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**STRATEGIC ALLIANCES
IN THE TRIAD**

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Abstract

Strategic Alliances in the Triad

Three areas of economic predominance have emerged in recent decades: Western Europe, North America, and Japan - designated the Triad. To cope with the growing international competition between these areas, firms based there have been forming strategic alliances, frequently with partners from another member of the Triad. This article examines these alliances to determine the patterns, similarities, and differences between alliances formed in different parts of the Triad.

INTRODUCTION

Japan, North America and Western Europe are the three major segments of the industrialized market economies. Among themselves they account for almost 2/3 of world trade. They are the home countries of over 90% of the multinational firms. They are also the host countries for about 3/4 of all foreign direct investment by multinationals. Economically they merit the attention given to them by Kenichi Ohmae (1985) and other observers. When looking for new industrial and competitive developments in the world economy, it is reasonable to look at the triad countries as a major source of innovations.

One such new development in recent years is the growth of what have been called "strategic alliances." These alliances, a variety of ad hoc agreements frequently between competing firms, appear to be steps in the global rationalization of industry. Firms which used to compete only in national or regional markets must now compete in a global marketplace. Strategic alliances take a variety of structural forms, from contractual agreements to equity positions such as joint ventures. We will use the term strategic alliance to identify the broad range of corporate manoeuvres leading to inter firm cooperation, regardless of the actual structural form. These alliances, which are part of a company survival strategy, are frequently with firms in other countries. As such, they represent a kind of international horizontal integration or global rationalization.

Although Japan, North America and Western Europe have similar industrial structures, they have somewhat different positions and competitive situations in the world market place. Therefore, it is reasonable to assume that while firms from each group are forming strategic alliances, they might have different motives and patterns in these cooperative ventures. It is the

purpose of this article to examine the patterns of strategic alliances in each of the triad regions. We will identify the similarities and differences in the international cooperative ventures formed in each region to see if there are distinctive strategies by each member of the triad.

Collaborative ventures have become an important issue in international business. A complex network of corporate arrangements has developed in the global economy, leading to an intricate balance between competition and cooperation. For example, as AT&T, Philips, and Fujitsu establish cooperative links with the same three companies Olivetti, ICL, and Nixdorf, competition takes a new meaning in the computer and telecommunication industries.

Morris and Hergert (1988) have described this phenomenon as recent, and have recognized its steady growth from few cases in the late seventies to a myriad of arrangements in the mid-eighties. The same trend has been noted in the literature (Auster 1987; Harrigan 1987; Business International 1987). Some conflicting evidence has been reported by Porter (1986), who observes no trend but significant fluctuations in the formation of international coalitions from year to year for the 1970-82 period. Whether or not there is a trend, the frequency of new venture announcements reminds us of the importance of the phenomenon.

Strategic alliances do not necessarily involve participants from different countries. For example, American Express Co. and Warner Communications Inc. established a joint venture in the U.S., Warner Amex Cable Communications Inc., building on a potential synergy between cable-television and home banking businesses. Nevertheless, it is the cross-border agreements which have captured most of the attention. The spectrum of ventures extends from contractual agreements to equity positions including joint venture.

These ventures have taken various names in the literature with more or less restriction on the definition, indicating a lack of consensus characteristic of an early research stage. International strategic alliances (Jain 1987; Harrigan 1987), international collaborative agreements (Morris and Hergert 1988), joint ventures (Franko 1982; Harrigan 1985), international coalitions (Porter and Fuller 1986), competitive alliances (BIC 1987), strategic partnerships (Perlmutter and Heenan 1986; Doz and Prahalad 1987) and copartnerships (Buckley and Casson 1987) are among the most popular terminologies.

The study of this phenomenon is still at an early exploratory stage. Most attention by academic researchers has been directed toward joint ventures, a hybrid form of foreign direct investment, when in fact the broad phenomenon of strategic alliances can take multiple forms. At the empirical level, many studies on strategic alliances confine their definition to equity joint ventures, resulting in a limited interpretation of what the overall phenomenon embodies. In our study, strategic alliances are considered in their totality, without any restriction regarding the particular structural form. This approach should allow us to obtain a more complete and representative picture of the existing patterns. Our concern is also to present a framework for the analysis of the phenomenon, since many definitional ambiguities exist in the current literature (Shenkar and Zeira 1987).

THE DATABASE AND DATA GATHERING

As recognized by Doz and Shuen (1987), a number of databases on international partnerships has emerged in recent years. They are mainly based on observations in the business press, and subject to problems of completeness, interpretation, and bias toward large U.S. firms. The main criticism concerns

the inherent lack of power of the data collection procedure, not being able to record information with sufficient detail (Doz, Hamel and Prahalad 1986). Nevertheless, this approach is often the only feasible source to capture this broad phenomenon. In Porter's study of international coalitions, the data were gathered in the Wall Street Journal for the 1970-1982 period (Porter 1986). Morris and Hergert (1988) use a similar data collection procedure with The Economist and the Financial Times from 1975 to 1986. When studying U.S./Japan cooperative ventures, Osborn and Baughn (1987) extract their data from the Japanese Economic Journal and the Asian Wall Street Journal from October 1984 to October 1986. Following a similar approach, our database is compiled from observations collected in The Economist, Wall Street Journal, Business International, Forbes, BusinessWeek, and Fortune Magazine, covering the period between 1983 and 1987.

Information was collected on the form of the alliance, the mode, the year of formation, the industry, the products involved, the market coverage, the participants, their country of origin, and the motives for each party.

Forms

The variable form refers to the structural organization of the alliance. We distinguish among the following alternatives: contractual agreements, equity positions, joint ventures, and consortia. The validity of this structural choice has been confirmed since our early adoption, by a similar framework adopted by Teece, Pisano, and Russo (1987), who describe cooperative agreements as being of a non-equity, equity, joint venture, or consortium type.

CONTRACTUAL AGREEMENTS. Contractual agreements are a form of cooperation between two participants, and for which no legal entity is

created. There is neither creation of a separate company, nor purchase of equity by a participant. These agreements tend to be specific and restricted to isolated activities. For example, Harris Corp entered separate contractual agreements with Matsushita in Japan, and Philips N.V. in Europe to distribute PACnet, a data communications product. Similarly, Canon entered contractual agreements with Burroughs and Hewlett-Packard for the marketing of microcomputers in Japan.

EQUITY PARTICIPATION. Equity participation by one company in another company is a less obvious format for strategic alliances. This form involves the acquisition of equity in an existing company, by another firm. It usually represents a manifestation of strategic control, an attempt to benefit from combined resources. Business International (1987) deals with the definitional problem by specifying that 'an alliance can be defined as any structure that is more than a standard customer-supplier relationship or a venture capital investment but that falls short of an outright acquisition.' The authors argue that unlike a straight portfolio investment, an equity-stake alliance carries a commitment propitious to the development of common projects. This commitment materializes into a more durable relationship, less subject to a quick withdrawal when problems arise.

An equity position can provide access not only to new resources but also to new markets. For example, when Mitsubishi Heavy Industries buy a 20% stake of Beloit in the papermaking equipment industry, the alliance offers instantaneous access to the U.S. market.

JOINT VENTURES. Joint ventures are defined as the formation of new and separate legal entities, resulting from the cooperation between two participants. These cases involve the sharing of an equity stake between two partners in a new venture. For example, GMFanuc Robotics Corp. (GMF), a 50:50

joint venture between Fanuc Ltd. (Japan) and General Motors Corp (U.S.) aims at developing, manufacturing and marketing robots. Autolatina is a joint venture between Volkswagen AG. and Ford Motor Co. dealing with the automotive and credit operations of these companies in Argentina and Brazil. Voluntary joint ventures as opposed to those required by governments are often the product of a shared consensus between the participants, and represent an alternative to solo investments.

CONSORTIA. For our purpose, a consortium represents a collaborative arrangement among three or more parties. This form of cooperation does not necessarily imply the creation of a new company or a transfer of equity. In many cases, a consortium involves governmental agencies as well as private parties.

The Microelectronics and Computer Technology Corporation (MCC) is a research consortium focusing on long-term developments in computer and semiconductor technology. In other cases such as in the aerospace and telecommunication industries, the development of a particularly ambitious and costly project favors the joint participation of many companies in a consortium. For example, Toshiba (Japan), Siemens A.G. (Germany), and General Electric Co. (U.S.) agreed to combine their advances in microchips into a 'cell library'. Each participant researches and develops cells that are added to the common library.

Modes

As the variable form refers to the structural component of a strategic alliance, the variable mode focuses on the function of the venture. It underlines the nature of the relationship between the participants. We recognize eight different modes across the three basic activities: R&D,

production, and marketing. These modes fall in two general categories: joint activities and complementary activities. Using Porter's dichotomy of coalitions, the former category relates to a type Y, while the latter relates to a type X. With the type Y, the participants cooperate at a same level of the value chain. In comparison, the type X corresponds to an asymmetric situation where the participants interact at different levels.

Joint activities. Joint R&D is a mode of collaboration aiming at the development of a new product or technology. In this case, the eventual production and commercialization stages are conducted independently by the different participants. In contrast, joint production involves only the sharing of manufacturing capabilities to achieve economy of scale and production cost efficiencies. Joint product development refers to a mode combining both joint R&D and production stages. Marketing is often a complementary activity that takes place within the venture as a natural step in product development. In other cases, the partners conduct the marketing of the venture's output separately.

Complementary activities. Both Licensing and cross-licensing represent a contractual binding between a firm willing to sell or exchange its know-how, and a firm willing to reciprocate the exchange or to compensate for it. A manufacturing agreement exists when a party is using the production capabilities of a potential competitor to obtain a specific output. This differs from a traditional supplier-customer link because the firm is dealing with a competitor instead of an independent supplier. Piggybacking and cross-distribution are the last two modes considered. Under these arrangements, one company distributes another company's products in an agreed geographical area. Besides distribution, other marketing activities such as promotion, advertising, and servicing can be performed by the carrier firm.

Market coverage

Market coverage is a variable indicating the prime market considered as the destination of the alliance's output. The triad markets themselves are the biggest target, of course, but the alliances frequently go beyond the triad regions, suggesting the global dimensions inherent in these ventures. For example, when AT&T reached an accord with SGS-Ates Componenti Elettronici S.p.A., the Italian semiconductor maker, the deal was a step in AT&T's expansion in Europe. In contrast, when IBM and Microsoft cooperate to integrate software developments with microcomputer technology, the resulting market coverage is clearly global.

Motives

For each participant in a given alliance, a set of motives is also recorded. The motives represent the benefits sought ex ante by the firm when entering the partnership. Six motives are examined including marketing, production cost, direct payments, product, technology, and protectionism (avoidance of).

MARKETING. The marketing function is a composite arrangement of activities relating a company to its customers. At the core of the function, distribution, promotion, and service can be carried by different parties. For our purposes, marketing represents one or more of these activities. In particular circumstances, distribution may also mean a first time entry in a restricted market. For example, Britain's Glaxo joined with the German company E. Merck in 1982 to sell Zantac, an anti-ulcer drug, in West Germany, gaining access to one of the largest drug markets in the world.

PRODUCTION COST. Production costs are a major determinant of competitiveness. Products cannot always be differentiated based on their intrinsic properties or intangible contributions. In this case, production costs play a unique role in determining the viability of a product. Finding a

partner with production efficiencies provides one way to reach a competitive cost level. In 1985, U.S. Steel Corp. and South Korea's Pohang Iron & Steel Co. (POSCO) initiated negotiations for a steelmaking venture in California. The U.S. company was seeking low cost, semi-processed steel from Korea.

DIRECT PAYMENT. Direct payment refers to any direct monetary compensation, such as royalties, licensing fees, or payments for service, product, and technology provided. In the case of a manufacturing agreement, this benefit can be considered as a direct outcome of a venture without a strong strategic motivation. For example, Korea's Samsung entered a deal with Chrysler to manufacture car parts overseas in return for cash payments. Under licensing, direct payment carries a more subtle message, since the licensor is giving up the option of exploiting its own know-how.

PRODUCT. The motive product captures the fact that one firm obtains a new product from the venture. SGS Ates Componenti Elettronici S.p.A received the exclusive marketing rights in Europe of AT&T's bipolar and high-voltage integrated circuits. The products carry the SGS logo. Two different conditions motivate a firm to seek a product through a cooperative venture. Firstly, a company might not be in a position to develop the product itself. Secondly, a company might have the potential to develop the product in house, but it can obtain it more cheaply or quickly by cooperating.

TECHNOLOGY. Technology means that a company gets access to a technology or process as a direct output of the venture or as an indirect benefit from using it. In a recent joint venture, Olivetti obtained access to Canon's laser-printing technology. Technology refers to a combination of functional and process knowledge. The functional component builds on human skills in the domains of management, organization, manufacturing, and

marketing. Process knowledge deals with the technique and core product, and is often translated in patents or blueprints.

PROTECTIONISM. Protectionism (avoidance of) represents a motive for companies having to fight tariffs, quotas, or non-tariff barriers in a foreign market. IBM joined with former state monopoly Nippon Telegraph and Telephone in an attempt to overcome the barriers to foreign participation in the Japanese computer and telecommunications industries.

Data Gathering

The data were recorded by cross checking information in the different business publications. Direct statements by the companies were given the highest priority as a source of reliable information, followed by the comments from the authors of the articles. When we were uncertain or lacked information regarding a variable, no information was recorded for the particular item. Due to the complexity of the data collection procedure, the variable motive is represented simply by binary values, indicating if a particular benefit is sought or not. Several motives may be found per participant in a venture.

More detailed information, especially for the motives, could only have been obtained by a case by case study involving interviews or surveys. This explains the limitation to six benefits, even though other less traceable benefits such as collecting intelligence or blocking competition could be significant as well.

Some strategic dimensions are particularly difficult to identify on a consistent basis. Hennart (1987), for example, proposes a classification distinguishing "Scale" from "Link" joint ventures. The "Scale" joint venture refers to a situation where two or more firms follow a similar strategy of vertical integration, horizontal expansion, or diversification. In

comparison, the "Link" joint venture occurs when the strategic posture of the partners is not symmetrical. Recording such information would require some complementary research on a case by case basis. This example illustrates the restrictive character of the data collection procedure.

Our concern has been to record observations as consistently and rigorously as possible given the nature of the information, a delicate task that most researchers on this subject are faced with (Doz and Shuen 1987).

PROFILE OF THE ALLIANCES

Forms

The database contains 658 different alliances between two or more companies, of which 586 were clearly identified for their structural form. Table 1 shows that 33% of the alliances are established through contractual agreements. In comparison, equity participations represent 38% and Joint ventures 20% of the all the alliances. A low percentage, 9% of the observations, relate to a consortium. These figures indicate a fairly balanced distribution for the structural forms save for consortia.

 Put Table 1 here

Table 1 also presents the breakdown of the structural forms across the triad regions. The frequencies are computed for each region by considering all alliances involving at least one participant of the region under consideration. A relatively even pattern among the forms, similar to the distribution of the aggregate data, can be observed for the triad regions save for Japan. Differences among the regions exist, and these will be noted when reviewing each region separately.

Modes

Table 2 shows that the distribution of modes at the aggregate level is characterized by a dominance of joint product development (44% of all cases), followed by manufacturing agreements (20%), piggybacking (11%), and joint R&D (10%).

 Put Table 2 here

Joint activities. Joint activities (type Y) represent about 60% of all alliances (the top 3 lines of Table 2). When looking at them, a characteristic pattern emerges. Table 3 refers to the distribution of joint activities across structural forms. It reveals that type Y alliances are dominant under consortia and joint ventures, but not under contractual agreements (only 37% of the contractual agreements are of type Y). Equity participations are evenly divided between type Y (49%) and type X arrangements.

Table 3 also shows that, when collaborative R&D is the only raison d'etre of the alliance, more companies cooperate via contractual ties than within the limits of a joint venture. On the other hand, when R&D is combined with a production and an eventual marketing stage, contractual agreements have relatively less appeal than joint ventures. If we define the intensity of an alliance (Klein, 1988) by the number of functions involved, then our observations support a simple truth: the more intensive the collaboration, the more propitious a joint venture over a contractual agreement.

 Put Table 3 here

Not too suprisingly, consortia are characterized by the dominance of joint activities (85%). Joint product development and joint R&D ventures account for most of the multiple firm cooperations.

Complementary activities. Type X activities account for the remaining 40% of the alliances. Among the complementary activities, manufacturing agreements, as well as piggybacking and cross-distribution for the marketing side, occur essentially through contractual agreements. Under the equity participation form, manufacturing agreement and piggybacking are the most frequent modes, which suggest that equity participation serves to strengthen a remote operation. Control over the party involved in the manufacturing or distribution of a product is sought. The equity stake represents an additional guaranty that a negotiated arrangement will not deviate substantially from the initial agreement.

Industries

Strategic alliances take place in a variety of industries, but are mostly concentrated in a few. Table 4 shows the breakdown of strategic alliances by industry. From the 36 industries in the database, 13 account for close to 90% of the observed ventures. The concentration becomes even more impressive, when grouping industries by technological area. For example, computing equipment, semiconductors, software, and telecommunication industries add up to almost 50% of the observed ventures. These figures are consistent with the conclusions of Hergert and Morris (1988), who recognize the concentration of the collaborative agreements in few industrial sectors characterized by high entry costs, globalization, scale economies, rapidly changing technologies, and substantial operating risks.

Put Table 4 here

One of the driving forces in these competitive industries is the dependence on large capital investments. R&D activities as well as production facilities require large investments, which in turn demand large markets to break-even. The semiconductor industry is a typical illustration of the trend. Combined with a shortening payback time due to fast technology obsolescence, the magnitude of financial commitment has accelerated the internationalization process. Strategic alliances can offer some financial relief by sharing the investment burden. They are also a means to rapidly access multiple markets, when broad exposure or the establishment of a standard are needed.

Characteristics of the Triad Regions

EUROPE. Europe tends to be the most underestimated actor of the triad region. For proof, these remarks by Bernard Wysocki (1988), in the Wall Street Journal Report on Technology: "But for all the alliances in the geopolitical sphere and despite all the joint ventures and so on in the economic sphere, the biggest economic battle of the future is likely to be more of the same. It will be America vs. Japan."

Looking at the profile of the alliances and at a consumer market of 380 million people, the role of Europe should not be discounted. According to Hergert and Morris, European companies are the most active participants in international alliances, with about two thirds of all ventures involving a European firm. Overshadowed by the focus on U.S./Japan competitive rivalry, this triad region definitely deserves more attention.

Our database reveals that Europe has a balanced distribution of the joint venture, contractual agreement, and equity participation forms (Table 1). In

comparison to companies from the two other triad regions, European companies are more frequently involved in consortia.

In terms of market coverage, Table 5 contrasts the relative importance of each triad region as a source of partners for the alliances (Origin), with the importance of the region as a market for the alliances output (Coverage). In terms of origin, the table indicates that less than half of the observed alliances (43.2%) involve at a European company, a lower figure than reported by Hergert and Morris. From a market perspective, Europe represents a modest but not insignificant magnet for strategic alliances (about 18%). The potential emergence of the EEC as a huge free trade area in 1992 should trigger a stonger interest in cooperating for a share of this market than we observed in the period of our study.

Put Table 5 here

The international aggressiveness of each region through strategic alliances, can be inferred from the previous figures (see Table 5). For example, the 58% figure indicates that 58% of the alliances involving at least one European participant, have a targeted market outside Europe. This indicator of international aggressiveness is particularly useful when comparing the triad regions to each other. European companies appear to be outward looking, not just EC oriented.

JAPAN. As the Yen strengthens and Japanese goods become the target of protectionist measures around the world, traditionally export oriented Japanese firms find new incentives for foreign investment. But for the period of our study, Japan was still characterized by a dominance of contractual agreements over joint ventures and equity participations (see

Table 1). This reflects the flexibility of Japanese corporations to engage in ventures without an equity stake. As confirmed by a Japanese colleague, the trend of our findings is consistent with the traditional Japanese value system based on relationships, as opposed to formal contracts: the level of commitment in a venture does not have to be materialized into an equity position.

Joint R&D ventures are twice as frequent for American and European as for Japanese companies. The interpretation of such a result is not trivial. Does it mean that Japanese companies have achieved a degree of technological sophistication such that they prefer to conduct their research independently? Does it also imply that U.S. firms have lost their original edge in the technology race to a point where international cooperation becomes a necessity? Or, could we look at this as a manifestation of a strong American vitality, sign of a healthy scientific and technological environment? In their article 'Joint Ventures with Japan Give Away our Future', Reich and Mankin (1986) stress the critical issues at stake when technology becomes a strategic commodity. The following analysis of the motives sought by the companies entering ventures will bring an additional light to these questions.

Japan is represented in less than a third of the alliances (see Table 5). In contrast to their American and European counterparts, Japanese companies (international aggressiveness ratio of 74%) are primarily involved in ventures with a targeted market outside the domestic boundaries. This reflects the strong international commitment of Japanese firms, originally acknowledged in their successful exports, now identified in the scope of their alliances. Alliances are not an unfamiliar phenomenon within Japan, where powerful

keiretsu organizations have grown from the multiplicity of interfirm collaborations.

U.S. The U.S. is a battle ground of fierce commercial competition. The concept of cooperation takes a rather ambiguous meaning, in the land of antitrust laws. American firms must learn how to cope with domestic regulations, when seeking collaboration.

The distribution of structural forms (Table 1) shows that the U.S. follows a pattern generally similar to Europe with equity participation playing a somewhat larger role.

In our data base, a dominant proportion of alliances involves at least one American participant (75.4%, Table 5). This high figure reflects some bias, inherent in the data sources. Looking at Hergert and Morris results, a comparable bias is suspected, toward Europe in this case (as noted previously, these authors found 73.7% of all alliances involving at least one partner from Europe, vs. 42.3% in our database). Similarly, they report 46.8% for the U.S. vs 75.4% in our database). Recognizing the possible bias, our analysis has been designed so that the reported results are not directly dependent on the triad distribution (except naturally, for the variables Origin and Coverage of Table 5). But, we note also, that the index of international aggressiveness is not directly affected by the problem.

The market coverage figures reveal the equal importance of the American and global markets for the alliance's output. This reinforces the proposition that strategic alliances aim at combining resources to compete in large markets. Among the triad regions, the U.S. also shows the lowest indicator of international aggressiveness (51%). Nevertheless, this figure is indicative

of a strong outward orientation for American firms with half of the alliances aiming at markets outside the U.S.

PATTERNS OF MOTIVES IN THE TRIAD

Objective

Companies are seeking specific benefits when entering strategic alliances. Some of these benefits are clearly identifiable, others are more subtle strategic moves difficult to record. Reacting to competition or collecting intelligence belong to the latter category. The effective delivery of the initially sought benefits conditions the longevity and success of the alliance. Our interest is in comparing the pattern of motives for companies of the different triad regions, when they interact with each other. This snapshot of the initial conditions favoring strategic alliances can serve as a reference point to understand the actual patterns in the three regions.

Data

For our analysis, a dataset including joint ventures and contractual agreements only is extracted from the database. A primary reason for this choice lies again in the difficulty in distinguishing the individual motives in consortia. In fact, one could argue that in consortia, companies behave homogeneously, and that the motives sought are more similar than complementary in nature. In a comparable effort for consistency, the dataset excludes the equity participation forms, since the associated motives were often less traceable. As a result, the data sample includes 132 strategic alliances involving a European company, 136 alliances with a Japanese company, and 246 alliances with an American party. All these ventures are the product of multiple associations among 88 European, 107 Japanese, and 153 American companies.

This sample serves to draw a comparison between two triad regions at a time, based on the alliances between the two regions under scrutiny. The procedure is repeated for the three possible arrangements (U.S./Europe, U.S./Japan, Europe/Japan). The comparison focuses on the interaction between the regions, allowing us to investigate the existence and consistency of patterns across triad regions.

Model

To identify the pattern of motives between the triad regions, a logit regression technique is used. The choice of a logistic analysis over discriminant function analysis in particular is motivated by the limitations of the latter technique with respect to the assumptions of multivariate normality of the explanatory variables, for tests of significance (see Fienberg 1987; Goldstein and Dillon 1978; Klecka 1988). An important benefit of the logistic model is that it allows the use of categorical independent variables: no assumption is made regarding the distribution of the independent variables (Afifi and Clark 1984). Since the dependent as well as the independent variables are categorical, it can be shown that the results obtained with the logistic regression are identical to those of a general Log-linear model (Knoke and Burke 1986).

The model is run to contrast two regions at a time. For the companies of the sample, the triad region of origin serves as the dependent variable, and the set of motives as the predetermined variables. The model relates the predictability of the geographical outcome to the knowledge of the motives. The relationship is not linear but follows a logistic distribution:

$$P(\text{ORIGIN}=1) = 1 / (1 + \exp - (B_0 + B_1\text{MARKETING} \\ + B_2\text{PROTECTIONISM} + B_3\text{PRODUCT} + B_4\text{TECHNOLOGY} \\ + B_5\text{PRODUCTION_COST} + B_6\text{PAYMENT}))$$

ORIGIN denotes the triad region of origin for the companies. By convenience and convention, the dependent variable takes the values 0 or 1 to represent a triad region versus the other one (e.g. Europe=1 versus Japan=0). The independent variables correspond to the motives previously discussed. The coefficients B_0 to B_6 are estimated. They determine the direction of the effect, as well as its relative magnitude. The estimates of the coefficients are used to evaluate the relative importance of a given motive for a triad region vis a vis the other region. For our purpose, only the direction of the outcome matters. The sign of a statistically significant coefficient indicates for which triad region the associated benefit is characteristic. A non significant coefficient shows that the corresponding motive is either non relevant or equally important for both triad regions.

Results and implications for the triad regions

The model is run for the three paired comparisons. Table 6 carries the results. For the sake of presentation, only the direction of the statistically significant estimates is reported with the associated level of significance (at the .01 and .05 levels).

 Put Table 6 here

EUROPE. Looking at the table, a first striking result concerns the alliances which involve European companies. For the ventures between American and European firms no distinctive pattern of motives emerges, indicating a strong similarity of motives between the two triad regions when their companies form alliances. There is also no trend for the alliances between Japanese and European firms, with the exception of the motive direct payment indicating a significant direction of payments from Europe to Japan.

These results for European companies are suggestive of a form of competitive parity between Europe and both the U.S. and Japan. Except for direct payment, no distinctive trait emerges which might indicate a state of dependency or the presence of a differential competitive strategy. Rather, when European companies join an alliance, they apparently share the same competitive needs and motivations as their partners from the other triad regions. Europe thus represents an ambiguous economic situation, not well understood in comparison to more publicized U.S./Japan relationships.

The coming of 1992 stimulates new interest in the impact of a unified Europe in global industries. Our results support the potential of a competitive resurgence for Europe, since European companies seem to be at par with their other triad competitors relative to technology and products. The situation from our data reflects more a status quo, characteristic of an early stage of discovery of the European potential, as a market as well as a source of collaborators and competitors.

JAPAN. The picture for Japan in strategic alliances is very different from that of Europe. Whereas European parties have similar motives to their counterparts from other regions, Japanese companies have a more differentiated set of motives from their partners. Although Europe-Japan alliances show a similarity of motives for the two parties (save for direct payments), a true contrast exists for the U.S.-Japan alliances. Production cost, protectionism and product are the dominant motives sought by American companies. The distinctive Japanese motivation is direct payments through licensing or manufacturing agreements. The pattern of motives reveals the appetite of American companies for competitive products as a distinct motivation to enter a venture with a Japanese partner. These results are

consistent with the findings of Reich and Mankin (1986), who observe U.S. companies entering joint ventures with Japanese companies to obtain high quality, low cost products. The authors raise the issue of the shortsightedness of U.S. strategy, giving up higher value-added jobs to Japan.

Reich and Mankin recognize that a transfer of project engineering and production process skills has occurred in favor of Japan, jeopardizing American competitiveness and future ability to innovate in some industries. But our data do not support the existence of a unilateral transfer of technology from the U.S. to Japan. In fact, the motive technology does not differ between the two regions. However, this result is not incompatible with the conclusions of the authors. We look at technology as an asset actually present in the venture, while Reich and Mankin refer principally to an indirect technological effect, originating from the tendency of Japanese companies to perform the complex and critical functions, and therefore to learn and control the next product generation.

From a strategic point of view, it is commonly accepted that Japanese companies invest in the U.S. or join with an American partner to protect themselves from the threat of trade barriers and other protectionist forces in the U.S. But, this should not mask the reciprocity of protectionist trends, illustrated too often by the complaints of American firms trying desperately to crack Japanese markets. At the aggregate level, our data rather support the significance of the latter phenomenon. Protectionism (avoidance of) is a more important motive for U.S. alliance partners than for the Japanese.

U.S. As previously stated, the U.S. region does not show a distinctive pattern of motives when interacting with Europe. On the other hand, American companies seek new products and cost efficiencies from their

Japanese partners. It was also observed that on a comparative basis, strategic alliances serve as a vehicle against protectionism more systematically for American than for Japanese companies. This result reflects a general trend, which might seem counter intuitive for specific industries such as the car industry, for which quota restrictions against Japanese imports are well publicized.

Our model draws a picture across all industries, and each case is given a similar weight, so that the results are representative of the overall phenomenon. This approach allows us to look more critically at some perceived beliefs, such as for the case of technology and protectionism.

The sharing of the motives between triad partners

The previous results have helped to differentiate the triad regions based on the motives of companies entering cross-triad alliances. Nonetheless, an issue has remained unclear through the analysis. That is the true balance of cooperation, or shared motivations within each alliance, as opposed to the aggregate level. A better understanding of the phenomenon calls for a more micro-oriented examination of the role played by common motives.

Figure A pictures the relative importance of these common motives. For a given motive, the comparison is determined by taking all the alliances for which the particular motive is observed, and then, by computing the proportion of ventures for which the motive is unique to firms of one region, or of the other, or common to both firms. For example, the top chart relative to U.S./Europe alliances shows that there is an equal number of American and European firms seeking a product without their partner seeking it. This

number is also equivalent to the number of alliances where both American and European firms cooperate to obtain a common product.

Put Figure A here

The information contained in the charts describes the relative matching of the triad regions for each motive. This visual support aims at facilitating the analysis of existing patterns that the use of actual numbers would rapidly render unbearable. The data must be interpreted in light of the previous results. The prior Logit model takes into consideration the relative weight of all the factors as well as their interaction. Here, all the motives are given a similar importance, and are examined separately. This explains, for example, why on the chart, protectionism strongly characterizes the U.S. region relatively to Europe, but plays no significant role in the logistic regression. This occurs because protectionism is not a frequent motive, and therefore has a low weight in the regression.

The charts are only indicative of the regional breakdown for a particular motive. Our attention is directed toward examining the importance of common motives (labeled 'BOTH' on the chart), and detecting the presence of an asymmetric regional pattern for the 'unique' motives (those sought only by one of the two partners).

Figure A reveals that direct payment, protectionism, production cost, and marketing are motives generally not shared by two partners. This result, quite trivial for the first two motives, offers more interest for the two others. Marketing appears clearly to be a complementary function motivating the existence of the alliance for only one of the participants. Market

penetration and access to a new channel of distribution illustrate the point. Production costs play a limited role as a common motive.

Technology, marketing and product are the most frequent motives observed. Of these, only technology and product are characterized by a high degree of sharing. These patterns are very consistent across the three regional pairs. More than half of the alliances involving a technological stake, are characterized by technology being a common motive for both partners, regardless of the triad regions.

Technology development and transfer of know-how through learning are at the heart of many strategic alliances (Pucik 1988). The technological race is ferocious, and no one triad region can claim an absolute superiority, even for a particular industry. The effervescence of cross regional ventures centered on technology is also confirmed by our data. The overall picture is more one of reciprocal cooperations through which companies regardless of their triad of origin, try to strengthen their strategic posture vis a vis other competitors.

EUROPE. When collaborating with Japanese companies, European firms display a unilateral interest in lower production costs. Only in the case of Europe/U.S. ventures do we observe a significant number of ventures with production cost as a common motive. This observation reflects the similarity of the strategic needs of the two regions for manufacturing and production efficiencies. This trend also underlines a tacit recognition by American and European companies of their manufacturing vulnerability vis a vis Japan, and the necessity to cooperate to prevent an unhealthy dominance by one partner in this global menage a trois.

European companies also show a noticeably more frequent desire than their American counterparts to acquire a specific technology. This asymmetric technological flow to Europe does not hold when the partner is Japanese.

JAPAN. The motive product accounts for a third of all observed benefits in the three groupings. In comparison to their European and American counterparts, fewer Japanese companies seek a product from their alliances. These results agree with the previously observed tendency of Europe and the U.S. to match each other's strategic posture, facing common, strong competition from Japan.

Japanese companies show an interest in technology, comparable to their European and American partners. No unilateral trend emerges, which would support a transfer of technology or know-how to or from Japan.

U.S. American firms seek a recourse against protectionism from their European as well as Japanese partners, more often than these partners do. They also more frequently sought lower production costs, not only from Japanese but also from European companies. Of course, much of our data are from the high dollar period of the mid-1980's. As mentioned before, the U.S. shows a similar interest in technology as Japan, but seems to transfer more technology to Europe.

CONCLUSIONS

This exploratory study has attempted not only to expose the patterns of strategic alliances across the triad regions, but also to propose a simple structural framework to analyze a phenomenon which lacks a definitional consensus.

Based on an extensive data base of almost 600 observations, our findings take a rather universal meaning. Such empirical work is much needed for this area of research. Too often, strategic alliances are only studied from a theoretical, if not anecdotal, perspective. Much empirical research remains to be conducted at an aggregate level like this study, or at a complementary clinical level, to substantiate the validity of proposed theories.

Longitudinal studies are also in demand, since the phenomenon is driven by changing external competitive forces, as well as an evolving internal balance of power between the participants.

The study of strategic alliances has been suffering from the heterogeneity of the definitions, when any are clearly stated. This has made each study very specific and the results difficult to compare. From joint ventures to competitive collaborations, a unifying theory is needed. This paper has tried to serve as a step in that direction, by proposing a definitional framework.

TABLE 1

DISTRIBUTION OF THE STRUCTURAL FORMS

The figures represent the relative frequencies of the forms joint ventures (JV), contractual agreements (CA), equity participations (EP), and consortia, at the aggregate level and across the triad regions (based on 586 alliances).

	STRUCTURAL FORMS				TOTAL
	CA	EP	JV	CONSORTIA	
AGGREGATE DATA	33%	38%	20%	9%	100%
TRIAD REGIONS					
U.S.	32%	40%	20%	8%	100%
EUROPE	29%	33%	25%	13%	100%
JAPAN	46%	20%	26%	8%	100%

TABLE 2

DISTRIBUTION OF THE MODES

MODES	FREQUENCIES
JOINT R&D	9.5%
JOINT PRODUCTION	5.7%
JOINT PRODUCT DEVELOPMENT	44.1%
LICENSING	5.0%
CROSS LICENSING	2.0%
MANUFACTURING AGREEMENT	20.3%
PIGGYBACKING	11.4%
CROSS-DISTRIBUTION	2.0%
TOTAL	100.0%

TABLE 3

**JOINT ACTIVITIES (TYPE Y), DISTRIBUTION OF
THE MODES ACROSS STRUCTURAL FORMS**

The figures represent the frequencies of joint activities modes for the forms joint ventures (JV), contractual agreements (CA), equity participations (EP), and consortia.

MODES	STRUCTURAL FORMS			
	CA	EP	JV	CONSORTIA
# observations	190	114	117	52
JOINT R&D	10%	7%	3%	21%
JOINT PRODUCTION	4%	7%	9%	4%
JOINT PRODUCT DEVELOPMENT	23%	35%	69%	60%
TYPE Y	37%	49%	81%	85%

TABLE 4

STRATEGIC ALLIANCES BY INDUSTRY

INDUSTRIES	FREQUENCIES
AIRCRAFT	3.3%
AUTOMOTIVE	16.0%
BIOTECHNOLOGY	3.5%
CHEMICALS	2.3%
COMPUTING EQUIPMENT	21.3%
DRUG	2.3%
ELECTRONICS	2.1%
ENERGY	2.1%
FOOD AND BEVERAGES	3.8%
SEMICONDUCTORS	9.1%
SOFTWARE	3.6%
STEEL	3.2%
TELECOMMUNICATIONS	14.3%
OTHERS	13.1%
TOTAL	100.0%

TABLE 5

DISTRIBUTION OF STRATEGIC ALLIANCES BY TRIAD REGION

The figures show the frequencies of alliances by region. Origin refers to the proportion of all ventures having at least a party from the given region.

MARKETS	ORIGIN O	MARKET COVERAGE C	INT'L AGGRESSIVENESS (O-C)/O
US	75.4%	36.7%	51%
EUROPE	42.3%	17.8%	58%
JAPAN	29.9%	7.7%	74%
GLOBAL	N.A.	37.8%	
TOTAL	N.A.	100.0%	

TABLE 6

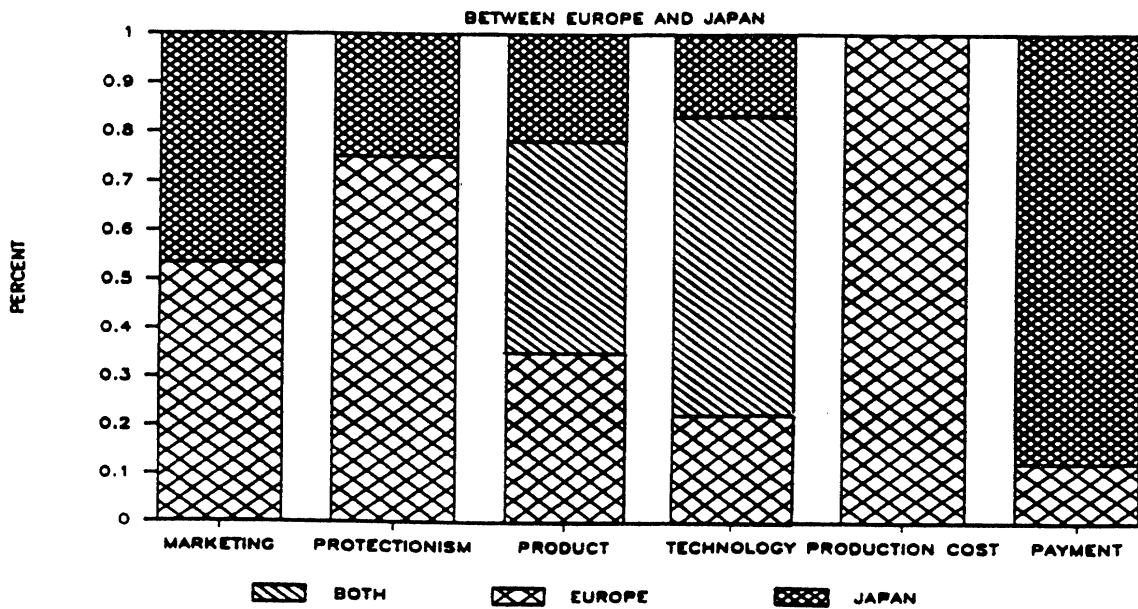
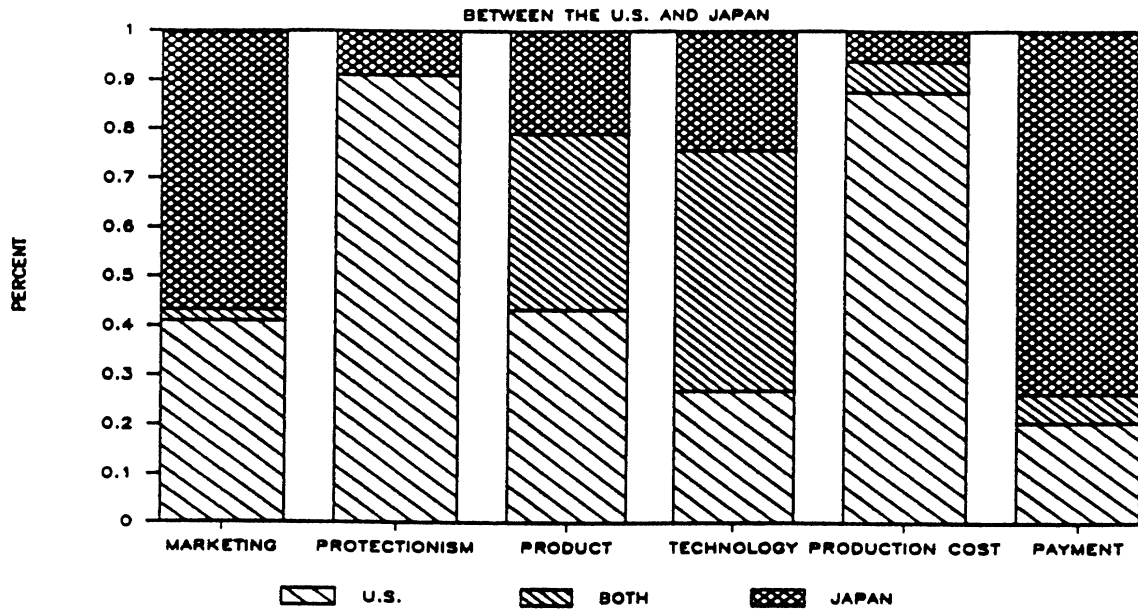
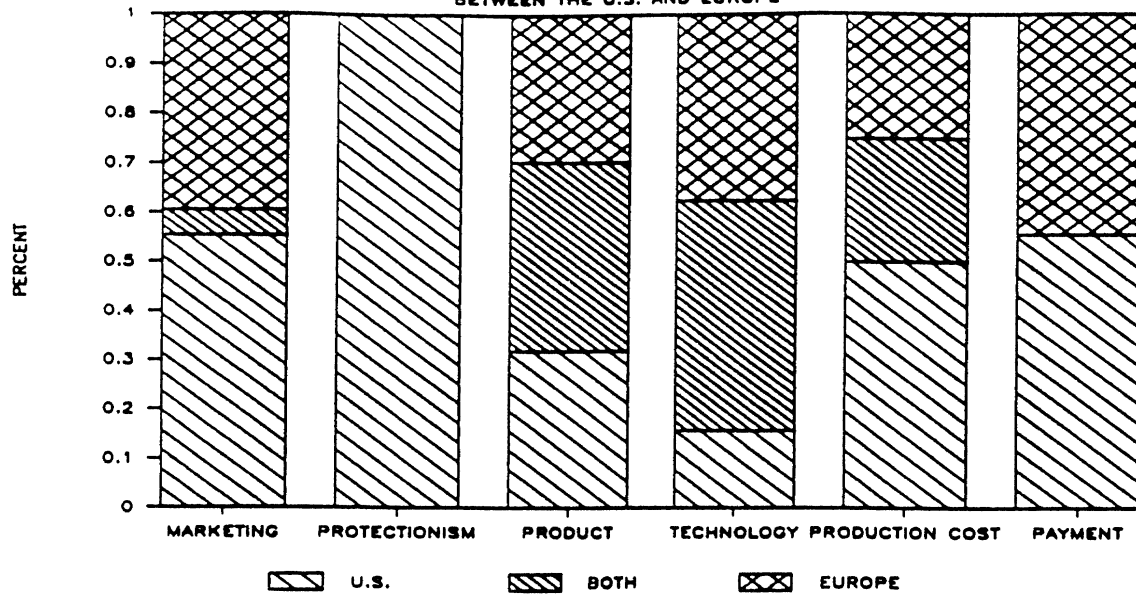
PATTERN OF MOTIVES BETWEEN TRIAD REGIONS

REGION CHARACTERIZED BY THE MOTIVE
FOR:

MOTIVES	EUROPE/US	JAPAN/US	EUROPE/JAPAN
MARKETING			
PROTECTIONISM		US **	
PRODUCT		US *	
TECHNOLOGY			
PRODUCTION COST		US **	
DIRECT PAYMENT		JAPAN *	JAPAN *

(SIGNIFICANCE LEVEL: ** .01 , * .05)

FIGURE A. DISTRIBUTION OF THE MOTIVES
BETWEEN THE U.S. AND EUROPE



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