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# Safeguarding Interorganizational Performance and Continuity Under Ex Post Opportunism

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Opportunism is a central construct in exchange theory. Economists contend that despite the firm's best efforts to erect governance structures that reduce opportunism and preserve outcomes, there is always some opportunism that remains once the transaction is in place. Despite this, there are few studies that systematically investigate the *safeguarding* efficacy of relationship attributes in the presence of such ex post opportunism. In this research, we develop a theoretical framework and provide a longitudinal test of the ability of various relationship safeguards to preserve performance outcomes and future expectations given varying levels of ex post opportunism in the relationship. Our survey results from over 300 buyers and suppliers indicates that given lower levels of opportunism, bilateral idiosyncratic investments and interpersonal trust enhance performance outcomes and future expectations, while goal congruence has no discernable effect. However, at higher levels of opportunism, goal congruence becomes a more powerful safeguard, while interpersonal trust becomes less effective. Bilateral idiosyncratic investments continue to preserve performance outcomes and future expectations even at higher levels of opportunism. Implications for the long-term management of interorganizational alliances are discussed.

(*Interorganizational Performance; Opportunism; Relational Safeguards; Goal Congruence; Trust; Contracts; Idiosyncratic Investments; Transaction Costs*)

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## Introduction

Firms erect governance structures to preserve their outcomes and interests against opportunistic behavior from other parties. Among the governance attributes are a number of relationship safeguards such as incentive structures, monitoring mechanisms, contractual provisions, reputations, norms, interpersonal trust, and other internal processes. These safeguards function to make principals and agents reach agreements and honor them by (1) reducing opportunism ex post (that is once, the relationship is in place), and

(2) coordinating and motivating the parties' exchange activities and processes. Despite this, ex post opportunism will persist in exchange in spite of the firm's best efforts to eliminate it. This is a fundamental premise of transaction cost economics and has been verified in the empirical research to date, therefore, it is surprising that there are few, if any, studies that explicitly test or investigate the capability of relationship safeguards to preserve the firm's outcomes from this "residual" opportunism.

Can the safeguards that exist in the exchange protect valuable relationship outcomes that are built up

over time? Can the performance and continuity of the exchange be sustained given varying levels of ex post opportunism? These are the motivating questions behind this research. We contend that the presence of ex post opportunism in interorganizational relationships can change the production-enhancing capabilities of relationship safeguards that are put in place earlier in the relationship. This is a test of interactions rather than main effects. To test this proposition, we collect primary measures of ex post opportunism and relationship attributes (safeguards) from industrial buyers and their suppliers in multiple sectors. We index relationship states (safeguards and ex post opportunism) at one point in time and assess performance and continuity expectations *one year later*. The longitudinal approach makes the temporal order between the independent and dependent variables explicit and enables us to rule out alternative temporal causal orderings.

We consider three relationship safeguards that have received considerable attention in the literature on interorganizational exchange: bilateral, relationship-specific investments, goal congruence, and interpersonal trust. All three of these come from the dominant theoretical perspectives on exchange in the interorganizational literature: transaction cost economics, agency theory, and relationship marketing, respectively. The primary contribution of this work rests in its ability to demonstrate that some safeguards become more potent (better able to enhance performance and continuity) as opportunism increases, while others lose this ability in the face of rising opportunism. We develop the theoretical framework for these effects.

This work also contributes to two important streams of research. The first is a growing interest in the explicit role of ex post opportunism in interorganizational exchange. Wathne and Heide (2000) represent the most comprehensive approach to this area. They outline original and emergent conceptualizations of the opportunism construct in interorganizational relationships, describing passive and active ex post opportunism in existing and new relationships, strategies for containing it, as well as the conditions under which it is likely to occur. And while they explore the tradeoffs between attempting to *suppress*

opportunism entirely and purposely *tolerating* some nonzero level of opportunism, they do not explicitly consider the relative efficacy of the strategies that they suggest. The current research extends the thinking in this area by investigating the capability of various relationship safeguards to preserve outcomes in the presence of ex post opportunism perceptions.

The second emerging stream of research is a growing interest in the "dark side" of interorganizational relationships (Grayson and Ambler 1999, Ping 1993). The key idea is that, over time, ongoing business exchanges often develop characteristics that serve to destabilize, and ultimately destroy the relationship from within. This phenomenon is gaining increasing attention in many literatures, such as strategic management (e.g., Inkpen and Beamish 1997), marketing (Grayson and Ambler 1999, Moorman et al. 1992), psychology (Ephross and Vassill 1993), and new institutional economics (e.g., Klein 1996, Williamson 1996), although there is no consensus on how it emerges and develops over time. In this research, we view the growth of ex post opportunism as evidence of the onset of the "dark side" in ongoing relationships, and consider how relationship safeguards might mitigate the associated consequences.

Thus, this research offers *remedies* for managing and mitigating the onset of the dark side in relationships between firms. The longitudinal test of the ability of various relationship safeguards to preserve valuable relationship outcomes over time informs our understanding of how such safeguards interact with ongoing levels of ex post opportunism and offers a "light side" to the maladies that can arise in the course of an ongoing relationship. Without a critical assessment of the production-enhancing capability of relationship safeguards given the phenomenon of ex post opportunism, we run the risk of encouraging naïve (especially utopian) forms of organization; there needs to be prominent and insistent provision for opportunism. In doing so, this research also makes key contributions to the emerging research streams on the management of ex post opportunism and the development and inhibition of the dark side of long-term, interorganizational relationships.

## Conceptual Framework

This research takes the perspective of a focal firm that reports on its own position, as well as the dyad's circumstances, and the behavior of its exchange counterpart. The focal firm is a financially independent firm (a buyer or supplier) in a vertical exchange relationship. Although the buyer and supplier organizations may differ in the functions they perform, symmetry is expected in the nature and pattern of causation of the behavioral constructs that underlie their relationship.

In this section, we define the central constructs of our theoretical framework and develop hypotheses. We begin with a brief review of ex post opportunism and the dependent variables of interest. We then describe three relationship safeguards and how their ability to promote exchange outcomes differs with varying levels of opportunism in the exchange.

### Ex Post Opportunism

Opportunism is self-interest seeking with guile. In practice, it involves several elements: (i) distortion of information, including overt behaviors such as lying, cheating and stealing, as well as more subtle behaviors such as misrepresenting information by not fully disclosing. (ii) renegeing on explicit or implicit commitments such as shirking, or failing to fulfill promises, and obligations. Either party in an exchange can engage in opportunism before the firms transact (i.e., ex ante opportunism), or after the transaction is underway (i.e., ex post opportunism). Our focus is on the latter. By considering opportunism, instead of specific forms of opportunism, we open the door for many interesting problems of economic organization that might be missed or misconstrued when the presence of opportunism is ignored.

Empirical research on ex post opportunism is sparse, despite its prominence in the literature and the marketplace. Many studies invoke ex post opportunism as a theoretical mechanism (Fein and Anderson 1996, Stump and Heide 1996 are examples), but few studies index opportunism explicitly. This may be because selfish motivations and guile are difficult to study directly,<sup>1</sup> because respondents

who report on their own level of self-interest are subject to a social desirability bias. There have been two solutions to this problem. One approach is to collect direct reports on one's own opportunism, but to couch questions in innocuous language, avoiding terms that evoke ethical considerations (e.g., John 1984). An alternative approach is to ask respondents to report on the opportunism of other parties in an exchange (e.g., Anderson 1988, Smith and Barclay 1997). Our approach takes this path; we ask buyers and suppliers to report not on their own but on their counterpart's ex post opportunistic behavior in an exchange.

### Exchange Outcomes

Exchange offers many benefits, including economically significant outcomes and expectations of relationship continuity. We examine four short- and long-term economic and strategic outcomes: (i) evaluations of the counterpart's performance, (ii) the achievement of competitive advantages, (iii) joint profit performance, and (iv) expectations of relationship continuity.

The firm's *evaluation of the counterpart's performance* is an economically significant short-term outcome. This is an individual outcome, reflecting the view of the focal firm alone. It is a holistic representation, entailing a rough comparison of benefits against costs; a positive evaluation justifies involvement in a collaboration. The firm's assessment of the value it derives from the relationship may be quite different from the added value generated by the dyad. This is because one firm may appropriate a disproportionate share of the jointly generated returns. For example, Kalwani and Narayandas (1995) present evidence that buyers benefit disproportionately in supply alliances.

*Competitive advantages* are strategic benefits gained over competing firms, such as superior access to resources, decreased supply and inventory costs, or the development of unique process technologies. Competitive advantages are long-term and accrue to the dyad, thereby enabling the firms to compete more effectively in the marketplace (Sethuraman et al. 1988). Although these advantages may eventually be reflected in joint profit, financial performance and strategic performance are not perfectly correlated.

<sup>1</sup> The one exception to this is Brown et al. (2000), who query respondents directly in regard to their own opportunistic behavior.

To capture strategic performance, it is necessary to go beyond accounting-based concepts (Venkatraman and Ramanujam 1986, Anderson 1990). In supply relationships, a well-coordinated pairing can yield competitive advantages that neither party could realize without their alliance (Dyer 1995, Jap 1999).

*Joint profit performance* results from joint efforts in exchange. It is not merely a summation of the two firms' individually realizable profits, but instead indexes financial outcomes that result from the interdependence of effort and investments that reside within the dyad. The expectation of higher joint profits, through either lower costs or high revenues, is a major motive for long-term relationships (Oliver 1990). However, the degree to which these expectations are met is understudied in the literature on relationships (Geyskens et al. 1999). This is particularly the case for results at the level of the dyad, rather than at the level of one player (Smith et al. 1995).

The firm's *expectation of relationship continuity* reflects the focal firm's perspective of the long-term viability of the relationship. When a firm expects that the relationship will continue into the future, it is more willing to engage in processes and make investments that will enhance the relationship into the long run (Anderson and Weitz 1989, Heide and Miner 1992). Although confidence in the future of the relationship is not a performance outcome, it is important, for without it, the firms adopt a short time horizon, and refuse to engage in activities that do not pay off quickly and with certainty (Williamson 1993).

### Relationship Safeguards

We focus on three safeguards that have been widely considered in the literature on interorganizational relationships: bilateral idiosyncratic investments, goal congruence, and interpersonal trust. Wahtne and Heide (2000) classify these under the rubric of incentives (bilateral investments) and socialization mechanisms (goal congruence, interpersonal trust). We choose this subset of the large number of potential safeguards because they have varying properties that may impact performance outcomes in different ways. Idiosyncratic (relationship-specific) investments are nonfungible signals of commitment that create economic losses if the relationship is prematurely terminated. In contrast,

goal congruence is a latent sociological mechanism that motivates specific behaviors in an exchange. These are organization-level attributes. In contrast, interpersonal trust operates at the level of the individual boundary spanner in each organization. These personal ties are important because repeated interactions typically evolve into institutionalized processes and organizational structures and routines (Zucker 1987). These three safeguards take time to develop and serve to preserve the outcomes of an exchange (Chiles and McMackin 1996). They arise partly by design and partly as a result of processes management does not fully control. Because they are quite different, *each safeguard may differ in its ability to preserve valuable relationship outcomes under varying levels of ex post opportunism*.

*Bilateral idiosyncratic investments* occur when a buyer and supplier *both* make idiosyncratic investments into the relationship. These investments may be tangible (e.g., a manufacturing facility, a specific tool, die, or machine), or intangible (e.g., tacit knowledge, a specific technology, or capability). When the investments are made by *both* sides to an exchange, the investments serve as mutual hostages, or as credible commitments by each party to the relationship (Anderson and Weitz 1992, Williamson 1983) that motivates the parties to make the relationship work. Thus, bilateral investments that are difficult to redeploy serve to sustain performance outcomes, and expectations of continued exchange into the future are well founded (Heide and John 1990, Noordewier et al. 1990).<sup>2</sup>

Mutual investments *ex ante* are intended to make opportunism go against the interests of both parties. But this does not always work as intended. *Ex post* opportunism *can* arise as circumstances change. When the firm views its counterpart as acting opportunistically, the firm may no longer feel free to contribute valuable resources and information toward the exchange, and may withdraw its support of

<sup>2</sup> Empirical results are supportive of the positive link between bilateral investments, commitment intentions, and joint activities in the domain of marketing activities. Gundlach et al. (1995) found a positive relationship between joint inputs and long-term commitment intentions. Zaheer and Venkatraman (1995) show a strong correlation between reciprocal investments and joint action in the area of new product launches.

the relationship in various ways. Hence, as ex post opportunism rises, the firm will hold back from the relationship, not wanting to risk being the victim of further opportunism (Ping and Dwyer 1992; Williamson 1985, 1993).

**HYPOTHESIS 1.** *Bilateral idiosyncratic investments will be less strongly (less positively) associated with exchange outcomes as ex post opportunism increases.*

**Goal Congruence.** Agency theory notes that whenever cooperating parties differ in their division of labor, goal conflicts can create incentives for shirking and moral hazard (Bergen et al. 1992). The objectives of exchange for buyers and suppliers are typically at odds with each other. In general, buyers desire more (quality, service, customization, risk assumption, and so forth) for less (lower prices), while suppliers strive to achieve the sale with the highest profit margins or revenue potential. By developing goal congruence between the parties—the extent to which firms perceive the possibility of achieving compatible, if not identical, objectives (Eliashberg and Michie 1984, Schmidt and Kochan 1977)—the incentive for opportunism can be curbed (though not eliminated).<sup>3</sup> Goal congruence can also enhance exchange outcomes by providing direction for the activities and efforts of the dyad. This is particularly key, and salient, in the early stages of a relationship. For example, in the exploration phase, the parties engage in active communication of expectations and bargaining of the distribution of benefits, obligations, and burdens. Establishing goal congruence can direct the nature, direction, and magnitude of these aspects of the relationship as the parties build up the exchange over time. In this manner, goal congruence can improve the joint returns of both parties.

Once achieved, the commonality of goals may come to be taken for granted as long as ex post opportunism is low (the scenario of “all is well”). This is because as the relationship reaches maturity, the dyad

focuses on day-to-day activities and ongoing operations; goal congruence may lose its salience, moving from the foreground to the background of the relationship and assuming a taken-for-granted quality (Neilsen and Rao 1987).

However, as some degree of opportunism develops ex post, goal congruence, where it exists, may become salient, being invoked as a means by which to evaluate and understand the counterpart’s deviation in behavior. By reminding both parties of their existing goal congruence, the focal party can also enhance the day-to-day functioning of ongoing exchanges between organizations, such that the organizations continue to relate in a manner consistent with their shared goals. Thus, we have Hypothesis 2.

**HYPOTHESIS 2.** *Goal congruence will be more strongly (more positively) associated with exchange outcomes as ex post opportunism increases.*

**Interpersonal Trust.** One of the most widely recognized social norms for governing exchange is trust (Smith et al. 1995). We employ a composite working definition of trust developed by Mayer et al. (1995): Trust is the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party. This matches empirical operationalizations, which emphasize the honesty (the reliability of the partner’s actions) and benevolence (looks out for the focal firm’s interests) aspects of trust (Geyskens et al. 1998). Trust differs from opportunism: Trust is a broad, “meso” or meta, concept, with many facets and levels. In contrast, opportunism is more delimited and behavioral in nature. It is observable by the focal firm and grounded in specific actions. Opportunism should create reduced attributions of trust. However, the sources of trust are many, complex, and ill understood (Lewicki et al. 1998).

We cast opportunism as an organizational construct, depicting the activities of the firm. In contrast, we consider trust at the interpersonal level: It occurs between two people who function as principal players on behalf of the buyer and the supplier. Dirks and Ferrin (2002) review empirical research

<sup>3</sup> In this vein, Anderson (1988) finds that goal congruence is related in a nonlinear way to opportunism; the more salespeople perceive alignment between their goals and the company’s goals, the less opportunism they practice on the job—and at an increasing rate.

on the role of interpersonal trust in organizational settings. They note that it is "conventional wisdom" that trust between people (rather than organizations) enhances organizational outcomes, although the empirical evidence to this effect is mixed. Multiple mechanisms are posited; the dominant viewpoint is that trusting individuals take risks on behalf of their organizations, risks which pay off more often than not. Dirks and Ferrin (2002) note evidence that interpersonal trust often persists in spite of evidence of some opportunism. Hence, we expect that when ex post opportunism is low, that trust can safeguard exchange outcomes.

However, when the firm suspects opportunism in an exchange counterpart, the ability of interpersonal trust to generate performance and extend the relationship's time horizon may be inhibited. This is because the "relationship custodian," the individual responsible for the day-to-day functioning and ongoing maintenance of the relationship (Ping and Dwyer 1992), may call on other individuals (inside or outside the company) who have the power to terminate the relationship, restore equity, or find alternative solutions to ex post opportunism. This may cause circumstances to grow rapidly outside the trusting individual's control as the relationship is subjected to greater scrutiny. Questions will be asked, and additional organizational members will be called in to investigate, offer opinions, and ultimately intervene. Thus, the impact of relational processes developed by trusting individuals may be diminished as more role partners (e.g., supervisors, executive managers, and division leaders) assert themselves, in response to signs of trouble. This suggests Hypothesis 3.

*HYPOTHESIS 3. Interpersonal trust will be less strongly (less positively) associated with exchange outcomes as ex post opportunism rises.*

## Method

### Data Collection and Sample Characteristics

The tests of hypotheses are conducted using a longitudinal survey methodology with the procurement divisions of four Fortune 50 manufacturing companies: a computer (PC) manufacturer, a photography

equipment manufacturer, a chemical manufacturer, and a brewery.<sup>4</sup> Each firm was offered an executive summary, presentation of results, and customized analyses in return for its participation. A one-year lag was used because pretest interviews suggested that considerable variation in outcomes, from no change to disintegration of the relationship, is possible within this timeframe.<sup>5</sup> To maximize the sample size and minimize potential attrition effects at time 2, 200 buyers from across the four firms were asked to report on two different supply relationships, creating an initial sampling frame of 400 dyadic relationships.

**Procedure.** Questionnaires were mailed to the buyers along with a pre-addressed, postage-paid envelope, a cover letter from the researchers, and a memorandum from corporate executives requesting participation and assuring the confidentiality of their individual responses. The buyers were instructed to identify a supply relationship and a contact individual at the supplier firm as a reference point for completing the items and questions. When the buyer surveys were returned, a parallel survey was sent to individuals in the supplier firms. This survey identified the buyer firm and individual respondent. Hence, both the buyer and supplier acted as the focal party, using the other (their counterpart) as a reference point for their respective surveys.

**Sample Characteristics.** Two hundred seventy-five buyer surveys were returned at time 1 (a 69% response rate). This allowed the mailing of 275 corresponding supplier surveys, of which 220 were completed (an 80% response rate). At time 2, the prior 275 buyers were surveyed, with 167 returned (61% response). Of the 220 corresponding suppliers surveyed a year later, 154 responded (70% response). These dyads had worked with each other an average of 3.7 years. Annual transactions between the buyer and supplier involved over \$63 million in materials and services, such as capital equipment,

<sup>4</sup> The identities of these four firms are disguised for confidentiality purposes.

<sup>5</sup> A review of 27 longitudinal studies in organizational management indicates little consistency concerning an appropriate time interval (Williams and Podsakoff 1989). Typically, lags are chosen out of convenience, not theory.

components, services, and maintenance, repair and operating supplies. These characteristics suggest the sample has a significant base of history and a variety of exchange experience.

We consider the possibility that relationships with higher ex post opportunism at time 1 may have terminated, leaving only the healthier relationships in the sample at time 2. This is examined by comparing the mean of opportunism for the respondents at time 1 who did not respond at time 2 with the mean at time 1 among the remaining respondents; there was no significant difference. This lack of difference suggests that relationships with higher opportunism are represented to the same degree at time 2. This result also suggests that one year of operating under ex post opportunism does not radically alter the makeup of the sample.

**Respondent Competence.** Because the hypotheses rely on the perceptions of each party and involve a wide range of relationship aspects, we consider both global and specific measures of the respondent's competency and knowledge of the phenomena under investigation. The global measure was the respondent's tenure with a firm. Buyer respondents averaged 11.2 years of experience in their area and had been with their companies 20.9 years on average. Supplier respondents averaged 15.1 years of experience and 14.2 years of employment with their companies.

Specific measures of the respondent's knowledge of major issues were assessed via a battery of specific items at the conclusion of the time 2 questionnaire (cf. Jap 1999). The survey asked, "How knowledgeable are you about the following *in your firm's relationship with the buyer/supplier firm?*" Below were listed items such as "how similar their goals are," "the nature of unique investments, assets, capabilities, etc. that are used in the relationship," or "the degree to which they have earned strategic advantages over their competitors." Responses were indicated on a seven-point scale (1 = not very knowledgeable, 7 = very knowledgeable). The average response to these scales was 5.6, with no significant differences between buyers and suppliers. Collectively, there is assurance that the selected respondents were competent and relatively involved in completing the survey.

## Questionnaire and Scale Development

**Scale Items.** All the respondents completed identically worded, multiple-item, seven-point scale measures reflecting the view of the focal firm. Some measures (e.g., the achievement of competitive advantages, joint profit performance) were designed to reflect the focal firm's perspective on aspects of the *dyadic* relationship between the firms—what the two organizations are doing *together*. Measures of interpersonal trust is captured at the interpersonal level of the individual respondents. All the constructs were measured at time 1 and time 2. Scale items from past research in interorganizational relations were used whenever possible. All other scales were created for the purpose of this study. The scale items and reliabilities are presented in Appendix 1. The estimated reliabilities for the constructs are high, averaging 0.84, with a range of 0.76 to 0.91. Construct means, standard deviations, and correlations are presented in Table 1. The constructs exhibited a five- to six-point range in values on a scale of 1 to 7. There is also a relatively high variance (average = 1.32; range 1.02 to 1.56) around the construct means. Collectively, there appears to be significant heterogeneity in the range of values reflected by these constructs.

## Measurement Model

Confirmatory factor analysis (CFA) techniques are used to estimate a first-order, latent-factor measurement model composed of the three relationship safeguards, ex post opportunism, and four relationship outcomes for all respondents. The model uses the covariance matrix of the observable indicators of each latent construct; the factor loadings, measurement errors, and correlations between each construct are then estimated via full-information maximum-likelihood (FIML) in LISREL 8.3 (Jöreskog and Sörbom 1993). Each buyer survey is treated as an independent response throughout the analysis to provide the large sample size necessary for stable parameter estimation.<sup>6</sup>

<sup>6</sup> The complete data analysis was also conducted with truly independent buyer surveys—only one reported relationship per buyer ( $n = 129$ ), and the results did not differ significantly, so the multiple responses from buyers were retained. Differences in results between the four firms were also found to be nonsignificant.

**Table 1** Variable Means, Standard Deviations, and Correlations

Variable	Mean	Std dev	1	2	3	4	5	6	7
1. Bilateral idiosyncratic investments	5.19	1.22	—						
2. Goal congruence	5.10	1.15	0.32	—					
3. Interpersonal trust	5.82	1.00	0.28	0.49	—				
4. Opportunism	2.15	1.03	-0.09	-0.55	-0.54	—			
5. Evaluation of the counterpart's performance	5.35	1.00	0.19	0.30	0.38	-0.33	—		
6. Achievement of competitive advantages	5.15	0.78	0.36	0.20	0.21	-0.10	0.57	—	
7. Joint profit performance	4.49	0.87	0.21	0.20	0.20	-0.19	0.47	0.55	—
8. Expectations of relationship continuity	5.55	1.00	0.28	0.27	0.29	-0.19	0.71	0.64	0.41

Note.  $n = 321$ , all correlations greater than 0.08 in absolute magnitude are significant at  $\alpha = 0.05$ .

The overall chi-square for this model is 1,180.16 (467 df,  $p < 0$ ). The comparative fit index (CFI) and the incremental fit index (IFI) is 0.93, the Tucker-Lewis index (TLI) is 0.92. The root mean square error of approximation (RMSEA), a parsimony measure that accounts for potential artificial inflation due to the estimation of many parameters, is 0.055. Values of 0.05 and below (with a bound of 0) are indicative of a close fit, while values between 0.05 and 0.08 indicate a satisfactory fit of the model in relation to its degrees of freedom (Steiger 1980). All the factor loadings and measurement errors are in acceptable ranges and significant at  $\alpha = 0.05$ , providing evidence of convergent validity. Discriminant validity among the constructs is stringently examined using the procedure recommended by Fornell and Larcker (1981). Every pair of latent factors passes this test.

#### Structural Model Analyses: Strategy of Estimation

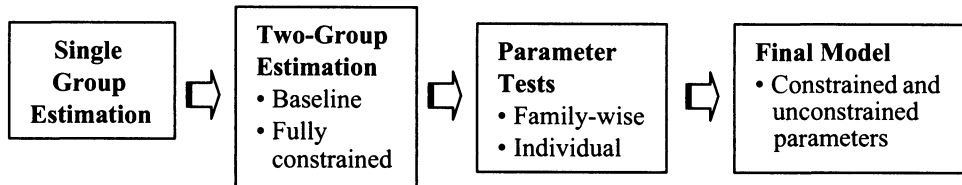
To examine the hypotheses, we model the performance outcomes at time 2 of firms' relationship safeguards and ex post opportunism at time 1, using the covariance matrix of the observed data provided in the survey responses. One might argue that time 2 variables are related to performance variables at time 1. The theory behind this paper responds that this is probably correct, but what is the source of performance at time 1? The theory would have it that performance at time  $t$  is related to safeguards at time  $t - 1$ . For any time series, the causal chain would be that lagged performance (one period) is due to lagged relationship safeguards (two periods). This pattern of nearly infinite regress is consistent

with autocorrelated performance after the first two periods of a time series. The only way to be certain about the causal order is to go back to the point of initial causation between the predictors and the outcomes. This approach is, of course, impractical. However, if the data indicate significance between a set of predictors and outcome variables over a one-year time period, we might infer that the statistical significance between the predictor and outcome variables is mirrored throughout similar subsequent time periods from  $t_0$ . Collectively, over many time periods, they would demonstrate that the hypothesized predictors drive specific outcomes over time, controlling for the effects of inertia.

The conceptual discussion hypothesizes that the capability of relationship safeguards to enhance exchange outcomes will differ at varying levels of ex post opportunism.<sup>7</sup> Thus, our interest is in contrasting multiple path coefficients in an interaction analysis across higher and lower levels of opportunism. We formulate a structural model consisting of the possible main effects of the safeguards on

<sup>7</sup>The choice of moderator variables should be based on theory, rather than on statistical considerations. Because relationship safeguards take time to work their influence, opportunism at time 1 should be influenced by relationship safeguards in earlier time periods. What ex post opportunism exists at time 1 appears in spite of the dampening effects of earlier safeguards. This is why the ex post opportunism measure at time 1 serves as a moderator of the impact of relationship safeguards at time 1 on outcomes and continuity at time 2. Time 1 opportunism will exhibit some correlation with time 1 safeguards: This is primarily because there is inertia in the safeguards.

Figure 1 Structural Model Analysis Strategy



exchange outcomes and conduct tests of hypotheses across higher and lower ex post opportunism groups. This approach is conducted in the context of a simultaneous equation modeling framework using latent variables and FIML estimation methods in LISREL. An overview of the analysis strategy is shown in Figure 1.

The single-group estimation evaluates the extent to which the hypothesized structural model is able to account for the covariance matrix when each of the two groups (higher and lower ex post opportunism) is estimated separately. A model that fits each group well suggests that the structural specification is appropriate; of course, the estimates of the model may be quite different in each group. If the structural model fits well in each group singly, we proceed to a two-group estimation process in which the structural model is simultaneously estimated under both groups (higher and lower) with all gamma coefficients (12 in each group) freely estimated. This represents the baseline, two-group model from which nested tests of model and parameter equivalence are made. Another model, in which each pair of the estimated gamma coefficients is constrained to be equal, is also estimated to assess whether the effects differ across the two groups. A significant decline in fit indicates differences across the groups, which is a necessary condition for moderating effects.

Having established between-group differences in parameter effects for the *entire* structural model, we then turn our attention to the tests of separate hypotheses. Family-wise tests of the impact of each governance mechanism at time 1 on outcomes at time 2 are conducted. For each governance mechanism, nonequivalence across higher and lower ex post opportunism groups for the set of four endogeneous

variables is evidence of an interaction effect. Where interaction effects exist for a governance mode, we then consider the equivalence of specific parameters across higher and lower levels of opportunism in order to better understand the nature of the interaction. This process indicates which parameters do not interact and therefore should be constrained to be equal across the two groups. This information is then incorporated into the final two-group model. The specific parameters of this model are discussed.

Jaccard et al. (1990) note that this analysis strategy is the best approach for contrasting several path coefficients across multiple groups for several reasons. First, models incorporating interactions are prone to Type II error (false negatives), in part because they are sensitive to measurement error. The LISREL framework incorporates measurement error into the estimation of all variables except the latent moderator. Second, most methods of modeling interactions involve a single dependent variable (and often a single independent variable). In contrast, our conceptual model is a causal system of four dependent and three independent variables. A split-group analysis in LISREL permits formal comparison of *entire* causal models, *simultaneously* estimated for two or more groups defined by a moderator variable. This is a complex model structure. To estimate it simultaneously for both groups, incorporating measurement error, offers a powerful and parsimonious test.

The drawbacks of a split-group approach are that (i) splitting into two groups lowers statistical power, and (ii) measurement error in the moderating variable is not accounted for. However, if the coefficients differ across the groups, this would indicate that both lower power and not taking into account measurement error

are not problematic. The general view is that differences in parameter coefficients across the two groups are satisfactory evidence for interaction effects.

Because there is no theory to suggest that the effects of relationship safeguards differ on either side of the dyad, the buyers and suppliers are pooled in this analysis to maximize power.<sup>8</sup> Only those observations with complete data at both time 1 and time 2 are retained ( $n = 321$ ). The sample is split into two groups along the median of the opportunism scale. The median level at time 1 in the total sample was rather low, at 1.9 (minimum = 1, maximum = 6.6). This is to be expected in established ongoing supply relationships (Heide 1994). Williamson (1993) notes that ex post opportunism, should be present in ongoing exchange, but is never zero. However, such opportunism could not be too high, else the parties would not transact.

For simplicity of exposition, we refer to the group above the median as “higher” and the group below the median as “lower,” recognizing that these are relative terms. In essence, higher opportunism at time 1 reflects the *onset* of the dark side (i.e., “trouble is brewing”) as opposed to rampant opportunism, which may characterize relationships in decline. Lower levels of opportunism reflect healthier relationship circumstances (i.e., “things are all right”). A visual inspection of the frequency distributions of bilateral idiosyncratic investments, goal congruence, and interpersonal trust above and below the median of opportunism indicated no range restriction of the distribution of the relationship safeguards under higher- or lower-opportunism groups.

### Structural Model Analyses: Estimation Results

**Single-Group Estimation.** A structural model of the conceptual framework is estimated once for each group under higher ( $n = 151$ ) and lower ( $n = 170$ ) ex post opportunism. Correlations among the three relationship safeguards, as well as correlations among the four relationship outcomes, are freely estimated

to account for the fact that these factors are related to each other in the research context. In the higher-opportunism group, the chi-square for the structural model is 481.72 (254 df,  $p < 0.001$ ). The CFI and IFI is 0.89, the TLI = 0.87, and the RMSEA is 0.071.<sup>9</sup> In the lower-opportunism group, the chi-square for the structural model is 500.23 (254 df,  $p < 0.001$ ), the CFI and IFI is 0.89, the TLI = 0.87, and the RMSEA 0.077. Taken together, these results suggest that the structural model accounts well for the covariance structure in each group (higher and lower opportunism).

**Two-Group Estimation.** Two models are initially estimated in the two-group estimation process. The first is a baseline model, in which the structural model is simultaneously estimated for both higher and lower ex post opportunism and the impacts of relationship safeguards at time 1 on outcomes at time 2 (12 gamma coefficients) are freely estimated across the groups. This model has a chi-square of 981.95 (508 df,  $p < 0$ ), with a CFI of 0.89, IFI of 0.89, and TLI of 0.87. The RMSEA is 0.074. Thus, the two-group model provides a satisfactory fit of the data.

The second model specified is one in which all the gamma coefficients are constrained to be equal across higher and lower levels of ex post opportunism. Equivalence of parameters indicates no differences across the two groups, and hence, no potential for interaction effects. The chi-square of this constrained model is compared to the baseline model and the difference in chi-squares—the likelihood ratio—tests the null hypothesis that the parameters are equivalent. The LR test is 23.3, (12 df,  $p < 0.05$ ), suggesting that there are differences in the parameters across the two groups.

**Parameter Tests.** Given differences across groups, we then consider differences among parameters in two steps. We first conduct a family-wise test of the impact of a specific governance mechanism (four gamma parameters) at time 1 on the outcomes at time 2. If the family-wise test indicates the presence

<sup>8</sup> We conduct a series of multigroup tests to evaluate the validity of this assumption. The results of this process indicate no significant differences in the models for buyers and suppliers. The details of this procedure are described in a later section.

<sup>9</sup> Although CFI, IFI, and TLI values of 0.9 to 1 are generally recommended, in sample sizes of less than 200, these indices are unlikely to reach this rule-of-thumb benchmark; moreover, the IFI tends to favor simpler models (Bearden et al. 1982, Marsh et al. 1996).

of an interaction, we examine the nature of the interaction by conducting individual parameter tests of equivalence.

For the first hypothesis, we constrain the gamma coefficients for bilateral idiosyncratic investments ( $\gamma_{11}$ ,  $\gamma_{21}$ ,  $\gamma_{31}$ , and  $\gamma_{41}$ ) to be equal across the higher and lower ex post opportunism groups and simultaneously estimate the two-group structural model. The LR statistic is not significant ( $\chi^2 = 3.92$ , 4 df, ns). Thus, there is no support for the moderating effect proposed in Hypothesis 1.

The test of Hypothesis 2 constrains the effects of goal congruence at time 1 on outcomes at time 2 ( $\gamma_{12}$ ,  $\gamma_{22}$ ,  $\gamma_{32}$ , and  $\gamma_{42}$ ) across the groups. The LR test is significant ( $\chi^2 = 9.97$ , 4 df,  $\alpha = 0.05$ ), indicating that parameters in the higher-opportunism group are significantly different from the parameters in the lower-opportunism group. This offers support for the moderating role of ex post opportunism described in Hypothesis 2. To better understand the nature of this interaction, we conduct an equivalence test of each individual parameter across the two groups. The LR test is significant for evaluations of the counterpart's performance ( $\chi^2 = 9.13$ , 1 df,  $\alpha = 0.01$ ), expectations of relationship continuity ( $\chi^2 = 4.56$ , 1 df,  $\alpha = 0.05$ ), and achievement of competitive advantages ( $\chi^2 = 4.86$ , 1 df,  $\alpha = 0.05$ ). The LR test for joint profit performance is marginally significant ( $\chi^2 = 2.71$ , 1 df,  $\alpha = 0.10$ ). This suggests that these parameters should

be freely estimated under higher or lower ex post opportunism.

At higher levels of opportunism, the overall impact of interpersonal trust at time 1 on outcomes at time 2 is not equivalent. The LR test of parameter equivalence across higher and lower levels of opportunism is statistically significant ( $\chi^2 = 17.2$ , 4 df,  $\alpha = 0.05$ ), offering support for the moderating effect of hypothesis three. A series of LR tests of individual parameter differences indicates that the impact of trust under higher and lower ex post opportunism is significantly different for three out of the four outcomes: evaluations of the counterpart's performance ( $\chi^2 = 14.38$ , 1 df,  $\alpha = 0.01$ ), expectations of relationship continuity ( $\chi^2 = 11.96$ , 1 df,  $\alpha = 0.01$ ), and competitive advantages ( $\chi^2 = 8.58$ , 1 df,  $\alpha = 0.01$ ). The LR test for joint profit performance is marginally different ( $\chi^2 = 3.11$ , 1 df,  $\alpha = 0.06$ ).

**Final Model.** The family and individual parameter tests of equivalence indicate which parameters demonstrate interaction effects across the two groups and which parameters do not. We incorporate this information and estimate a revised two-group model in which the impact of bilateral idiosyncratic investments on outcomes is constrained to be equivalent across higher and lower levels of ex post opportunism. All other parameters are freely estimated in a simultaneous, joint estimation process of the structural model under higher and lower oppor-

**Table 2A** Standardized Parameter Estimates of the Tests of Hypotheses Under Higher-Lower Opportunism

Relationship outcome at time 2	Bilateral idiosyncratic investments		Goal congruence		Interpersonal trust		
	Higher opportunism	Lower opportunism	Higher opportunism	Lower opportunism	Higher opportunism	Lower opportunism	
Evaluation of counterpart's performance ( $\gamma_{1j}$ )	0.13*	==	0.13*	0.20*	-0.18 ns	0.32**	0.94**
Achievement of competitive advantages ( $\gamma_{2j}$ )	0.51**	==	0.51**	0.12 ns	-0.19 ns	0.04 ns	0.51**
Joint profit performance ( $\gamma_{3j}$ )	0.27**	==	0.27**	0.13 ns	-0.07 ns	0.06 ns	0.37*
Continuity expectations ( $\gamma_{4j}$ )	0.31**	==	0.31**	0.19*	-0.13 ns	0.14 ns	0.63**

Notes.  $\chi^2 = 985.9$  (512 df,  $p < 0.001$ ); CFI = 0.89, IFI = 0.89, and TLI = 0.87; RMSEA = 0.074.

Subscript  $j = 1, 2$ , or 3 for bilateral idiosyncratic investments, goal congruence, and interpersonal trust respectively.

== indicates parameters that are constrained to be equivalent across higher/lower ex post opportunism groups. All other parameters are freely estimated across opportunism groups.

\* $\alpha = 0.05$ , \*\* $\alpha = 0.01$ , two-tailed  $t$ -test.

**Table 2B** Standardized Parameter Estimates of the Full Model Under Higher-Lower Opportunism

Construct	Item #	Higher opportunism		Lower opportunism	
		$\lambda$	$\theta$	$\lambda$	$\theta$
Bilateral idiosyncratic investments	1	0.65	0.48	0.65	0.68
	2	0.88	0.23	0.79	0.40
	3	0.65	0.69	0.66	0.47
Goal congruence	1	0.77	0.47	0.77	0.37
	2	0.78	0.41	0.88	0.25
	3	0.82	0.51	0.68	0.34
	4	0.66	0.54	0.51	0.72
Interpersonal trust	1	0.71	0.59	0.71	0.41
	2	0.79	0.55	0.58	0.40
	3	0.82	0.26	0.87	0.34
	4	0.61	0.41	0.88	0.58
	5	0.64	0.51	0.94	0.36
Evaluation of counterpart's performance	1	0.81	0.43	0.81	0.25
	2	0.77	0.52	0.74	0.35
	3	0.80	0.28	0.77	0.46
	4	0.78	0.54	0.77	0.28
Achievement of competitive advantages	1	0.80	0.36	0.80	0.36
	2	0.59	0.59	0.60	0.69
	3	0.78	0.50	0.76	0.33
	4	0.69	0.60	0.57	0.62
Joint profit performance	1	0.90	0.23	0.90	0.15
	2	0.84	0.35	0.81	0.29
	3	0.71	0.57	0.61	0.57
Expectations of relationship continuity	1	0.94	0.14	0.94	0.09
	2	0.93	0.22	0.82	0.23

Notes. All parameter estimates in these tables are significant, with  $p < 0.01$ .

Factor Loadings and Measurement Errors:  $\lambda$  is the factor loading,  $\theta$  is the measurement error. The item numbers for each construct corresponds to the full listing in Appendix 1.

*Correlations Among the Exogeneous Variables ( $\phi$ )*

Construct	1	2	3
1. Bilateral idiosyncratic investments	—	0.41	0.40
2. Goal congruence	0.44	—	0.63
3. Interpersonal trust	0.31	0.35	—

Correlations below the diagonal correspond to lower opportunism, while those above correspond to higher opportunism.

*Correlations Among the Endogeneous Variables ( $\psi$ )*

Construct	1	2	3	4
1. Evaluation of the counterpart's performance	—	0.41	0.28	0.56
2. Achievement of competitive advantages	0.28	—	0.36	0.47
3. Joint profit performance	0.28	0.51	—	0.22
4. Expectations of relationship continuity	0.31	0.30	0.24	—

tinism. This model has a chi-square of 985.87 (512 df,  $p < 0.001$ ), with a CFI of 0.89, an IFI of 0.89, and a TLI of 0.87. The RMSEA is 0.075. The standardized parameter estimates of this two-group model are presented in Tables 2A and 2B. Table 2A contains the parameters that represent the test of hypotheses, while Table 2B contains all other parameter estimates under higher and lower opportunism.

*Bilateral idiosyncratic investments* at time 1 have a significant, positive impact on evaluation of the counterpart's performance ( $\gamma_{11} = 0.13$ ,  $p < 0.05$ ), achievement of competitive advantages ( $\gamma_{21} = 0.51$ ,  $p < 0.01$ ), joint profit performance ( $\gamma_{31} = 0.27$ ,  $p < 0.01$ ), and continuity expectations ( $\gamma_{41} = 0.31$ ,  $p < 0.01$ ) at time 2. These effects remain unchanged, at higher or lower levels of ex post opportunism.

The pattern of effects is very different for *goal congruence*. Examination of these parameters suggests that, at higher levels of opportunism, goal congruence at time 1 has a greater impact on outcomes at time 2 for two out of the four parameters. When opportunism at time 1 is low, the impact of goal congruence on all four outcomes at time 2 is not significant. However, at higher levels, the impact of goal congruence becomes positive and significant for: evaluation of the counterpart's performance ( $\gamma_{11} = 0.20$ ,  $p < 0.05$ ) and achievement of competitive advantages ( $\gamma_{21} = 0.19$ ,  $p < 0.05$ ) at time 2.

The impact of *interpersonal trust* at time 1 on outcomes at time 2 also differs as a function of the increase in ex post opportunism. However, the trend among the parameter coefficients is reversed. When opportunism is lower, interpersonal trust at time 1 has a significant, positive effect on all four performance outcomes at time 2: evaluation of the counterpart's performance ( $\gamma_{13} = 0.94$ ,  $p < 0.01$ ), achievement of competitive advantages ( $\gamma_{23} = 0.51$ ,  $p < 0.01$ ), joint profit performance ( $\gamma_{33} = 0.37$ ,  $p < 0.05$ ), and expectations of relationship continuity ( $\gamma_{43} = 0.63$ ,  $p < 0.01$ ). However, at higher levels of opportunism, the impact of trust at time 1 is significantly reduced for evaluations of the counterpart's performance ( $\gamma_{13} = 0.32$ ,  $p < 0.01$ ), competitive advantages ( $\gamma_{23} = 0.04$ , ns), joint profits ( $\gamma_{33} = 0.06$ , ns), and continuity expectations ( $\gamma_{41} = 0.14$ , ns). Hence, we see that interpersonal trust

fails to uphold all four outcomes at time 2 given higher levels of ex post opportunism at time 1.

In Appendix 2, we conduct additional tests of the model's robustness using nested, single-variable regressions and test for alternative explanations for the results such as ceiling effects, regression to the mean, changes in opportunism over time and differences among buyers and suppliers. Briefly, we find that the model is robust and there is no support for such alternative explanations.

## Discussion and Conclusion

How well do relationship safeguards function to preserve the performance and the continuity expectations that business-to-business supply relationships generate? Do these safeguards become more or less effective as realized opportunism mounts? Our results indicate that suppliers and buyers that perceive their business goals are aligned fare better under the dark-side scenario than do firms that perceive their goals are incompatible. In the face of opportunism, goal-congruent parties appear to judge their partners' performance more favorably and see a longer time horizon to their relationship. It may be that goal congruence functions as a way for firms to achieve coordination in spite of extant opportunism, offering a "light side" to the onset of the dark side in ongoing relationships. Strikingly, these benefits of goal congruence do not materialize when all is well. Perhaps goal congruence fades into the background, to become taken for granted. Absent any substantial opportunism, goal-congruent and incongruent parties do not differ in time horizon or counterpart performance ratings.

Interpersonal trust appears to do the reverse. When all is well, the confidence that two *individuals* place in *each other* makes the relationship perform better in every respect. The counterpart's performance is better, more competitive advantages are achieved by the pairing, joint profits are higher, and the relationship is expected to last longer. But these effects apparently diminish, even evaporate, as ex post opportunism mounts. It is likely that when trouble occurs, more players enter, examining, questioning, and intervening vis-a-vis the relationship. That the relationship custodians expect honesty and benevolence from each

other as additional players enter loses relevance and impact.

In contrast, bilateral idiosyncratic investments are a powerful safeguard, apparently able to enhance all performance outcomes and to extend the time horizon of the relationship. Over the range of ex post opportunism observed here (from virtually nil to small), this effect does not shift. If, as we expected, these assets eventually become less potent drivers, it takes a much higher level of opportunism than normally enters an interorganizational relationship for this to occur. At high levels of opportunism, Williamson (1991) predicts the relationship will dissolve, to be replaced by either vertical integration or no further transactions. Perhaps substantial opportunism in interorganizational governance structures exists for too short a period for field studies to capture.

**Limitations.** One limitation is that the survey methodology may have created common method variance that could have inflated construct relationships. To reduce this, most of the construct items were separated and mixed so that no one respondent would be able to detect readily which items were affecting which factors. Also, the one-year interval between measurement of the dependent and independent variable makes it difficult for respondents to manipulate their answers to maintain artificial concordance between measures. Hence, it is reasonable to expect that common method variance bias is minimized. Additional limitations include the fact that the research does not comprehensively consider all possible factors at work in the preservation of relational outcomes. Instead, this work represents an incremental step toward better understanding of the complex phenomenon of preserving valuable outcomes achievable in ongoing industrial supply relationships.

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## Appendix 1. Scale Items and Reliabilities

$\alpha$  = Cronbach alpha scale reliability.

Likert Scales (1 = Strongly Disagree; 7 = Strongly Agree).

Unless otherwise noted, "They" and "us" refer to the *two firms*, the buyer and supplier together.

For all scales except interpersonal trust, the respondents were instructed to "Complete this section with respect to the relationship between your firm and the supplier/buyer firm." For the interpersonal trust scale, respondents were reminded to refer to their relationship with the individual contact. In keeping with the longitudinal design, respondents were also instructed to complete the entire survey with respect to the current state of the relationship. Instructions indicated that "they" refers to the two parties in the relationship.

### Time 1 Measures of Ex Post Opportunism and Safeguards

Bilateral Idiosyncratic Investments ( $\alpha = 0.76$ ), adapted from Anderson and Weitz (1992)

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1. If this relationship were to end, they would be wasting a lot of knowledge that's tailored to their relationship.
2. If either company were to switch to a competitive buyer or vendor, they would lose a lot of the investments made in the present relationship.
3. They have invested a great deal in building up their joint business.

Goal Congruence ( $\alpha = 0.87$ ), adapted from Jap (1999)

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1. The firms share the same goals in the relationship.
2. They have compatible goals.
3. They support each other's objectives.
4. They have different goals. (R)

Interpersonal Trust\* ( $\alpha = 0.91$ ), adapted from Jap (1999)

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1. Our promises to each other are reliable.
2. We are very honest in dealing with each other.
3. We trust each other.
4. We would go out of our way to help each other out.
5. We consider each other's interests when problems arise.

\*For this scale only, "Our" and "We" refer to the *individual representatives*.

Ex Post Opportunism ( $\alpha = 0.90$ )

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When a problem occurs, how often will the buyer (supplier) do the following? (1 = Hardly Ever, 7 = Very Often)

- They make hollow promises.
- They are aloof toward us.
- They "window dress" their efforts to improve.
- They expect us to pay for more than our fair share of the costs to correct the problem.
- They are unwilling to accept responsibility.
- They make false accusations.
- They provide false information.
- They fails to provide proper notification.

### Time 2 Measures of Performance

Evaluation of the Counterpart's Performance ( $\alpha = 0.88$ ), adapted from Kumar et al. (1992)

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1. Our association with this buyer/supplier has been a successful one.
2. The buyer/supplier leaves a lot to be desired from an overall performance standpoint. (R)
3. If we had to give the buyer/supplier a performance appraisal, it would be outstanding.
4. Overall, the results of our relationship with the buyer/supplier have fallen short of expectations. (R)

Achievement of Competitive Advantages ( $\alpha = 0.82$ ), adapted from Jap (1999)

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1. They have both gained strategic advantages over their competitors.
2. The relationship has not resulted in strategic advantages for them. (R)
3. They have gained benefits that enable them to compete more effectively in the marketplace.
4. The relationship has not resulted in strategically important outcomes. (R)

Joint Profit Performance ( $\alpha = 0.83$ ), adapted from Jap (1999)

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1. They have achieved a high level of joint profits between them.
2. They have generated a lot of profits together.
3. They have increased joint profits shared between them.

Expectations of Relational Continuity ( $\alpha = 0.84$ )

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1. Our relationship with this firm will last far into the future.
2. We expect to continue working with this firm on a long-term basis.

## Appendix 2. Assessment of Robustness and Alternative Explanations

The robustness of the LISREL results is also assessed via a set of nested, single-variable regressions, which involves a single-group estimation, estimation across two groups, and an examination of a family of parameters and individual parameters. Specifically, the following model is estimated:

$$\text{OUTCOME}_{k2i} = \beta_0 + \beta_1 \text{INVEST}_{1i} + \beta_2 \text{GOAL}_{1i} + \beta \text{TRUST}_{1i} + \varepsilon_i,$$

where  $\text{OUTCOME}_{k2i}$  refers to performance outcome  $k$  (evaluation of the counterpart's performance, achievement of competitive advantages, joint profit performance, or expectations of relationship continuity) at time 2 for focal party  $i$ .  $\text{INVEST}_{1i}$  (bilateral, idiosyncratic investments),  $\text{GOAL}_{1i}$  (goal congruence), and  $\text{TRUST}_{1i}$  (interpersonal trust), are all measured for focal firm  $i$  at time 1. This basic model is estimated for each performance outcome at time 2 under higher and lower opportunism.

**Estimation Results.** The result of the nested regressions essentially mirrors the LISREL results. As shown in Table 3, the regression results, when estimated separately for higher- and lower-opportunism groups, are directionally similar and mirror the pattern of statistical significance for 21 of the 24 parameters that

represent the tests of hypotheses. Chow tests are conducted to compare the two groups in each equation. The general pattern is that the two groups are seldom statistically significantly different; they are usually poolable.

The Chow statistic does indicate statistically significant differences across higher and lower opportunism for the evaluation of the counterpart's performance in terms of the effect of goal congruence and interpersonal trust. The Chow statistic is marginally significant for the achievement of competitive advantages in terms of the effect of interpersonal trust, and not significant for the remaining outcomes. This lack of statistical significance may be due to the reduced power of the estimation in a regression context (whereas LISREL employs simultaneous estimation and incorporation of measurement error).

## Examination of Alternative Explanations

**Ceiling Effects.** Because the overall level of ex post opportunism is low, a ceiling effect might be operative in either of the opportunism groups, which would imply that in at least one opportunism group (particularly lower opportunism), the mean level of a given governance mechanism is so high that there is little scope for variation. If so, this lack of variation would attenuate the

**Table 3 Comparison of LISREL and Regression Parameter Estimates Under Higher–Lower Opportunism**

Relationship outcome at time 2	Bilateral idiosyncratic investments <sup>a</sup>		Goal congruence		Interpersonal trust	
	Higher opportunism	Lower opportunism	Higher opportunism	Lower opportunism	Higher opportunism	Lower opportunism
Evaluation of counterpart's performance ( $\gamma_{1i}$ )						
LISREL estimates	0.13*	0.13*	0.20*	-0.18 ns	0.32**	0.94**
Regression estimates	0.03 ns	0.14*	0.25***	-0.09 ns**	0.45***	0.99***
Achievement of competitive advantages ( $\gamma_{2j}$ )						
LISREL estimates	0.51**	0.51**	0.12 ns	-0.19 ns	0.04 ns	0.51**
Regression estimates	0.26**	0.33**	0.12 ns	-0.04 ns	0.06 ns*	0.44**
Joint profit performance ( $\gamma_{3j}$ )						
LISREL estimates	0.27**	0.27**	0.13 ns	-0.07 ns	0.06 ns	0.37*
Regression estimates	0.12 ns	0.22**	0.16 ns	-0.00 ns	0.13 ns	0.39**
Continuity expectations ( $\gamma_{4i}$ )						
LISREL estimates	0.31**	0.31**	0.19*	-0.13 ns	0.14 ns	0.63**
Regression estimates	0.27**	0.24**	0.24**	-0.00 ns	0.25*	0.71**

*Notes.* Above listed are the estimated parameters for each performance outcome to facilitate comparisons of LISREL and regression results.  $\chi^2 = 985.9$  (512 df,  $p < 0.001$ ), CFI = 0.89, IFI = 0.89, and TLI = 0.87, RMSEA = 0.074. Subscript  $j = 1, 2$ , or 3 for bilateral idiosyncratic investments, goal congruence, and interpersonal trust respectively.

\* $\alpha = 0.05$ , \*\* $\alpha = 0.01$ . two-tailed  $t$ -test.

\*Chow test indicates marginally significant difference in parameter estimates across higher and lower opportunism.

\*\*Chow test indicates significant difference in parameter estimates across higher and lower opportunism.

<sup>a</sup>The LISREL estimates are constrained across higher/lower ex post opportunism groups for this performance outcome, while the regression estimates are freely estimated across opportunism groups.

association of a governance mechanism with relationship outcomes *in that group*. If the ceiling effect does *not* hold in the other group, a difference in the impact of governance mechanism across opportunism levels may appear.

There are no significant differences ( $t = 0.4$ , ns) in the level of bilateral investments (average = 5.2) under higher or lower ex post opportunism. Levels of goal congruence and trust, however, do differ across higher- and lower-opportunism groups. Goal congruence has a mean of 4.7 (sd = 1.1) under higher opportunism and a mean of 5.7 (sd = 0.87) under lower opportunism. This difference is significant ( $t = -9.0$ ,  $p < 0.00$ ). Trust also demonstrates a significant difference ( $t = -8.4$ ,  $p < 0.00$ ) across higher- (mean = 5.6, sd = 0.86) and lower- (mean = 6.3, sd = 0.67) opportunism groups.

These differences suggest the possibility of ceiling effects in goal congruence or interpersonal trust. A ceiling effect is particularly plausible for interpersonal trust under lower opportunism, because it has the highest mean among all three relationship safeguards. Yet the results indicate that the impact of interpersonal trust under lower opportunism *is* significant, and for *all* four outcomes: evaluations of the counterpart's performance, achievement of competitive advantages, joint profit performance, and expectations of relationship continuity. This casts doubt on the possibility that a ceiling effect completely explains the lack of impact of goal congruence (where the mean is farther from the ceiling) on outcomes.

**Dynamic Changes.** Could the impact of the relationship safeguards on performance across higher and lower levels of ex post opportunism be due to changes in the use of a mechanism over time? This possibility is considered by comparing the change in means of the relationship safeguards over time. At time 2, the mean level of bilateral investments is 5.3 (sd = 1.2), not significantly different ( $t = 1.6$ ,  $p < 0.1$ ) from time 1. The mean level of goal congruence at time 2 is 5.1 (sd = 1.1), which is significantly lower ( $t = -2.1$ ,  $p < 0.03$ ) than time 1. The mean of interpersonal trust at time 2 is 6.0 (sd = 1.0), not significantly different ( $t = -1.5$ ,  $p < 0.12$ ) from time 1. Thus, goal congruence is the only governance mechanism that differs in statistically significant fashion over time. However, in practice, a drop from 5.3 to 5.1 in goal congruence over time is not a substantial shift in terms of how the exchange is governed. Hence, the use of relationship safeguards appears stable over the time frame of the study.

We also investigate changes in ex post opportunism over time. Beginning with the overall means, there is a small, albeit statistically significant, rise in opportunism over time. At time 1, the mean of opportunism is 2.0.<sup>10</sup> This rises to 2.1 (sd = 1.0) at time 2, which is significantly higher ( $t = 2.2$ ,  $p < 0.03$ ) than at time 1. This increase is due to the lower-opportunism group, in which there is a small ( $\Delta = 0.2$ ), but statistically significant ( $t = 2.2$ ,  $p < 0.03$ ) increase from time 1 to 2. The mean of opportunism in the higher group does not significantly ( $t = -0.51$ , ns) change over time. An inspection of

individual differences in ex post opportunism also indicates that there are no large changes at the observation level.

Collectively, these results suggest that the mean level of ex post opportunism is stable, and that this stability is not due to large positive changes canceling out large negative changes. Ex post opportunism appears to be a stable phenomenon, not a transitory evaluation, based merely on recent incidences or isolated circumstance. Instead, these reports appear to be considered evaluations, developed over time as a reflection of the history that ensues between the firms.

**Buyer and Supplier Differences.** The analysis assumes that buyers and suppliers can be combined in a single model. We evaluate this assumption via a series of multigroup estimation tests. In the higher-opportunism group, we simultaneously estimate the structural model for buyers and suppliers allowing all the effects of relationship safeguards at time 1 on outcomes at time 2 (the gamma coefficients) to be freely estimated. We then estimate a model in which one of the gamma coefficients is constrained to be equal across the two groups. We repeat this process for each parameter in turn, constraining it to be equal across the buyer and supplier groups and comparing the chi-square of this model to a model in which the parameter is freely estimated. An LR test is used to test the null hypothesis that the parameter is equivalent for buyers and suppliers. The entire procedure is then repeated for buyers and suppliers in the lower-opportunism group. This process did not yield a single significant LR statistic, indicating that there are no differences in the effects of relationship safeguards on outcomes for buyers and suppliers. The lack of substantial differences found here suggests that buyers and suppliers are not characterized by fundamentally different processes and that pooling their responses to gain statistical power does not mask any significant differences across the dyad.

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<sup>10</sup> Table 1 shows a slightly higher mean; it is based only on complete observations at both time periods.

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