perceived transaction costs. Transaction costs are positively related to buyers' propensity to collaborate.
Heide & John (1992)	155 purchasing agents/ directors and 60 suppliers of manufacturing firms from the general machinery, electronic, and transportation equipment industries	Buyer specific assets; relational norms; specific assets X relational norms; buyer concentration; buyer's in-house manufacturing capabilities	Buyer control over supplier decisions	Buyers safeguard their investments in relationship specific assets by implementing controls over suppliers' operations. Relational norms provide the buyer with the ability to acquire that control.
Heide & John (1990)	155 purchasing agents/ directors of manufacturing firms from the general machinery, electronic, and transportation equipment industries	Supplier specific investments; buyer specific investments; volume unpredictability; technological unpredictability; performance ambiguity. Moderating variables: continuity expectations; verification of supplier capabilities	Joint action	Supplier specific investments (SIs) increase the buyer's perceived continuity expectations. Buyer SIs and performance ambiguity encourage higher levels of supplier verification. Technological unpredictability decreases buyers' continuity expectations. Buyer SIs and supplier SIs are positively associated with higher levels of joint efforts. Increased continuity expectations and supplier verification efforts are positively associated with higher levels of joint action.
Noordewier, John & Nevin (1990)	140 buyers for bearing manufacturing firms	Relational governance; environmental uncertainty	Buyer transaction performance	When uncertainty is high, increasing relational governance in industrial buyer-seller relationships improves buyers' purchasing performance (i.e., lower acquisition costs). Relational governance had no effect on buyers' performance when uncertainty is low.

Table 1 continued on next page

more emphasis has been placed on the investment rather than the product aspects of the TSA. With respect to the product, Norris and McNeilly (1995) found that the more the buyer's need for technical, unique, and high quality products, the more likely that an enduring relationship would exist between themselves and the supplier. Moreover, research on product customization (Buvik 2002; Heide 1994; Heide and Miner 1992) suggests that it enhances flexibility and information sharing but has little or no effect on shared problem solving or in restraining power in relationships. Thus, the current research suggests that the product has a major influence on the nature of buyer-seller relationships (Cannon and Perreault 1999; Dyer 1997; Heide 1994; Heide and Miner 1992; Norris and McNeilly 1995). Unfortunately, in many studies, product characteristics were included as control variables only and as such, provide limited insights into the product's impact on the governance decisions of buyers. For this reason, additional product research appears warranted.

Considerably more research examines the impact that relationship specific investments (RSIs) have on relationship governance. RSIs are an important consideration in interorganizational relationships since they have substantially lower value when employed in uses outside of the focal relationship (Williamson 1996). Essentially, RSIs "lock" the investing firm into a specific exchange relationship (Besanko, Dranove and Shanley 2000) by creating costs that discourage switching behaviors (Wathne, Biong and Heide 2001). Moreover, because the value of RSIs may be lost or depleted, they increase the investing firm's tolerance of the opportunistic behaviors of its exchange partner (Wathne and Heide 2000). Much of the existing research supports this view and suggests that buyer RSIs decrease supplier commitment (Jap and Ganesan 2000), and increase supplier opportunism (Rokkan, Heide and Wathne 2003) and buyer transaction costs (Buvik and Anderson 2002). Because of the overwhelming consistency of this finding, many studies examine buyer RSIs (relative to those of the seller) to identify relationships with high opportunistic potential in order to evaluate the effectiveness of various governance mechanisms in curbing supplier opportunism. Therefore, rather than investigating the effect that the TSA has on relationship governance, most RSI studies evaluate the control of behavioral uncertainty (i.e., supplier opportunism).

Uncertainty

Buyers face two sources of uncertainty, the supplier and the environment. Marketing researchers have examined both sources relative to their impact on relational governance with most studies focusing on the governance of behavioral uncertainty (i.e., supplier opportunism). Five governance mechanisms have received considerable attention in the marketing literature: 1) explicit contracts, 2) supplier RSIs, 3) bilateral RSIs, 4) relational norms, and 5) informational governance mechanisms (i.e., monitoring and supplier qualification).

Explicit Contracts. According to Lusch and Brown (1996, p. 20), an explicit contract is a document that is prepared by two parties that attempts to "see into the future and explicitly state today (i.e., in the present) how various situations that might occur in the future would be handled if they were to occur." The empirical research regarding the ability of explicit contracts to control supplier opportunism is mixed. Some research suggests that explicit contracts have no effect on supplier opportunism (Wuyts and Geyskens 2005) while other research (Young and Wilkinson 1989) suggests that contractual governance negatively impacts supplier opportunism.

The logic underlying the latter finding is that the use of explicit contracts is more characteristic of transactional relationships since the more dominant party (typically the buying firm) plays a bigger role in specifying its provisions (Gundlach and Murphy 1993). Because suppliers doubt the buyer's commitment when explicit contracts are used (Jap and Ganesan 2000), they may be motivated to behave opportunistically to make up any "losses" that they may have experienced due to any perceived "forced" provisions. But if contracts are expected engender such reactions, what explains Wuyts and Geyskens's findings? Heide, Wathne and Rokkan (2007) provide one possible explanation.

Heide et al. (2007) found that more obtrusive types of monitoring, in their case, behavior versus output monitoring, increases supplier opportunism. Their findings also suggest that contextual factors such as microlevel social contracts "serve as buffers that both enhance the effects of output monitoring and permit behavioral monitoring to suppress opportunism in the first place" (Heide et al. 2007, p. 425). Thus, the obtrusiveness of the buyer's monitoring activities appears to have a strong influence on the supplier's response to contractual governance. In addition to the buyer's monitoring approach, prior research (Buvik and John 2000; Cannon, Archol and Gundlach 2000) also suggests that contracts are less effective in controlling supplier opportunism in unstable environments. Therefore, in addition to selecting less obtrusive monitoring methods, buyers may be well advised to supplement contractual controls with other mechanisms in less stable environments (Heide 2003; Lusch and Brown 1996).

Supplier RSIs. Relationship specific investments (RSIs) are investments that have limited transferability to other uses or users (Williamson 1996). Supplier RSIs, because of their limited transferability, act as a hostage that in effect "locks" the supplier into a specific exchange relationship (Buvik and John 2000). Because the supplier's loss potential is now substantially higher than that of the buyer, the supplier is more inclined to accept the buyer's decisions (Anderson and Narus 1990) in order to protect their investment. For this reason, buyer control increases when suppliers have made substantial RSIs (Joshi and Stump 1999; Sriram, Krapfel and Spekman 1992).

Early research (Heide and John 1990), mostly established from the buyer's perspective, suggests that supplier RSIs enhance relationship development by improving relational continuity and collaboration (Heide and John 1992). More recent research (Gundlach, Archol and Mentzer 1995; Wathne and Heide 2004), however, appears to contradict these findings by suggesting that supplier RSIs reduce relationship flexibility and to encourage supplier opportunism. This suggests that though buyers believe supplier RSIs to have a positive impact on relationship stability and collaboration, suppliers may have a much different perspective (Buvik and John 2000). In particular, much of the marketing literature suggests that to the extent that suppliers are able to successfully act opportunistically, they may be more inclined to do so in order to reduce the magnitude of their loss potential and their dependence on the buyer. For this reason, buyers who are interested in developing close supplier relationships may be wise to establish policies that reduce this potential; for example, by reciprocating supplier RSIs in order to create a bilateral RSI condition.

Bilateral RSIs. Bilateral RSIs occur when both the buying firm and the selling firm, over the course of the relationship, have made substantial relationship investments. Under this condition, both parties now stand to lose their respective RSIs if the relationship were damaged or terminated. As a result, bilateral investments represent mutual hostages that effectively "lock" both firms into the relationship which encourages cooperation (Anderson and Weitz 1992; Jap and Anderson 2003; Williamson 1975; 1985; 1996) and a long-term relationship orientation (Ganesan 2000).

Bilateral RSIs enhance collaboration, flexibility, and relationship performance (Buchanan 1992; Jap and Ganesan 2000; Stump and Heide 1996; Stump and Joshi 1998; Wathne and Heide 2004) under conditions of high and low uncertainty (Jap and Anderson 2003). Moreover, bilateral RSIs have been posited to play an important role in the development of relational norms (Gundlach et al. 1995). Thus, empirical support for the relational benefits of bilateral RSIs is quite strong; based on our review of the literature, we believe that they represent an important link between the economic and social aspects of interorganizational relationships which has been identified as an important area for future study (Rokkan et al. 2003).

Relational Norms. Relational norms are expectations about relationship behaviors that are shared by relationship participants (Dwyer et al. 1987; Heide and John 1992). The marketing literature consistently demonstrates the positive effect that relational norms (Rokkan et al. 2003; Jap and Ganesan 2000; Heide and John 1992) have on reducing supplier opportunism (Gundlach et al. 1995; Heide and John 1992) and relationship performance (Noordeweir et al. 1990). In fact, Rokkan, Heide and Wathne (2003, p. 213) suggest that relational norms promote "the creation of joint value rather than individual value claiming." Essentially, relational norms are posited to cause a fundamental shift in relationships which has the effect of reducing supplier opportunism, creating a joint relationship focus, and promoting "bonding" between buying and selling firms. Despite their ability to facilitate relationship development, relational norms take time to develop (Lambe, Spekman and Hunt 2000). For this reason, additional mechanisms such as mutual hostages and/or monitoring may be needed to supplement relational norms until the relationship reaches an adequate maturity level (Heide 1994; Jap and Ganesan 2000; Rokkan et al. 2003).

Informational Governance Mechanisms. Information uncertainty is said to exist when one or both of the parties lack information about the other. This increases the potential for opportunism in relationships by creating a condition in which the behaviors of the parties can go unnoticed (Wathne and Heide 2000). When faced with informational deficiencies, buyers may use informational mechanisms such as monitoring and supplier qualification, which are designed to reduce information uncertainty, to reduce this potential.

Wathne and Heide (2000) identify two hazards associated with information uncertainty, (1) adverse selection and (2) moral hazards. Adverse selection (i.e., does the supplier possess the capabilities promised) is a major concern in the beginning stages of the relationship whereas moral hazards (i.e., will the supplier behave opportunistically given that they can conceal their opportunism) represent an ongoing threat. Overall, research on informational mechanisms such as monitoring and qualification programs has been fairly limited yet these studies strongly suggest that these mechanisms are effective in controlling both hazards by providing buyers with information about the supplier's capabilities and decisions. However, the effectiveness of both mechanisms is dramatically reduced when information is difficult to acquire or understand (Wathne and Heide 2000). For example, Stump and Heide (1996) found that if certain aspects of the supplier's performance are not readily observed or the buyer cannot readily distinguish between high or low levels of performance, monitoring becomes less desirable (Ouchi 1980). Similarly, supplier qualification programs have been found to be less effective when it is difficult for buyers to evaluate a supplier's true level of performance or if the signals sent by the supplier are not easily interpreted (Stump and Heide 1996). Therefore, information based mechanisms, though effective in reducing supplier opportunism, are considerably less effective when there is moderate to high performance ambiguity. For this reason, buyers should be advised to supplement informational mechanisms when supplier information is difficult to understand or acquire.

The second source of uncertainty is the environment. Much of the work in this area centers on the effect that environmental volatility (i.e., environmental dynamism) has on buyer governance decisions. Empirical findings appear to support two competing positions. The first suggests that buyers will retain their ability to switch suppliers to acquire the flexibility to adapt to environmental changes (Kim 2000; Sutcliffe and Zaheer 1998) whereas the second suggests that buyers will choose to enter into close relationships with suppliers to utilize its flexibility features to better respond to volatile environments (Jap 1999; Norris and McNielly 1995; Wernerfelt and Karnani 1987). To reconcile these two positions, one possible explanation is provided by Joshi and Campbell (2003). Their research suggests that buyers who strongly believe that collaborative relationships are highly beneficial in establishing sources of competitive advantage will have a predisposition to use relational governance under conditions of uncertainty. In short, their study suggests that buyers who have strong collaborative beliefs and quality suppliers will tend to enter into collaborative supplier relationships under conditions of high volatility whereas buyers with weak collaborative beliefs will attempt to retain their ability to switch suppliers. Despite this study, this still remains an area of contention among scholars. Based on our review of the marketing literature, we suspect that different types of uncertainty will engender different responses from buyers; therefore, additional studies examining the influence that different types of uncertainty such as product volume (Heide and John 1990) and technological unpredictability (Heide and Weiss 1995) have on buyers' governance decisions may provide a fruitful path for future research.

Frequency

In contrast to the vast work on uncertainty, frequency has received considerably less academic attention (Buvik 2000; Carter and Hodgson 2006; David and Han 2004; Rindfleisch and Heide 1997). In much of the marketing literature, frequency variables have been included as controls and thus, not specifically tested. Despite its limited attention in the academic literature, frequency related variables such as delivery frequency (Heide and Miner 1992), procurement size (Heide 1994; Stump and Joshi 1998), and expectations of relationship extendedness (Heide and John 1990; Heide and Miner 1992; Rokkan et al. 2003) have been found to have a strong impact on relationship flexibility, cooperation, and joint action. In one of the few studies to specifically test frequency related hypotheses, Heide and Miner (1992) found that delivery frequency positively influences cooperation, shared problem solving, and flexibility. Based on these findings and on the limited work done to date, frequency-based research appears to be an area ripe for future study.

CURRENT AND FUTURE RESEARCH DIRECTIONS

So where do are we now and where do we go from here? Clearly, our understanding of interorganizational buyer-seller relationships has been advanced through the efforts of marketing researchers over the past three decades. However, based on our review of the buyer-seller relationship literature, considerable gaps remain in the coverage of the major TCA dimensions. Of the three dimensions identified by Williamson (1975; 1985; 1996), uncertainty has received the most academic attention with many studies focusing on the control of supplier opportunism. Much less attention has been directed toward the product aspects of the TSA; of the limited studies that have done so, most included product characteristics as control variables only. Despite the limited work in this area, much of the extant research (Heide and Miner 1992; Norris and McNeilly 1995) demonstrates the product's importance in supplier relationships. Suppliers that provide high quality, innovative, technical, and customized products were more likely to be involved in collaborative relationships with their customers. Similarly, frequency has also received little empirical attention (David and Han 2004; Rindfleisch and Heide 1997) even though prior research (Buvik 2002; Heide and Miner 1992) suggests that its impact on exchange relationships may be quite substantial; in particular, delivery frequency (Heide and Miner 1992), procurement size (Heide 1994; Stump and Joshi 1998), and expectations of relationship extendedness (Heide and John 1990; Heide and Miner 1992; Rokkan, Heide and Wathne 2003) have been found to improve relationship flexibility, cooperation, and joint action.

So now that we have a better idea of where the current literature is, where do we go from here? We propose four broad research directions that appear to hold considerable promise. First, we recommend that researchers continue to expand on the existing TSA and frequency research. For instance, additional research that attempts to identify which product characteristics are most important in the development, longevity, and success of collaborative exchange relationships represents an important topic for future research. Furthermore, more in-depth research examining the influence that the frequency expectations of the exchange parties has on the nature and longevity of buyer-seller relationships represents another fruitful area for future study. Prior research suggest that firms that are involved in long-term/strategic relationships are more likely to accept short-term disadvantages based on a belief that things will even out in the long run (Heide and Miner 1992; Noordeweir et al. 1990). Furthermore, both parties should be more willing to make relationship investments (Buvik 2002; Dyer and Singh 1998) when they share similar frequency expectations and expectations that the relationship will continue to grow. Similarities in frequency expectations encourage relationship unity and stability whereas differences facilitate conflict and instability. Thus, our review of the marketing literature suggests that more product and frequency research is needed.

Second, additional research on bilateral RSIs may hold considerable promise in extending our understanding of the development of long-term relationships (Gundlach et al. 1995; Nevin 1995). Bilateral RSIs change the motivational characteristics of relationships by shifting the individual focus of relational parties from protecting "self" to protecting the relationship thereby creating a spirit of cooperation and unity. Bilateral RSIs also set the stage for a more "extensive" relationship vision to be established between the parties by creating a more long-term and unified perspective of maximizing relationship investments and thus, tend to align the activities of the firms and to provide direction to the relationship.

Third, more focused research on the compatibility and effectiveness of different governance combinations under varying environmental conditions appears warranted. For example, the effectiveness of many mechanisms such as explicit contracts, supplier qualification programs, and monitoring are dramatically reduced when information is difficult to acquire or understand (Wathne and Heide 2000). Because environmental volatility and interfirm informational uncertainty limits buyers' ability to acquire or interpret exchange and market information, it may be interesting to develop a contingency-based model (Venkatraman and Prescott 1990) to study the combinations of mechanisms that are most effective in facilitating relationship development (Ring and Van De Ven 1994) under different environmental conditions. Moreover, extending our understanding of the inter-relationships of different governance mechanisms throughout the relationship development process represents another important area of future research (Heide and Wathne 2006).

Finally, in most of the marketing literature, TCA has been applied from the buying firms' perspective (Corsten and Kumar 2005; Kalwani and Narayandas 1995) and to individual exchange transactions (Dwyer et al. 1987; Zajac and Olsen 1993). Though this is consistent with transactional relationships, it is incompatible with collaborative relationships (Madhok 1997; Zajac and Olsen 1993) which involve unified goal structures and multiple exchanges over time (Anderson and Weitz 1989; Dwyer et al. 1987; Eliashberg and Michie 1984; Ganesan 2000; Wilson 1995). For this reason, TCA has come under sharp criticism as a relationship framework because of its overemphasis on control and opportunism (Conner and Prahalad 1996; Ghoshal and Moran 1996; Moran and Ghoshal 1996) and for espousing a static rather than developmental perspective toward relationships (Narayandas and Rangan 2004; Rindfleisch and Heide 1997; Williamson 1999).

In response to these criticisms, marketing researchers have looked to other frameworks such as SET, RBV, and the theory of power to gain additional insights into the maintenance and development of interorganizational buyer-seller relationships; unfortunately, most of these frameworks have their own inherent limitations as well. For this reason, Lambe, Spekman and Hunt (2000) suggest that a better relationship framework may be developed by applying different theories at various stages of relationship development. Similarly, Ghosh and John (1999; 2005) suggest that combining different theories, in their case, TCA and resource-based view of strategy (Barney 1986; 1991; Peteraf 1993; Wernerfelt 1984), may allow researchers to offset some of the inherent limitations of TCA and to better model the value creation aspects of relationships. Thus, an important issue facing relationship researchers in the upcoming decade involves developing and testing more robust interorganizational frameworks (Jap 1999; Rangan, Corey and Cespedes 1993; Rindfleisch and Heide 1997).

CONCLUSION

Interorganizational buyer-seller relationships are an important part of a firm's strategic arsenal by providing it access to resources and information that are needed to improve its competitiveness in existing markets and to more successfully enter new markets. Because of their strategic importance, buyer-seller relationships merit continued academic attention. TCA has proven to be a useful framework in advancing our understanding of this important market phenomenon. Unfortunately, similar to other powerful theories, it has limitations that inhibit its ability to model certain aspects of relationships. Despite these limitations, marketing researchers have successfully advanced our understanding of interorganizational buyer-seller relationships over the past three decades; however, there is much more empirical and theoretical work to be done.

An important step in advancing any area of research is to assess the current state of the literature and to synthesize its key findings. By providing a detailed review of the TCA-based buyer-seller relationship research and by identifying areas of future research, we hope to establish a foundation upon which to direct and align the theoretical and empirical efforts of relationship researchers in the future. Only by working together can we hope to continue to make major strides in advancing our knowledge and understanding of this challenging yet important market institution.

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