



Resource and Risk Management in the Strategic Alliance Making Process

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Resource-based and risk-based views of strategic alliances have not been adequately reflected in the literature. This paper identifies four types of critical resources that the partners bring to an alliance: financial, technological, physical, and managerial resource. It also suggests two basic types of risk in strategic alliances: relational risk and performance risk. The alliance making process is examined in terms of the interactive effects of resource and risk on the orientations and objectives of the prospective alliance partners. Managerial implications are discussed and future research directions indicated in the form of propositions for empirical testing.

Strategic alliances have emerged in recent years as a popular strategy in an environment in which fast access to up-to-date technology and emerging markets is more critical than ever (Deeds & Hill, 1996; Mitchell & Singh, 1996; Yoshino & Rangan, 1995). Such an environment has been called "hypercompetitive," and appears to be the direction in which business is moving (D'Aveni, 1994). Generally speaking, strategic alliances are considered a form of cooperative arrangement between organizations. Even so, there is some ambivalence when it comes to precisely classifying what types of cooperative arrangements can be termed strategic alliances. Researchers who are in favor of a more inclusive approach maintain that virtually all kinds of interfirm arrangements should be called strategic alliances (Borys & Jemison, 1989; Forrest, 1992; Lei & Slocum, 1991; Murray & Mahon, 1993; Stafford, 1994). In this approach, under the rubric of strategic alliance, there are various kinds of arrangements: joint ventures, equity investment, licensing, joint R & D arrangement, technology swap, buyer-supplier relationship, and others. On the other hand, some researchers have adopted a more restricted view, and have sought to make a distinction between strategic alliances and other cooperative arrangements (Devlin & Bleackley, 1988; Yoshino & Rangan, 1995). To them, strategic alliances refer only to those deals in which the parent firms are

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tied to each other in a substantive manner, i.e., long-term interdependence, shared control, and continued contributions by the parents. Thus, in this narrower conception, it seems that only a few selected kinds of cooperative arrangements would qualify as strategic alliances, and would include joint ventures, equity investment, joint R & D, and joint marketing. We believe that it is not central for the purpose of this paper to differentiate between narrowly defined strategic alliances and other types of interfirm cooperative arrangements. We will adopt the broader view of strategic alliances, which includes all the cooperative arrangements that are mentioned above.

The purpose of this paper is to examine the orientations and objectives of the partners in the strategic alliance making process predicated upon two key dimensions—resource and risk. The resource dimension addresses what the firm contributes to the alliance, while the risk dimension portrays what the firm may fear most. Naturally, firms would attempt to obtain maximum returns from the resources they commit to the alliances, while paying close attention to the risks they are exposed to (Ring & Van de Ven, 1992). Thus, these two dimensions capture the critical concerns of prospective alliance partners. The significance of integrating the two dimensions is that many key issues of strategic alliances, e.g., opportunistic behavior and interfirm trust (Gulati, 1995; Zaheer & Venkatraman, 1995), resource diversity (Parkhe, 1991), and structural arrangements (Osborn & Baughn, 1990), can be better understood through this integrated framework.

The paper is divided into three parts. We first introduce the resource dimension, which consists of the four key types of resource: financial, technological, physical, and managerial. We follow with a discussion on a risk-based view of an alliance, in which we differentiate between relational risk and performance risk of strategic alliances. In the last section, these two dimensions are integrated and the orientations and objectives of the alliance partners are identified under different conditions. We also discuss the managerial implications of the integrated framework and develop research propositions for empirical testing in the final section.

Resource-Based View of Strategic Alliances

There is no dearth of theoretical frameworks dealing with strategic alliances. Popular theories that have been applied to strategic alliances include transaction cost economics (Williamson, 1985), game theory (Parkhe, 1993), exchange theory (Gulati, 1995), strategic behavior model (Hagedoorn, 1993), dialectical model (Das & Teng, 1996a), and resource-based view of the firm (Eisenhardt & Schoonhoven, 1996). The resource-based approach examines competition based on the resources possessed by the firm, rather than on the basis of its products (Wernerfelt, 1984). It has been argued that it is the firm-specific resources which directly lead to a firm's competitive advantage (Barney, 1991). Prahalad and Hamel (1990) demonstrated how the focus on core competence was instrumental in GTE and NEC shifting their strategic positions. Thus, some theorists suggest that the resource-based view may constitute a new theory of the firm (e.g., Conner, 1991). According to Wernerfelt (1984, p. 172), a firm's resources are "those (tangible or intangible) assets which are tied semipermanently to the firm."

Thus, these firm-specific assets are costly to copy, and are the source of above-normal returns. Firm-specific resources include brand names, technology, skilled personnel, machinery, capital, and so on. Tangible resources may include physical assets and financial assets, while intangible resources may include technology, human, managerial expertise, and reputation (Hofer & Schendel, 1978; Grant, 1995).

In the field of strategic alliances, however, a resource-based view is yet to be fully developed. Though there are some studies examining the effects of resources in strategic alliances (Blodgett, 1991; Hennart, 1988; Lyles & Reger, 1993; Parkhe, 1991), they are mostly from other theoretical perspectives (e.g., transaction cost economics and the bargaining model). Therefore, existing studies on strategic alliances lack a theoretical focus on the question of resources. In the resource-based view, the concept of "resource" is multidimensional and it can be differentiated into several key types of resources (Barney, 1995). Existing studies have not systematically examined the effects of each major type of resource in strategic alliances. Indeed, the resource-based view informs us that various types of firm-specific resource would have different kinds of effects on the alliance making process. If a firm's core competence is built on its unique resources, then a strategic alliance as a way of pooling the core competencies of various partners should be critically related to the type of resource contributed by each partner. Hence, this paper identifies four basic types of resource that the partners bring to an alliance, and proposes a more comprehensive and integrated resource-based view of strategic alliances.

In essence, strategic alliances are about accessing resources that a particular firm does not already possess, yet which are critical for improving its competitive position. Badaracco (1991), for example, observed that embedded knowledge of the firm, a firm-specific resource, drives the firms into strategic alliances. On the one hand, a key motive for entering alliances is to combine the resources of the partners (Devlin & Bleackley, 1988; Pisano & Teece, 1989). Indeed, strategic alliances have become an attractive alternative to mergers and acquisitions as a means to acquire resources, precisely because alliances usually are faster and cheaper ways for accessing resources (Lei, 1993). Reciprocal strengths and complementary resources, or "a 'fit' between partners" (Forrest, 1992, p. 28), are identified as a premise for successful alliances (Parkhe, 1991). On the other hand, a particular firm may attempt to learn the skills or to steal the resources possessed by another firm through forming an alliance (Hamel, 1991; Kogut, 1988). Thus, one hidden agenda for entering a strategic alliance could be to gain access to firm-specific resources otherwise unavailable to a company. Hidden agendas tend to come into play with greater intensity regarding intangible resources than for tangible resources.

Several studies have examined various types of resource that a firm might deliver to an alliance (Blodgett, 1991; Chi, 1994; Hennart, 1988; Lyles & Reger, 1993; Stafford, 1994). Blodgett (1991), for instance, examined three types of resource contributed by the partners of an international joint venture: technology, local knowledge and marketing skill, and government suasion. Chi (1994) suggested technology, marketing, and management competence as three distinct

tive resources in alliances. In addition, Lyles and Reger (1993) adopted a joint venture's perspective, and identified the following types of resource possessed by the venture that are independent of those of the parent firms: R & D, financial, functional expertise, independent facilities, and physical location. Finally, Hennart (1988) identified the following inputs into a joint venture: raw material and components, knowledge, distribution, and loan capital.

Based on an analysis of the various types of resource mentioned in the literature, we submit that those types of firm-specific resources which are significant in strategic alliances can be classified into four basic categories: financial, technological, physical, and managerial resource. Financial resource refers to the availability of capital. Technological resource means the "secret know-how or superior R & D capability," such as patents (Chi, 1994, 271). Physical resource covers raw materials, production capacity, and distribution channels provided by the firm (Grant, 1995). Finally, we broadly define managerial resource as upper-level people and the skills necessary for effectively running a business organization. Know-how in functional areas such as operations and marketing thereby fall in this category.

Clearly, a firm's competitive advantage would need to be built on an organic combination of various types of resource it possesses (Chi, 1994). A reliance solely on any single type of resource may well work in the short term, but would be unlikely to generate sustainable competitive advantage in today's environment of intensified competition (Barney, 1991). For example, Reed and DeFillippi (1990) argued that physical assets alone do not help a firm in building sustainable competitive advantage. It is, therefore, only natural that we see so many firms reaching out to other firms who hold resources complementary to their own. According to Harrison et al. (1991), oftentimes valuable synergy is created by combining different (or complementary) rather than similar (or supplementary) resources. The alliance making process can thus be viewed in part as a process of seeking complementary resources. In this sense, the types of resource that firms contribute constitute a key dimension in understanding their orientations and objectives in prospective alliances. For example, those who contribute financial resource would be more concerned with return on their investment, while those who provide technological resource such as patents, are likely to worry about securing that technology. These and other differences will be discussed in detail later in the paper in conjunction with the risk dimension.

Risk-Based View of Strategic Alliances

Risk is a significant factor in strategic management, since strategic decision making is inevitably concerned with assessing odds for successful performance (Baird & Thomas, 1985; March & Shapira, 1987). According to Thompson (1967), the control of uncertainties and risks in one's environment forms the essence of management. Risk sharing or risk controlling have been proposed in other studies (e.g., Kogut, 1988) as important justifications for joining strategic alliances. For instance, many researchers identified risk control and risk reduction in R & D as a key rationale for R & D-related alliances (Gulati, 1995; Osborn &

Baughn, 1990; Teece, 1992). Others have referred to risk reduction in investments as a stimulus for strategic alliances (Hagedoorn, 1993).

In the process of strategic alliance making, risk considerations are obviously crucial (Brouthers, Brouthers & Wilkinson, 1995; Nueno & Oosterveld, 1988). However, crucial as they are, risk considerations are yet to receive adequate attention in the literature (Littler & Leverick, 1995). Traditionally, risk has been defined as either unanticipated variation or negative variation only (Miller, 1992; Miller & Leiblein, 1996). Based on March and Shapira's (1987) finding that managers generally associate risk with negative outcomes, in this paper we consider risk as unanticipated negative variation. Ring and Van de Ven (1994, p. 92) have suggested that in the alliance structuring process the partners are faced with two sets of risk: those "regarding future states of nature" and those regarding cooperation.

We prefer a slightly modified terminology, and suggest there are two distinctive and equally important types of risk in a strategic alliance: *relational risk* and *performance risk*, adopting these from our earlier work (Das & Teng, 1996b). Relational risk is concerned with cooperative relationships, or the probability that the partner does not comply with the spirit of cooperation. Opportunistic behavior of the partners (Williamson, 1983, 1985) is a typical source of relational risk. On the other hand, performance risk refers to the probability that intended strategic goals of an alliance may not be achieved, even though cooperation between the partners is satisfactory. According to Miller (1992, p. 311), the concept "risk" often refers to factors "either external or internal to the firm that impact on the risk experienced by the firm," i.e., the sources of risk. In this light, relational risk and performance risk differ in terms of their sources: the first arising from firm-firm interaction, and the latter from firm-environment interaction. Since these two sources represent different realms, they offer us two independent types of risk. Whatever damage is caused by suboptimal cooperation is attributable to relational risk, and whatever losses are caused by firm incompetencies and market uncertainties are ascribable to performance risk.

Thus, the way we define relational risk and performance risk excludes systematic interactive contamination between them, i.e., the level of one type of risk would not significantly correlate with that of the other. While in certain cases performance risk may contribute to relational risk, in other cases a high level of performance risk may create a sense of crisis and mitigate relational risk. Thus, although there may be situations in which the two types of risk seem to be related or dependent, they are not so in actuality. For example, in R & D alliances, both relational risk and performance risk tend to be high (Osborn & Baughn, 1990). However, just because there happens to be a common factor, such as R & D activities, that contributes to both types of risk, the independence of the two risks is not disproved.

If we view a strategic alliance as a strategic choice for achieving certain objectives, the difference between a strategic alliance and all other strategic choices can be underscored by differentiating relational risk and performance risk. While performance risk is prevalent in any kind of strategic choice, relational risk is present only in cooperative strategies, or strategic alliances in our case. Some

may argue that interunit conflict within a firm is also a constituent of relational risk. However, since we define relational risk as an interfirm phenomenon, such hazards of intrafirm opportunism are not relevant to our discussion here. Indeed, Williamson (1996, p. 51) has called such intrafirm hazards "autonomous maladaptation," as opposed to "cooperative maladaptation" among firms.

Relational Risk

A successful strategic alliance depends substantially on effective cooperation between the partners, since the motive for entering into an alliance is to exploit the benefits of cooperation. Even though various types of strategic alliances may differ in the extent of their reliance on interfirm cooperation (Ring & Van de Ven, 1992), a satisfactory level of mutual cooperation seems indispensable for any of them (Lei & Slocum, 1991; Parkhe, 1993). Thus, it would be a serious problem if one partner firm does not commit itself to cooperation, as fully expected by the other partners. The notion of "relational risk" reflects this concern of a partner about possible default by other partners. Economic theory assumes that decision makers always try to maximize their utility, and it is only reasonable to expect economic institutions to act similarly. That is, the firms are supposed to pursue their self-interests even though it might mean hurting both their partners and the joint task (Gulati, 1995). In many cases, it seems justified to do so, because the payoff from cheating could be greater than that from fully complying with the agreement (Parkhe, 1993). Not to mention if the firm's motive is to secretly capture the resources of the partner. Shirking, distorting information, stealing the partner's skills, clients and personnel are just some examples of guileful self-interest seeking. These kinds of actions reflect opportunistic behavior. As opportunistic behavior is present only in cooperative strategies, relational risk is a direct concomitant of participating in strategic alliances. If a firm stays away from alliances, it would not be subject to relational risk.

It seems from the literature that interfirm trust helps reduce the concern about opportunistic behavior (Ring & Van de Ven, 1992), and thus mitigates relational risk. By definition, trust refers to the confidence that one will find what is desired from the partner, rather than what is feared (Deutsch, 1973). Apparently, the ability to rely on trust leads one to believe in the goodwill of the partner. Thus, the degree of interfirm trust would be negatively related to the perception of relational risk. It has been suggested that trust enables people to be vulnerable to their partners (Mayer, Davis, & Schoorman, 1995), essentially taking risks from engagement, such as joining in a strategic alliance. On the other hand, for those who are less able to rely on interfirm trust, different devices can be adopted to cope with relational risk and deter opportunistic behavior. For example, detailed contractual clauses and stringent control mechanisms are used as deterrence devices. Moreover, shared equity ownership is used to align the interests of the partners so that the tendency to exploit the joint entity will be curbed.

Performance Risk

Performance risk is the probability that the strategic objective of an alliance may not be achieved, given that the best possible cooperation exists between the

partners. Factors extraneous to cooperation, such as incompetence of partners, are the sources of performance risk. Just as for any other strategic choice, a strategic alliance compels partners to accept the fact that their best efforts may not necessarily lead to success. The literature reveals various labels for describing various possible types of performance risk, including R & D risk, international risk, commercial risk, and corporate risk. Obviously, satisfactory cooperation has nothing intrinsic to do with these performance risks. In other words, in estimating the level of performance risk one already takes adequate cooperation for granted. The odds of insufficient cooperation is subsumed within the notion of relational risk.

Though performance risk is not concerned with cooperation, forging strategic alliances often mitigates the degree of performance risk faced by individual firms. Indeed, risk-sharing is an important rationale for having an alliance. While the cost and risk in R & D, marketing, and production could be inordinately high for a single firm, strategic alliances allow multiple firms to share the total cost and risk. Clearly, the risk here refers to performance risk. The point is that performance risk can be shared by forming an alliance, while relational risk is created only in alliances. Again, the distinction between performance risk and relational risk characterizes strategic alliances, and thus the two types of risk, taken together, constitute a second dimension for understanding the alliance making process.

In terms of our taxonomy, a strategic alliance can be classified as having either high relational risk or high performance risk. The two are mutually exclusive because we define "high" and "low" in relative terms, rather than in absolute terms. These risks are measured by the perceptions of the partners, since it is risk perception that directly impacts the decision makers' risk behavior (Sitkin & Weingart, 1995). Thus, when the partners perceive relational risk as higher than performance risk, the alliance will be labeled as having high relational risk, and *vice versa*. In this sense, there must be one type of risk perceived as of higher degree, even in cases where both risks are quite high. Clearly, the risk type of higher degree concerns the partners most (Das & Teng, 1996a). Another reason why only one type of risk tends to be comparatively high is that the reduction of one type of risk often results in increased exposure to the other type of risk (Miller, 1992).

In the following section, we integrate the resource dimension with the risk dimension of strategic alliances. The focus is on orientations and objectives of partners in the process of strategic alliance making.

Strategic Alliance Making Orientations

The process of strategic alliance making is known for its complexity and delicate nature, leading many theorists to divide the process into several stages (e.g., Das & Teng, 1997a; Devlin & Bleackley, 1988; Parkhe, 1993). Ring and Van de Ven (1992) have suggested three sequential steps—negotiation, commitments, and executions—in forging a strategic alliance. Devlin and Bleackley provided guidelines for successful alliance making in terms of three stages: (1) the decision to form a strategic alliance; (2) the choice of an alliance partner; and (3)

the planned management of the alliance. There is one element that is consistently significant in all these stages: the orientation of each partner in approaching the prospective alliance. A partner's orientation refers to the aspect of the alliance that the partner views as its priority and to which it would devote most of its energy. For example, one partner may be oriented toward controlling the venture, while the other partner's orientation could be about securing its technology. Understanding the strategic orientations and intentions of competitors, partners, and also one's own is becoming increasingly crucial to a firm's success (Hitt et al., 1995; Serapio & Cascio, 1996). The orientation of a partner reflects the general characteristics of the alliance and of the partner itself. Therefore, it is a general direction that the partner will be working toward. The consistency of a partner's orientation across different stages of an alliance underlines its importance. In addition, since a firm's orientation generally defines its more specific objectives (Das, 1986), the partners would set operational objectives based on their orientation in the alliance. Thus, a study of orientations and objectives of the partners should help in understanding the complexities of the alliance making process, as well as in providing us with guidelines for managing that process.

A partner's orientation in the alliance making process can be examined through the resource and risk dimensions delineated in the earlier sections. The resource dimension denotes the kind of resource the partner is willing to commit, and the risk dimension indicates its major concern with the alliance. While the strategic behavior school views strategic alliances as a way to obtain competitive advantage and thus enhance performance (Kogut, 1988), our resource and risk framework offers an alternative account of the motivation for entering into alliances. Since each firm is oriented toward maximizing the return on its dedicated resource while minimizing the risk, resource and risk serve as key determinants of the partner's orientation. Referring to Table 1, a particular partner would fall into

Table 1. Strategic Alliance Making Orientations

<i>Alliance Resource</i>	<i>Risk Type</i>	
	<i>High Relational Risk</i>	<i>High Performance Risk</i>
	Cell 1	Cell 2
Financial	<i>Objective:</i> Share of Equity <i>Orientation:</i> CONTROL	<i>Objective:</i> Exit Provisions <i>Orientation:</i> PROFITABILITY
	Cell 3	Cell 4
Technological	<i>Objective:</i> Patent Safeguards <i>Orientation:</i> SECURITY	<i>Objective:</i> Licensing <i>Orientation:</i> UTILITY
	Cell 5	Cell 6
Physical	<i>Objective:</i> Embeddedness <i>Orientation:</i> STABILITY	<i>Objective:</i> Recurrent Contracts <i>Orientation:</i> FLEXIBILITY
	Cell 7	Cell 8
Managerial	<i>Objective:</i> Key Positions <i>Orientation:</i> AUTHORITY	<i>Objective:</i> Alliance Managers <i>Orientation:</i> EFFICIENCY

one of the eight cells, depending on the major type of resource it contributes and the major risk of the deal. It should be noted, though, that one firm could provide multiple resources to the alliance. For example, large multinational corporations (MNCs) often provide financial, technological, as well as some managerial resources to their local partners. In that case, their orientation is likely to be influenced more by the type of resource that is deemed to be important. Indeed, orientation means an emphasis on a certain aspect of the deal, but not necessarily ignoring other aspects. It is also possible that the partner has more than one priority at any one time, due to the multiple resources it brings into an alliance. By the same token, an alliance may invite both high relational risk and some performance risk, but it is the more severe one that has to be dealt with in terms of priority.

Financial Resource

Capital markets are often imperfect in providing funds to those firms which are involved in new but risky projects (Hennart, 1988). One reason is that a banker has limited control over the borrower's activity, if there is not enough collateral. However, other firms which appreciate the value of these risky projects may not be restrained in the same way. Consequently, collaborative arrangements in which one partner provides financial resource to another partner have been common (Borys & Jemison, 1989; Nueno & Oosterveld, 1988). In many alliances with R & D components, firms actually invest and take equity positions in other firms (Gulati, 1995). The literature labels such equity transfer and creation as equity alliance (Pisano & Teece, 1989). According to Hamel, Doz, and Prahalad (1989), a key difference between Western and Japanese firms in alliances is that Western companies often enter an alliance to avoid investment, i.e., to seek financial resource from others. Japanese companies, in contrast, are driven more by the need to learn skills.

Cell 1. Cell 1 represents the condition in which a firm contributes financial resource, and relational risk of the alliance is high. From the investing firm's perspective, it puts in the money but does not trust the partner. Naturally, the orientation of the partner is on the control of the alliance. That is, the investing partner wants to make sure that the use of financial resource is appropriate. By definition, "control refers to the process by which one entity influences, to varying degree, the behavior and output of another entity" (Geringer & Hebert, 1989, p. 236). In a strategic alliance, strong control means that one firm can overrule the strategic decision by the partner (Root, 1988).

Bleeke and Ernst (1995, p. 98) have cited the case of one partner stating "we can use an alliance to raise capital without giving up management control," and they have rightly criticized such self-deception. Indeed, to believe that the investing partner would not pursue control over the venture is wishful thinking. Hennart (1988) has pointed out that in joint ventures the investing partner often relies on hierarchical control as the means to reduce risk. For those who take an equity position in another firm, it often means putting their people onto the other partner's board of directors as a way to monitor and control its activity.

Thus, equity investment and high relational risk stimulate the need for control. Ironically, the means for control still lies in the share of equity ownership.

Therefore, the objective of the investing firm is on a proper share of equity ownership. On the one hand, to exercise majority control, the investing partner is likely to insist on a majority equity share. After all, equity position represents the power to influence the direction of the joint entity (Koot, 1988; Sohn, 1994). A telling example is provided by the way American firms form alliances with Indian local firms (Yoshino & Rangan, 1995). In the 1970s, when the Indian government prohibited foreign firms from owning a majority stake in local subsidiaries, U.S. firms like IBM and Coca-Cola elected to leave the country rather than lose control. Subsequently, after the government relaxed its restrictions in the early 1990s, both IBM and Coca-Cola reentered the market, this time with equal or majority equity control in place.

On the other hand, since relational risk is significant and the possibility of opportunistic behavior is high in Cell 1, the investing partner would like to have the other partner put in a certain amount of investment also. Significant equity investment by both partners helps align their interests, because then the investing partners become mutual hostages, deterring opportunistic behavior (Gulati, 1995; Williamson, 1983). In this sense, an equity share is "substantial" when it can serve both as incentive-generator and hostages for the partners. Therefore, although the investing partner will seek a majority ownership, it will also insist on a sizable share of equity ownership by the other partner. Because the investing partner has to strike such a delicate balance, it is no wonder that the objective in this type of alliance making situation is on the relative share of equity. Under other conditions, e.g., when the partners contribute other resources or when they do not perceive high relational risk, they would not be expected to be preoccupied with equity control. Based on this discussion, we have the following proposition:

PI: In alliances with high relational risk, the partners who contribute financial resources will prefer controlling equity ownership for themselves, and substantial equity ownership by other parties.

Cell 2. In Cell 2, the partner contributes financial resource to the joint entity, yet is concerned about high performance risk. Though the partners trust each other, the joint strategic cooperation seems to be very risky in terms of business performance. Therefore, the orientation of the investing partner is to ensure that it will be a profitable investment. Since high performance risk alerts the partner to the issue of satisfactory return, profitability becomes the priority in the alliance making process. In many cases, equity investment is situation-specific and so is hard to recover in full (Parkhe, 1993; Williamson, 1985). Such nonrecoverable investment increases the burden on the investor. The investing partner is likely, therefore, to have an orientation that expects the alliance to be profitable enough to justify the performance risk.

In an example provided by Niederkofler (1991, p. 245), a large diversified firm which provided money to fund a small firm's antibody research demanded the "false security of speculative numbers," exactly because there was an uneasiness about the inherent uncertainty of this new business. Such preoccupation with profitability, or odds, can also be illustrated by Japanese-U.S. alliances related to

the information superhighway (Armstrong & Holyoke, 1994). In contrast to their mega-deals in other industries, this time around the Japanese have been very conservative. The reason is that they lack the necessary knowledge and experience about the prospects of the information superhighway. Since uncertainty and performance risk are high, they are more concerned with the profitability of the investment. Consequently, the Japanese invested with careful discrimination, and took only minority equity positions in these alliances. Since control is not the name of the game in the Cell 2 situation, they let the Americans take charge of it.

One specific objective to be achieved in the alliance making process, though, is to incorporate exit provisions in the contract. In other words, the investing partner should attempt to make its investment as recoverable as possible. Exit provisions should specify that one partner has the obligation to sell and the other partner has the right to buy the venture according to a specific pricing formula, in case the alliance has to be terminated. Clearly, such exit provisions allow the investing partner to reduce its investment risk. Bleeke and Ernst (1995) have discussed the importance of exit provisions in the case of the Siemens/Allis-Chalmers alliance, in which Siemens was given the right to purchase the joint venture later. According to an Allis-Chalmers negotiator, "if we talked about the joint venture agreement for three months, we talked about the exit clause for two months" (Bleeke & Ernst, 1995, p. 102). In sum, the objective of satisfactory exit provisions helps to improve the overall profitability picture of the investment, through a relatively easy spin-off (Shaughnessy, 1995). Thus:

P2: In alliances with high performance risk, the partners who contribute financial resources will demand explicit exit provisions in the contract.

Technological Resource

Technology refers to the expertise pertinent to the product, and is a key productive resource of a firm. It is not easy to copy the technology belonging to other firms, not only because it is duly safeguarded, but also because it is usually protected by the patent system. The patent system ensures the firm's exclusive usage of certain types of technology for a specified period of time. Thus, to have access to technological resource owned by other firms becomes one of the most logical motives for entering into strategic alliances (Hagedoorn, 1993). At the other end, those who possess technological resource may lack other needed resources, such as capital or distribution channels, to exploit their technological advantage. In the bio-pharmaceutical industry, for example, it is often the small biotechnology firms who own the patents but need to rely on large pharmaceutical firms for production and marketing capacity. The point to bear in mind is that an alliance does not mean a free transfer of technology. Rather, it refers to either a planned access to technology (so that joint objectives can be achieved, such as in joint ventures), or the sale of technology for a limited term (such as in licensing).

Cell 3. When a firm provides technological resource but does not trust the goodwill of its partner, it will be concerned with protecting its technology. Thus, technology security becomes the firm's orientation in the alliance making process.

Due to the nature of cooperation, it is usually hard to protect technology and know-how (Osborn & Baughn, 1990). Yoshino and Rangan (1995, p. 128) have described an alliance between a U.S. and a Taiwanese firm. After secretly collecting considerable technological information from its U.S. partner in their two-year alliance, the Taiwanese firm entered the U.S. market and became a direct competitor. Having learnt a lesson, the U.S. firm later formed another alliance with an Asian partner, this time with explicit clauses to safeguard its technology. Hamel (1991) also provides an example regarding a Japanese firm's hidden agenda of secretly capturing its partner's technology. In time, the Japanese firm reached a position to be able to ask "Now what are you going to do for us" (Hamel, 1991, p. 88). In situations like this, existing bargains will tend to become obsolete and the termination of the alliance becomes more probable. For those who provide technological resource to the alliance, such a scenario is like a nightmare. Hamel et al. (1989, p. 136) have urged firms in such situations to "develop safeguards against unintended, informal transfer of information."

One of the safeguards a firm can rely on is the protection of the patent system, since informal transfers of patents is not possible. Thus, to seek strong patent safeguards should be the objective of the firm. More specifically, the firm should allow the partner access only to those patented technologies which the partner cannot freely copy or apply on its own. As long as the technology shared in the alliance is patented and owned by the firm, its key resource is not lost. Bleeke and Ernst (1995) have described an alliance between two pharmaceutical companies that lasted for ten years. During the period, since one firm kept the patent, it retained its power over the other partner and finally bought out the venture. The point is that when relational risk is high, technological exposure is best limited to patented technology. Nevertheless, "critical technology often resides in non-patentable know-how or know-who" (Frayne & Geringer, 1990, p. 58). For unpatented know-how, a firm could attempt to reduce the transparency of the technology, and to limit the scope of the agreement; even where technological transfers are unavoidable, an incremental, performance-based approach is more prudent than a wholesale agreement (Hamel et al., 1989). By comparison, such a focus on the protection of technology would be unlikely in other situations. For instance, when a firm does not contribute technological resources, or is not particularly concerned with losing technology unintentionally (i.e., low relational risk), it tends to focus on some other aspects of the alliance. Hence:

P3: In alliances with high relational risk, the partners who contribute technological resources will focus on protecting their technologies from unauthorized transfer, usually through limiting exposure to patented technologies .

Cell 4. When a firm contributes its technological resource to an alliance, a second scenario is with high performance risk. In this case, the partners trust each other but are concerned about the riskiness of the venture. Therefore, the orientation of the partner with technology is to enhance the utility, or usefulness, of its technology, so that the venture can succeed. The term "utility" carries two mean-

ings. First, it refers to the usefulness of the technology itself. Since technology is what the partner contributes, the first thing it can do to control high performance risk is to improve its technological usefulness. For many emerging technologies, setting high design standards is crucial for the future of the technology (Lei & Slocum, 1991). In industries related to the information superhighway, many American firms reach out to major Japanese firms in order to surround themselves "with an alliance of people who are world-class standard setters" (Armstrong & Holyoke, 1994, p. 28). In the second sense, technological utility refers to the usefulness of the technology to the firm, i.e., the economic returns from the technology. Hence, the firm has to increase the output from the technology by making it accessible to more partners. The firm can try to either reap increased benefits from the technology, or better control the performance risk through a portfolio of partnerships. Netscape, for example, has been busy forging alliances, in which it licenses its Navigator software for Internet to companies such as AT&T and America Online (Lewis, 1996). Since the competition with Microsoft's Explorer is intense, licensing to multiple partners holds the key to bringing prompt financial results.

Since the orientation of the firm is toward improving the "utility" of its technology, the specific objective of the firm should be to license the technology to as many partners as possible. Indeed, empirical studies show that licensing is preferable when the performance risk is high, since only then can the firm avoid heavy involvement (Contractor, 1984). Extensive licensing seems to be an option which satisfies both the rationales we mentioned. First, licensing to many partners allows the firm to reach an early standardization of design (Lei & Slocum, 1991). It helps control the pace of industry evolution. The digital videodisk (DVD) war between two camps, Toshiba/Time Warner and Sony/Philips, has mostly been about setting an industry standard for DVD (Holyoke & Armstrong, 1995). What led to Toshiba/Time Warner's early success is their open, flexible licensing approach, which attracted other electronics companies to come on board. Sony and Philips, in contrast, scared away Hollywood customers because of their rigidity in licensing practice. Second, extensive licensing means collecting considerable royalties rather quickly. The firm is able to capitalize on its technological innovation fast (Lei & Slocum, 1991), especially when there is still a lot of performance risk. Also, licensing controls high performance risk, because the firm avoids putting all its technological eggs in one alliance basket. Indeed, economists have realized that licensing and franchising represent a long-run market solution to risk diversification problems (Martin, 1988). We may thus have:

P4: In alliances with high performance risk, the partners who contribute technological resources will prefer to license the technology to multiple partners.

Physical Resource

Physical resource refers to raw materials, components, and distribution channels provided by a firm. Though physical resource alone is not likely to provide sustainable competitive advantage (Reed & DeFillippi, 1990), physical assets are

an indispensable part of a value chain. In most operations, value is added to raw materials and components, as well as through the distribution process (Root, 1988). However, raw materials and distribution channels are not always available at a desired price, due to inefficiencies in the market. Therefore, securing physical resource constitutes one major motive for entering into a strategic alliance (Chi, 1994). Examples of such alliances include joint ventures between aluminum firms and firms which provide bauxite (Hennart, 1988), long-term contracts between coal suppliers and electric utilities (Joskow, 1985), and contractual networks consisting of manufacturers and their dealers (Skinner, Donnelly, & Ivancevich, 1987). For a particular firm, the alliance could be vertically forward or backward, depending on the direction of expansion (Hennart, 1988).

Cell 5. When relational risk is high, the firm which supplies physical resource will be oriented toward stability, or a stable relationship with the partner. Since performance risk is relatively low, the firm is not particularly concerned with possible dissolution of the alliance due to performance shortfalls. Instead, opportunistic behavior and cheating are the real threat to the alliance, given that there is insufficient trust between the partners. Thus, to create a condition under which healthy collaboration can be sustained becomes the priority for the firm. In this orientation, a firm would endeavor to adopt various mechanisms to curb possible opportunistic behavior.

The overall objective should be to embed the partners deeply in an alliance so that they are less likely to behave opportunistically (Provan, 1993). There are several approaches to achieving that goal. First, the level of embeddedness is enhanced by extending the duration of the alliance (Provan & Gassenheimer, 1994). The rationale is that expected future interaction has the so-called "shadow of the future" effect, so that the partners would tend to be more responsible (Heide & Miner, 1992). Therefore, when the contracted duration of a cooperative relation increases, the partners would be more willing to resolve their conflicts (Ring & Van de Ven, 1994). According to Joskow (1985), the partners tend to sign long-term agreements if "relational investment" is high. Clearly, with simultaneous presence of high relational investment and relational risk, long-term contracts provide a certain degree of needed assurance.

The second approach is to formalize the relationship as much as they can. For instance, Dyer (1995) recounts the transformation from arms-length relationship to supplier partnerships between Chrysler and its suppliers of components. Supplier partnerships are supposed not only to last longer, but also have tighter integration. In a study of networks, Skinner et al. (1987) found that the more formalized networks, e.g., corporate networks, exercised better control than less formalized networks.

Nevertheless, sometimes long-term contracts and formal contractual partnerships are not sufficient or feasible. According to Hennart (1988), in a supplier-buyer contract over a long time span, it is difficult to protect each partner by specifying all possible contingencies. However, a contract which remains incomplete exposes the parties to opportunistic behavior in renegotiation. Similarly, in a manufacturer-distributor relationship, a long-term contract may break down due to changes in the environment. In these cases, an equity alliance, or an alliance

which requires equity investment from both partners, is a better choice. Equity investment increases the embeddedness of the partners, as they are now held hostage by each other (Williamson, 1983). With equity ownership, the partners are deeply embedded in the joint entity because it becomes difficult to withdraw from the deal. Moreover, shared equity ownership aligns the interests of the partners, and opportunistic behavior becomes less likely even without detailed contracts specifying all contingencies (Parkhe, 1993).

One example is the alliance between Thorn-EMI, a British entertainment company, and L. M. Ericksson, a Swedish telecommunications company (Lewis, 1992). Since the British telecommunication market was regulated until the mid-1980s, a foreign firm could enter the market only through an alliance with a British company. Thus, Thorn was concerned that Ericksson might eventually enter the market by itself, if the market were to be deregulated. In this case, Thorn provided marketing channels and the relational risk was high. To prevent the potential future scenario of an Ericksson entry under deregulation, Thorn insisted on having a 51–49 joint venture, as well as veto power on all major decisions. Thanks to this alliance configuration, Thorn was able to continue with this valuable alliance, even after the British telecommunication market was thrown wide open to foreign firms. Clearly, deep embeddedness in the form of an equity alliance helped Thorn secure the relationship. Thus:

P5: In alliances with high relational risk, the partners who contribute physical resources will strive to embed the partners deeply in the alliance, usually through a longer alliance duration, tighter integration, and shared equity ownership.

Cell 6. The firm which provides physical resource will be oriented toward flexibility, if performance risk, rather than relational risk, is high in a strategic alliance (Sunoo, 1995). In this case, one is not sure of the prospects of the cooperative arrangement, due to the uncertainties in the market. For example, a distributor which provides marketing channels to a manufacturer could be concerned about the prospect of the product. A firm which supplies auto parts to the Big Three automakers may expect the industry to suffer a downturn in a few years, and start to worry about its relational investment, despite its agreements with them. Therefore, to enable the firm to cope with possible setbacks, it needs to be flexible and responsive to market changes. Indeed, it has been reported that most successful alliances shift dramatically during the first few years of the alliance (Sherman, 1992). In contrast to embeddedness, flexibility means being in a position which affords easy withdrawal. In other words, the firm should not routinely let its physical resource be dedicated specifically to the alliance. Lorange and Probst (1987) have, therefore, suggested that joint ventures operating as self-organizing systems that enhance the level of flexibility are more successful.

To achieve physical resource flexibility, the objective of the firm should be on recurrent contracts, which would involve repeated agreements contingent upon prior performance (Ring & Van de Ven, 1992). The advantage of recurrent contracts is that the firm is able to discontinue the relationship whenever it wants

to, since these contracts are usually short-term. Thus, the firm can avoid being embedded in an alliance of high performance risk. With recurrent contracts, the firm can "experiment with safeguards, and with alternative methods for resolving conflict" (Ring & Van de Ven, 1992, p. 487). If the performance is not satisfactory, the partner can pull out its physical resource quickly. Thus, short-term contracts are the key. As Hennart (1988, p. 368) put it, "the more uncertain the environment...the greater the chances...that such a long-term contract will break down." Short-term contracts allow contingencies to unfold, without putting too much burden on the partners. Recurrent contracts can be widely used in licensing, buyer-supplier relationships, and manufacturer-dealer relationships. When Merck started its alliance with AB Astra of Sweden, it signed on only for marketing Astra's new drugs in the U.S. (Sherman, 1992). Subsequently, after satisfactory experience, Merck went on to establish a new corporation to handle distribution of a range of Astra products. Finally, Merck felt comfortable in inviting Astra to take up half the equity of that separate corporation. The lesson is that when performance risk is high, a cautious, incremental approach is more likely to pay off. Hence:

P6: In alliances with high performance risk, the partners who contribute physical resources will be interested in providing for recurrent contracts.

Managerial Resource

Managerial resource refers to firm-specific competence and know-how in functional areas such as planning, operations, marketing, and human resource management. It is skills and knowledge other than technology that the firm possesses. While technological resource is limited to know-how about the product, managerial resource is broader in scope. Hamel et al. (1989) make a distinction between technology and competence. The difference is that technology is discrete and relatively easy to transfer, while competence "is entwined in the social fabric of a company" (p. 136). It seems that the term "competence" as used by them is analogous to managerial resource. Probably the most important characteristic of managerial resource is that it is often tied to the people in the company. In other words, if key personnel or professionals of a firm leave, they are likely to take certain firm-specific managerial resource along with them. A second characteristic of managerial resource is that its effect usually is magnified if those who possess managerial expertise are placed in authoritative positions.

Cell 7. Because of the above two characteristics, a firm which devotes managerial resource to the alliance will orient itself to acquiring managerial authority in the alliance when relational risk is high. The firm would like to make sure that it actually calls the shots on overall managerial issues. Schaan and Beamish (1986) have reported that hierarchical authority is a key mechanism used by the parent companies to control the activities of the joint entity. It has also been noted that the general manager position can greatly affect a joint venture's outcomes (Frayne & Geringer, 1990). Thus, although the partners are skeptical about each other, the firm which provides managerial expertise should retain

authority of the alliance. Indeed, only if that firm is in an authoritative position to use its managerial resource would the alliance succeed.

To retain managerial authority, the objective of the firm should be to secure its most important personnel. First, the firm must try to put its people in the key positions of the joint entity, such as the board of directors and the executive committee of the venture or of the partner. To exercise authority through the board is probably the most direct approach (Pfeffer & Salancik, 1978). In their study of joint ventures, Yan and Gray (1994) found that the firms try very hard to exercise authority through having their people in the position of general manager. When Kodak decided to reenter the camera business and took an equity position with Chinon, a medium-size Japanese firm, some officials in Chinon were uneasy about Kodak's presence (Yoshino & Rangan, 1995). To deal with this relational risk, Kodak insisted on putting its division general manager on Chinon's board. The general manager was then elected to manage the relationship between Kodak and Chinon. Thanks to his personal involvement and close scrutiny, the alliance turned out to be a success.

Secondly, the firm should guard its key personnel from being recruited by the partner. Since managerial resource of a firm mostly resides in its key personnel, a partner should be concerned with possible loss of these personnel, especially when relational risk is high. As the warning goes, "when a foreign partner houses, feeds, and looks after your managers, there is a danger they will go native" (Hamel et al., 1989, p. 138). Being aware of this possibility, the firm should not only better protect its key personnel, but also pay special attention to the choice of its alliance managers (Lyles & Reger, 1993). Hence:

P7: In alliances with high relational risk, the partners who contribute managerial resources will focus on placing their own people in key positions of the alliance.

Cell 8. In case a firm brings in managerial resource and performance risk is high in the alliance, the orientation is that of managerial efficiency. In this case, to focus on securing one's own people in key positions would not be a good strategy, because now it is managerial efficiency, rather than managerial control, that would make a difference. Since the partners basically trust each other, the emphasis is on how best to exploit the competence of each firm, rather than on how to better protect oneself from the partner. Thus, the quest is improving managerial effectiveness, especially the skills in effectively coordinating with the partner (Kanter, 1994). Again, as managerial resource mostly resides in individuals, the firm should be concerned with the proper use of these talents.

Therefore, the objective of the firm is to have competent alliance managers. This calls for special attention to their availability, tenure, and working style. First, the firm must be sure to place its best people in the alliance, since the alliance as a special form of competition demands the very best people (Hamel et al., 1989). However, firms oftentimes are unwilling to contribute the cream of their talents. This could reflect ignorance of the importance and delicate nature of strategic alliances. An exception, however, is that of Motorola, which very carefully

picked its manager in its alliance with Toshiba (Yoshino & Rangan, 1995). A corporate vice president, who had been a central figure in designing the alliance strategy and in forging the alliance, was selected. His expertise gave Motorola a good start in the alliance.

Second, many firms, especially Western firms, tend to rotate their managers in an alliance long before the results can be assessed (Lei, 1993). Relatively short tenure of alliance managers hurts the continued development of managerial skills in the alliance. Against this background, it makes perfect sense for a partner to state that "I would be reluctant to take any expatriates out in the first ten years of the venture" (Yan & Gray, 1994, p. 1503). The motive is to keep the managers long enough in the venture so that effective managerial control could be exercised. In addition, alliance managers with short tenure do not contribute much to managerial efficiency, because the valuable assets of informal understanding and psychological contracts between managers from both sides are not given the time to grow (Ring & Van de Ven, 1994). Kanter (1994) has observed that establishing interpersonal ties between managers helps resolve conflicts between the partners. Ring and Van de Ven (1994) have also pointed out that when an alliance is expected to last longer than the tenure of managers, informal understandings and commitments must be formalized into contracts, of course with a price tag. Thus, the firm should keep its managers in the alliance for a long period of time and encourage an interactive and coordinating style. Thus:

P8: In alliances with high performance risk, the partners who contribute managerial resources will focus on improving managerial efficiency by committing their best managers, and for extended tenures in the alliance.

Concluding Remarks

The strategic alliance making process is known to be messy. Alliances often take longer to forge than mergers, and require more energy to sustain. The challenge is to keep the two parent entities separate, and yet to align their interests and achieve a high degree of coordination. Predictably, some managers feel uncomfortable with cooperation as a new form of competition (Hamel et al., 1989), since they are deeply rooted in the old-fashioned zero-sum competitive mode of behavior. To most people, the spirit of competition connotes a winner-take-all attitude (Frank & Cook, 1995). Reflecting this sentiment, Brouthers et al. (1995) argued that alliances should be avoided unless there is a real need for resources. One also hears of the warning that "colluding with competitors is a dead end" (Harari, 1994, p. 53). Nevertheless, it is clear that in today's increasingly diversified markets, self-sufficiency is no longer a viable goal for many growing companies. Even as free-trade among countries is beneficial to all parties, the exchange of resources among companies could be similarly advantageous. The key to success is in the execution, or the management of the alliance making process (Das & Teng, 1997a).

That is why it seems useful to develop a framework for understanding the fundamental considerations in forming an alliance. We identified two critical

factors in alliance making: resource and risk. These two factors help decision makers determine the kind of orientation that would be effective under specific conditions. Our contingency framework equips decision makers with knowledge of the dynamics of interaction between the two critical factors. The framework provides a firm with guidelines for adopting effective orientations in the alliance making process according to the resource commitments and perceived risk.

One implication of the framework is that the objectives of the partners are rarely the same. Many researchers have argued that partners of a successful alliance must have similar objectives. In reality, though, the partners bring in different resources to an alliance, and also have different expectations from the alliance (Frayne & Geringer, 1990). One partner's objective could be dramatically different from that of the other, and yet a mutually beneficial partnership may well be in the cards. For example, Apple and Microsoft are direct competitors and have quite divergent ideas about what they wanted from their alliance. As one Microsoft senior vice president observed, "This is business. We're not allied with Apple out of love" (Sherman, 1992, p. 78). The alliance was a success. While Microsoft made \$265 million out of its applications software for Macintosh in fiscal 1992, Macintosh also benefited from the alliance by gaining more acceptance in the business community. Thus, firms should be comfortable with their different resource and risk assessments, so long as the objectives are compatible. Indeed, the whole idea of a strategic alliance is to let everybody contribute different ingredients and then derive different desired benefits.

Another implication of the framework is that a firm should not evaluate the alliance exclusively from its own perspective, but supplement it with the partner's angle as well. By appreciating the partner's position, a firm can better understand what the partner wants from the alliance using the same framework. Thus, the firm would be prepared to deal with the partner in an effective way, with less misunderstanding, self-deception, or surprise. With such analytical knowledge of each other's position, communications are likely to be more productive in the alliance making process. A number of problems that arise in strategic alliance making are caused by a lack of understanding and communication. The framework proposed here should help clarify where each partner stands. The success of strategic alliances would be largely enhanced if firms adopt an alliance making process that is based on a full appreciation of the types of resource and risk that determine the position of each partner in the process.

The framework presented here needs to be supported by empirical research. To that end, the eight propositions derived from the framework provide a starting point. In addition, a fruitful direction for future research would be the exploration of the empirical relationships between alliance performance and alliance orientations and objectives. Our framework suggests that when the partners do not adopt the specific kinds of orientations identified therein, the alliances are unlikely to be successful. Hence, examining such linkages is important for gaining insights into the overall robustness of the framework.

A second direction for future research would be the study of how partners with diverse orientations work out their differences. Indeed, many of the orientations and objectives in our framework are in conflict with each other. For exam-

ple, the orientation in Cell 1 (equity control) could be in direct competition with the orientation in Cell 7 (managerial control). A different assessment of risk may also lead the partners to favor licensing (Cell 4) and embeddedness (Cell 5), respectively. Thus, the mechanisms and processes by which the partners reconcile and align their divergent orientations are important to understand. Future research may thus explore the notion of "shared orientation," i.e., an alliance orientation shared by both partners. To manage an alliance effectively, the partners must agree on a direction which would serve to buttress the particular orientation in all the activities of the alliance. It seems that a shared orientation, if it exists, would also depend on two factors, namely, the pattern of resource combination and the risk assessment by the partners. A study of these kinds of relationships could help in further linking our resource-based and risk-based view of alliances with the traditional bargaining power view of alliances.

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