

Strategic Alliance Outcomes: a Transaction-Cost Economics Perspective

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Empirical research on strategic alliances has been limited because previous studies examined alliance outcomes, and the factors associated with them, from a single partner in a manufacturing alliance. Furthermore, many of these studies have been done from a transaction cost perspective and researchers have inferred opportunistic behavior, rather than directly measuring it and observing its actual relationship with alliance performance. Building on previous transaction cost theory and research, this study seeks to address these gaps by analyzing factors associated with both opportunistic behavior and alliance performance within a major service sector, namely the US healthcare industry. After controlling for asset specificity and alliance age, we found that partner trustworthiness and contractual safeguards were negatively related to opportunistic behavior. Furthermore, opportunistic behavior was negatively related to alliance performance, as hypothesized. Interestingly, mutual equity investments were found to be unrelated to opportunistic behavior, counter to transaction-cost logic. These findings refine and extend the transaction-cost economics perspective regarding our understanding of strategic alliance behavior and outcomes, and offer executives in service-based industries some practical ideas for assuring favorable strategic alliance outcomes.

Introduction

In recent years, there has been an explosion of interest in and experimentation with strategic alliances between two or more firms pursuing various kinds of strategic goals. Broadly defined, strategic alliances refer to inter-firm cooperative arrangements aimed at pursuing mutual strategic goals. Popular forms of strategic alliances include such arrangements as joint ventures, research and development agreements, co-marketing contacts and significant buyer–supplier relationships (Das and Teng, 2000a).

After an initial wave of studies of alliance structures, the second wave of alliance studies sought to describe and explain alliance outcomes. Unfortunately, the alliance outcomes literature has failed to converge. As a result, we now know a great deal about alliance structures, but relatively little is known about the nature and predictors of alliance outcomes.

Nonetheless, a few things have been learned about alliance outcomes. First, we know that most strategic alliances fail to meet the joint strategic objectives (Das and Teng, 1999). Despite this fact, alliances are increasingly popular ways to leverage core competencies, to penetrate new markets, to protect old ones and/or to learn or acquire new strategic capabilities. Second, we know that perceptual measures of alliance performance are often superior to archival measures of performance because of the strategically subjective, multidimensional and non-financial focus of many alliances (Geringer and Hebert, 1991).

Third, the transaction-cost economics perspective has been used extensively to explore alliance outcomes, and this has led to several new insights. For example, Noordeewier, John and Nevin (1990) demonstrated that the transaction-cost economics perspective was a useful framework for exploring alliance outcomes, but its

predictions only held up in high-uncertainty environments. Furthermore, several transaction-cost studies have identified both control mechanisms and trusting relationships as key influencers of alliance outcomes (e.g. Bucklin and Sengupta, 1993; Mjoen and Tallman, 1997; Parkhe, 1993; Yan and Gray, 1994).

Despite this progress, there are still some significant gaps in our understanding about transaction costs and alliance outcomes. First, the operationalization of alliance outcomes within the transaction-cost economics perspective has varied considerably. As can be seen in Table 1, alliance outcomes have been previously operationalized as historical accounting measures, market-based measures, operational efficiency measures and perceptual satisfaction measures. Because of this extreme variation, it becomes clear why the findings have yet to coalesce. Our study seeks to utilize the most comprehensive of outcome measures to best characterize alliance outcomes.

Second, alliance outcomes and the factors associated with them typically have been assessed from just one side of the partnership, as is again revealed in Table 1. While there are two qualitative studies that take a more holistic approach to assessing alliance outcomes and the factors associated with them (e.g. Jennings *et al.*, 2000; Yan and Gray, 1994), the insights from these studies have not yet been tested systematically. Thus, this methodological limitation can skew the results. Our study seeks to evaluate alliances from both sides of the partnership to achieve a more holistic view of alliance dynamics.

Third, while trust and control have been clearly shown to be important factors influencing alliance outcomes (Das and Teng, 1998, 2000a, 2001), their joint effect has not been clearly identified. For example, Mjoen and Tallman (1997) have argued that appropriate control mechanisms were most important. In contrast, Saxton (1997) found that trusting relations were most important. However, Yan and Gray (1994) argued that trust moderates the control-performance relationship, and Parkhe (1993) advocated focusing on control mechanisms early in the alliance, and trusting relationships later on. Most recently, Lui and Ngo (2004) found that both trust and control matter, but control was limited to examining contractual safeguards, and the type of alliances were limited to non-equity

forms. Clearly, the comprehensive effect of trust and control is still to be determined within equity and non-equity alliances.

Lastly, the vast majority of studies have been conducted in the manufacturing industries, despite the fact that alliances are popular and ubiquitous in service-based industries. For example, airline carriers are experimenting with partnerships to create new airline services (McCartney, 2004), banks are contracting with data-processing firms to offer new financial services (Adams, 2004), and mobile communications firms and entertainment companies are teaming-up to offer electronic news services (*Electronic News*, 2004). Previous studies have demonstrated that strategic issues and success factors are fundamentally different in service-based industries (e.g. Apte, Beath and Goh, 1999; Judge and Ryman, 2001; Troy and Schein, 1995). As a result, we simply do not know whether findings from previous studies in manufacturing industries extend to the service sector. Therefore, the purpose of this study is to examine the interdependent nature of control and trust for explaining alliance outcomes from both sides of the alliance relationship within a major service industry.

Transaction cost economics and alliance outcomes

Transaction cost economics (TCE) belongs to the 'new institutional economics' paradigm, which complements traditional neoclassical economics. According to TCE, all economic activity revolves around a transaction, which is simply some form of exchange of a good or service between two or more economic actors. To optimize that exchange, an appropriate governance mechanism must be matched to the nature of the transaction (Williamson, 1985).

There are three general forms of governance mechanisms within TCE:

1. 'market' governance where prices govern;
2. 'intermediate' governance where complex contracts and strategic alliances govern;
3. 'hierarchical' governance where managers govern within the boundaries of the firm (Barney, 1999).

Table 1. Empirical transaction cost studies of strategic alliance outcomes, 1993–2004

Empirical Study	Research Design	Alliance Outcome Measure
Parkhe (1993) <i>Academy of Management Journal</i>	Sample: 342 manufacturing firms survey Data: Survey one partner (33%)	(1) Degree to which strategic needs met by one alliance partner; (2) Indirect performance outcomes
Bucklin and Sengupta (1993) <i>Journal of Marketing</i>	Sample: 493 electronics firms Data: Survey one partner (30%)	(1) Degree of satisfaction with alliance by one alliance partner
Yan and Gray (1994) <i>Academy of Management Journal</i>	Sample: 4 manufacturing JVs Data: Qualitative case studies	(1) Degree of achievement of strategic objectives for the alliance
Inkpen and Currell (1997) <i>Cooperative Strategies</i>	Sample: 125 manufacturing JVs Data: Survey one partner (28%)	Degree of achievement of (10) strategic objectives of one alliance partner
Saxton (1997) <i>Academy of Management Journal</i>	Sample: 286 manufacturing firms study Data: Survey one partner (34%)	(1) Degree of satisfaction of one parent organization with alliance
Glaister and Buckley (1998) <i>Organization Studies</i>	Sample: 203 manufacturing firms survey Data: Survey one partner (37%)	Degree of (1) satisfaction with, and (2) cost-benefit of alliance
Young-Ybarra and Wiersema (1999) <i>Organizational Science</i>	Sample: 241 manufacturing firms survey Data: Survey one partner (38%)	Degree of (1) alliance modification and (2) exit flexibility from perspective of one alliance partner
Combs and Ketchen (1999) <i>Strategic Management Journal</i>	Sample: 94 foodservice firms Archival	(1) Return on assets (2) Market-to-book ratio
Jennings et al. (2000) <i>Competitiveness Review</i>	Sample: 1 manufacturing JV Data: Qualitative case study	(1) Cost reduction by alliance (2) Revenue increases by alliance (3) Market value added by alliance
Sividas and Dwyer (2000) <i>Journal of Marketing</i>	Sample: 282 electronics firms Data: Survey one partner (37%)	(1) Degree of new product development success
Kale et al. (2000) <i>Strategic Management Journal</i>	Sample: 212 manufacturing firms survey Data: Survey one partner (36%)	(1) Organizational learning (2) Protecting core assets
Shrader (2001) <i>Academy of Management Journal</i>	Sample: 70 manufacturing IPOs Archival	(1) Return on Sales (2) Sales growth
Lui and Ngo (2004) <i>Journal of Management</i>	Sample: 265 architects one partner (33%)	(1) Completion time (2) Performance satisfaction
Norman (2004) <i>Journal of Business Research</i>	Sample: 58 manufacturing firms Data: Survey one partner (15%)	(1) Knowledge acquisition (2) Knowledge loss (3) Alliance satisfaction

Note: Items in parentheses indicate the survey response rate.

This study focuses on intermediate governance forms, as these are the newest and least understood of the three forms.

Economic actors look ahead, perceive potential hazards and embed transactions in governance structures that minimize those hazards (Williamson, 1998). According to TCE, there are two causes of economic hazards: bounded rationality and opportunism. Bounded rationality refers to the fact that economic actors have limited data and constrained information-processing abilities and that the future is often unknowable. If bounded rationality did not exist, all economic activity could be efficiently organized by contracts. This is not the case, however, and often little can be done in the short term to address this economic reality. As such, bounded rationality is often treated as a constraining theoretical assumption by this perspective.

Opportunism refers to the behavioural assumption that economic actors are primarily, if not exclusively, oriented toward their own personal interests and will disregard the interests of their partners if they can get away with it. Within the context of strategic alliances, hazards from potential or actual opportunism can take many forms. For example, one partner may be motivated to withhold crucial information and/or resources from the alliance to protect core assets and competences. Similarly, another partner may be motivated to 'unload' substandard technology or managerial talent to an alliance (Kale, Singh and Perlmutter, 2000). Therefore, appropriate governance mechanisms are needed to protect the alliance from these potential hazards (Das and Teng, 2000a).

The goal of the firm, then, is to optimize its flow of goods and services, while minimizing the costs associated with governing these transactions (i.e. transaction costs). Logically, the higher the potential damage from opportunism, the more elaborate the governance mechanisms required and the higher the transaction costs. Consequently, the firms that manage this well are predicted to survive and prosper, and the firms that manage these costs poorly are predicted to decline and go out of business (Rindfleisch and Heide, 1997).

However, Heide and John (1990) argue that TCE has been justly criticized for its opportunism assumption. They assert that relational norms (e.g. trust) challenge this assumption and mitigate

opportunistic behavior. While they acknowledge that opportunism is possible in any economic exchange relationship, they maintain that trust can supplant or complement control mechanisms to assure mutually beneficial exchanges. In sum, the two key outcomes for any alliance are (1) relational risk created by opportunistic behavior(s) by one or more of the alliance partners, and (2) performance risk created by jointly pursued strategic objectives (Das and Teng, 2001).

Level of opportunistic behavior and alliance outcomes

Williamson (1985, p. 47) defines opportunism as 'self-interest seeking with guile'. As discussed previously, opportunism is the assumption that given the opportunity, decision-makers may unscrupulously seek to serve their self-interests and that it is difficult to know *a priori* who will be opportunistic and who will not.

With respect to strategic alliances, opportunism is a particularly important problem because typically the alliance is populated by members from differing organizations with different sets of goals. As such, there is something of a built-in bias towards goal conflict and potential for opportunism. Furthermore, even if the economic actors bring the same goal structures to the alliance, monitoring is more difficult because information flow between organizational boundaries is more 'filtered' than that within organizational boundaries (Dyer and Singh, 1998; Mohr and Spekman, 1994).

Interestingly, just the perception of opportunism can degrade alliance performance – whether it is real or just perceived. If members of one organization perceive the other organizational members as willing to take advantage of them given the right circumstances, then the alliance starts to unravel, or cumbersome monitoring mechanisms need to be put in place (Ring and Van de Ven, 1994; Saxton, 1997). To summarize, the higher the perceived level of opportunistic behavior within a strategic alliance, the less favorable the alliance outcomes. This suggests the following hypothesis:

H1: The perceived level of opportunistic behavior in the alliance will be negatively related to alliance outcomes.

Factors associated with opportunistic behavior

From a TCE perspective, the key issue is to create governance mechanisms that effectively limit transaction costs derived from environmental uncertainty and the potential for opportunistic behavior (Rindfleisch and Heide, 1997). Given an uncertain environment, a wide variety of governance mechanisms have been offered to reduce transaction costs, but three in particular stand out above the rest. They are: equity control, contractual safeguards and partner trustworthiness.

Equity investment and opportunistic behavior. Equity represents the ownership stakes of the various partners involved in an alliance. Some alliances involve no equity; some involve 50:50 equity interests; and some have majority equity interests on the part of one partner and minority or no equity interests on the part of the other partner(s).

The TCE perspective focuses primarily on behavioural uncertainties that enhance appropriation concerns (Gulati and Singh, 1998). In the absence of an equity stake in a strategic alliance, the TCE predicts that a 'moral hazard' exists and the opportunity for managers to act in ways that run counter to the overall organization's interests expands. In contrast, when an equity interest is held by one or both of the partners, that partner is more likely to enter into a mutually productive economic exchange relationship and the goals and objectives of the alliance are clearer.

Consequently, the TCE perspective suggests that when there is a equity investment by all partners in an alliance (what we refer to as a 'mutual equity investment'), then opportunism should be reduced. In contrast, when one or more partners do not commit to an equity stake, opportunistic behavior is more likely, regardless of the specific equity stake taken.

Recent research supports this relationship. For example, Das and Teng (2000b) discuss partner asymmetries that exist in the absence of a mutual equity investment that can lead to sub-optimal behavior within an alliance. Similarly, Pangarkur and Klein (2001) argue that mutual equity investments lead to alignment of interests by all entities engaged in an alliance. Kale and Puranam (2004) assert that mutual equity investments enhance exclusivity, alignment of interest

and enhanced cooperation. Lastly, Heiman and Nickerson (2002) conceptually argue that when equity ownership is shared mutually, then knowledge transfer should be improved. This literature and logic suggests the following relationship between mutual equity investments and opportunistic behavior:

H2: The presence of mutual equity investments by alliance partners will be negatively related to the perceived level of opportunistic behavior in the alliance.

Contractual safeguards and opportunistic behavior. A second governance mechanism that has been shown to influence alliance outcomes is the presence of contractual safeguards. Contractual safeguards are those devices put in place during the negotiation of the alliance agreement in an effort to avoid self-interested behavior by either of the alliance partners. By making the relationship contractually explicit, clear and mutual, expectations are stipulated before the alliance begins and clear boundaries of behavior are pre-specified (Parkhe, 1993).

To assure an equitable and relatively unambiguous relationship, the 'rules of the game' need to be spelled out clearly and explicitly (Shenkar and Zeira, 1992). When goals and expectations are clear to the partners in the form of contractual safeguards, transactions costs are reduced and outcomes are more likely to be favorable (Kogut, 1988). This logic suggests the following hypothesis:

H3: The level of contractual safeguards utilized will be negatively related to the perceived level of opportunistic behavior in the alliance.

Partner trustworthiness and opportunistic behavior. Inter-organizational trust is the degree to which the trustor holds a positive attitude toward the trustee's goodwill and reliability in a risky exchange relationship (Gambetta, 1988; Ring and Van de Ven, 1992). Trust relates to the trustor's expectations about the motivations and abilities of the trustee, and it influences the confidence in partner cooperation (Das and Teng, 1998). While trust has been conceptualized in many different ways in many different organizational contexts, recent research suggests that trust between

boundary role persons is the key to developing interorganizational trust (Currall and Judge, 1995). In other words, when the boundary role manager(s) within the focal firm trust the boundary role manager(s) in the partner firm, inter-organizational trust is said to be present. However, when the boundary role manager(s) in the focal firm do not trust the boundary manager(s) in the partnering firm, inter-organizational trust is said to be absent.

According to TCE, when trust is present, the relationship is better able to withstand the uncertainties and volatility of environmental as well as organizational changes (Parkhe, 1993; Zaheer and Venkatraman, 1995). Put more simply, when there is faith in the competence and benevolence of your partners, you are more likely to invest in the partnership and ride out any storms that arise. Given the fast-changing and unpredictable nature of many competitive situations, it is likely that the bond of trust will help to assure more positive alliance outcomes.

Previous research has shown that there is tremendous uncertainty surrounding strategic alliances (Mjoen and Tallman, 1997; Ring and Van de Ven, 1992; Zaheer, McEvily and Perone, 1998). Inter-organizational trust has been offered as one key way of dealing constructively with that uncertainty (Larson, 1992; Ring and Van de Ven, 1994). When trust is present, there is the expectation that the partner will be cooperative and consider the well-being of both entities, not just the partners. In addition, trust increases strategic or operational flexibility to deal with unanticipated environmental and/or organizational challenges (Mjoen and Tallman, 1997; Young-Ybarra and Wiersema, 1999). Furthermore, trust can improve the level of communication between the partners, and this increased information flow has been shown to have positive impacts on alliance outcomes (Das and Teng, 1998; Zaheer, McEvily and Perone, 1998). As such, partner trustworthiness is a desirable feature of any alliance relationship and is expected to reduce the level of potential and actual opportunism within an alliance.

H4: The perceived level of partner trustworthiness will be negatively associated with the perceived level of opportunistic behavior in the alliance.

Control variables. In addition to the three independent variables listed above, two control variables were also considered in this analysis. The first variable, *alliance age*, comes from the strategic alliances literature. Previous research and common sense suggest that the older the alliance, the less likely that the alliance experiences opportunistic behavior and hence the alliance outcomes are more favorable (Bucklin and Sengupta, 1993; Dyer and Singh, 1998).

The second control variable, *asset specificity*, comes from the TCE literature. Previous theory and research argues that when transaction specific, non-recoverable investments are made, opportunism should decline and alliance outcomes should improve (Joskow, 1988; Williamson, 1985). Thus, it is imperative that this control variable also be considered in our study as well. Overall, this theoretical model is depicted in Figure 1.

Research methodology

Analyses

Following the advice of Anderson and Gerbing (1988), we used a two-step approach and examined the measurement model and theoretical model in separate steps using AMOS IV (Arbuckle, 1999). The first step assessed the discriminant validity of our measures by conducting a confirmatory factor analysis. In this step, a measurement model that allowed the underlying latent constructs to correlate freely and constrained each item to load only the factor for which it was a proposed indicator was assessed using the normed fit index (NFI) and the comparative fit index (CFI). To further assess the discriminant validity of our constructs, we compared the measurement model with a model that constrained the correlations among the constructs to zero and examined the change in chi-square.

The second step in our analyses combined both the measurement model and the theoretical model depicting the hypothesized relationships between constructs. To test the hypotheses, we took a nested-model approach. The first model specified was the theoretical model with all paths not hypothesized fixed to zero. This model was compared to the saturated structural model (i.e. all paths relating the constructs to one were

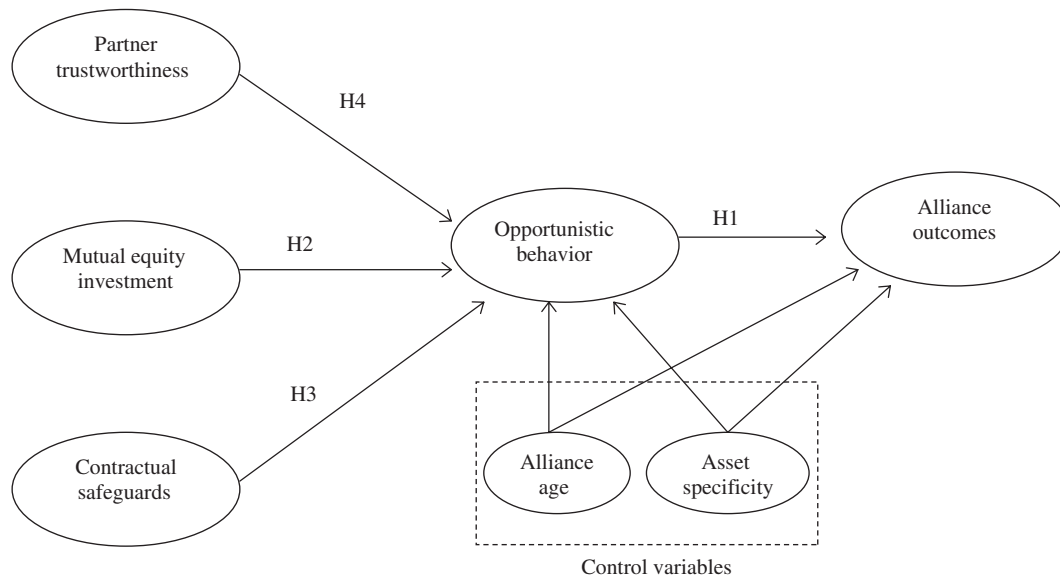


Figure 1. Theoretical model

estimated) using a chi-square difference test to assess whether additional paths omitted from the theoretical model should be included.

In addition, the theoretical model was compared with three constrained models using chi-square difference tests to determine whether any paths included in the theoretical model should be omitted. The three constrained models were specified as follows. The first constrained model fixed the path from the exogenous variable 'partner trustworthiness' to 'opportunistic behavior' to zero. In the second constrained model, the paths from the exogenous variables of 'equity percentage' and 'contractual safeguards' to 'opportunistic behavior' were fixed to zero. And in the final constrained model, the path from the endogenous variable partner 'opportunistic behavior' to 'alliance outcomes' was fixed to zero.

Sample

We chose a sample of strategic alliances occurring in the US healthcare industry prior to 1999. By focusing on healthcare alliances, this study uses a relatively homogenous sample which controls for other external factors that might impact the relationships being studied. Strategic alliances are relatively new but ubiquitous in the healthcare industry, making this an interesting organizational population for empirical research. Furthermore, healthcare services are theoretically

very different from the myriad of manufacturing firms and products studied in previously alliance literature.

From a TCE perspective, healthcare transactions are exceedingly complex; they involve physical, mental and even spiritual aspects on the buyer's side and technological, regulatory, medical and financial aspects on the supplier's side. Furthermore, the healthcare industry is exceptionally fragmented, and the TCE perspective offers a framework for coordinating care more efficiently. Lastly, political and emotional concerns often guide healthcare sector design to the exclusion of economic realities. Consequently, healthcare service alliances are theoretically interesting and a relatively unexplored research population (Stiles, Mick and Wise, 2001).

The participants in this study were drawn from the Managed Care Information Center's (1999) *National Directory of Integrated Delivery Systems*. This directory contains 666 integrated healthcare systems distributed throughout the United States. For each healthcare system, alliances and alliance partners are identified, as well as key personnel involved with the healthcare system's alliances. We limited our study to a single industry to control for exogenous effects. The US healthcare industry is particularly appropriate for study because it represents a relatively large and growing part of the world's

largest national economy, alliance outcomes vary considerably in this industry, and there has been insufficient attention to alliances in service-based industries (Shortell *et al.*, 1996). Furthermore, previous studies have shown that the industry affects alliance outcomes, so controlling for industry context is important (Gulati, 1995; Parkhe, 1993; Saxton, 1997; Stuart, 1998).

Data collection was a two-step process. First, 326 healthcare systems were randomly selected and then mailed a solicitation letter. Within two weeks, they were contacted via telephone by a team of experienced telephone interviewers who were unaware of the purpose of this study. Of those contacted, 76 systems were found to be ineligible for the study because our research was limited to joint ventures and cooperative agreements while excluding mergers and acquisitions. This reduced our potential population to 250 systems. Overall, 158 healthcare system organizations agreed to participate in this phase of data collection, yielding a 63% initial response rate. Each participant was first asked to identify the most important strategic alliance within their healthcare system and to answer all questions in the context of that specific strategic alliance.

In the second phase of the data-collection process, the strategic alliance partner identified in the first phase was contacted and asked to participate in the study. They were requested to answer all of the survey questions in the context of their relationship with the alliance partner in Phase 1. Of the 158 partners identified in Phase 1, 91 agreed to participate in the second wave of data collection, resulting in an overall matched-partner response rate of 58%. Of the 91 alliance partners agreeing to participate in this phase of the data-collection process, 10.3% were physician groups, 35.9% were hospitals, 7.7% were insurance-related firms and 46.2% were classified as other (presumably some combination of the three entities). Statistical mean comparisons by alliance firm type of the independent and dependent variables showed no significant differences.

We believe that our response rate was unusually high because telephone data-collection often yields higher response rates compared to mail surveys (Frey and Oishi, 1995), and we promised an executive summary to participants; they all indicated a high interest in this area of study. After examining respondents to non-respondents, no systematic response bias appears

after comparing organizational size or geographical location between the responding and non-responding groups.

Variables and measures

Because this study focused on the relationship between alliance partners, the item responses from each partner for the partner trustworthiness, asset specificity, partner opportunistic behavior and alliance performance measures were averaged. Thus, for example, the responses for each partners' assessment of the other partner's trustworthiness were combined to provide an indicator of the overall level of trustworthiness in the alliance. The individual items for each measure are reported in Table 2.

Alliance outcomes. For this study, we used three items drawn from previous research on alliance outcomes (Mjoen and Tallman, 1997). These items assessed whether the alliance met the financial and non-financial objectives of each alliance partner and were measured on a five-point Likert-type scale. The scale was anchored from 'strongly disagree' (1) to 'strongly agree' (5). The measure was a reliable indicator of alliance outcomes with a Cronbach's alpha equal to 0.87.

Opportunistic behavior. Alliance partner opportunistic behavior was measured by adapting four items from Kim and Mauborgne (1993). These items assessed the extent to which each partner pursued its self-interest in the implementation of alliance strategic decisions and were measured on a five-point Likert-type scale anchored from 'strongly disagree' (1) to 'strongly agree' (5). Three of the items that were phrased in the positive were reverse coded so that high values corresponded to high opportunism. Cronbach alpha for the four items is 0.77.

Partner trustworthiness. Partner trustworthiness was measured using four well-established items developed by Mayer and Davis (1999). The items asked about the perceived integrity of the partner firm's top management team. The items were measured on a five-point Likert-type scale anchored from 'strongly disagree' (1) to 'strongly agree' (5). The Cronbach alpha for the four items is 0.81.

Table 2. Constructs and measures

<u>Strategic alliance outcomes</u> (Scale 1–5: strongly disagree–strongly agree) (Alpha = 0.87)	
1.	We are satisfied with the performance of this alliance.
2.	The alliance has met the objectives for which it was established.
3.	The alliance has been a profitable investment.
<u>Mutual equity investment</u>	
Single item dichotomous measure coded '0' if neither or only one firm had an equity stake in the alliance, coded '1' if both firms had an equity stake in the alliance.	
<u>Contractual safeguards</u> (check off as either included or not included in legal agreement)	
1.	Periodic written reports of all relevant transactions.
2.	Prompt written notice of any departures from the agreement.
3.	The right to examine all relevant records through a firm of CPAs.
4.	Designation of certain information as proprietary and subject to confidentiality provisions of the contract.
5.	Non-use of proprietary information even after termination of agreement.
6.	Termination agreement.
7.	Arbitration clauses.
8.	Lawsuit provisions.
<u>Alliance partner trustworthiness</u> (Scale 1–5: strongly disagree–strongly agree) (Alpha = 0.81)	
1.	Their top management team (TMT) has a strong sense of justice.
2.	We never have to wonder whether their TMT will stick to their word.
3.	Their TMT try hard to be fair dealing with us.
4.	Sound principles seem to guide their TMT's behavior.
<u>Opportunistic behavior</u> (Scale 1–5: Strongly Disagree–Strongly Agree) (Alpha = 0.77)	
1.	Their TMT fully implements final strategic decisions made for our alliance even if these decisions are not parallel with their interests (reverse coded).
2.	When presented with the opportunity, their TMT tends to disregard strategic decisions of the alliance in the interests of their firm.
3.	The actions of their TMT are fully consonant with executing strategic decisions of the alliance (reverse coded).
4.	Their TMT subordinates their firm's interests to those of the alliance (reverse coded).

Mutual equity investment. This measure was operationalized by first asking each firm whether it had an equity stake in the alliance. These responses from each partner were then compared to create a dichotomous variable. An equity investment by neither or one firm was coded as a '0', and an equity stake in the alliance by both firms was coded as a '1'.

Contractual safeguards. This measure was explored by asking the contracts manager of each firm to indicate which of eight contractual safeguards were included in the cooperative agreement. The measures used for contractual control were taken from Parkhe (1993). Following Parkhe, we arranged the items in order of increasing stringency and calculated the level of contractual safeguards using a weighted average (i.e. a weight of 1 was given to the first item and a weight of 8 was given to the last item). These weighted items were then summed and divided by 36 to get a composite index of contractual safeguards included by each firm. The composite indices from each firm were averaged to get an

indication of the overall use of contractual safeguards in the alliance.

The most common contractual safeguards were arbitration clauses (21.5%) and non-use of proprietary information (19.6%), while the least common safeguards were periodic written reports (3.8%) and the right to examine all relevant records (3.8%). On average, the contract managers used five (of the eight) contractual safeguards listed in our survey.

Control variables. *Alliance age* was measured by asking the partner contacted in Phase 1 of the data-collection process how long the alliance had been in existence (in years). Our measure of the level of *asset specific investments* made by each partner firm was taken from Parkhe (1993). Each partner was asked to what extent a dissolution of the alliance would result in non-recoverable investments in cash and kind, such as training and technology. The single-item question was measured on a five-point Likert-type scale ranging from 'negligible' (1) to 'heavy' (5). The responses from each partner were averaged to get

a measure of the overall level of asset specific investments in the alliance. Table 3 contains the descriptive statistics, Cronbach alphas and zero-order correlations among these variables.

Results

Assessment of the structural model

The confirmatory factor analysis of the seven underlying latent constructs produced the following 'goodness of fit' measures: $\chi^2 = 98.40$, 73 degrees of freedom; normed fit index (NFI) = 0.98, comparative fit index (CFI) = 0.99, RMSEA = 0.06. All factor loadings on the specified factor were also significant at the 0.01 level. A model comparison between the unconstrained measurement model and a model that constrained the correlations among the constructs to unity produced a significant difference

in chi-square, further suggesting discriminant validity among the constructs ($\Delta\chi^2 = 164.90$, $\Delta df = 19$, $p < 0.001$). Overall, these results suggest that a seven-factor structure is a good fit to the data.

Results from the nested models analysis indicate that the theoretical model provides the best explanation for the structural relationships among the variables. Several fit indices suggest that the theoretical model is an overall good fit to the data. The chi-square statistic for the model is 100.12 with 76 *df*, with a CFI = 0.99, an NFI = 0.98, and an RMSEA = 0.059. A chi-square difference test comparing the saturated structural model with all paths estimated to the theoretical model indicates that the saturated structural model does not provide a better fit to the data ($\Delta\chi^2 = 1.78$, $df = 3$, $p < 0.62$). Thus, no paths that were omitted in the structural model should have been included.

Table 3. Descriptive statistics and zero-order correlations

Variables	Mean	Std. Dev.	Alpha	1	2	3	4	5	6
1. Alliance age (in years)	6.00	6.83							
2. Asset specificity	1.87	0.78		0.01					
3. Contractual safeguards	0.56	0.22		0.18	0.13				
4. Mutual equity investment	0.21	0.41		0.04	0.24*	-0.01			
5. Partner trustworthiness	3.93	0.55	0.81	-0.03	-0.11	-0.35**	-0.011		
6. Opportunistic behavior	2.58	0.50	0.77	-0.02	0.13	0.19	0.09	-0.78**	
7. Alliance outcome	3.54	0.80	0.87	0.17	-0.05	-0.17	0.03	0.57**	-0.67**

Notes: n = 91; *p < 0.05; **p < 0.01

Table 4. Structural parameter estimates and chi-square difference statistics for nested model analysis^a

Path	Theoretical Model	Constrained Models		
		1	2	3
opportunistic behavior ← alliance age	-0.09	-0.03	-0.06	-0.09
alliance outcomes ← alliance age	0.07	0.07	0.08	0.12
opportunistic behavior ← asset specificity	0.04	0.07	0.01	0.04
alliance outcomes ← asset specificity	0.12	0.12	0.12	0.04
opportunistic behavior ← mutual equity investment	-0.12	-0.03		-0.11
opportunistic behavior ← contractual safeguards	-0.16*	0.18 ⁺		-0.15*
opportunistic behavior ← partner trustworthiness	-0.96**		-0.89**	-0.97**
alliance outcomes ← opportunistic behavior	-0.74**	-0.77**	-0.74**	
χ^2	100.12	186.65	106.38	152.02
<i>df</i>	76	77	78	77
CFI	0.99	0.97	0.99	0.98
NFI	0.98	0.95	0.97	0.96
$\Delta\chi^2$		86.47**	6.21*	51.85**
Δdf		1	2	1

^aStandardized path coefficients are reported.

⁺p < 0.10, *p < 0.05, **p < 0.01.

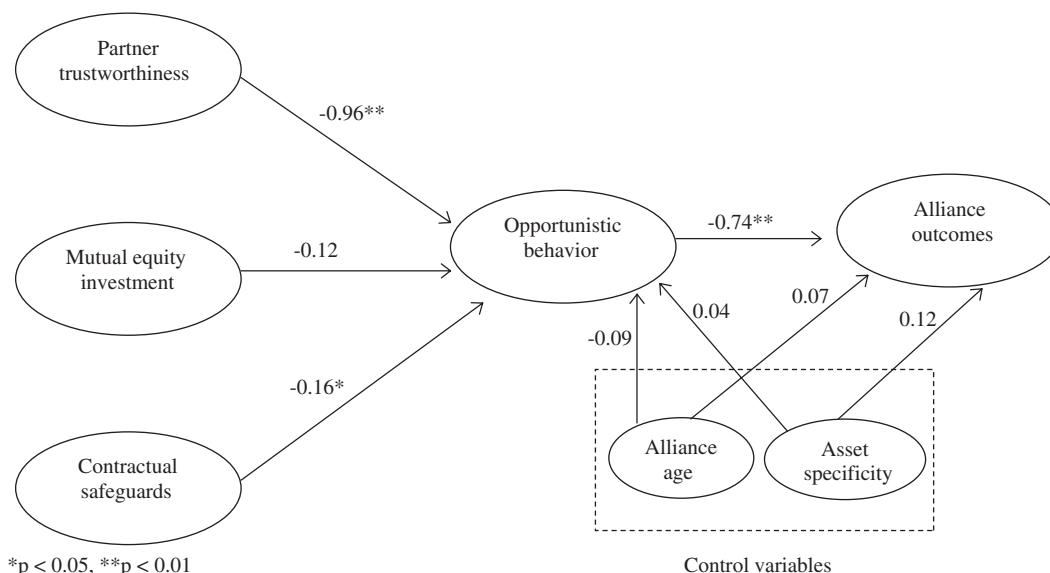


Figure 2. Derived path coefficients based on structural analysis of the theoretical model

Results from the nested comparisons between the theoretical model and the constrained models are reported in Table 4. For each of the three constrained models, a chi-square difference test shows that fit was significantly worse than the fit of the theoretical model. This provides confirmation that the paths included in the theoretical model should have been included, with the exception of joint equity investment and the control variables that were non-significant in all models. The theoretical model with the derived path coefficients from the structural equation analysis is depicted in Figure 2.

Assessment of the hypothesized relationships

As shown in Table 4, model fit assessments were significantly worse when the path from opportunistic behavior to alliance outcomes was constrained to zero. The path estimate reported in Table 4 and shown in Figure 2 also shows that opportunistic behavior is negatively related to alliance outcomes ($p < 0.01$). This represents robust support for H1.

Table 4 also reveals that when the paths from contractual safeguards and mutual equity ownership to opportunistic behavior were constrained to zero, the model fit was reduced significantly. Examination of the path estimates, however, shows that the contractual safeguards item is negatively related to opportunistic beha-

avior ($p < 0.05$). Thus, our data do not support H2, but support is found for H3.

Lastly, model fit also decreased when the path from partner trustworthiness to opportunistic behavior was fixed at zero. The path coefficient from partner trustworthiness was negatively related to opportunism and strongly significant ($p < 0.01$). In fact, partner trustworthiness is the strongest predictor of opportunistic behavior, providing strong support for H4.

Discussion and conclusions

This study found relatively strong empirical support for the transaction-cost economics predictions regarding the factors and relationships affecting strategic alliance outcomes in the US healthcare industry. Specifically, we found that contractual safeguards and partner trustworthiness were strong predictors of opportunistic behavior and that opportunism was inversely related to alliance outcomes. The strength and direction of these relationships were all predicted by the transaction-cost economics perspective. Interestingly, trust was found to have a stronger impact on opportunistic behavior than did contractual safeguards.

However, mutual equity investment was found to be unrelated to opportunistic behavior. This finding is counter to traditional transaction-cost

economics logic. Notably, several TCE-based studies of alliances have recently found that equity control was not associated with managerial control and/or opportunism (Lee, Chen and Kao, 2003; Mjoen and Tallman, 1997; Reuer and Arino, 2002). Coupled with our findings, this suggests that equity investments may have a more complex relationship with opportunistic behavior and alliance outcomes than previous TCE literature has suggested.

Because the average alliance in our study was six years old, this relatively long relationship may obviate the need for control through mutual equity investments. Furthermore, most strategic alliances in the healthcare industry are within a common geographic area, unlike international alliances. Given this geographical proximity, the likelihood of recurring face-to-face interactions is increased, which could lead to a stronger alliance. This finding reinforces Gulati's (1995) argument that 'familiarity breeds trust' within alliances, and reduces the need and impact of equity investments.

Similarly, asset specificity was not found to be a significant predictor of opportunistic behavior or alliance outcomes. This finding contradicts traditional TCE literature and logic as well. Heide and John (1990, p. 37) argue that a 'positive impact of specific assets is contingent on relational norms'. They suggest that future research investigate longer-term alliances and posit that relational norms overtake the need for control mechanisms. Given the fact that asset-specific investments are often made in all of healthcare (Stiles, Mick and Wise, 2001), it may be that asset specificity may be a less salient factor for healthcare alliances. Future research might want to compare the ubiquity of asset-specific investments within alliances as compared to the rest of the industry to future explore this finding that runs counter to traditional TCE thinking.

Furthermore, we might speculate that effects of asset-specific investments and equity investment on opportunistic behavior are contingent on the form of cooperation in the alliance relationship (Wathne and Heide, 2000). Theoretically, self-enforcing incentives act as a deterrent to opportunistic behavior as long as both parties believe they are benefiting from a cooperative relationship (Telser, 1980). However, the level of cooperation can take many forms, from adhering to the letter of the arrangement, to adapting to

unforeseen circumstances for mutual benefit, to making short-term sacrifices for expected mutual long-term gains. As it becomes more difficult to directly observe the extent of cooperation, self-enforcing incentives may become a less effective device in shaping partner behavior.

Limitations

These intriguing findings should be interpreted with some caution, however. First, we only sampled organizations and alliances in the US healthcare services sector, so the generalizability to other countries and other sectors may be limited. Second, like most literature on strategic alliances, our data is cross-sectional in nature. Consequently, we use theory to predict causal relationships, but alternative relationships might exist. Future research should be longitudinal in nature to test these causal assumptions. Third, our measure of asset specificity is a single-item measure; so the reliability and validity of that measure is suspect. Lastly, while we utilize data from both partners, our data is perceptual in nature. As such, future research might want to verify such variables as 'contractual safeguards' by having a panel of experts rate the degree of legal controls installed for the alliance and validate the alliance partner's perceptions. In this manner, multiple data sources can add confidence that we are measuring the construct and relationships of theoretical interest.

Conclusions

Overall, we believe that this paper refines and extends TCE predictions regarding the interplay between trust and control on strategic alliance outcomes. As Das and Teng (1998, 2000a, 2001) conceptually argue, it appears that it is the complementary impact of both trust and control that lead to confidence in partner cooperation and reduced risk in strategic alliances. Furthermore, this aggregate level of trust and control appears to influence alliance outcomes via real or imagined opportunistic behavior. And while both trust and control are important for alliance success, it appears that the perceived trustworthiness of the partnering executives is the most important factor associated with alliance success, based on our data in this service-based industry.

While the statistical impact of trust is greater than the statistical impact of controls, both appear to be necessary to assure alliance success.

In addition, there are several managerially relevant implications to our study. First, it appears that the key to alliance success depends on good legal advice and contractual safeguards for standard pitfalls, but managerial expertise in building and expanding trust is at least as, and perhaps even more important. This implies that to make a strategic alliance successful, strategic leaders need to attract, develop and retain managers who can handle the unique challenges of strategic alliances. Recent research suggests that the US healthcare industry is beginning to do just that (Judge and Ryman, 2001).

Second, our study suggests that the presence or absence of transaction-specific investments as well as mutual equity investments may not impact the success of the alliance. This implies that more subtle 'relational capital' such as trusting relationships, conflict resolution skills and effective communication may be more important than financial controls for assuring alliance success (Kale, Singh and Perlmutter, 2000), at least within service-based industries. Lastly, given the considerable variation in our opportunistic behavior variable, our data suggests to managers that there is considerable variation in partners. As a result, managers should pick their partners carefully.

We believe that this study confirms the importance of examining control and trust simultaneously in future alliance research, and we do so from a more complete perspective of multiple alliance partners within a major service sector of the US economy. We hope that this study encourages new thinking and research into the transaction-cost economics perspective and the strategic alliances literature, and challenges alliance practitioners to seek an appropriate balance between trust and control to achieve mutually beneficial ends.

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