



Specific Investments in Marketing Relationships: Expropriation and Bonding Effects

Author(s): Aksel I. Rokkan, Jan B. Heide, Kenneth H. Wathne

Source: *Journal of Marketing Research*, Vol. 40, No. 2 (May, 2003), pp. 210-224

Published by: American Marketing Association

Stable URL: <http://www.jstor.org/stable/30038849>

Accessed: 05/03/2010 08:23

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AKSEL I. ROKKAN, JAN B. HEIDE, and KENNETH H. WATHNE*

Specific investments, which are tailored to a particular company or value-chain partner, are important components of firms' marketing strategies. At the same time, extant theory suggests that such investments pose considerable risk, because they put the receiver in a position to opportunistically exploit the investor. In this article, the authors examine this "expropriation" scenario but also consider whether specific investments, because of their specialized nature, may actually "bond" the receiver and reduce opportunism under certain conditions. These conditions involve a focal relationship's time horizon (i.e., its extendedness) and particular norms. The key theoretical argument is that the effect of specific investments on opportunism will shift in a nonmonotonic fashion over the range of these relationship conditions. The authors test their research hypotheses empirically through parallel analyses on each side of 198 matched buyer-supplier dyads. The empirical tests provide general support for the predictions but also reveal differences between buyers and suppliers regarding the focal effects. The authors discuss the implications of the findings for marketing theory and practice.

Specific Investments in Marketing Relationships: Expropriation and Bonding Effects

Specific investments, or assets that are uniquely dedicated to another firm, are common features of many marketing relationships. For example, distributors often invest in training to service the products of particular manufacturers (e.g., Anderson 1985; Anderson and Weitz 1992; Heide and John 1988; Jap and Ganesan 2000). Similarly, manufacturers invest in human assets to support particular resellers (e.g., Ganesan 1994). For example, Procter & Gamble (P&G) has placed dedicated employees at Wal-Mart's headquarters to coordinate sales of P&G products. In franchising systems,

franchisees are often required to invest in both human and physical assets that are tailored to the franchisor's brand. These assets include training, administrative procedures, and equipment (e.g., Brown, Dev, and Lee 2000). In original equipment manufacturer (OEM)-supplier relationships, OEMs commonly make investments in tools, equipment, operating procedures, and systems that are specialized to the requirements of a particular supplier (e.g., Bensaou and Anderson 1999; Stump and Heide 1996).

The potential benefits of specific investments are considerable. As Ghosh and John (1999) note, specific investments have important value-creation properties. In Jap's (1999) terminology, such investments have the potential to expand the benefit "pie." For example, Jap describes how Xerox has worked closely with its suppliers to develop customized processes and components that have reduced copier-manufacturing costs by 30% to 40%. More generally, from a marketing strategy viewpoint, specific investments play a key role in realizing particular value propositions and achieving positions of competitive advantage (Ghosh and John 1999).

At the same time, specific investments involve considerable risk. The risk becomes apparent when the receiver of the investments in question is considered. According to transaction cost theory (e.g., Williamson 1985), because specific investments by definition cannot be easily rede-

*Aksel I. Rokkan is a Research Fellow, Bodø Graduate School of Business, Bodø Regional University, Norway (e-mail: aksel.rokkan@hibo.no); this article was completed while Rokkan was Research Fellow, Institute for Research in Economics and Business Administration, Norwegian School of Economics and Business Administration. Jan B. Heide is Irwin Maier Chair in Marketing (e-mail: jheide@bus.wisc.edu), and Kenneth H. Wathne is Assistant Professor of Marketing (e-mail: kwathne@bus.wisc.edu), School of Business, University of Wisconsin-Madison. The authors acknowledge the assistance of Leif-Magnus Jensen with data collection and thank the Research Council of Norway and the Federation of Norwegian Construction Industries for financial assistance. The article has benefited from seminar feedback at the University of Minnesota, the University of Wisconsin-Madison, the University of Cardiff, and the University of Melbourne. The authors also thank Aric Rindfleisch and Ruth N. Bolton for their helpful comments on a previous version of this article. The authors are listed in random order. All three contributed equally to the article.

ployed in other relationships, they effectively create a lock-in situation for the investor. This, in turn, enables the receiver to opportunistically exploit or expropriate the investments' value. Using our previous example, Wal-Mart might exploit the investments made by P&G by demanding, without compensation, extra service features such as new packaging and delivery terms. Ultimately, concerns about opportunism may reduce a firm's incentive to invest in valuable assets in the first place, a decision that may undermine the firm's marketing strategy (Wathne and Heide 2000).

We argue, however, that the expropriation effect of specific investments is not the only plausible scenario. Because specific investments involve dedicated (rather than general purpose) assets, they also have the potential to create considerable value for the receiver and thus may actually discourage opportunism. For example, Jap and Ganesan (2000) discuss how idiosyncratic investments made by a retailer can improve coordination between channel members and directly enhance a supplier's presence in the end market. Similar examples, involving both demand and cost effects, are discussed by Ghosh and John (1999). Ultimately, to the extent that the returns from the specific investments in question are sufficiently large, they may "bond" the receiver and discourage opportunistic actions that could cause relationship termination.¹

Thus, specific investments pose an inherent dilemma because they have the potential to both promote and reduce opportunism on the receiver's part. The main purpose of this article is to explore these conflicting perspectives. Our key theoretical argument, which is explained subsequently, is that reconciling these perspectives requires an accounting for the context in which the investments are deployed. Drawing on economic and sociological theory, we argue that the actual effect of specific investments on the receiver will depend on (1) the relationship's *extendedness* or future time dimension (e.g., Axelrod 1984; Fudenberg and Maskin 1986) and (2) the *norms* that characterize the focal relationship (e.g., Coleman 1990; Macneil 1980). Specifically, we suggest that the presence of a significant future time horizon and/or strong solidarity norms will cause a systematic shift in the effect of specific investments, from expropriation (increased opportunism on the receiver's part) to bonding (reduced opportunism).

The main goals of this article are to develop propositions about the effects of specific investments on the receiver and test them empirically. Our research design involves a test of our propositions on both sides of matched buyer-supplier dyads. First, we examine the supplier's (receiver's) self-reported opportunism as a function of its perception of the buyer's (investor's) specific investments, as well as the focal relationship context. Note that to document the actual effects of specific investments and formally examine the possibility of an expropriation scenario, as suggested in extant theory (e.g., Williamson 1983), we must document

the receiver's behavior. Next, we compare the results for the supplier with the buyer's (investor's) attributions about the supplier's (receiver's) likely behavior, as a function of the buyer's perception of its own investments and the relevant contextual variables. To the extent that there are differences between exchange partners regarding the effect of specific investments, there are implications for the functioning of marketing relationships. For example, an investor that overestimates the effect that a relationship's time horizon has on the receiver may be both misallocating marketing resources and exposing itself to opportunistic actions.

An additional objective of this article is to increase our understanding of the opportunism construct. As Rindfleisch and Heide (1997) show, with some notable exceptions (e.g., Achrol and Gundlach 1999; Anderson 1988; Brown, Dev, and Lee 2000; Gundlach, Achrol, and Mentzer 1995; John 1984), opportunism has rarely been studied explicitly. This is problematic for several reasons. For example, it is possible to have a relationship that is characterized as cooperative in an aggregate sense but that over time may offer opportunities for self-interest seeking at the other party's expense (Kaufmann 1987). Oberschall and Leifer (1986, p. 249) explicitly note how parties in exchange relationships regularly face a "barrage of choices" regarding their own behavior. Any relationship, regardless of its overall description, may offer temptations for opportunism, such as when one party makes specific investments. We seek to understand whether the opportunism potential, which is inherent in specific assets, manifests itself in the form of actual opportunism.

We organize the article in the following fashion: In the next section, we present our conceptual framework and research hypotheses. We then present our research method, including design, measurement, and analysis considerations. In this section, we also present the results of our hypotheses tests. In the final section, we detail the implications.

THE EFFECTS OF SPECIFIC INVESTMENTS

In this section, we describe the expected effects of specific investments on the receiver. Specifically, we discuss how two relationship dimensions, extendedness and norms of solidarity, may cause a shift in the effect of specific investments from expropriation to bonding. We start by discussing the effect of a relationship's extendedness.

Extendedness

Specific investments have considerably less value outside of the relationship in which they are deployed (Williamson 1985). As such, specific investments lock in the investor and pose a potential problem with regard to the focal receiver, because the latter can make opportunistic demands and enhance individual profit at the investor's expense (Heide and John 1990; Klein 1996). From the investor's perspective, specific investments create a constrained decision calculus, in that it can either remain in the focal relationship and tolerate opportunistic actions or leave the relationship and pay the relevant switching costs. In Ghosh and John's (1999) terminology, specific investments give rise to "value-claiming" difficulties.

A key question is whether the receiver will actually exercise the given expropriation potential through opportunistic actions. Transaction cost theory suggests that opportunistic behavior is likely to take place when such behavior is feasi-

¹This particular dimension of specific investments has not been consistently recognized in prior research. In some of the literature, whose primary focus has been the investor, the emphasis has been on such assets' sunk properties. Specifically, several studies have described how specific investments, because they have a significant sunk component, play an important role in a relationship by bonding the investor to particular courses of action (e.g., Anderson and Weitz 1992; Ganesan 1994; Gundlach, Achrol, and Mentzer 1995). Here, we explore an additional dimension of specific assets, namely, their ability to produce value for the receiver.

ble and profitable for a party (Achrol and Gundlach 1999; Anderson 1988; Gundlach, Achrol, and Mentzer 1995; Hill 1990). That is, if no constraints exist on opportunistic behavior, such action can be expected (Williamson 1993b).

To place this assumption in perspective, consider the so-called prisoner's-dilemma game (Axelrod 1984; Rapaport 1989). The structure of the standard version of the game is such that players gain more from joint cooperation than from joint defection, but they gain even more individually if they defect while the partner cooperates. Although this game is a theoretical abstraction, its structure illustrates the inherent problem of specific investments. Specifically, the investments can be viewed as a (unilateral) cooperative move, which in a one-shot or finite game creates an incentive for exploitation or defection on the receiver's part. In practical terms, this means that the likelihood of an expropriation scenario, as per our previous discussion, is high in "games" with a limited time horizon.

In most relationships, however, exchange parties have a nontrivial expectation of future interaction. Furthermore, the specific length of the future time horizon is typically difficult to predict (Hill 1990; Parkhe 1993). This raises the questions of whether a more realistic assumption about time than that in the one-shot prisoner's-dilemma game may affect the receiver's behavior and whether short-term opportunities for individual payoffs might be ignored when a relationship is expected to extend over time.

Empirical evidence suggests that in repeated games with indeterminate ending points, the incidence of cooperation between parties rises substantially (Fudenberg and Maskin 1986; Heide and Miner 1992). Intuitively, this is because ongoing interactions permit the parties to reward and punish each other's moves (Axelrod 1984). A strategy of defection may be "punished" by reciprocal defection on a subsequent move (thereby decreasing payoffs), just like cooperation may be "rewarded" with cooperation. In other words, in ongoing games, the possibility of reciprocity strategies may discipline the players. As Parkhe (1993, p. 799) describes, "Through expectations of reciprocity ... the future casts a shadow back upon the present, affecting current behavior patterns."

For reciprocity strategies to discipline the players, the future must be sufficiently valuable relative to the short-term payoffs from opportunism (Telser 1980). In Klein's (1980, p. 358) terms, "a transactor will not cheat if the expected present discounted value of the quasi-rent he is earning from a relationship is greater than the immediate hold-up wealth gain." In many relationships, the possibility of future business may in itself serve as an enforcement device. To the extent that specific investments that create greater-than-normal returns for the receiver have been deployed, the value of the future revenue stream is even greater. Thus, refraining from opportunistic exploitation of the investor increases the receiver's chances of reaping the investments' long-term benefits. In effect, a relationship's extendedness serves to transform the inherent expropriation potential that specific assets represent into a bonding scenario. The preceding discussion suggests the following contingency prediction:

H₁: Increases in specific investments will (a) decrease the receiver's opportunism for higher levels of relationship extendedness (bonding effect) and (b) increase the receiver's opportunism for lower levels of extendedness (expropriation effect).

In technical terms, this prediction involves (1) a positive main effect of specific investments on opportunism and (2) a negative interaction between specific investments and extendedness. More specifically, we propose that the effect of specific investments on opportunism shifts, or is nonmonotonic, over the range of extendedness (Schoonhoven 1981). Thus, our primary focus is on specific investments. Although we draw on the literature of repeated games and its underlying notion of extendedness, our primary interest does not pertain to the direct effect of extendedness per se. Essentially, the main effect of extendedness has been the dominant focus in the literature on repeated games (e.g., Fudenberg and Maskin 1986). Our current focus is quite different, in that we study the role of extendedness as a moderator. More specifically, we study its ability to reduce the opportunism potential that follows from specific investments and to create a bonding effect.²

Note also that H₁ suggests that an explicit distinction exists between a relationship's time horizon and specific investments. Although both of these concepts have been suggested as aspects of broader relationship constructs, such as commitment, we propose that they are distinct concepts. More specifically, H₁ is based on the premise that a relationship's time horizon actually changes the effect of specific investments.

In the next section, we consider a different relationship dimension that may also cause a shift in the effect of specific investments, namely, an exchange norm based on solidarity.

Norm of Solidarity

The general idea that economic exchange is influenced by norms appears prominently in many different streams of literature, including sociology (e.g., Granovetter 1985), organization theory (e.g., Ouchi 1980), negotiation theory (e.g., Greenhalgh 1987), strategy (e.g., Gulati 1995), contract law (e.g., Macneil 1981), economics (e.g., Gibbons 1999), and marketing (e.g., Noordewier, John, and Nevin 1990).

In general, norms are codes of conduct that either prescribe particular behaviors for parties or discourage behaviors by defining them as illegitimate in the context at hand (Coleman 1990; Gibbs 1981). Prior research has identified several norms that structure and govern exchange relationships (e.g., Kaufmann and Stern 1988; Macneil 1980; Noordewier, John, and Nevin 1990). Our focus is on a particular relational norm, the norm of solidarity, that we expect to influence the effect of specific investments on receiver opportunism. In general, relational exchange norms prescribe behavior directed at maintaining the relationship and curtail behavior that promotes the goals of the individual parties. The particular norm of solidarity is defined as the willingness of parties to strive for joint benefits (Achrol and Gundlach 1999; Antia and Frazier 2001; Heide and John 1992; Kaufmann 1987). This norm is unique in that it goes beyond prescribing or restricting behavior per se. The behaviors in question are intrinsically linked to particular outcomes, namely, utility maximization at the relationship

²Although there is some evidence from prior research about the effects of extendedness, there are only a few studies of such effects in a marketing context (e.g., Heide and Miner 1992; Lusch and Brown 1996). Furthermore, these studies (consistent with the general literature on repeated games) focus on cooperation, not opportunism. As such, the expropriation hypothesis discussed in extant theory (e.g., Williamson 1983) has not been formally explored.

level (i.e., for the parties in combination).³ For example, Macneil (1981) discusses the norm of solidarity in the context of relational exchanges in which a set of parties is viewed as a "single maximizing unit." Macneil contrasts this with the assumption from neoclassical economics of "exchange between separate maximizers." In other words, a solidarity norm promotes the creation of joint value rather than individual value claiming (Ghosh and John 1999; Kaufmann 1987). In Ellickson's (1989, 1994) terminology, this is an example of a "wealth-maximizing" norm.⁴

In practice, a solidarity norm manifests itself in the form of a "we" feeling or shared identity between the exchange partners (Etzioni 1988; Greenhalgh 1987; Macneil 1980; Takahashi 2000). Although the norm is not deterministic of behavior (Kaufmann 1987), we propose that it may alter the receiver's likely reaction to specific investments. This is because the solidarity norm affects both the manner in which one party views the other's investment and the selection of an appropriate course of action for itself.

Recall our prior discussion of the prisoner's-dilemma game. The structure of the game is such that the joint rewards from mutual cooperation are higher than those if one or both parties defect (Axelrod 1984). Whereas one party can enhance its individual payoffs through defection (i.e., by exploiting the investments), the resulting combined payoff for the parties is less than the joint gain from cooperation (Hill 1990). Therefore, even in a finite game, to the extent that a norm of solidarity and its inherent joint utility function have been internalized, specific investments will be viewed by the receiver as evidence of the investor's intention to enhance joint relationship value. The receiver, in turn, will pursue the norm-prescribed (i.e., nonexploitative) behavior required to maximize the joint payoffs. Conversely, the presence of a solidarity norm means that normative constraints will exist on a party's tendency to exploit another's specific investments for individual gain. Rather, a solidarity norm prescribes "forbearance" behavior (Buckley and Casson 1988) and prohibits exploitative actions such as opportunism (Ullmann-Margalit 1977). Thus, given a strong norm of solidarity, the effect of one party's specific investment is to reduce the likelihood of opportunism and produce a bonding scenario whose ultimate objective is the realization of joint gains.

We summarize the preceding discussion in the following testable proposition: If the norm that characterizes a given relationship is weak, specific investments will promote opportunism on the receiver's part. In such conditions, specific investments will be viewed as an opportunity to enhance individual payoffs. In contrast, as the solidarity norm becomes stronger, we predict that specific investments will decrease the receiver's opportunism because the solidarity norm has the important function of prescribing behaviors that maximize utility at the relationship level. Specifi-

cally, the norm causes a shift in the perceptions of specific investments, which in turn changes the receiver's response and produces a bonding, rather than an expropriation, effect.⁵ Our theoretical discussion is summarized in the following contingency hypothesis:

- H₂: Increases in specific investments will (a) decrease the receiver's opportunism for higher levels of solidarity norms (bonding effect) and (b) increase the receiver's opportunism for lower levels of solidarity norms (expropriation effect).

Summary of Hypotheses

The general premise underlying the preceding hypotheses is that the inherent potential for expropriation that follows from specific investments is fundamentally transformed through the possibility of repeated interaction and the norm of solidarity. We note that though we have advanced essentially parallel predictions for extendedness and the norm of solidarity, in terms of the overall effects, the process by which opportunism is managed in each scenario is quite different. On the one hand, solidarity norms control behavior on the basis of informal rules (e.g., North 1990), which are enforced by incentives at the group or relationship level (Mantzavinos 2001). On the other hand, as Coleman (1990) notes, the ability of repeated games to regulate behavior does not rest on rules per se. Rather, a party's choice of strategy (such as the decision to pursue or refrain from opportunistic actions) is based entirely on self-interested calculations of individual gains. The relevant gains are produced by the structure of the "game" in question and are not tied to particular interaction rules.

It is noteworthy that a party's behavior, both in repeated games and under a solidarity norm, is tied to incentives. Thus, the behavior in both cases can be characterized as calculative (e.g., Williamson 1993a) in nature. However, there is an important difference in terms of the level at which the relevant incentives exist. In the case of a solidarity norm, the incentives in question are explicitly tied to the dyad as a whole. In contrast, the incentives that discourage opportunistic behavior in repeated games pertain to the individual parties (Kreps 1990).

RESEARCH METHOD

Research Context

The empirical context for this study is relationships between manufacturers of building materials and their independent distributors. These relationships include a variety of products, including planking, doors, windows, frames, stairs, casting frames, concrete units, roofing products, and rain gutters. The specific unit of analysis for the study is the relationship between an individual manufacturer (the supplier) and a specific distributor (the buyer) for a particular product.

³Several researchers have described exchange relationships in which the parties' individual utility functions are subsumed by a global utility function for the relation as a whole (Bagozzi 1978; Bonoma 1976).

⁴We note that types of norms that are not necessarily tied to outcomes per se also exist (Elster 1989). For example, norms of reciprocity (Gouldner 1960) may prompt a party to respond to a partner's cooperative actions (such as the deployment of specific assets) with a corresponding cooperative move, regardless of the payoffs involved. In its pure form, this is a manifestation of "homo sociologicus," whose behavior is "pushed" by quasi-inertial forces.

⁵Under an instrumental norm such as solidarity, the enforcement of the relevant behavioral rules hinges on the joint incentive structure that exists. As such, the enforcement process is external in nature. We note that enforcement of norms may be internal to a particular party. Specifically, a party may comply with an existing norm, not because of the norm's ability to produce rewards, but because compliance is a goal in itself. Conversely, norm violation may be psychologically costly to a party (Cooter 1998; Scott 1971). See Kreps (1997) for a discussion of the instrumental versus noninstrumental effects of norms.

As we discussed previously, our focus is on the effect of specific investments on the receiver. In this study, the distributor (buyer) is the investor, and the manufacturer (supplier) is the receiver of the distributor's investments. Our theoretical predictions pertaining to the effect of the investments on the receiver are tested on both sides of the buyer-supplier dyads.

We used two main criteria in selecting the empirical context. First, all of our main independent variables needed to manifest themselves in the setting to varying degrees. Most important, the context needed to exhibit substantial variation in the levels of specific investments made (our key independent variable). Extensive interviews with managers of manufacturing companies and distributors, as well as reviews of both academic and trade literature, suggested that our focal theoretical variables all manifested themselves in this setting to varying degrees. For example, many distributors have invested in tailor-made ordering and billing systems that are not easily transferred to other relationships.

Second, the supplier and the downstream buyer needed to be independent (e.g., not integrated, no equity cross-holdings). Industry statistics confirmed that the majority (more than 75%) of all building materials are sold through a variety of independent distributors, including smaller specialty stores, discount stores, and major chains (i.e., nonintegrated channels). As we explain subsequently, we also verified that the parties were independent before the administration of the survey instrument.

Questionnaire Development

We developed the questionnaires using the procedures recommended by Churchill (1979) and Gerbing and Anderson (1988). Initially, we conducted in-depth interviews with (1) four managers (chief executive officers and general managers) from four different manufacturing companies, (2) three managers (owners and general managers) from three different distributor companies, and (3) one director from the national association of building materials manufacturers. In total, more than 15 hours were spent on personal interviews. The main objectives of these interviews were to better understand how the phenomena of interest existed in the industry and develop relevant measurement scales. On the basis of these interviews and an extensive review of previous research on buyer-supplier relationships, we developed preliminary versions of the questionnaires. When possible, existing scale items were used, after they were adapted to the context at hand. Subsequently, the questionnaires were mailed to a sample of eight managers (general managers and directors of marketing) of four large and four smaller manufacturing companies to verify the appropriateness of the terminology used, the clarity of the instructions, and the response formats. Seven questionnaires were returned, and no particular problems appeared to exist. We also conducted follow-up telephone interviews with all of the managers to verify the relevance and clarity of the survey questions.

Measures

We operationalized the key variables in our conceptual framework using multi-item reflective scales (Bollen and Lennox 1991). Table 1 contains a description of response formats and the specific items for each scale. Parallel versions of the items were used for the buyer and the supplier. Table 1 also lists the source for each item.

Supplier opportunism. This scale describes the extent to which the supplier engages in "self-seeking behaviors with guile" (Macneil 1981; Wathne and Heide 2000; Williamson 1975). For example, manufacturers sometimes fail to provide promised marketing support or demand additional payment before they ship products. The six items were derived in part from the ones used by John (1984) and Gundlach, Achrol, and Mentzer (1995) and adapted to the context at hand. We added two new items to reflect Wathne and Heide's (2000) recent conceptualization of opportunism.

Buyer-specific investments. The scale describes the investments made by the buyer dedicated to the relationship with a particular supplier. As described previously, these investments are difficult to redeploy in another relationship, except at a loss in value. The four items, which are based primarily on ones developed by Anderson (1985) and Heide and John (1990), include investments in physical equipment, systems, procedures, and human assets. As shown in Table 1, all of the items used have strong precedents in prior studies.

Extendedness is defined as the expectation that the relationship will continue into the future with an indeterminate end point (Macneil 1980). Recall from our prior discussion of repeated games that the prospect of open-ended interaction may motivate parties to forgo short-term gains. The items are based on ones used by Heide and Miner (1992).

Norm of solidarity describes the willingness of the parties to strive for joint benefits (Macneil 1980). More specifically, the items describe expectations that behaviors will be chosen that support the relationship as a whole. The three items are based on those used by Heide and John (1992) and Antia and Frazier (2001).

Control variables. In addition to the focal theoretical variables, four control variables were included in the model, namely, relative firm size, number of full-time employees in the firm, concentration of exchange, and supplier-specific investments. We consider briefly the rationale for each.

First, to account for the possibility that large firms, in general, may be able to influence partner behavior because of their superior bargaining positions, we included measures of relative firm size and number of full-time employees. Second, a firm's influence on an exchange partner's behavior can derive from the share it commands of the partner's business. To control for this possibility, we included a measure of the concentration of exchange between the two parties. Third, we included a measure of the specific investments made by the supplier in question. Although our primary focus is the investments made by the buyer, we wanted to control for the supplier's investments, because they may influence the supplier's behavior. However, given that supplier investments in this study primarily serve as a control variable, this construct was measured by a smaller set of items than that for buyer investments. We discuss this in more detail when we present the results of our hypotheses tests.

Data Collection

To test the hypothesized relationships on both sides of the buyer-supplier dyad, measures of all variables were obtained from the buyer as well as from the supplier side.

Suppliers. The sampling frame for the study was a national database containing names of managers of independent manufacturers of building materials. A random

sample of 1300 names drawn from the sampling frame was contacted personally by telephone to screen firms for eligibility and locate key informants. Campbell's (1955) criteria of being knowledgeable about the phenomena under study and able and willing to communicate with the researcher constituted the criteria for selecting informants. To motivate

the managers to participate in the study, we informed them that the national association of building materials manufacturers supported the study and that the association encouraged its members to participate. In addition, we offered the managers an incentive in the form of a summary report. Ultimately, we identified 550 managers who were knowledge-

Table 1
RESPONSE FORMATS AND ITEMS^a

<i>Construct</i>	<i>Items</i>	<i>Empirical Studies Using Item(s)</i>
<i>Supplier Opportunism</i> Seven-point Likert-type scale: "completely inaccurate description"/"completely accurate description"	On occasion, this supplier lies about certain things in order to protect their interests.	Anderson (1988); Brown, Dev, and Lee (2000); Dwyer and Oh (1987); John (1984), Provan and Skinner (1989).
	This supplier sometimes promises to do things without actually doing them later.	Anderson (1988); Brown, Dev, and Lee (2000); Dwyer and Oh (1987); John (1984), Provan and Skinner (1989).
	This supplier does not always act in accordance with our contract(s).	Achrol and Gundlach (1999); Gundlach, Achrol, and Mentzer (1995).
	This supplier sometimes tries to breach informal agreements between our companies to maximize their own benefit.	Achrol and Gundlach (1999); Gundlach, Achrol, and Mentzer (1995).
	This supplier will try to take advantage of "holes" in our contract to further their own interests.	New item
	This supplier sometimes uses unexpected events to extract concessions from our firm.	New item
<i>Buyer-Specific Investments</i> Seven-point Likert-type scale: "completely inaccurate description"/"completely accurate description"	We have made significant investments in equipment dedicated to our relationship with this supplier.	Heide and John (1990); Jap and Ganesan (2000); Stump and Heide (1996)
	We have made extensive internal adjustments in order to deal effectively with this supplier.	Anderson and Weitz (1992); Heide and John (1990); Jap and Ganesan (2000); Stump and Heide (1996)
	Training our people to deal with this supplier has involved substantial commitments of time and money.	Anderson (1985); Anderson and Weitz (1992); Ganesan (1994); Heide and John (1990); Jap and Ganesan (2000); John and Weitz (1989)
	Our logistics systems have been tailored to meet the requirements of dealing with this supplier.	Heide and John (1990); Jap and Ganesan (2000); Stump and Heide (1996)
<i>Extendedness</i> Seven-point Likert-type scale: "completely inaccurate description"/"completely accurate description"	We expect our relationship with this supplier to last a long time.	Heide and Miner (1992); Lusch and Brown (1996)
	We assume that renewal of agreements with this supplier will generally occur.	Heide and Miner (1992); Lusch and Brown (1996)
	We make plans for the continuance of our relationship with this supplier, and not only for individual orders.	Heide and Miner (1992)
<i>Norm of Solidarity</i> Seven-point Likert-type scale: "completely inaccurate description"/"completely accurate description"	Problems that arise in the course of this relationship are treated by the parties as joint rather than individual responsibilities.	Antia and Frazier (2001); Heide and John (1992); Jap and Ganesan (2000); Lusch and Brown (1996)
	The parties are committed to improvements that may benefit the relationship as a whole, and not only the individual parties.	Antia and Frazier (2001); Heide and John (1992); Jap and Ganesan (2000); Lusch and Brown (1996)
	The parties in this relationship do not mind owing each other favors.	Antia and Frazier (2001); Heide and John (1992); Jap and Ganesan (2000); Lusch and Brown (1996)
<i>Supplier-Specific Investments</i> Seven-point Likert-type scale: "completely inaccurate description"/"completely accurate description"	Training their employees to deal with our company has involved substantial commitments of time and money on the part of this supplier. ^b	Anderson (1985); Anderson and Weitz (1992); Ganesan (1994); Heide and John (1990); John and Weitz (1989); Stump and Heide (1996)
	This supplier's production system has been tailored to producing for our company.	Buvik and John (2000); Heide and John (1990); Stump and Heide (1996)
	This supplier's logistics systems have been tailored to meet the requirements of our company.	Buvik and John (2000); Heide and John (1990); Stump and Heide (1996)
<i>Relative Size</i> X times larger/equal size/X times smaller	With respect to last year's sales volume (for all products), how large is your firm relative to this supplier?	
Number of Full-Time Employees	How many people does your company employ?	
Concentration of Exchange	What percentage (0%–100%) of your company's total annual needs for this product is obtained from this supplier?	

^aThe buyer version of the response anchors and scale items is provided.

^bDeleted from the supplier scale.

able about the phenomena under study, worked in companies judged appropriate for the study (i.e., companies that sold to independent distributors), and agreed to complete the questionnaire.

Because of the relatively low response rates in studies that have involved matched buyer-supplier dyads (e.g., Heide and John 1992; John and Reve 1982), we anticipated difficulties in collecting a sufficient amount of data to conduct a parallel test on both sides of the dyad. To obtain dyadic data, we first needed a sufficient number of suppliers to both agree to take part in the study and complete the questionnaire. We also needed the supplier informants to provide us with the name of an appropriate key informant in the buyer firm. To obtain these names, we needed to overcome confidentiality concerns on the part of the first group of informants. The buyer counterparts could be contacted only after we received the questionnaires and contact names from the suppliers.

To overcome these potential problems and ensure an adequate response rate, we followed the suggestion by Yu and Cooper (1983) to combine the mail survey with a telephone interview option. Specifically, each informant who agreed to participate in the study was mailed a questionnaire packet, and if the informant desired, an appointment was made to conduct a telephone interview that paralleled the survey instrument.

The questions in the survey pertained to the supplier's relationship with one particular buyer. To control for potential biases caused by the importance of the buyer in question, such as restrictions in range and social desirability (e.g., managers might be tempted to choose the most important buyer systematically), we used a procedure that asked the managers to select and describe a particular relationship in which the firm was the third largest buyer (in terms of annual dollar sales) for a particular item (Anderson and Narus 1990). In addition to controlling for potential biases, this procedure enabled us to capture relationships that were important enough to be salient to the informants.

The questionnaire packet included a cover letter, a prepaid envelope, and the questionnaire itself. The managers who chose the telephone option were told that they could start filling out the questionnaire but that we would call them back at the agreed-on date and time.

As an additional step toward increasing the quality of the informant reports, each questionnaire included a post hoc check on the informant's knowledge about the buyer relationship. This scale measured the informant's knowledge about the firm's relationship with the buyer (seven-point scale).

Two hundred thirteen questionnaires from suppliers were returned through the mail, and 129 questionnaires were filled out over the telephone, for a total response rate of 62% (of the 550 mailed).⁶ On the basis of the post hoc test of informant quality, only three companies, with scores lower than 4 on the knowledge scale, were eliminated. The average knowledge score for the informants was 6.5 (standard

deviation [s.d.] = .75), indicating that the selected informants were highly qualified to report on their firms' relationship with the buyers.⁷

To assess whether there were any systematic differences between the questionnaires administered by telephone and mail, we tested the null hypothesis of no mean difference across the two groups (using t-tests) with respect to our study variables. No significant differences were found between the two groups on any of the variables.

Buyers. A similar procedure to the one just described was used to identify an informant in the buyer firm. The informant from the supplier's firm was asked to identify a person in the buyer firm who was knowledgeable about his or her firm's relationship with the supplier. In total, 281 names were obtained and subsequently contacted with the objective of verifying the identity of the key informant. Of the 281 buyers that were contacted, 226 agreed to participate and were mailed a questionnaire. Ninety-five questionnaires were returned through the mail, and 111 questionnaires were filled out over the telephone, for a total response rate of 91% (of the 226 mailed). Five cases were eliminated on the basis of the post hoc test of informant quality. The final score on the knowledge scale for the buyers was 6.4 (s.d. = .83), again suggesting that the selected informants were highly qualified to report on the focal relationship. As in the supplier sample, no significant differences were attributable to the mode of data collection. Ultimately, we ended up with a final sample of 198 matched buyer-supplier dyads.

Measure Validation Procedure

Each set of items was initially subjected to an examination of item-to-total correlations to identify items that did not belong to the specific construct domain. The items that were deleted from the initial set were examined and compared with the original conceptual definitions of the constructs. In each case, deleting the item did not significantly change the domain of the construct as it was initially conceptualized. The resulting pool of items was subsequently subjected to confirmatory factor analysis using LISREL 8.3 (Jöreskog and Sörbom 1995) to verify unidimensionality (one factor model for each of the two samples). The fit indexes from LISREL indicated a good fit to the data for both the buyer and supplier samples. Although the chi-square goodness-of-fit index was statistically significant in both the supplier and the buyer samples ($\chi^2 = 216.59$, $p < .01$; $\chi^2 = 172.67$, $p < .01$), it is commonly accepted that the chi-square statistic will reject valid models in large samples (Bagozzi and Yi 1988). Therefore, we relied on the goodness-of-fit index (GFI), the comparative fit index (CFI), the normed fit index (NFI), and the root mean square error of approximation (RMSEA). All of these indexes met or exceeded the critical values (supplier sample: GFI = .91, CFI = .97, NFI = .90, RMSEA = .04; buyer sample: GFI = .90, CFI = .96, NFI = .90, RMSEA = .05) for good model fit in both samples (Browne and Cudeck 1992; Hu, Bentler, and Kano 1992; Mathieu, Tannenbaum, and Salas 1992).

⁶As a comparison, in their study of marketing information in consumer and industrial firms, Deshpandé and Zaltman (1987) relied solely on telephone interviews and obtained a response rate of 80.4%.

⁷Although our high response rate suggests that nonresponse is not an issue, we nevertheless compared our final sample of manufacturers with the initial sampling frame with respect to the number of employees and annual revenue. Our hypothesis of no mean difference between the two groups was supported, providing evidence that nonresponse is not a problem.

Next, we assessed the reliability of the measures. We calculated composite reliability (CR) using the procedures outlined by Fornell and Larcker (1981). The CR for construct η is $CR_{\eta} = (\sum \lambda y_i)^2 / [(\sum \lambda y_i)^2 + (\sum \epsilon_i)]$, where λy is the standardized loading for scale item y_i , and ϵ_i is the measurement error for scale item y_i . We also examined the parameter estimates and their associated t-values and assessed the average variance extracted (AVE) for each construct (Gerbing and

Anderson 1988). We calculated AVE using the following formula: $V_{\eta} = \sum \lambda y_i^2 / (\sum \lambda y_i^2 + \sum \epsilon_i)$. As Fornell and Larcker (1981) note, AVE is a more conservative measure than CR.

As we show in Tables 2 and 3, all the factor loadings for the five multi-item scales are significant. Furthermore, the composite reliabilities range from .75 to .91, indicating acceptable levels of reliability for the constructs (Fornell and Larcker 1981). Finally, the AVEs range between 54%

Table 2
PARAMETERS FOR MEASUREMENT MODEL, SUPPLIER SAMPLE: ITEM LOADINGS, T-VALUES, COMPOSITE RELIABILITY, VARIANCE EXTRACTED, AND HIGHEST SHARED VARIANCE

Items	Supplier Opportunism	Buyer-Specific Investments	Extendedness	Solidarity	Supplier-Specific Investments
X1	.67 (10.05)	—	—	—	—
X2	.68 (10.37)	—	—	—	—
X3	.77 (12.19)	—	—	—	—
X4	.84 (14.05)	—	—	—	—
X5	.77 (12.31)	—	—	—	—
X6	.65 (9.75)	—	—	—	—
X7	—	.69 (10.51)	—	—	—
X8	—	.89 (15.23)	—	—	—
X9	—	.78 (12.50)	—	—	—
X10	—	.81 (13.24)	—	—	—
X11	—	—	.86 (14.66)	—	—
X12	—	—	.91 (16.00)	—	—
X13	—	—	.86 (14.61)	—	—
X14	—	—	—	.88 (14.48)	—
X15	—	—	—	.89 (14.81)	—
X16	—	—	—	.68 (10.44)	—
X17	—	—	—	—	.55 (5.43)
X18	—	—	—	—	.97 (6.70)
Composite reliability (CR _M)	.87	.87	.91	.86	.75
Variance extracted	54%	63%	77%	68%	62%
Highest shared variance	8%	14%	26%	26%	14%

Table 3
PARAMETERS FOR MEASUREMENT MODEL, BUYER SAMPLE: ITEM LOADINGS, T-VALUES, COMPOSITE RELIABILITY, VARIANCE EXTRACTED, AND HIGHEST SHARED VARIANCE

Items	Supplier Opportunism	Buyer-Specific Investments	Extendedness	Solidarity	Supplier-Specific Investments
X1	.78 (12.57)	—	—	—	—
X2	.73 (11.58)	—	—	—	—
X3	.81 (13.41)	—	—	—	—
X4	.83 (13.97)	—	—	—	—
X5	.76 (12.33)	—	—	—	—
X6	.77 (12.49)	—	—	—	—
X7	—	.67 (10.00)	—	—	—
X8	—	.80 (12.64)	—	—	—
X9	—	.83 (13.43)	—	—	—
X10	—	.75 (11.51)	—	—	—
X11	—	—	.84 (14.06)	—	—
X12	—	—	.90 (15.56)	—	—
X13	—	—	.85 (14.45)	—	—
X14	—	—	—	.89 (14.81)	—
X15	—	—	—	.83 (13.37)	—
X16	—	—	—	.73 (11.40)	—
X17	—	—	—	—	.83 (13.51)
X18	—	—	—	—	.80 (12.98)
X19	—	—	—	—	.90 (15.22)
Composite reliability (CR _M)	.90	.85	.90	.86	.88
Variance extracted	61%	59%	75%	67%	.71%
Highest shared extracted	27%	14%	25%	27%	8%

Table 4
RESULTS OF TWO-FACTOR MODELS AND DISCRIMINANT VALIDITY TESTS: SUPPLIER AND BUYER SAMPLE

Scale	GFI_S	GFI_B	CFI_S	CFI_B	$\Delta d.f._S/\Delta d.f._B$	$\Delta\chi^2_S$	$\Delta\chi^2_B$
$\Phi(\xi_1, \xi_2)^a$	.94	.92	.96	.95	1	432.0 ^b	345.9 ^b
$\Phi(\xi_1, \xi_3)$	.96	.94	.98	.97	1	346.0	311.6
$\Phi(\xi_1, \xi_4)$	.95	.94	.97	.97	1	247.9	217.6
$\Phi(\xi_1, \xi_5)$	.96	.95	.97	.98	1	55.52	300.7
$\Phi(\xi_2, \xi_3)$	.96	.95	.97	.97	1	339.8	318.6
$\Phi(\xi_2, \xi_4)$	.96	.96	.98	.97	1	257.9	257.3
$\Phi(\xi_2, \xi_5)$	.95	.97	.95	.99	1	47.6	290.3
$\Phi(\xi_3, \xi_4)$	.96	.99	.97	1.00	1	212.7	226.0
$\Phi(\xi_3, \xi_5)$	1.00	.99	1.00	1.00	1	55.2	283.8
$\Phi(\xi_3, \xi_5)$	.98	.98	.99	.99	1	54.1	257.3

^aConstructs: supplier opportunism (ξ_1), buyer-specific investments (ξ_2), extendedness (ξ_3), solidarity (ξ_4), and supplier-specific investments (ξ_5).

^bCritical value $\Delta\chi^2 > 10.83$, $p < .001$.

Table 5
MEANS, STANDARD DEVIATIONS, AND PEARSON CORRELATIONS: SUPPLIER SAMPLE

Construct	Mean	SD	SO	CI	EXT	SOL	C1	C2	C3	C4
Supplier opportunism (SO)	1.44	.68	1.0							
Buyer's investments (CI)	2.14	1.2	.26	1.0						
Extendedness (EXT)	6.15	1.1	-.12**	.05	1.0					
Solidarity (SOL)	5.69	1.1	-.21**	-.02	.48**	1.0				
Relative size (C1)	2.48	.8	.03	-.08	-.02	.06	1.0			
Number of employees (C2)	3.21	1.4	.02	.28**	.03	-.06	-.31**	1.0		
Concentration (C3)	20.52	22.4	.01	.13	.02	-.09	.10	-.22**	1.0	
Supplier investments (C4)	3.54	1.8	.16*	.30**	.04	-.07	.09	-.09	.17*	1.0

* $p < .05$ (two-tailed).

** $p < .01$ (two-tailed).

and 77%, above the recommended .50 level (Bagozzi and Yi 1988; Fornell and Larcker 1981). The supplier investment measure, though it primarily serves the role of a control variable in our study, possesses psychometric properties that match or exceed those for the corresponding buyer investments measure.

Finally, we established discriminant validity by calculating the shared variance between all possible pairs of constructs and verified that they were lower than the AVE for the individual constructs. As we show in Tables 2 and 3, all possible pairs of factors passed Fornell and Larcker's (1981) test, evidencing discriminant validity among the measures. To assess discriminant validity further, in line with the suggestions of Bagozzi and Phillips (1982), we assessed pairs of scales in a series of two-factor confirmatory models using LISREL. Following the procedure described by Jöreskog (1971), we respecified the two-factor models by restricting the factor intercorrelations to unity and then performed chi-square difference tests (with 1 degree of freedom [d.f.]) on the values obtained for the constrained and unconstrained models. A significantly lower chi-square value for the unconstrained model would indicate that the traits are not perfectly correlated and that discriminant validity is achieved (Bagozzi and Phillips 1982).

The overall goodness-of-fit measures for the models, as well as the statistics for assessing discriminant validity, are depicted in Table 4. In all cases, the baseline model produced a better fit, and the chi-square difference was statistically significant, thereby providing evidence of discriminant validity. For example, the statistic for examining discriminant validity between extendedness and solidarity is significant in both samples ($\Delta\chi^2 = 212.7$, $\Delta d.f. = 1$, $p < .001$, $n_s =$

198; $\Delta\chi^2 = 226.0$, $\Delta d.f. = 1$, $p < .001$, $n_b = 198$), which suggests that these measures are distinct.

Tables 5 and 6 show the correlations between our main study variables for the supplier and buyer samples, respectively.

Hypothesis Tests

Statistically, our research hypotheses specify that the effect of specific investments on opportunism will shift across the range of extendedness and the norm of solidarity. To test these hypotheses, we estimated two ordinary least squares regression models.⁸ The first of these models, which we estimated using the supplier sample, captures the perspective of the receiver of the investments. The model was specified in the following fashion:

$$(1) \quad SO_s = \alpha_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_1 X_2 + \beta_5 X_1 X_3 + \beta_6 X_4 + \beta_7 X_5 + \beta_8 X_6 + \beta_9 X_7 + \epsilon_1,$$

where

SO_s = supplier's perception of own opportunism,
 X_1 = buyer-specific investments,
 X_2 = extendedness, and
 X_3 = solidarity.

⁸Two additional approaches to estimating interaction effects were considered, namely, indicant product and subgroup analysis. Given some of the possible limitations of these approaches (see, e.g., Jaccard and Wan 1996), we chose to test the hypotheses using product term regression analysis.

Table 6
MEANS, STANDARD DEVIATIONS, AND PEARSON CORRELATIONS: BUYER SAMPLE

Construct	Mean	SD	SO	CI	EXT	SOL	C1	C2	C3	C4
Supplier opportunism (SO)	1.80	.98	1.0							
Buyer investments (CI)	2.10	1.2	.33*	1.0						
Extendedness (EXT)	5.84	1.2	-.42*	-.06	1.0					
Solidarity (SOL)	5.64	1.1	-.43*	-.02	.44*	1.0				
Relative size (C1)	1.41	.7	-.06	.04	-.01	.05	1.0			
Number of employees (C2)	4.38	1.0	-.03	.01	-.04	.00	-.38*	1.0		
Concentration (C3)	43.40	41.7	-.02	.05	.10	.07	.23*	-.07	1.0	
Supplier investments (C4)	3.51	1.7	-.11	.22*	.27*	.22*	-.07	.19*	-.02	1.0

* $p < .01$ (two-tailed).

Table 7
DEPENDENT VARIABLE: SUPPLIER OPPORTUNISM, SUPPLIER SAMPLE

Independent Variables	Unstandardized Coefficients	Standardized Coefficients	t-Value
Buyer-specific investments	.25	.28	3.35*
Extendedness	-.07	-.05	-.64
Buyer investments × extendedness	.02	.08	.94
Solidarity	-.24	-.19	-2.30*
Buyer investments × solidarity	-.06	-.21	-2.60*
<i>Controls</i>			
Relative size	.11	.02	.24
Number of employees	-.09	-.03	-.35
Buyer concentration	-.01	-.06	-.76
Supplier-specific investments	.12	.10	1.25
R ² adjusted = .10			

* $p < .025$ (one-tailed).

The controls were as follows:

- X₄ = relative size (buyer > supplier),
- X₅ = number of full-time employees,
- X₆ = buyer concentration, and
- X₇ = supplier-specific investments.

The second model, which we estimated using the buyer sample, captures the perspective of the party making the investments (i.e., the investor). This model was specified in a parallel fashion:

$$(2) \quad SO_b = \alpha_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_1 X_2 + \beta_5 X_1 X_3 + \beta_6 X_4 + \beta_7 X_5 + \beta_8 X_6 + \beta_9 X_7 + \epsilon_1,$$

where

SO_b = buyer's perception of supplier opportunism, and X₁-X₇ = same variables as in the supplier sample, but measures were provided by the buyer.

Essentially, Equation 1 captures the supplier's self-reported opportunism, modeled as a function of the supplier's perception of the various antecedent conditions. Equation 2, in contrast, captures the buyer's attribution about the supplier's opportunism as a function of the buyer's perception of the relevant antecedent conditions. As we discussed previously, our main goal is to examine whether the proposed effects of specific investments are symmetric across the receiver (supplier) and investor (buyer) samples. Our goal is not to examine convergence in perceptions

across the dyad with regard to the theoretical constructs themselves. Quite possibly, the supplier will not be perfectly informed about the true level of investments deployed by the buyer. Nevertheless, a party's behavior (e.g., the supplier's opportunism) will be driven by its perception of the relevant conditions.⁹

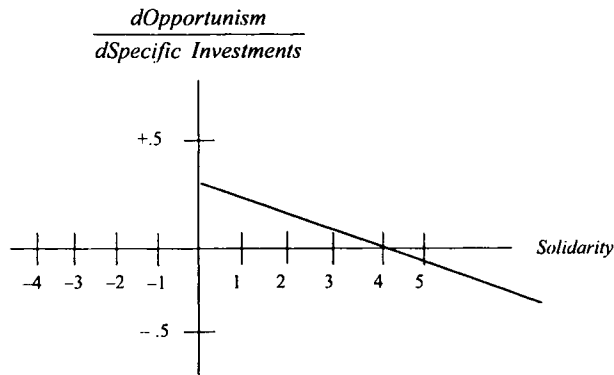
To mitigate the potential threat of multicollinearity, we mean-centered all independent variables that constituted an interaction term (Aiken and West 1991). Note that because we have mean-centered the variables in the model, the interpretation of main effects changes slightly. When the focal independent and moderator variables are mean-centered, the regression coefficient for the independent variable reflects its influence on the dependent variable at the average value of the moderator variable (Irwin and McClelland 2001; Jacquard, Wan, and Turrisi 1990). The interpretations of the interaction effects remain the same.

Table 7 shows the estimated coefficients and associated t-statistics for Equation 1. The prediction for H₁ is captured by the main effect of specific investments and the interaction between buyer-specific investments and extendedness. Whereas the main effect of specific investments is significant ($t = 3.35, p < .025$), the interaction term is not. Thus, the predicted nonmonotonic effect of specific investments is not

⁹Although the degree of perceptual agreement does not have a bearing on our substantive hypotheses tests, we note that the dyadic correlation coefficients range from .11 to .30 (most of them significant at the .05 level). These are consistent with prior studies that have reported dyadic correlations.

Figure 1
THE IMPACT OF THE NORM OF SOLIDARITY ON THE
RELATIONSHIP BETWEEN BUYER-SPECIFIC INVESTMENTS
AND SUPPLIER OPPORTUNISM: SUPPLIER SAMPLE

$$\frac{d\text{Opportunism}}{d\text{Specific Investments}} = .25 - .06 (\text{Solidarity})$$



evident in the case of extendedness. Turning to the corresponding prediction for H_2 , we find that the interaction between buyer-specific investments and solidarity is significant and negative ($t = -2.60$, $p < .025$), in support of H_2 . None of the control variables has significant effects.

The contingency propositions underlying our hypotheses (i.e., that the effect of specific investments on opportunism will shift in a nonmonotonic fashion over the range of the two moderator variables) can be examined more formally by graphing the partial derivative of the regression equation following the procedure suggested by Schoonhoven (1981). As an example, Figure 1 graphs the partial derivative of supplier opportunism with respect to buyer-specific investments over the range of the norm of solidarity. As we show in Figure 1,

buyer-specific investments have a positive effect on opportunism for lower levels of solidarity norms (expropriation effect), whereas the effect turns negative for higher levels of solidarity norms (bonding effect).

We consider next Equation 2, which captures the buyer's attribution about the supplier's opportunism as a function of the buyer's perception of the relevant antecedent conditions. Table 8 shows the estimated coefficients and associated t -statistics for Equation 2. The main effect of specific investments is significant ($t = 5.21$, $p < .025$). Also, the interaction between buyer-specific investments and solidarity is significant and negative ($t = -2.33$, $p < .025$), in additional support of H_2 and consistent with Equation 1. Furthermore, in contrast with the supplier sample, the interaction between buyer-specific investments and extendedness is also significant and negative ($t = -1.67$, $p < .05$). None of the control variables has significant effects. With respect to both equations, we note that the overall explained variance for the supplier model as a whole, though consistent with previous relationships studies, is lower than the corresponding model for the buyer sample. We discuss these results and their implications in the "Discussion" section.

As we discussed previously, the main focus of our study is the effect of one party's investments in specific assets on the receiver. The receiver's own investment(s) was included in our models as a control variable, because it may influence that firm's behavior. We recognize, however, that opportunism may be influenced by some mental aggregation on a firm's part about the parties' relative exposure rather than by what each party has at stake individually. To formally examine this possibility, we created a difference score that accounts for the degree of symmetry in investments. We then used this term in each of the two equations instead of the original specification. As it turns out, none of these terms was significant ($t_s = .92$; $t_b = .99$), and they did not change any of the other effects.

DISCUSSION

Specific investments are commonly recognized as key features of marketing relationships. As Ghosh and John (1999) show, such investments play a key role in realizing particular value propositions and positions of competitive

Table 8
DEPENDENT VARIABLE: SUPPLIER OPPORTUNISM, BUYER SAMPLE

Independent Variables	Unstandardized Coefficients	Standardized Coefficients	<i>t</i> -Value
Buyer-specific investments	.42	.35	5.21**
Extendedness	-.39	-.24	-3.34**
Buyer investments \times extendedness	-.03	-.12	-1.67*
Solidarity	-.59	-.33	-4.60**
Buyer investments \times solidarity	-.06	-.17	-2.33**
<i>Controls</i>			
Relative size	-.62	-.07	-.95
Number of employees	-.09	-.02	-.22
Buyer concentration	.00	.02	.33
Supplier-specific investments	-.04	-.04	-.50

R^2 adjusted = .36

* $p < .05$ (one-tailed).

** $p < .025$ (one-tailed).

advantage. However, specific investments also involve considerable risk. According to transaction cost theory (e.g., Williamson 1983, 1985), because these investments are partially sunk, they lock in the investor to a particular relationship. In turn, this permits the receiver to opportunistically appropriate part of their value. As such, specific investments are "valuable but vulnerable" (Ghosh and John 1999, p. 134).

In this article, we provided a formal test of the expropriation scenario by explicitly linking specific investments with opportunism. Most empirical studies of specific investments have not measured opportunism, which has precluded a test of the theoretical arguments about their risk (Williamson 1983). However, we went beyond the expropriation arguments to suggest that specific investments can bond the receiver. Specifically, to the extent that the specialized assets produce greater-than-normal returns for the receiver, the receiver may refrain from opportunistic actions that could cause relationship termination.

The possibility of both an expropriation and a bonding effect suggests that there is ambiguity surrounding the actual effects of specific investments in marketing relationships. Our central theoretical argument was that the nature of the effect (i.e., whether specific investments promote or constrain opportunism) depends on particular relationship conditions. More specifically, we hypothesized that an extended future time horizon and a norm of solidarity would cause a shift in the effect of specific investments from expropriation to bonding.

We found that a strong norm of solidarity caused a shift in the effect of specific investments from expropriation to bonding. Stated differently, in relationships characterized by a weak norm of solidarity, specific investments promote opportunism on the receiver's part. Consistent with transaction cost theory (Williamson 1983, 1985), investments under such conditions will be viewed by the receiver as an opportunity to enhance individual payoffs at the investor's expense. In contrast, in relationships characterized by a strong norm of solidarity, specific investments actually decrease the receiver's opportunism. This pattern of results was evident in both samples.

Our results from the buyer (investor) sample suggest that a relationship's extendedness or future time horizon can also serve to mitigate the expropriation risk that specific investments produce. Again, the effect of specific investments on opportunism changed from positive to negative as the expectation that the relationship would continue into the future grew stronger. This finding extends prior work on repeated games (e.g., Axelrod 1984; Heide and Miner 1992), in which the focus has been on the main effect of a relationship's time horizon on particular behaviors. Here, we show that the possibility of future interaction actually reduces the opportunism threat that is inherent in specific investments.

The test of extendedness in the supplier (receiver) sample did not show the predicted effect. Neither the main effect of extendedness on opportunism nor the interaction with specific investments was significant. Why might this be the case? At a first glance, it may seem as if the discrepancy between the buyer and supplier samples could be attributable to differences between the parties regarding the level of the focal variables. It is well documented in the literature

that exchange partners' reports regarding the relationship itself and the circumstances surrounding it may differ (John and Reve 1982; Ross, Anderson, and Weitz 1997).

Although we agree that dyads may exhibit perceptual divergence, it is not clear that this in itself can explain our pattern of results. The suppliers in our study had strong expectations of continuity, as evidenced by the mean score on the extendedness scale ($\bar{x}_s = 6.15$ on a seven-point scale). In spite of this, the actual effect of extendedness was insignificant in the supplier sample. In other words, although the suppliers expected that the relationships would go on, these expectations did not have a direct effect on opportunism, nor did they mitigate the expropriation hazard of specific investments.¹⁰

From a theoretical standpoint, the lack of a significant main effect of extendedness in the supplier sample actually suggests a cautionary tale about the effect of repeated games. In commenting on the literature on repeated games and the effects of "the shadow of the future," Bradach and Eccles (1989, p. 108) offer the caveat that the "future is not pre-ordained, but must be created." In other words, the effects that the future may have on a party's behavior can materialize only when the "shadow" actually exists. We agree with this cautionary tale but take it one step further. Specifically, our empirical results suggest that even if a future time horizon exists (as per the reported mean value for extendedness), its effect may not be the same on the other side of the dyad.

Although firm conclusions require additional evidence, we offer two possible explanations for the different effects of extendedness. First, it is possible that suppliers and buyers have inherently different perspectives of the value of the specific investments or their future returns. The results in the buyer sample, which showed that buyers attribute less opportunism to suppliers under conditions of extendedness, suggest that buyers view their own specific investments as associated with long-term payoffs for the supplier. In contrast, the suppliers did not seem to make similar attributions, as evidenced by the nonsignificant interaction between specific investments and extendedness in that sample.¹¹

Second, it is conceivable that suppliers value future relationship returns but use a different discount rate than do buyers in judging their present value. In other words, short-term payoffs may be inherently more valuable to suppliers than to buyers. If this is the case, it could explain both the insignificant main and interaction effects in the supplier sample.

Whereas documenting the specific reasons for differences in valuation requires further research, we note that such differences may have important implications. In the past, differences across exchange dyads have been viewed primarily

¹⁰As we discussed previously, our main goal in this study was to conduct a parallel test of our hypotheses on each side of the buyer-supplier dyads. As such, our primary concern was with each sample per se (i.e., the "average" perceptions about the various conditions and their effects). An extension of our current study would be a more microlevel investigation of potential differences across individual dyads. We are grateful to Ruth Bolton for suggesting this line of inquiry.

¹¹Different assessments of the value of the buyer's investment could explain the nonsignificant interaction in the supplier sample, even if the main effect of extendedness (hypothetically) had been significant.

as sources of measurement error and threats to the development of valid measures of relationship-level phenomena. However, if a given variable has different effects across a buyer-supplier dyad, as was the case here, it may have substantive implications for relationship development. For example, we found that investors had faith in the ability of the relationship's future time horizon to reduce the potential for opportunism, whereas receivers did not. This means that the investors may be overconfident about the extent to which their investments are protected.

The different results for extendedness and solidarity norms have theoretical implications in their own right. To a certain extent, these characteristics tap different aspects of a relationship's time dimension. Whereas extendedness pertains to the possibility of future interaction (i.e., "the shadow of the future," Axelrod 1984), norms evolve through ongoing interactions and are products of the past (Coleman 1990). This distinction has often been overlooked in prior research. For example, Granovetter (1985, 1992) includes both past and future in his general concept of "temporal embeddedness." Similarly, Macneil's (1980) notion of "relationalism" includes elements that describe both a relationship's past and its future. Moreover, practitioner-oriented literature (e.g., Huxham 1996; Stevens 1998) frequently makes general references to "long-term" relationships without recognizing the different dimensions involved. Our results suggest that past and future are distinct aspects of a relationship and that caution should be exercised when making generalizations about time and its effects.

Finally, our current results have implications for interfirm governance. Consider our finding that specific investments, given certain conditions, have a nonmonotonic effect on the receiver's tendency to act opportunistically. In standard transaction cost theory, a firm's (unilateral) investments are often viewed as vulnerable to opportunistic expropriation. Whereas investments often play important roles, as either performance guarantees (e.g., Rubin 1990) or a means of implementing particular marketing strategies (e.g., Jap and Ganesan 2000), unilateral investments are assumed to require specific safeguards, such as "hostages" that create balance in the relationship (Williamson 1983).

However, firms are often constrained in their ability to extract hostages or demand other formal safeguards (Heide and John 1988). Our results suggest that this is not always a serious concern, because a party's specific investments in themselves have the potential to manage opportunism. In other words, rather than creating a universal holdup problem, unilateral specific investments may create a self-enforcing contract for the investor, due to the returns that such investments create for the receiver. As such, even firms that are unable to extract hostages may be able to benefit from the inherent safeguards that specific investments create.

We must add, however, that the ability of unilateral specific investments to create such self-enforcing contracts (Telser 1980) depends on the presence of certain relationship characteristics, such as solidarity norms. From a practical standpoint, this suggests that unilateral specific investments are better suited to strengthening existing relationships than to initiating new ones. Moreover, it suggests that solidarity norms are an important prerequisite for mutual value creation in interfirm relationships (Ghosh and John 1999).

Limitations and Further Research

Some limitations of this research should be noted. First, we explicitly treated both norms and extendedness as exogenous constructs. This followed from our research questions, which pertained to the effects of specific investments given certain relationship characteristics. Although there is considerable precedence for treating both extendedness and norms in this fashion in the extant literature (Heide and Miner 1992; Macy and Skvoretz 1998), an important question for further research is how these conditions (e.g., norms) emerge in the first place.

Second, norms are complicated phenomena, and we limited ourselves to examining a single one, namely, solidarity. Although this particular norm plays a key role in influencing the choice of whether to exploit specific investments or support the relationship by refraining from opportunism, further research should be directed toward exploring both the effects of other norm types and the interrelationships among them.

Third, the discrepant results across the buyer and supplier samples raise important questions. That the focal effects differed suggests the need for "middle-range" modifications of extant theory. Quite possibly, such modifications will need to account for differences between buyers and suppliers in terms of how relationship valuation takes place. This could explain both the insignificant main and interaction effects of extendedness in the supplier sample. Possibly, such differences in valuation may be due to prior experiences accumulated in other relationships. Alternatively, short-term payoffs may be inherently more valuable to suppliers, perhaps because of the structural aspects of the supplier industry (Helper 1991). Further research should be directed toward resolving these questions.

Fourth, the time dimension of interfirm relationships deserves further attention. Our current study builds on previous research, which has taken a life cycle perspective on relationships (e.g., Dwyer, Schurr, and Oh 1987) and explored the effects of variables such as specific investments at different relationship stages (e.g., Jap and Ganesan 2000). However, we take a somewhat different perspective on time, in that we do not consider relationship stages per se but rather whether a relationship's existing time horizon (e.g., whether it is open ended, as per the theory of repeated games) causes a shift in the effect of specific assets. In general, however, with some notable exceptions (e.g., Ganesan 1994; Heide and Miner 1992; Lusch and Brown 1996), the time construct has received little attention in relationship research.

Fifth, we limited ourselves to studying opportunism as a general phenomenon. We acknowledge that this may underrepresent the construct, in light of Wathne and Heide's (2000) recent perspective on opportunism as a multifaceted phenomenon. For example, there are certain types of opportunism (e.g., shirking) that are facilitated by information asymmetry (or behavioral uncertainty, in transaction cost parlance). We note, however, that the primary governance problem in the context at hand is the lock-in created by investments in specific assets. A lock-in condition can be opportunistically exploited under full information. Nevertheless, exploring more fine-grained conceptualizations of opportunism is a promising avenue for additional research.

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