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Control and Performance in International Joint Ventures

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The incidence of international joint ventures and alliances seems to be increasing as a means to achieving strategic flexibility. Although IJVs have been the subject of much "theorizing" they remain empirically under-researched. This paper seeks to increase knowledge of IJVs by focusing on the relationship between partner specific resources, equity share, control (over specific resources or activities) and performance. The paper develops a distinction between control and equity demonstrating that control consists of several specific dimensions. Of particular interest is the application of a model of bargaining power and its role in determining equity and the distinction between transaction cost economics and firm specific resources and their relation to control and equity.

Arie Y. Lewin

Abstract

The authors examine the meaning of control in international joint ventures (IJVs) and the relationships of potential means of control in such organizations to the performance satisfaction of the foreign partner. They propose a conceptual model that provides both a traditional ownership-focused internalization perspective on those issues and an integrated approach combining a broader transaction cost interpretation of control with a resource input-based bargaining power model. A set of simultaneous structural equations with endogenous explanatory variables provides multiple possible paths from various resource and power inputs through different means of control to perceived performance satisfaction. In such a model, intermediate variables act both as dependent and independent variables; thus the complex theoretical interactions of the variables are modeled more comprehensively and realistically than in single-equation models.

To test the model and compare the theoretical relationships, the authors used data from a survey of managers in Norwegian multinational firms having at least one IJV. For structural equation modeling with latent variables, they used the LISREL VII program that simultaneously fits the measured variables to the latent variables and provides a maximum likelihood solution for the structural equation system. The results clearly reject the traditional internalization approach to IJV governance that relies strictly on ownership

share to delineate degree of control. However, relative resource input has a strong relationship to relative bargaining of the parent companies, which then drives equity share, control over specific activities, and perceptions of overall control of the IJV. That result supports a bargaining-power-based model of IJV control. The relatedness of the strategic resources of the parent and the joint venture also drives specific control, implying that although transaction risk is important to governance, governance is provided by specific control rather than ownership level. Perceptions of performance are strongly and positively related to overall control.

Those results suggest that specialized control provides both protection and exploitation of key resource inputs and is gained through increased bargaining power. Higher levels of specific control result in a perception of overall control and thereby satisfaction with perceived levels of IJV performance among foreign parent company managers. Interestingly, traditional exogenous determinants of IJV control and performance such as government mandates, cultural similarity, and international experience levels fail to provide significant effects. Rather, the focus is on endogenous aspects of the parent-IJV relationship, suggesting that the key to parent firm satisfaction with an IJV is control over operations that use key strategic inputs from the parent.

(Joint Ventures; Alliances; International; Control)

Introduction

The international economic environment is changing rapidly from a condition of relatively static competition based on comparative advantages of nations to one of intense technology-based, time-sensitive competition. Major changes are occurring in political and economic systems around the world. Countries are entering the industrial economy from the ranks of both the former planned economies and the less developed economies. Political and economic alliances of nations are developing in new regions or evolving into closer relationships. In response, to protect their access to markets and resources, international companies are trying to gain entry to the new national and bloc economies while striving to enhance their positions in the traditional industrial triad.

At the same time, global competition, world-scale technology, and converging demands from customers in many lands are forcing multinational firms to invest widely. The new technologies are so expensive, yet so fleeting, that companies in such industries as electronics and pharmaceuticals must have global distribution from the time of introduction of a new product. Otherwise, another global competitor will move first—a critical step when product life cycles are measured in a few short years. Recovering huge investments in technology in ever-shorter time frames necessitates a broad presence in global markets.

How are multinational companies to cope with increasing uncertainty coupled with a burgeoning demand for global products? From a strategic perspective, greater uncertainty in the environment suggests a need for flexible commitments and parsimonious application of resources. Organizationally, such a strategy is facilitated by the use of alliances in place of solo operations. Strategic alliances reduce the resource commitment in any one location, enabling a single firm to cover more of the globe with the same assets. Because of the risks inherent to sharing ownership and control of operations, alliances have long been treated as less than optimal organizational solutions. In times of turbulence, however, the risks from misjudging the direction of the environment or missing an opportunity for market entry appear to outweigh the risks of divided loyalties and leadership. When international firms must be able to operate effectively everywhere and anywhere while remaining ready to make immediate adjustments in their worldwide systems, even the largest multinational companies need the added resources, the new access, the political connections, or the latest technologies that can be gained from cooperative ar-

rangements. Such alliances make possible the bold but carefully hedged strategies necessary in uncertain times.

International alliances take a variety of forms. Contractual partnerships requiring long-term commitments and intensive interaction are increasing in number (Contractor and Lorange 1988). Shared-equity international joint ventures (IJVs), more capable of transmitting the complex competencies needed for competitive advantage, are perceived as increasingly important strategic weapons for competing within a firm's core markets and technologies (Harrigan 1986). Equity holdings give partners freedom to access information, monitor performance, and control and observe the control of operations, which can be precluded in a contractual mode. A joint owner can protect its share of the residual income and have some input to decision making without constant renegotiation, but the same freedoms and powers are accorded to its ally. Equity ventures, because they set up new organizations, can increase the loyalty of managers and workers who are removed from the parents and can encourage transfer of organizationally embedded implicit knowledge and group skills. However, the threat of differential learning rates (Hamel 1991) to continued competitive advantage increases the need for control of activities in IJVs to protect the performance possibilities of both joint venture and parent.

Of critical concern in all models pertaining to joint ventures—domestic or international—and other alliances is the issue of ownership and control of the venture and the implication for the overall performance of the venture. Parental control of venture activities implies that the parent firm can ensure the most effective use of whatever strategic resources it shares with the IJV, a great concern in turbulent environments. Control also implies that the strategic resources of one parent can be sheltered from the kind of casual exposure to the other parent by which competitive advantage may be lost to a potential competitor.

Control in IJVs traditionally has been modeled by relative degree of ownership, but new work on alliance forms, networking, relational contracting, and other organizational models suggests that ownership may not be the optimal means of control in every situation and may even be a minor issue in governance. We therefore used structural equation modeling to test empirically a model that integrates consideration of strategic resources, equity, control, and performance, along with the effects of other variables historically proposed to have an influence on the performance of international

joint ventures. Two primary research questions were addressed in our study:

1. How is the locus of control in international joint ventures defined and determined?
2. What is the relationship between control and performance levels of the IJV, as perceived by the foreign parent company?

Theoretical Perspectives on Control and Performance

In a joint venture, each of the joint venture parents invests resources with the intention of getting as much as possible in return for the investment. Resource-based theory suggests that certain "strategic resources" (Chi 1994) generate competitive advantage and superior performance (Barney 1991), and that alliances enable firms to create new resource bundles that can generate additional rents not otherwise available to either parent. Resource models also suggest that organizational learning aimed at acquiring the partner's strategic resources is a major factor in IJV formation (Hamel 1991, Kogut 1988). Because the most valuable resources involved in a joint venture are often intangible, a crucial factor determining the return a parent can expect from a joint venture is the amount of control that parent can impose on the venture. Controlling resource application may determine the actual rent extraction, and controlling leakages of proprietary knowledge prevents uncompensated transfer of capabilities and breakdown of the IJV. Several theories can be used as a framework for investigating equity ownership and other control issues in IJVs. Transaction cost theory and bargaining power theory are the primary theoretical lenses we use to analyze the relationships among strategic resources, equity, control, and performance of the joint venture from the perspective of the international parent firm.

Transaction Cost Economics

Transaction cost economics (TCE) describes the boundary conditions of the firm. The theory is commonly used in explaining when joint ventures might be a more efficient governance mode than wholly owned subsidiaries or market transactions (Beamish and Banks 1987; Buckley and Casson 1988; Hennart 1988, 1991; Kogut 1988). TCE models suggest that a firm can protect its strategic resources by internalizing transactions where important proprietary know-how might be exposed to other firms. IJVs arise when complete internalization is not efficient, but markets fail to trans-

fer intermediate goods adequately. Beamish and Banks (1987) state that, to justify a joint venture as a governance form, the benefit of joining forces with another firm must exceed the increased governance costs and potential leakage of tacit knowledge associated with having a partner. The transaction costs model of IJV formation relies heavily on the role of intangible knowledge or "know-how." Hennart (1988, 1991) notes that joint ventures arise when two or more firms desire to combine their inputs, but that the transfer of those resources has high market transaction costs, typically because they are know-how resources, so an equity transaction is preferred. However, when neither firm can afford (or desires) to acquire all of the other, or both sets of resources are so embedded in their organizations that the market fails in both cases, or the strategic opportunity is time-sensitive, a complete takeover may not be desirable and an equity joint venture is the preferred subsidiary form. Hennart (1991) notes, though, that protecting know-how from the partner is difficult. Kogut (1988) and Buckley and Casson (1988) suggest that the joint residual ownership status of shared equity holdings makes each firm hostage to the other in considering misappropriating resources. Hence, the more critical the strategic resources transferred to the venture are to the parent, the more likely the parent is to desire whole ownership or, if that is not possible, the highest possible level of ownership.

Those findings have implications for the model we propose. Most empirical literature also suggests that the commitment of parent strategic resources to a venture will be protected through equity ownership and overall control (Bleeke and Ernst 1991, Hennart 1991, Stopford and Wells 1972). Because equity position often determines the composition of the board of directors, and the board usually appoints high-level executives, the partner with a dominant equity position has the ability to exercise more control. Hence, the total path from strategic resource similarity between the parent and the IJV to performance should run from strategic resources through equity share and overall control to performance. In the traditional ownership-focused TCE model, all of the following hypotheses should be supported.

H1. *Commitment of the parent's strategic resources to the IJV is related positively to equity share in the IJV.*

H2. *Equity share is related positively to overall control.*

H3. *Overall control is related positively to performance.*

Bargaining Power Theory

The preceding (naive) TCE model has been successful in determining the relative use of wholly owned subsidiaries versus IJVs (Gatignon and Anderson 1988, Hennart 1991), but it has had less success in differentiating levels of joint ownership and control (Gatignon and Anderson 1988). The reason may relate to variable selection (does spending level really indicate competency?), methodology (generally either single-equation logit or multiple regression models), or conceptual limitations. In studies on ownership and control, the presumption seems to be that the joint venture partners will get the levels of equity and control they prefer (Anderson and Gatignon 1986, Gatignon and Anderson 1988, Hennart 1988). Those studies fail to take into account the bargaining process that is a precursor to an agreement in any contract involving two or more parties. The bargaining power model of the IJV (Blodgett 1991a, b; Gray and Yan 1992; Lecraw 1984) centers around how a parent can use its resources and capabilities to gain control of the IJV, whether through a higher equity share, a higher level of overall management control, and/or a higher level of control of specific activities. The partner with the strongest bargaining position typically can negotiate for a higher "overall" level of control if desired. Again, the exact meaning of "control" varies across researchers. Alternative measures are compared here.

Although the international bargaining power literature has mainly emphasized the bargaining situation between a multinational firm and a host government (Blodgett 1991b, Fagre and Wells 1982, Gomes-Casseres 1990, Lecraw 1984), it can be valuable for investigating the bargaining process between the IJV parents. Basically, a bargaining process occurs each time two or more individuals, groups, or organizations have a conflict of interest, and when they want to resolve their differing goals because doing so would be mutually beneficial (Bacharach 1981). The outcome of a bargaining situation between two joint venture partners will be satisfactory to the partners only if the contributions and expected benefits of the two firms are kept in balance (Robinson 1969). In our study, the bargaining process of interest is the one that occurs when two potential joint venture partners negotiate for ownership *and* control. Gomes-Casseres (1990) suggests that each party in the bargaining process has a preconceived notion of its potential power position

(what it wants). The relative bargaining positions of the parties will determine the final outcome of the negotiations (what they can get).

The study of bargaining power in organizations has several theoretical foundations. Some authors define bargaining power as the ability to affect outcomes or to get things done (Mintzberg 1983, Salancik and Pfeffer 1977)—what might be considered strategic or overall control. Others hold that power stems from control of critical resources (Blodgett 1991b, Pfeffer 1981). The focus on control of strategic resources and structural dependencies emphasizes that relative bargaining positions are a result of the resources each of the IJV parents supplies to the venture. We suggest that the relative value of parent resources committed to the IJV drives the final outcome. Previous research has identified the resources that have the most important impact on the bargaining positions of the IJV parents.

In a study of IJVs in China, Yan and Gray (1994) investigated bargaining power and control. They refer to resource dependency theory (Pfeffer 1981), proposing that control of critical resources constitutes power bases that can tilt the negotiations in one party's favor. Realizing that an IJV consists of three entities, they suggested that the important dependencies are between the parents and the joint venture, not between the parents. Yan and Gray used five components of bargaining power in their analysis: technology, market access and marketing skills, local knowledge, managerial expertise, and equity share. Their findings show that the proposed components had a positive impact on the bargaining strength of the partner possessing them, although the statistical significance was generally low. Of particular interest in their model is the presentation of equity as an input to the bargaining process, not an outcome.

Blodgett (1991a, b) identified five factors influencing the bargaining power of JV parents: government suasion, technology, local knowledge/marketing skills, control of intrasystem transfer (both the supply of inputs to the venture and distribution of output from the venture), and financial capital provided for the venture. Financing, the factor most closely associated with ownership share, is not considered a crucial source of bargaining power for the firm because "financing is the most fungible, least tacit, of the assets" (Blodgett 1991a, p. 47). Yet equity shares are likely to be tied closely to capital inputs.

While acknowledging that IJV partners may at times prefer lower levels of particular control types, we believe the literature suggests that greater bargaining power generally is related to higher levels of equity,

overall control, and specific control. Hence, we make the following hypotheses.

H4. *A parent's relative resource contribution is related positively to its bargaining power.*

H5. *The bargaining power of a parent is related positively to the parent's equity share.*

H6. *The bargaining power of a parent is related positively to the parent's specific control.*

H7. *The bargaining power of a parent is related positively to the parent's overall control.*

An Integrated Approach to IJV Theory

The preceding models and theories typically have been treated separately in the literature, although several constructs are central to both models. Treating theories separately is convenient in theory development, but we need a broader understanding to develop knowledge of a phenomenon. By developing an integrated model of IJV performance that includes constructs and links derived from each of the theories discussed, we should be able to test the relationship among the constructs more rigorously and thus contribute to a better understanding of both the theories and the influence of the constructs on joint venture performance.

Key to managing an IJV is the integration, exploitation, and protection of strategic resources, whether from a resource-based (Conner 1991), organizational learning (Hamel 1991, Kogut 1988), or transaction cost viewpoint. The underlying mechanism for managing resources or capabilities is control. Joint venture control is the central issue in the model we develop. We use three separate control constructs. One is the equity share held by each of the parents, because that construct is commonly used in the literature and also because equity share is a way of influencing strategic control over the joint venture. Another is the overall or strategic (Yan and Gray 1995) control of the venture as suggested by Killing (1983). The third is control over specific operational activities, as suggested by several researchers (Geringer 1986, Geringer and Hebert 1989, Hill and Hellriegel 1994, Schaan 1983).

Many studies on equity and control are based on the assumption that equity ownership ratio can be used as a proxy for control. Blodgett (1991b) and Stopford and Wells (1972) conceptually distinguished between equity and management control, but operationalized control as ownership. Darrough and Stoughton (1989) made no distinction between the two. When Gatignon and

Anderson (1988) used transaction cost analysis as the theoretical foundation for a multinational's choice of entry mode, they used equity share as the dependent variable. That operationalization is convenient because data are much more readily available for equity levels than for a construct such as control. Note that transaction cost *theory* actually centers around governance, which is compatible with the possibility of specific control mechanisms, but virtually all TCE-based empirical models focus on equity, relating partial to whole ownership and thus to degree of overall control. Bringing specific control into the TCE model requires a modified approach, concerned less with equity ownership rights *per se* and more with the risks of specific technology leakages in IJVs.

One must recognize, however, that equity position and control are two conceptually different constructs. Gaining equity share is but one way of trying to obtain control of the operation of a joint venture. Control is the main issue in the theories behind multinationals and joint ventures (Beamish and Banks 1987; Dunning 1979; Hennart 1982, 1988, 1991; McManus 1972). Having a larger equity position generally means having more power on the board of directors (which usually appoints high-level executives) and thus greater ability to control the IJV's strategy. However, when bargaining power is considered directly in an integrated model, control may be negotiated separately from equity share. Also, we must acknowledge Yan and Gray's (1994) position that equity share is but one input to the process of defining control of the IJV. Therefore, overall control must be treated as a separate, although related, issue from ownership share.

Why does a parent want to control a joint venture? One reason is that control implies the ability to determine how best to use the capabilities of the venture. Geringer and Hebert (1989, p. 236) suggest another.

In turn, exercising control over some or all of the activities of an international joint venture helps protect the firm from premature exposure of its strategy, technological core or other proprietary components to outside groups.

Schaan (1983) found that some joint venture parents choose to target specific areas of control rather than overall control of the venture. In a clinical study of joint ventures in Mexico, he found that success was related to fit among objectives, selective focus of control, and mechanisms for applying control. Geringer (1986) found support for the idea that parents may choose to exercise control over a specific scope of the joint venture activities rather than overall control. By bargaining to control specific areas of the IJV's activi-

ties to which it contributes key strategic resources, a parent firm can manage the effective application of its assets and skills and control the exposure of its own crucial capabilities, even with a relatively small share of the overall equity and control. Overall control of the IJV suggests that the parent, rather than focusing on its own contribution, is interested in controlling the strategic direction of the combined bundle of complementary strategic resources represented by the IJV itself. Hamel (1991) posits that some parents may be more concerned about the success of the venture and others with the value addition to the parent. The overall/specific control division reflects those two strategic resource positions.

Equity share is hypothesized (H2) to be a specific means of controlling the overall direction of the IJV. Equity share may also affect specialized control, as the IJV board could select managers for key operational areas. However, the literature suggests (Geringer 1986) that specialized control is a separate issue from ownership share. Control of strategic activities may be negotiated when the IJV is formed, as a condition of the agreement, thus removing key appointments from the purview of the IJV board or top managers. Hence, the bargaining power input is the critical issue for determining specialized control (H6). If equity is an input to bargaining power, per Yan and Gray (1994), it may have an indirect affect on the negotiation of specialized control. Although we believe the literature supports a separation of equity and specialization, we present the following hypothesis in the alternative form for consistency.

H8. *Equity share is related positively to control over specific activities of the IJV.*

If specific control can indeed protect strategic resources, though, opportunism costs can be limited without formal ownership. Control over know-how by one IJV parent can be assured through either overall control of the joint venture or control of specific activities of importance to that parent. The degree of specialized control should influence the parents' overall feelings of control of the IJV, and eventually their perceptions of performance of the venture.

H9. *Exposure of parent company strategic resources in an IJV is related positively to control over specific activities.*

H10. *Control over specific activities is related positively to overall control.*

The integrated model also supports H3 by suggesting that overall control is related positively to performance. However, it does not eliminate the possibility of a more direct performance effect, one more in line with the results of Schaan (1983), Geringer (1986), and Hill and Hellriegel (1994).

H11. *Control over specific activities is related positively to perceived performance of the IJV.*

Other Issues in IJV Formation

Our hypotheses relate to the specifics of organizational models of control and performance in IJVs. Previous studies have shown that a variety of exogenous factors may affect those concerns, but we treat such factors as moderating variables and do not test formal hypotheses. However, we anticipate certain effects from a survey of the literature. A key issue in much of the early IJV literature was the effect of government regulation on ownership position. Typically, government restrictions limit the equity share held by the foreign parent. Some studies indicate that a firm's level of international experience will affect its ownership patterns (Davidson 1980, Erramilli 1991, Hennart 1991, Kogut and Singh 1988b). International experience should be related to the equity share held in the joint venture, although a clear consensus on sign is not apparent.

Another concept related to the experience factor is sociocultural distance, a "particularly potent form of internal uncertainty" (Gatignon and Anderson 1988, p. 311). The more unfamiliar the multinational firm is with the values and operating methods of the foreign parent, the more it would tend to avoid high-equity entry modes. Therefore, cultural distance on the part of the multinational parent is thought to be related negatively to the equity share held in the joint venture. The literature has focused on the effects of the exogenous variables on ownership, and we follow that pattern. An interesting issue, but one that would add unwanted complexity to our model, is the impact of exogenous factors on specialized control and directly on overall control.

Killing (1983) found that many U.S.-Japanese joint ventures formed in the 1960s failed because of cultural differences. Good communication can be difficult to develop if the managers are from different organizations, and "particularly difficult if the parent firms are of different nationality and of markedly different corporate culture" (Killing 1983, p. 57). Geringer and Hebert (1991) confirmed those findings. We expect

cultural distance to be related negatively to performance of the joint venture.

Model Specification, Data Collection, and Research Methods

Model

Goldberger (1973) identified three situations in which structural equations are important and regular regression parameters alone fail to give the relevant information: (1) when the observed variables contain measurement errors and the relationship of interest is among true variables, (2) when there is simultaneous causation among the observed variables, and (3) when important explanatory variables have not been observed. As such conditions were present in our study, we used structural equation modeling with latent variables to analyze the relationships among our variables. Fornell, Lorange and Roos (1990) used structural equation modeling to examine cooperative venture formation on a similar data set, seeking to reduce the impact of statistical noise on a similarly complex strategic model.

Structural equation modeling using LISREL VII (Jöreskog and Sörbom 1981, 1989) handles two basic problems that arise in scientific inference in the social and behavioral sciences, what the observed measurements really measure (by the measurement model) and how one can infer complex causal relationships among variables that are not directly observable, but are reflected in fallible indicators (by the structural equation model) (Jöreskog and Sörbom 1989, p. 2). The measurement model addresses how the unobserved (or latent) variables are measured through the observed variables, describing the validity and reliability of the observed variables. The structural equation model addresses the causal relationships among the unobserved variables. An independent or exogenous unobserved variable always acts as a presumed cause and never as a presumed effect, whereas a dependent (or endogenous) unobserved variable is always presumed to be directly caused or influenced by another variable (Hayduk 1987). The LISREL program estimates the unspecified parameters in the model to get the best possible fit between the covariance structure of the observed data and the covariance structure of the conceptual model.

The ten constructs in our structural model are socio-cultural distance (CULTURE), previous international experience (EXPERINC), relatedness of parent and IJV's rent-yielding strategic resources (STRATRES), the relative contribution of resources to the venture by each partner (RELCONT), bargaining power in the

negotiation process (BARGPWER), regulation limiting equity share (LAWS), actual equity share (EQUITY), control over specific JV activities (SCONTROL),¹ overall control (CONTROL), and perceived performance of the JV (PERFORM). The parent firm's relative contribution is defined as the total of its contributions of resources minus the resource contributions of the other parent in each of several operational areas.

A system of five simultaneous equations was used to estimate the coefficients of the structural model and test the hypotheses.² The first equation states that bargaining power is influenced by the relative resource contribution of the parent firm (H4).

$$\text{BARGPWER} = \gamma_{14} * \text{RELCONT} + \zeta_1. \quad (1)$$

The second equation states that equity share is influenced by bargaining power, cultural distance, international experience, relatedness of strategic resources, and legal requirements limiting equity share (H5, H1).

$$\begin{aligned} \text{EQUITY} = & \beta_{21} * \text{BARGPWER} + \gamma_{21} * \text{CULTURE} \\ & + \gamma_{22} * \text{EXPERINC} + \gamma_{23} * \text{STRATRES} \\ & + \gamma_{25} * \text{LAWS} + \zeta_2. \end{aligned} \quad (2)$$

The third equation states that control over specific activities is influenced by bargaining power, equity share, and relatedness of strategic resources (H6, H8, H9).

$$\begin{aligned} \text{SCONTROL} = & \beta_{31} * \text{BARGPWER} + \beta_{32} * \text{EQUITY} \\ & + \gamma_{33} * \text{STRATRES} + \zeta_3. \end{aligned} \quad (3)$$

The fourth equation states that overall control is influenced by bargaining power, equity share, and control over specific activities (H7, H2, H10).

$$\begin{aligned} \text{CONTROL} = & \beta_{41} * \text{BARGPWER} + \beta_{42} * \text{EQUITY} \\ & + \beta_{43} * \text{SCONTROL} + \zeta_4. \end{aligned} \quad (4)$$

The fifth equation states that perceived performance of the IJV is influenced by control over specific activities, overall control, cultural distance, and relatedness of strategic resources (H11, H3).

$$\begin{aligned} \text{PERFORM} = & \beta_{53} * \text{SCONTROL} + \beta_{54} * \text{CONTROL} \\ & + \gamma_{51} * \text{CULTURE} + \gamma_{53} * \text{SRATRES} \\ & + \zeta_5. \end{aligned} \quad (5)$$

A direct role for strategic resources in determining perceived performance is suggested by resource-based theory (Barney 1991). That term in Equation (5) provides a control for the possible direct influence.

Figure 1 shows the constructs used in the model and the hypothesized links between them, as well as the significant empirically derived coefficients. The directions and signs of the links between the constructs represent specific hypotheses about the relationship between the constructs.

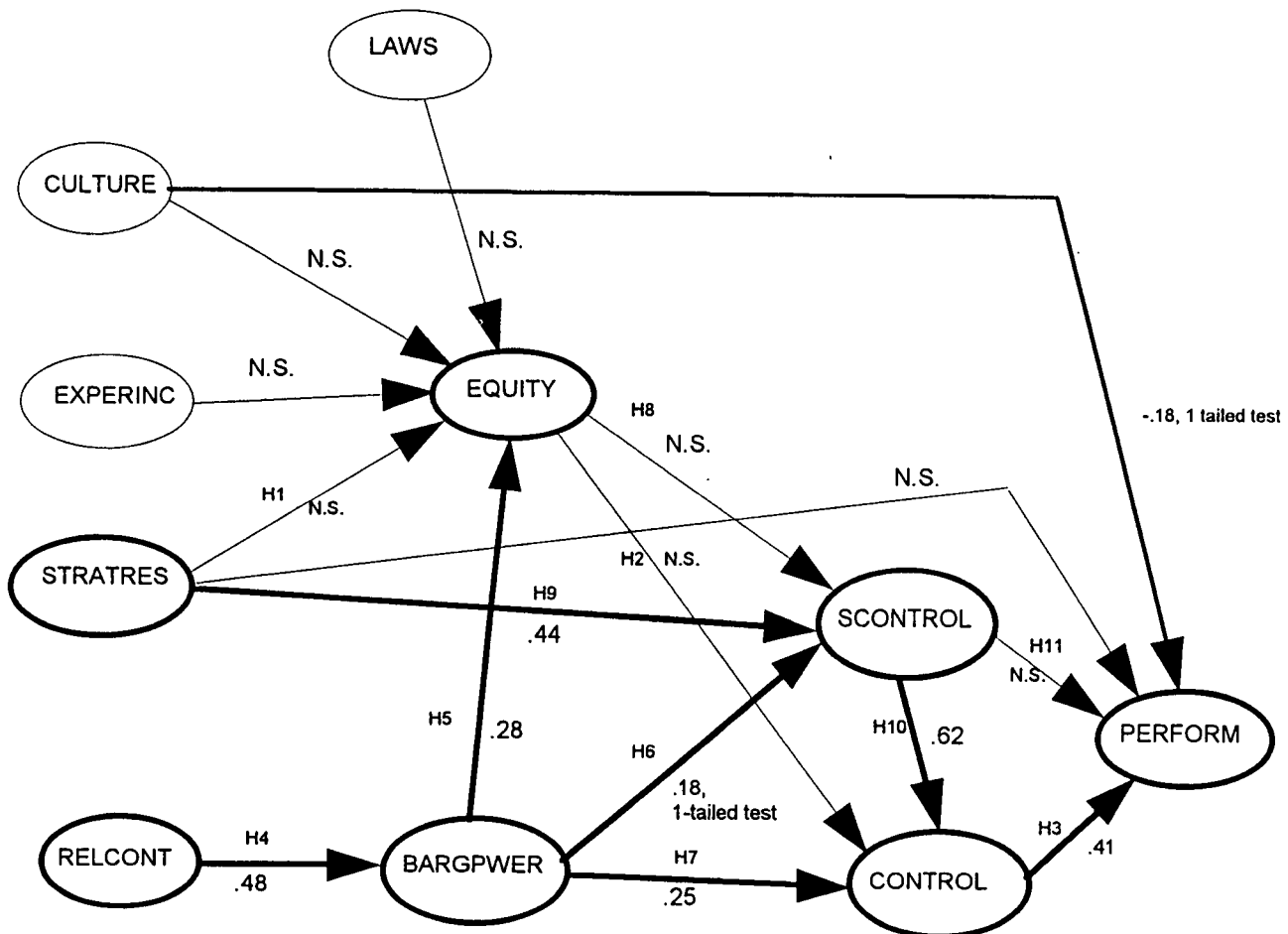
Survey

The population of interest was Norwegian firms involved in international joint ventures. Because most empirical testing has been done with U.S. firms, a study involving Norwegian multinationals provided a chance to test the generalizability of previous findings. The respondent of interest was the person in the

Norwegian parent firm who was involved in setting up a specific international joint venture and also was involved in the daily activities of the venture. After contacting more than 100 of the largest Norwegian MNEs, we selected a total of 147 IJVs involving 52 large Norwegian multinational firms in industries such as marine engineering, construction, oil, aluminum, shipping, and pharmaceuticals.³ The information departments of those firms were asked to contact a respondent for each of the IJVs. Sample statistics for the various input measures are reported in Appendix 1.

Respondents involved with 107 IJVs agreed to participate in the study; 95 were contacted through personal interviews and 12 were contacted by mailing the instruments. The 12 respondents receiving the mail survey were in remote areas where personal interviews would have been costly. Five of the respondents did not answer all questions because of the sensitivity of

Figure 1 The Theoretical Model with Hypotheses and Significant Coefficients



the information that would be revealed. In total, survey questionnaires from 37 firms about 102 IJVs were completed and used in the study. Only one side of the IJV triangle was examined. The Norwegian parents were asked for their impressions of their contributions, control, and perception of the performance of the IJV. They also assessed the partner's relative positions or contributions on some variables, as in the Fornell et al. (1990) study. Although obtaining direct input from all players might be ideal, Geringer and Hebert (1991) showed that parents have generally accurate pictures of their partner's position. The use of respondents from only one partner is a limitation on the study, but surveying the local partners and foreign-based IJVs was not practicable given the size of the sample and the anonymity of the IJVs.

Instrument

A questionnaire was designed exclusively for the study. One approach to the problem of difficult to specify measures is to use multiple indicator measures to estimate the theoretical constructs as latent variables. According to Hughes, Price and Marrs (1986), that approach has two advantages. First, such models provide a method for both estimating structural relationships among unobservable constructs and assessing the adequacy with which those constructs have been measured. Second, such models require a way of thinking about theory construction and data analysis that provides for more precise testing as well as a better understanding of the data. Seven of our ten constructs were measured with multiple indicators. To ensure that at least two indicators would have high enough composite reliability, the pretest survey included a minimum of five indicators for each of the seven constructs. Cultural distance was measured with seven indicators, international experience with five, relatedness of parent and IJV strategic resources with thirteen, bargaining power of the parent with nine, control over specific activities with eight, overall control with twelve, and perceived performance with nine.⁴ Those 63 indicators were measured on 6-point Likert scales, with coding ranging from one (strongly disagree) to six (strongly agree).

The other constructs were measured with a single indicator. The influence of government restrictions was measured on a 6-point Likert scale ranging from zero (no government restrictions) to five (strong government restrictions). The level of equity held by the parent was measured as the percentage of total equity.⁵ Finally, the contribution of each partner was measured on an interval scale ranging from zero to 100 percent.

Data Analysis Method

In two-step approach to structural equation modeling suggested by Anderson and Gerbing (1988), we used confirmatory factor analysis to establish the measurement model, then tested the full structural model.

Measurement Model. The first part of the questionnaire consisted of 49 items developed to measure seven underlying constructs. Because the items were designed exclusively for our study, we had no assurance that they would indeed load on the seven underlying constructs. Therefore, we used exploratory factor analysis to eliminate items until a smaller set of items was found with loadings greater than 0.5 on a set of seven factors. Finally, for parsimony, a smaller number of measured variables that loaded highly on the latent variables was retained (see Appendices 2 and 3).

Table 1 reports the standardized pattern coefficients, z-statistics, and reliability values for the measurement model. The standardized coefficients are all relatively high and highly significant. The reliability of the individual indicators ranges from 0.408 to 0.986, with only one value below 0.5. Those results show a high level of reliability for the individual indicators. The free coefficients are all significant at the 0.001 level, suggesting that convergent validity has been achieved. The composite reliability values for the constructs range from 0.770 to 0.951, well above the 0.6 cutoff value suggested by Bagozzi and Yi (1988).

An evaluation of the measurement model using the pure χ^2 -statistic did not indicate that the data fit the model well ($\chi^2 = 182.21$, d.f. 128, $P = 0.001$). However, that statistic often suggests rejection of a model. Another indicator of how well the data fit the model, the ratio of χ^2 to degrees of freedom, is 1.424. A value of less than three for the ratio indicates a good fit (Carmines and McIver 1981). The goodness-of-fit index (GFI) is 0.867 for the model. Usually, a value above 0.9 is considered good, and a value between 0.8 and 0.9 is considered moderate (Bentler and Bonett 1980). The goodness-of-fit measure adjusted for degrees of freedom (AGFI) is lower at 0.782. That those goodness-of-fit indicators are not higher may reflect the size and complexity of the model as much as measurement difficulties, as the simpler Cronbach's alpha indicators of reliability are 0.95 for cultural distance, 0.86 for international experience, 0.89 for relatedness of core competencies, 0.88 for relative bargaining power, 0.92 for control over specific activities, 0.78 for overall control, and 0.94 for performance. Overall, the results indicate that the measurement model is appropriate for an investigation of the full structural model.

Table 1 Coefficients, Z-Statistics, and Reliability Values for the Measurement Model

| Construct / Indicator | Standardized Coefficient | Z | Indicator Reliability | Construct Reliability |
|-----------------------|--------------------------|----------------|-----------------------|-----------------------|
| CULTURE | | | 0 | 0.951 |
| ucultdif (item 17) | 0.951 | — ^a | 0.904 | |
| unation (item 44) | 0.949 | 19.39* | 0.901 | |
| ucultdis (item 30) | 0.890 | 15.74* | 0.792 | |
| EXPERINC | | | | 0.870 |
| elngtrad (item 16) | 0.929 | — ^a | 0.863 | |
| eoperyrs (item 2) | 0.902 | 10.91* | 0.814 | |
| estryrs (item 47) | 0.639 | 7.28* | 0.408 | |
| STRATRES | | | | 0.896 |
| crskills (item 7) | 0.993 | — ^a | 0.986 | |
| courttech (item 11) | 0.802 | 7.89* | 0.643 | |
| RELCONT | | | | 1.000 |
| bpower (composite) | 1.000 | — ^a | 1.000 | |
| LAWS | | | | 1.000 |
| litigat | 1.000 | — ^a | 1.000 | |
| BARGPWER | | | | 0.883 |
| bwepower (item 23) | 0.955 | — ^a | 0.912 | |
| bwestrng (item 4) | 0.830 | 8.02* | 0.689 | |
| EQUITY | | | | 1.000 |
| eqityshr (% equity) | 1.000 | — ^a | 1.000 | |
| SCONTROL | | | | 0.919 |
| swemgers (item 49) | 0.984 | — ^a | 0.968 | |
| sgenstaf (item 29) | 0.867 | 11.35* | 0.752 | |
| CONTROL | | | | 0.770 |
| oothctrl (item 10) | 0.826 | — ^a | 0.682 | |
| octrlprt (item 32) | 0.774 | 6.91* | 0.599 | |
| PERFORM | | | | 0.940 |
| psatisf (item 48) | 0.952 | — ^a | 0.906 | |
| pmetobj (item 1) | 0.908 | 15.77* | 0.824 | |
| pprofit (item 43) | 0.894 | 15.02* | 0.799 | |

^aCoefficients of leading indicator for each construct were set to 1.0 to establish scale for the construct.

* $p < 0.001$.

Structural Model. Figure 1 is the *a priori* structural model we tested, with significant parameter values and relevant hypotheses indicated. The full results of the structural model are reported in Table 2. Results for the specific hypotheses are given in Table 3. The maximum likelihood procedure was used for parameter estimation.

The value for χ^2 with 147 degrees of freedom is 280.05 ($P = 0.000$), indicating that the estimated model is significantly different from the proposed model.

Table 2 Magnitude and Significance of Hypothesized Structural Relationships (*a Priori* Model) and Total Path Effects

| Following/Leading Constructs | Hypothesized Sign | Parameter | Standardized Direct Effect | t | Total Effect | t |
|------------------------------|-------------------|---------------|----------------------------|--------------------|--------------|-------|
| BARGPWER | | | | | | |
| RELCONT | + | γ_{14} | 0.48*** | 4.47 | 0.48*** | 4.49 |
| EQUITY | | | | | | |
| CULTURE | — | γ_{21} | 0.10 | 0.87 | 0.10 | 0.87 |
| EXPERINC | +/- | γ_{22} | 0.10 | 0.98 | 0.10 | 0.97 |
| STRATRES | + | γ_{23} | -0.13 | -1.33 | -0.13 | -1.28 |
| RELCONT | | | | | 0.13* | 2.31 |
| LAWS | — | γ_{25} | -0.11 | -0.99 | -0.11 | -1.00 |
| BARGPWER | + | β_{21} | 0.28* | 2.58 | 0.28* | 2.59 |
| SCONTROL | | | | | | |
| STRATRES | + | γ_{33} | 0.44*** | 4.10 | 0.43*** | 4.01 |
| CULTURE | | | | | 0.01 | 0.71 |
| EXPERINC | | | | | 0.01 | 0.77 |
| RELCONT | | | | | 0.10 | 1.99 |
| LAWS | | | | | -0.01 | -0.77 |
| BARGPWER | + | β_{31} | 0.18 ^a | 1.79 | 0.21* | 2.16 |
| EQUITY | + | β_{32} | 0.12 | 1.22 | 0.12 | 1.22 |
| CONTROL | | | | | | |
| CULTURE | | | | | 0.01 | 0.70 |
| EXPERINC | | | | | 0.01 | 0.76 |
| STRATRES | | | | | 0.26** | 3.05 |
| RELCONT | | | | | 0.19* | 2.73 |
| LAWS | | | | | -0.01 | -0.77 |
| BARGPWER | + | β_{41} | 0.25* | 2.39 | 0.40*** | 3.24 |
| EQUITY | + | β_{42} | 0.06 | 0.63 | 0.13 | 1.20 |
| SCONTROL | + | β_{43} | 0.62*** | 4.58 | 0.62*** | 4.58 |
| PERFORM | | | | | | |
| CULTURE | — | γ_{51} | -0.18 ^a | -1.87 ^a | -0.17 | -1.80 |
| EXPERINC | | | | | 0.01 | 0.77 |
| STRATRES | + | γ_{53} | 0.01 | 0.15 | 0.16 | 1.57 |
| RELCONT | | | | | 0.09* | 2.30 |
| LAWS | | | | | -0.01 | -0.78 |
| BARGPWER | | | | | 0.18* | 2.58 |
| EQUITY | | | | | 0.06 | 1.24 |
| SCONTROL | + | β_{53} | 0.09 | 0.53 | 0.34** | 2.90 |
| CONTROL | + | β_{54} | 0.41 ^b | 2.36 | 0.41* | 2.36 |

* $P < 0.05$ (two-tailed test).

** $P < 0.01$ (two-tailed test).

*** $P < 0.001$ (two-tailed test).

^a $p < 0.05$ (one-tailed test).

^b $p < 0.01$ (one-tailed test).

However, GFI of 0.80 indicates a moderate fit. The AGFI is lower at 0.72. The ratio of χ^2 to degrees of freedom is 1.892, giving support for the overall model. The normed fit index is 0.83, indicating a moderate fit (Bentler and Bonett 1980). Further, both the comparative fit index and the incremental fit index are 0.91, indicating a high degree of fit. The root mean squared residual (RMSR) is 0.092. A value below 0.050 for that measure is generally considered good.

Additional support for the overall model is found by examining the squared multiple correlations for the equations for the five endogenous constructs in the model. The R^2 values for those equations are: bargaining power (0.23), equity share (0.11), control over specific activities (0.27), overall control (0.56), and performance (0.25). Those values are generally high. The overall coefficient of determination for the five equations taken together is 0.589, providing further support for the theoretical model.

Taken together, the preceding statistics suggest a moderate fit between the data and the theoretically derived model. One reason the fit measures are not higher is the size of the model. The model is large and complex, with 10 constructs and 20 indicators. Random error associated with every indicator and each structural equation included in a model will affect the overall fit of the model. In view of the complexity of

the integrated model, the overall fit seems adequate for testing the structural linkages among the constructs in an exploratory study.

The results for the linkages among the constructs are reported in Table 2. Student's *t*-tests were used to determine the significance of the links. Two-tailed tests of significance are indicated in the table. One-tailed tests also were used where there was a directional hypothesis. Of the 15 direct links in the *a priori* model (see Figure 1), seven turned out to be significant at $P < 0.05$ in a two-tailed test and one additional significant relationship was indicated with a one-tailed test.

Findings

We found no support for H1 and H2, which indicates that the total path from relatedness of core competencies to overall control and performance is not related to equity share. The ability to influence overall control (CONTROL) has a significant positive effect on the performance (PERFORM) of the joint venture, supporting H3 ($P < 0.01$). Those findings are contrary to the traditional transaction cost perspective on the role of ownership (hierarchy) as providing parent company control over strategic resources in IJVs.

The relative resource contribution of the partners (RELCONT) has a significant positive effect on the rela-

Table 3 Results of Hypothesis Testing

| Hypothesis | Proposed Sign | Actual Sign | Significance Level (2-tailed test) |
|---|---------------|-------------|------------------------------------|
| Formal hypotheses | | | |
| 1: STRATRES is related positively to EQUITY | + | -0.13 | n.s. |
| 2: EQUITY is related positively to CONTROL | + | +0.06 | n.s. |
| 3: CONTROL is related positively to PERFORM | + | +0.41 | $P < 0.05$ (0.01, 1-tail) |
| 4: RELCONT is related positively to BARGPWER | + | +0.48 | $P < 0.001$ |
| 5: BARGPWER is related positively to EQUITY | + | +0.28 | $P < 0.05$ |
| 6: BARGPWER is related positively to SCONTROL | + | +0.18 | n.s. (0.05, 1-tail) |
| 7: BARGPWER is related positively to CONTROL | + | +0.25 | $P < 0.05$ |
| 8: EQUITY is related positively to SCONTROL | + | +0.12 | n.s. |
| 9: STRATRES is related positively to SCONTROL | + | +0.44 | $P < 0.001$ |
| 10: SCONTROL is related positively to CONTROL | + | +0.62 | $P < 0.001$ |
| 11: SCONTROL is related positively to PERFORM | + | +0.09 | n.s. |
| Additional relationships | | | |
| LAWS is related negatively to EQUITY | - | -0.11 | n.s. |
| EXPERINC is related to EQUITY | +/- | +0.10 | n.s. |
| CULTURE is related negatively to EQUITY | - | +0.10 | n.s. |
| CULTURE is related negatively to PERFORM | - | -0.18 | n.s. (0.05, 1-tail) |

tive bargaining power of the parents (BARGPWER) ($P < 0.001$), giving strong support to H4. The relative bargaining power of the parents (BARGPWER) is related significantly and positively to equity share (EQUITY) ($P < 0.01$), control over specific activities (SCONTROL) ($P < 0.05$), and overall control (CONTROL) ($P < 0.01$). Those results support H5, H6, and H7. The equity share owned by the parents (EQUITY) is not related significantly to control of specific activities of the IJV (SCONTROL), so that hypothesis is not supported.

The preceding four significant links and the support of H3 affirm the importance of the bargaining power model. The model states that the bargaining power of the parent is influenced by its relative contribution to the venture, and that this bargaining power in turn gives the parent the ability to achieve a higher equity share as well as control over specific activities and overall control, and thereby higher perceived performance.

The relatedness of the strategic resources of the parent and the joint venture (STRATRES) has a significant positive effect on control over specific activities (SCONTROL), strongly supporting H9 ($P < 0.001$). Control over specific activities (SCONTROL) in turn has a highly significant positive effect on overall control (CONTROL), strongly supporting H10 ($P < 0.001$). SCONTROL is not significantly directly related to PERFORM, so that H11 is not supported. The direct path from STRATRES to PERFORM, suggested by resource-based theory, is not significant.

The preceding two significant links and the success of H3, indicate the importance of models involving protection and direction of the parent firm's resources within the IJV. Resource-based theory suggests that the rent-yielding potential of strategic resources is tied to the parent's organizational forms. Learning models (Hamel 1991) suggest that if those resources are not controlled closely, they are at risk. A governance, rather than ownership, approach to transaction costs suggests that the parent will act to reduce the risk of opportunistic misappropriation of its key resources by its partner. Finally, the parent's perception of performance will rise with greater control (although not necessarily greater ownership) of the IJV.

In addition to the direct effects among the constructs, we found seven significant total effects. Total effects include both direct effects between a pair of constructs and the indirect effects between two constructs. According to Olsen, Granzin and Biswas (1992, pp. 13, 14) indirect effects are effects that occur when:

...alternative paths of influence lead through other constructs intervening between the pair in question. Thus, the total effects give a more comprehensive indication of the impact of one construct on another.

The relative contribution of the parent (RELCONT) has a significant positive total effect on four other constructs in the model: equity share (EQUITY) of the parent, the parent's control of specific activities (SCONTROL), overall control (CONTROL), and performance of the joint venture (PERFORM). These findings support the importance of developing resource dependencies in the IJV to acquire control of both select operations and overall direction.

The relatedness of strategic resources of the parent and the joint venture (STRATRES) has a highly significant positive total effect ($P < 0.001$) on overall control of the venture (CONTROL). Combined with the preceding findings, this result suggests that the importance of resource contributions both to the IJV and to the contributing parent influences the desire for control of the venture.

Both the relative bargaining power of the parent (BARGPWER) and the ability to control specific activities (SCONTROL) have a significant positive total effect ($P < 0.01$) on the performance of the joint venture (PERFORM). Interestingly, although the direct effect from SCONTROL to PERFORM is only 0.09, the total effect of 0.34 is highly significant. Hence, the additional path through overall CONTROL plays an important role in linking the two constructs. This result is at odds with Hill and Hellriegel's (1994) finding that overall control had no influence on perceived performance but control over specific functions had a positive and direct relationship.

Traditionally, the roles of variables considered to be important in international business studies have been modeled through their effects on equity share. We maintained that tradition in investigating our moderating variables. The equity share of the parent (EQUITY) was not influenced by the parent's international experience (EXPERINC), cultural distance (CULTURE), or the legal requirements of the host country. The negative effect of CULTURE on PERFORM is significant only in a one-tailed test. Most respondents considered the Norwegian parents to be experienced in international operations. The low variance of that variable may account for its lack of significance, and may also account for the nonsignificance of cultural differences. Little government interference was found in the majority of cases, which limited the variance of that variable

dramatically.⁶ The role of CULTURE in determining performance is perhaps the result of older, better established, more productive IJVs being in culturally close Western European countries.

Discussion

Our *a priori* model is a complex one integrating several theoretical concepts used in other studies on international and domestic joint ventures. The theoretical foundations for the overall paths as well as the individual links of the structural model are based primarily on transaction cost theory and the bargaining power model, but also on resource-based theories of the firm.

Transaction Cost Theory

Traditional studies on transaction cost theory have suggested that strategic resources affect performance through overall control provided by ownership rights. The studies typically do not include any control construct beyond equity share (Darrough and Stoughton 1989, Gatignon and Anderson 1988). Our results indicate that relative degree of ownership alone does not provide a significant link between value of resource inputs and control of the IJV or its specific activities. Rather, control seems to be a direct managerial function related to both specific activities and strategic direction. Therefore, a minority partner could well have effective control of an IJV, or at least of key activities. The role of ownership as the key to IJV control appears to be highly questionable, a distinct departure from traditional market-hierarchy models.

Our results are consistent with those of more sophisticated approaches to transaction cost modeling (Hennart 1988) included in our integrated model, suggesting that relatedness of parent strategic resources to the joint venture encourages control over specific activities. Specialized control of key activities results in feelings of overall control, and thereby higher perceived joint venture performance. Governance efficiency and the need to avoid potentially opportunistic partner behavior—the essence of transaction cost models—are supported, though not in the form of internalization or ownership. A role for TCE is retained, but the costs work intimately with concerns about power and influence in deciding issues of control and ultimately of performance satisfaction.

Bargaining Power Theory and Resources

Bargaining power theory suggests that the relative bargaining power of the joint venture parents is determined by the relative importance of the resources they

bring into the joint venture. Further, increased bargaining power gives a parent the opportunity to levy more control on the joint venture. Increased bargaining power of one joint venture parent has a significant positive impact on all of our measures of control: the equity share of the parent, control over specific activities, and overall joint venture control. Those results strongly support the bargaining power model as applied to joint ventures (Blodgett 1991a,b; Gray and Yan 1992; Yan and Gray 1994). The strongest link from bargaining power is to equity share, with the link to overall control second strongest and the link to specific control third strongest. Why might bargaining power be used to increase equity share if equity share does not influence control significantly? Much of the profit of a joint venture is divided according to the relative equity shares of the parents. The concern for equity in itself indicates a concern for profit distribution based on resource contribution. Such an emphasis on the earning potential of asset deployment rather than just the risks is also suggested by resource-based strategy (Conner 1991). The total effects of relative contribution and bargaining power on joint venture control and performance are positive and significant. The results show that this total effect was channeled through specific and overall joint venture control.

The Integrated Model

Our results support our proposed integrated model, in that the paths to perceived joint venture performance from relative resource contribution and bargaining power and from relatedness of strategic resources go through control over specific activities and overall control. Those linkages support the concept that the parent is most concerned with the earning potential of its own capabilities, both in the IJV and for itself. Resource-based models (Barney 1991) suggest that rent-yielding resources are organizationally embedded, and may yield profits only in a particular organizational context. Hence, larger contributions of strategic resources drawn directly from the parent's capabilities would require organizational control. If the parent's core skills are perceived to be at risk in the IJV, as suggested by Hamel (1991), the more similar the IJV's strategic resources are to those of the parent, the more the parent would want to control those particular activities.

The SCONTROL construct appears to provide a connection between a bargaining power approach centering around the firm's need to retain control of its key assets while gaining control of the venture's opera-

tions and a modified transaction cost approach focusing on the need for governance of strategic resources. That is, greater risk of losing control of key assets produces a need for greater control of the joint venture organization, but not necessarily for more internalization. Our proposed model integrates those dynamic approaches to governance and control in the specialized control/overall control/perceived performance construct. Use of high bargaining power to gain both overall and specific control and the conclusive role of overall control in determining perceived performance indicate that using, as well as protecting, resources is critical to perceptions of performance. Finally, although the direct link from strategic resources to perceived performance is not significant, the overall importance of resource concerns is supported. Both the bargaining power and modified transaction cost paths begin with strategic resources and their rent-earning potential, supporting a resource-based perspective (Conner 1991) and emphasizing the need for integrating theoretical constructs.

Other Issues

The hypothesized negative link from government restrictions to equity is not supported. That finding is interesting as other researchers have suggested that such restrictions should have a strong impact on equity level. Testing the same model on a sample of firms in a country with a more defined role in international politics might have resulted in a significant negative link from government restrictions to equity share. Norway may be too small and nonaggressive to attract foreign government regulation. Also, countries are generally moving toward fewer investment restrictions, as seen in Mexico, Russia, and Eastern Europe.

The effect of international experience on the equity level preferred by the parent has mixed support in the literature. Gatignon and Anderson (1988) found that inexperienced firms generally would choose low-control entry modes, but other researchers (Davidson 1980, Kogut and Singh 1988) did not find support for that observation. Our results fail to support a link between international experience and equity share held by the Norwegian parent. All respondents in our study felt that their firm had many years of international experience. The highly skewed distribution of the data is the most likely reason for the nonsignificant results.

A significant link between cultural distance and equity level is not supported by the data. That finding is not surprising, because of conflicting arguments in

other studies suggest that the relationship between cultural distance and equity share is not clear-cut, the generally low variation in cultural differences in the sample, and the experience of the Norwegian firms. More experienced firms can be expected to be prepared to cope with foreign cultures. Cultural differences are related negatively to perceived performance, perhaps because of differences in cognitive maps and operating methods.

Conclusions

The model we developed provides an integrated approach to the study of the relationships between strategic resources, equity, control, and performance. Considerations from resource-based strategy, transaction cost theory, and bargaining power models of IJV operations were examined simultaneously. The importance of strategic resource inputs is indicated in several paths. Transaction cost theory is supported by the important total path from core competencies of the firm through control over specific activities and overall control to perceived performance. The bargaining power model is supported by the finding that the relative importance of the resources contributed by the joint venture parents has an impact on the bargaining power of the parents, and that the bargaining power is used to increase level of equity, control over specific activities, and overall control. The complexity of our model shows that large models integrating several theories can be investigated by structural equation modeling. Integrating theories into a single model provides a broader perspective on IJVs and does not require one theory to be chosen over the other, but allows the key concepts from each theory to be mutually supportive.

The limitations of the study are related largely to its sample. Although models developed from studies of firms in large countries appear relevant to firms in a small industrialized nation, our results should be confirmed through studies of firms in a larger home country. Another key issue is that we surveyed only one parent in the IJV triangular relationship. That approach is consistent with most research, and findings by Geringer and Hebert (1991) suggest that partners do indeed understand each other's positions. Nevertheless, future work including the complete IJV triad would be desirable.

In a highly competitive environment, the need to protect and properly exploit competitive advantage seems to be of paramount importance. Our study shows

that the parent firms of IJVs are vitually concerned with control of the joint venture, and in particular with controlling activities most closely related to their own strategic resources. The more important the relative contribution of key resources, the more ways the parent will use to gain control of the IJV, and the more control the parent has over its resources, the higher its perception of the joint venture's performance. However, control seems to be evolving away from simple ownership rights to a complex relationship of managerial control mechanisms. The multinational firm's need to both protect and apply its rent-yielding, embedded know-how resources in its joint ventures must be considered a major challenge for international managers.

Acknowledgment

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Appendix 1 Sample Statistics for Measured Variables

| Variable Name & Item | Mean | S.D. | Min. | Max. |
|----------------------------|-------|-------|------|------|
| equityshr (% equity of MN) | 44.14 | 14.14 | 10.0 | 75.0 |
| crskills (item 7) | 3.99 | 1.32 | 1.0 | 6.0 |
| courtech (item 11) | 4.01 | 1.45 | 1.0 | 6.0 |
| bwestrng (item 4) | 3.84 | 1.14 | 1.0 | 6.0 |
| bwepower(item 23) | 3.62 | 1.29 | 1.0 | 6.0 |
| swemgers(item 49) | 3.81 | 1.68 | 1.0 | 6.0 |
| sgenstaf (item 29) | 3.62 | 1.73 | 1.0 | 6.0 |
| psatisf (item 48) | 4.36 | 1.55 | 1.0 | 6.0 |
| pmetobj (item 1) | 4.68 | 1.39 | 1.0 | 6.0 |
| pprofit (item 43) | 4.10 | 1.69 | 1.0 | 6.0 |
| RELCONT Inputs: | | | | |
| MN firm % | | | | |
| technology | 56.03 | 31.13 | 0 | 99.0 |
| marketing | 49.74 | 29.67 | 0 | 99.0 |
| local knowledge | 33.27 | 31.13 | 0 | 99.0 |
| input supply | 37.50 | 29.63 | 0 | 99.0 |
| distribution | 41.63 | 29.07 | 0 | 99.0 |
| financial capital | 44.38 | 19.60 | 0 | 99.0 |
| Local firm % | | | | |
| technology | 35.86 | 29.65 | 0 | 99.0 |
| marketing | 41.37 | 28.94 | 0 | 90.0 |
| local knowledge | 54.15 | 32.37 | 0 | 99.0 |
| input supply | 37.72 | 30.15 | 0 | 99.0 |
| distribution | 43.17 | 30.42 | 0 | 99.0 |
| financial capital | 53.03 | 20.55 | 0 | 99.0 |

Appendix 2 Factor Loadings for Exploratory Factor Analysis

| Indicator Name | Factors | | | | | | |
|----------------|---------|--------|--------|---------|--------|--------|--------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| PPROFIT | 0.9228 | | | | | | |
| PMETOBJ | 0.8970 | | | | | | |
| PSATISF | 0.8927 | | | | | | |
| PECORETN | -0.8503 | | | | | | |
| PMETEXP | 0.8353 | | | | | | |
| PNOTINV | -0.7980 | | | | | | |
| PNOTSUCC | -0.7801 | | | | | | |
| PNOPRTNR | -0.7065 | | | | | | |
| CRSKILLS | | 0.8556 | | | | | |
| CRKNOWHO | | 0.8470 | | | | | |
| COURTECH | | 0.8445 | | | | | |
| CCORESCL | | 0.8304 | | | | | |
| COURKNOW | | 0.7671 | | | | | |
| CWEGOOD | | 0.6999 | | | | | |
| UCULTDIF | | | 0.9364 | | | | |
| UNATION | | | 0.9159 | | | | |
| UCULTDIS | | | 0.9069 | | | | |
| UEATDIFF | | | 0.7928 | | | | |
| OPRTNINF | | | | 0.7891 | | | |
| OOTHCTRL | | | | -0.6925 | | | |
| OMOSTDEC | | | | 0.6609 | | | |
| OCTRLPRT | | | | -0.6342 | | | |
| OOVERALL | | | | 0.5569 | | | 0.4657 |
| OEXPLANS | | | | 0.5338 | | | |
| SGENSTAF | | | | | 0.8379 | | |
| SWEMGERS | | | | | 0.7811 | | |
| SMGDEPTS | | 0.4645 | | | 0.6696 | | |
| SCTRPRTS | | | | | 0.5823 | | 0.4192 |
| ELNGTRAD | | | | | | 0.8856 | |
| EOPERYRS | | | | | | 0.8646 | |
| ESTRYRS | | | | | | 0.8409 | |
| EINVESSE | | | | | | 0.8336 | |
| BWESTRNG | | | | | | | 0.8252 |
| BWEPOWER | | | | | | | 0.8152 |
| BWINNERS | | | | | | | 0.7493 |

Appendix 3 Survey Items in the Final Measurement Model

1. Cultural distance (CULTURE) was measured with three indicators. The indicators retained for the measurement model were:
 - a. There are significant cultural differences between us and the other JV partner (item 17).
 - b. Their national culture is quite different from ours (item 44).
 - c. There are many cultural dissimilarities between us and the other JV partner (item 30).
2. International experience (EXPERINC) was also measured with three indicators:
 - a. We have a long tradition of international operations (item 16).
 - b. We have been operating in foreign countries for many years (item 2).

c. Investing abroad has been part of our strategy for many years (item 47).

3. The relatedness of strategic resources of the parent and the JV (STRATRES) was measured with two indicators:

a. The JV to a large degree utilizes skills that we contributed (item 7).

b. Much of our technology is used in the JV (item 11).

4. The bargaining power of the JV parent (BARGPOWER) was measured with two indicators:

a. We were the most powerful firm during the initial negotiations (item 23).

b. In the initial negotiation process we felt we were the strongest partner (item 4).

5. The control over specific activities (SCONTROL) of the JV was measured with two indicators:

a. We provided most of the managers in the area of our expertise (item 49).

b. The departments where our contributions are used generally staffed by us (item 29).

6. The overall control of the JV (CONTROL) was also measured with two indicators:

a. The other JV partner influences a great deal of control over daily activities (item 10, reversed).

b. The overall managerial control generally resides with our JV partner (item 32, reversed).

7. Finally, the performance of the JV (PERFORM) was measured with three indicators:

a. We are satisfied with the performance of the JV (item 48).

b. The JV has met the objectives for which it was established (item 1).

c. The JV has been a profitable investment (item 43).

8. Three constructs were measured with single indicators:

a. The relative contribution of each partner (RELCONT) was measured with a composite index. The parent was asked what percentage (range zero to 100) of the following inputs were provided by each of the partners (1) technological know-how, (2) marketing know-how, (3) knowledge of local environment, (4) supply of inputs (raw materials), (5) distribution of outputs, and (6) financial capital. The contribution of the partner was subtracted from the contribution of "our" firm to give a relative contribution. Each of the six inputs was given equal weight. The composite index was constructed by adding the six relative contributions together.

b. The effect of government restrictions on equity share (LAWS) was measured on a 6-point Likert scale ranging from no restrictions to strong restrictions.

c. The final measure, equity share of "our" firm (EQUITY), was measured as a percentage ranging from zero to 100.

Endnotes

¹Although SCONTROL refers to control of the types of activities measured for RELCONT, it is measured by general statements about control of areas of special interest, so does not directly measure degree of control of specific activities (see Appendix 3).

²The system of equations proposed is recursive, with four exogenous causal latent variables and a number of zero restrictions on coefficients, and thus is overidentified. The estimation confirms that, as no problems of underidentification or nonconvergence arise.

³The subject IJVs were identified by the Norwegian parents' information departments and not identified by name. Although all parent firms were not independent and/or publicly owned, the size distribution of those that were ($n = 20$), based on assets, was as follows:

| Currency | Mean | S.D. |
|---------------|----------|----------|
| NKr(Million) | 11778.15 | 20554.66 |
| \$US(Million) | 11706.98 | 3029.69 |

⁴Note that the performance latent variable reflects qualitative assessments of performance from the perspective of the Norwegian parent. Fornell et al. (1990) used multiple qualitative measures in another structural equation model. Geringer and Hebert (1991) support the correlation of qualitative and quantitative performance measures, and the ability of participants in the IJV triad to accurately reflect each other's assessments of performance.

⁵We used a continuous measure of percentage of equity holdings. Other studies use categorical distributions. On such a measure, we had 47 minority ownership, 35 equal ownership, and 20 majority ownership cases in the final sample.

⁶The experience, culture, and legal variables were measured as described in Appendix 3. Experience and culture are latent variables composed of three highly correlated measured variables each. As indicators of the overall levels of those measures, mean scores on the three measured variables were calculated. Mean composite experience was 5.101, S.D. 1.12; mean composite cultural distance was 3.06, S.D. 1.54 (1-to-6 scales). LAWS was a single variable with mean 1.33 and S.D. 1.75 (0-to-5 scale). Only 19 firms reported significant regulatory effects, and they included minority, equal, and majority equity positions.

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