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EFFECTIVE FORMATION OF INTERNATIONAL COOPERATIVE ARRANGEMENTS: TECHNOLOGY JOINT VENTURES AND LICENSING AGREEMENTS

by

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ABSTRACT

EFFECTIVE FORMATION OF INTERNATIONAL COOPERATIVE ARRANGEMENTS: TECHNOLOGY JOINT VENTURES AND LICENSING AGREEMENTS

by

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The use of international cooperative arrangements as strategic competitive tools and vehicles for the transfer of technology between firms is growing rapidly. The success or failure of these arrangements is affected by the process used in forming them, but that process has received scant attention in the international marketing literature.

This study focuses on the formation of two types of international cooperative arrangements involving transfers of technology: joint ventures and licensing agreements. Specifically, it deals with the factors leading to effective formation of such arrangements.

The study begins with a review of three theoretical grounds: cooperation, exchange, and transaction costs. Five key constructs that seem to influence the effective formation of arrangements (commitment, motivation, power, risk, and trust) are identified.

Both exploratory and descriptive research methodologies are employed. In the exploratory stage, 35 in-depth interviews in one "Fortune 500" chemical company

were used to develop a conceptual model for the formation of cooperative arrangements. In the descriptive stage, eight hypotheses were tested, and four research questions were investigated. The hypotheses and research questions were verified by data concerning 48 arrangements collected through questionnaires and, in many cases, follow-up interviews from nine "Fortune 500" chemical companies. Bivariate (Kendall Tau-B, Pearson, and partial correlations) analysis and multivariate (factor, multiple regression, and canonical correlation) analysis were used in the test of the hypotheses and the investigation of the research questions.

Results suggest that effective formation of international cooperative arrangements requires an extensive analysis of the type of technology involved in the arrangement, plus careful selection both of the type of arrangement and of the partner. Of the five constructs suggested by the literature review, commitment, motivation, and trust have the most positive influence on the effective formation of cooperative arrangements. Managerial guidelines are provided.

"Ask, and it shall be given unto you;

seek, and ye shall find;

knock, and it shall be opened unto you."

3 Nephi 14:7

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CHAPTER I

INTRODUCTION

For firms interested in worldwide leadership, international cooperative arrangements can play a strategic role. In addition to being a reduced-risk alternative to direct investments, such agreements offer a way to enter new markets, reduce competition, transfer technology, and reduce costs.

Several researchers have defined international cooperative arrangements. According to Root (1988), for example, these are: "any form of long-term cooperation between two or more independent firms headquartered in two or more countries that undertakes or supports a business activity for mutual economic gain" (p. 69). By making explicit two elements of a cooperative relationship, it is possible to understand international cooperative arrangements better. These are (1) the nature of the exchange and (2) the level of formalization of the relationship. A cooperative interaction entails exchange of tangible and intangible objects between parties. In addition, cooperative arrangements are characterized by the level of formalization of the relationship between parties; relationships can be either formal or informal.

The domain of this research is demarcated by: (1) the type of arrangements included, (2) the number of participants per arrangement, (3) the object of exchange, (4) the nature of the relationship between parties, and (5) the industry involved.

First, this study analyzes both equity joint ventures and licensing agreements. Second, this study deals with cooperative arrangements which involve the

participation of two firms only. Third, this research investigates cooperative arrangements which involve transfer of technology between companies. Thus, the major intangible object exchanged in these cooperative arrangements is technology. One of the firms is willing to share its technology (supplier) and the other firm is interested in absorbing it (recipient). Fourth, in this inquiry, only formal relationships between parties are included. That is, the study analyzes only relationships established and ruled by a written document negotiated and signed by both parties. The firms included in this study are all from the chemical industry.

This research focuses on the formation of cooperative arrangements. Specifically, it deals with the factors that lead to an effective formation of international cooperative arrangements. In the context delineated above, this research has three major objectives:

1. To develop a conceptual model which characterizes the effective formation of international cooperative arrangements involving the transfer of technology between parties in the chemical industry.
2. To examine the factors affecting the formation of these cooperative arrangements. Key factors that lead to effective formations of international cooperative arrangements will be identified. Hypotheses regarding the relationships between these factors and effectiveness or effective formation of cooperative arrangements and their level of statistical significance are empirically tested.
3. To derive a managerial framework that will help managers effectively form international cooperative arrangements.

In the next section, several background issues of the research are addressed. First, the concept of effective formation of cooperative arrangements and five constructs associated with effectiveness are presented. Then, based on a contingency framework and these five constructs, four research questions are offered. Next, the importance of cooperative arrangements in the context of global markets is indicated. Finally, the importance of this research and a plan for the dissertation are provided.

Effective Formation of Cooperative Arrangements

Effective formation of cooperative arrangements or simply effectiveness, refers to the overall level of organizational goals reached by the firms during the formation process. Specifically, the formation of an international cooperative arrangement is said to be effective if: (1) the parties arrive at a formal written agreement; (2) both parties are satisfied with the terms of the agreement and with the other party; and (3) both parties achieve their objectives at an expected level (e.g., they obtained the expected benefits from the arrangement). Five constructs are hypothesized to lead to effective formation of international cooperative arrangements: motivation, power, risk, commitment, and trust.

Key Constructs

Companies enter into international cooperative arrangements in order to gain strategic advantages or benefits. Yet, exchange relationships involve negotiations and social interactions through which relations of power and dependence become established. Relations of dependence with other firms possess inherent risks. The partner may not perform as expected (performance failure) or may decide to

appropriate the resources and strategic advantages of the other party such as trade secrets and technology (disclosure risk). In order to reduce these risks, international firms prefer formal, contractual cooperative arrangements.

Thus, one major element in the formation of international cooperative arrangements is the negotiation of a contractual agreement. During these negotiations, both parties spell out their objectives, rights and obligations that will rule the interactions between parties during the life of the arrangement and eventual termination. Companies, however, have found that contractual agreements are only one of the elements (for some companies a minor element) for building ties between firms. In order to build strong linkages between companies and enhance the chances of leading to a successful arrangement, two other elements are necessary: commitment to the formation and implementation of the arrangement, and trust between partners.

The five constructs (motivation, power, risk, commitment, and trust) were partitioned into a predictor and a contingency variable. The predictor variable refers to factors which are under the control of the supplier of technology. Three of these factors are commitment and motivation to enter in the arrangement as well as the power associated with the resources contributed to formation and implementation of the arrangement. The contingency variable refers to factors which are only indirectly controlled by the supplier of technology: risk and trust. The criterion variable is represented by effectiveness. Figure 1.1 shows the variables, the factors, and the proposed relationship among the variables.

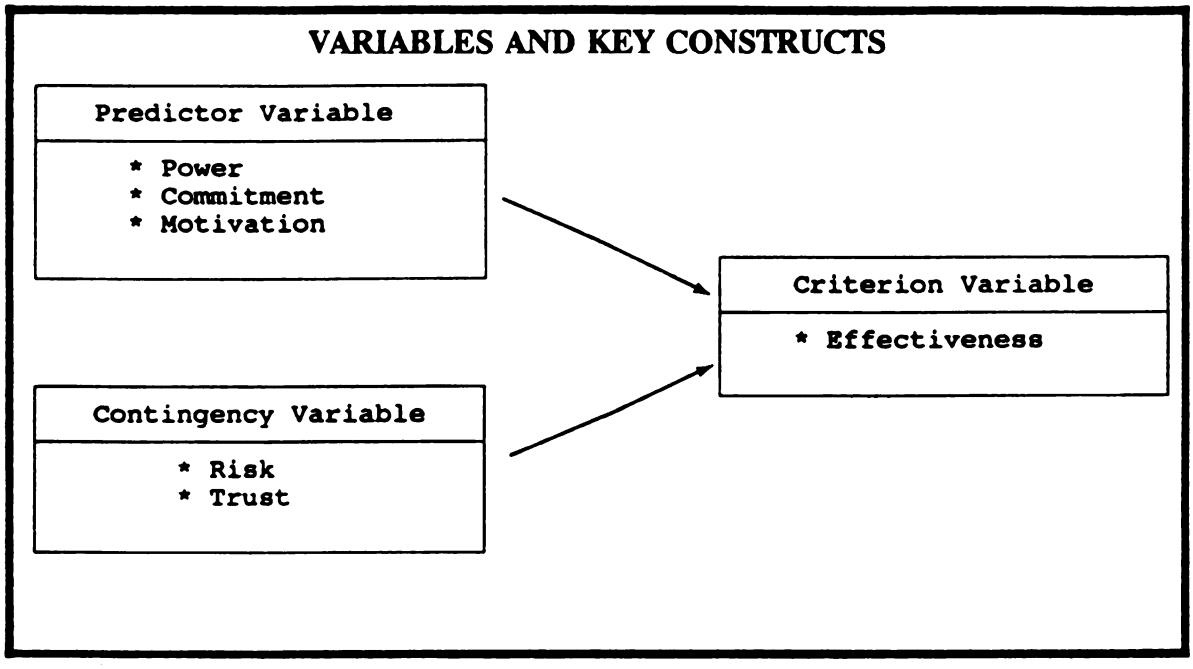
VARIABLES AND KEY CONSTRUCTS
Predictor Variable
* Power
* Commitment
* Motivation
Criterion Variable
* Effectiveness
Contingency Variable
* Risk
* Trust

Figure 1.1

This conceptualization suggests that the effective formation of international cooperative arrangements depends upon power-dependence related factors and the levels of risk and trust. Thus, two relationships are proposed among these variables (predictor, contingency and criterion variables): (1) the relationship between the predictor variable and the criterion variable; as well as (2) the relationship between the contingency variable and the criterion variable.

Research Questions

Based on the above framework associated with effective formation of international cooperative arrangements, this research aims to answer the following questions:

1. What is the overall impact of the predictor variable (power-dependence related factors: power, motivation, and commitment) upon effectiveness (formal agreement reached, satisfaction and achievement of objectives)?
2. What is the impact of each of the constructs (motivation, power, and commitment) on effectiveness? How significant (statistically) is the influence of each of these constructs upon effectiveness?
3. What is the overall impact on the contingency variable (trust and risk) upon effectiveness?
4. What is the impact of each of the constructs (trust and risk) upon effectiveness? How significant (statistically) is the impact of each of these constructs on effectiveness?

Importance of Cooperative Arrangements

Traditionally, multinational firms have preferred wholly-owned subsidiaries over cooperative arrangements when entering into foreign markets (Contractor and Lorange, 1988). Consequently, these firms have used internal mechanisms for the transfer of technology (Casson, 1979; Contractor and Sagafi-Nejad, 1981; Millman, 1983). Millman, for example, estimates that two-thirds of the technology transferred between countries is "channelled within multinationals." Multinational firms, however, are reviewing their approaches to market entry and technology transfer. Now they are accepting joint ventures and licensing agreements as alternatives to direct investment in increasing numbers.

Killing (1983), for example, points out the growth in the number of international joint ventures. He presents historical data which compares the number of wholly-owned subsidiaries and partially owned subsidiaries (majority and minority owned subsidiaries) formed between 1900 and 1967. While in the early 1900s the percentages of wholly-owned subsidiaries formed over the total number of subsidiaries formed (including partially owned subsidiaries) ranged between 74 percent and 91 percent, this percentage declined to 55 percent in the 1960s. The number of joint ventures formed in the early 1900s was 22. This number increased to 631 in the 1960s. Killing states "...between 1910 and 1967 there was a marked increase in the propensity... to use joint ventures" (p. 2).

Moreover, several authors indicate the growth of cooperative arrangements in the last few years (Harrigan, 1985; Hladik, 1988; Auster, 1987; Contractor and Lorange, 1988). Auster, for example, indicates that international cooperative

arrangements have "skyrocketed" the last 15 years. Likewise, Harrigan, referring to domestic cooperative arrangements, talks about an "explosion" in the number of cooperative arrangements formed the last decade. She indicates that while in the period 1964-1974 the total number of announced joint ventures was 505, in the next period, 1974-1984, the total number of announced joint ventures jumped to 802. That is, in the last ten years the number of announced joint ventures increased by 59 percent over the preceding period. Contractor and Lorange (1988), comparing the number of international cooperative arrangements (joint ventures and licensing agreements) against the number of wholly-owned subsidiaries, provided a ratio of four international cooperative arrangements to one wholly-owned subsidiary.

In addition, multinational firms are realizing that international cooperative arrangements can play a strategic role in a competitive global market (Contractor and Lorange, 1988; Harrigan, 1985). Harrigan, for example, suggested that cooperative arrangements are seen as strategic options. She explains that they used to be just a way to enter into foreign markets, but now companies perceive them, as part of a network to cope with worldwide competition. This shift towards cooperative arrangements has been reflected in the dramatic growth in the number of cooperative arrangements formed in recent years.

There are several factors that explain why firms are reviewing their traditional views regarding cooperative arrangements and why these arrangements are growing on rapidly. These are: (1) shorter product life cycles that have pushed companies to introduce innovations more frequently; (2) sophisticated technology that requires

multiple, yet specialized, skills and resources; (3) high research and development costs; (4) host country regulations restricting wholly-owned subsidiaries; and (5) high capital requirements fees (for example, the capital required for establishing a distribution network and/or a sales force number is high) (Harrigan, 1985; Mowery, 1988; Contractor and Lorange, 1988; Hladik, 1988; Auster, 1987). These factors encourage firms to cooperate with other companies, even competitors, and gain strategic advantages in order to overcome the environmental challenges.

One important feature of international cooperative arrangements -- joint ventures and licensing agreements -- is the role they play in the transfer of technology (Harrigan, 1985; Contractor, 1985) Contractor, for example, suggests that technology transfer includes three elements: patented information, non-patented information (know-how), and services (training, managerial development, installations, etc.). Usually, international cooperative arrangements involve a combination of these elements included in the transfer of technology between parties.

Regarding the future, several authors (Auster, 1987; Mowery, 1988; Harrigan, 1985) predict that international cooperative arrangements will continue to grow in importance as strategic options and weapons in an increasingly competitive world. As Perlmutter and Hennan (1986) point out, "to be globally competitive, multinational corporations must be globally cooperative." (p. 136).

The chemical industry, which is the focus of the present research, has followed a somewhat different pattern of cooperative arrangement activity. According to Berg et al., (1982), firms within the industry have been active in forming cooperative arrangements for decades. For this industry, cooperative arrangements are not a

recent phenomenon. Berg et al., suggests that for some companies, the formation of cooperative arrangements is a very important activity. Moreover, these firms have a stable, experienced and sizable staff in charge of the formation of arrangements. These characteristics of the chemical industry and the number of firms heavily involved in cooperative arrangements, in particular, are compelling reasons to select this industry as a target for research on formation of international cooperative arrangements.

Importance of This Research

This research focuses on the formation of international cooperative arrangements which involve technology transfer in the chemical industry. It develops a conceptual model for explaining the formation of cooperative arrangements, identifies key factors for the effective formation of arrangements, and empirically verifies relationships among them. The research makes contributions to three major constituencies: academicians, practitioners, and policy-makers.

This study adds to the knowledge base on international and industrial marketing, and in particular, adds to the knowledge base on international cooperative arrangements. Formation of cooperative arrangements has been overlooked by researchers. As Auster (1987) pointed out, formation of cooperative arrangements is the "forgotten dimension" (p. 5) in the literature on international cooperative arrangements.

This research helps practitioners to better understand effective formation of cooperative arrangements. Any manager with some experience in the formation of

international cooperative arrangements knows the intricacies and difficulties faced during the process of formations. However, managers, in general, receive "on-the-job training" regarding the formation of arrangements. So, an unsystematic approach based on few heuristics is commonly found among managers. This study, in contrast, provides a general framework and specific guidelines for the process of forming cooperative arrangements. Thus, for practitioners, the normative framework derived from the conceptual model represents a tool for making the design and planning of international cooperative arrangements more effective.

Formation of cooperative arrangements is the first stage toward the implementation of arrangements and the transfer of technology between parties. Key factors that impact the formation of cooperative arrangements may also impact on the transfer of technology. Setting guidelines about technology transfer through international cooperative arrangements requires better understanding of the factors associated to the supplier of technology, the recipient of technology, and the relationships between them.

This study analyzes motivational factors, hindering factors such as risk, and other factors such as power, trust, and commitment between partners. By understanding these factors, policy-makers are better prepared for setting guidelines for the transfer of technology between countries.

Plan of the Dissertation

Chapter Two presents a review of the relevant literature on cooperative arrangements. Five constructs that seem to impact on the effective formation of

international cooperative arrangements are identified. Hence, eight hypotheses that describe the relationship between effectiveness and each of these constructs are offered. Chapter Three explains the research methodology. The research included two steps: first, an exploratory phase, useful in developing an integrated framework, identifying the constructs, and formulating the research questions and hypotheses was conducted. Then, a descriptive research, designed to verify the hypotheses and investigate the research questions using bivariate and multivariate analysis was carried out. Chapter Four offers the key results from the exploratory stage. Chapter Five presents an analysis of the data using univariate and bivariate techniques. Chapter Six offers an analysis of the data using multivariate tools. Support for the hypotheses and answers to the research questions are indicated. Chapter Seven provides the conclusions and discusses the implications of this research. Normative guidelines for practitioners are suggested, the limitations of this study are noted, and directions for future research are presented.

CHAPTER II

LITERATURE REVIEW AND THEORY DEVELOPMENT

The objectives of this literature review are to (1) identify the key factors that lead to the effective formation of international cooperative arrangements (effectiveness); and (2) to develop a conceptual framework of the interaction between these key factors and effectiveness. First, definitions and characteristics of different types of cooperative arrangements are offered. After that, three frameworks relevant to international cooperative arrangements are presented: (1) theory of cooperation; (2) theory of exchange; and (3) transactions costs theory. By analyzing these frameworks, several key factors that impact international cooperative arrangements are identified. Then, the literature on formation of international cooperative arrangements is reviewed. This review shows which parameters have been identified and tested so far. Next, a definition of effective formation of international cooperative arrangements (effectiveness) is introduced. Finally, eight hypotheses indicating the relationship between effectiveness and five key parameters -- motivation, commitment, power, risk and trust -- are presented.

Definitions

There is a considerable number of terms and definitions which refer to international cooperative arrangements (Root, 1988; Auster, 1987; Oman, 1988; Mowery, 1988; Harrigan, 1988). A sample of the terminology and definitions found in the literature on cooperative arrangements is offered in Table 2.1. In addition,

Table 2.1
Terminology and Definitions

Terminology:	terms used to identify international cooperative arrangements -international corporate linkages (ICL's) -new forms of investment (NFI) -international collaborative venture (ICV) -strategic alliances
Definitions:	
Root (1988):	**International Cooperative Arrangement** "Any form of long-term cooperation between two or more independent firms headquartered in two or more countries that undertakes or supports a business activity for mutual economic gain. Long-term does not refer to any specific period of time, but, rather to a duration that exceeds the duration needed to complete arm's-length, open-market transaction." (p. 69)
Auster (1987):	**International Corporate Linkages (ICL's)** "The diverse interorganizational arrangements created by firms based in different countries to obtain strategic advantages in their markets and environments." (p. 3)
Oman (1988):	**New Forms of Investment (NFI)** "A foreign company supplies goods, either tangible or intangible, which constitute assets for an investment project or enterprise in the host country, but the foreign country does not hold majority ownership of the investment project or enterprise as such." (p. 384)
Mowery (1988):	**International Collaborative Venture (ICV)** "Interfirm collaboration in product development, manufacturing or marketing that spans national boundaries, is not based on arm's-length market transaction, and include substantial contributions by partners of capital, technology, or other assets (definition excludes export, direct foreign investment, and the sale of technology through licensing)." (p. 2)
Harrigan (1988):	**Strategic Alliances** "Partnership among firms that work together to attain some strategic objective." (p. 53)

several authors have elaborated on different typologies regarding international cooperative arrangements (Contractor and Lorange, 1988; Harrigan, 1985; Buckley, 1985; Berg et al., 1982).

For this research, the term "international cooperative arrangement" and the definition offered by Root (1988) has been adopted with minor modifications. This definition is adopted because it includes the concept of cooperation. This concept is very important in technology transfer arrangements. In these arrangements a major objective is the transfer of technology from one firm (supplier) to the other firm (recipient). Both companies work together to achieve the major objective and common goal of the cooperative effort: the transfer of technology.

Accordingly, the definition of international cooperative arrangements for this research includes: (1) a long-term cooperative interaction between two firms from two different countries (in particular, one of the firms from the USA); (2) both firms interested in exchanging intangible and tangible assets, one of the firms -- the supplier -- willing to share its technology with the other party; and (3) their interactions ruled by a contractual agreement.

Cooperative arrangements include interfirm relationships such as technical agreements, production, buy back agreements, patent licensing, franchising, know-how licensing, management (marketing) service agreements, nonequity cooperative agreements, and equity joint ventures (Contractor and Lorange, 1988). In general, cooperative arrangements that involve technology transfer imply a long-term

relationship (except turnkey contracts) (Contractor and Sagafi-Nejad, 1981).

This study is concerned with two types of international cooperative arrangements: licensing agreements and equity joint ventures. The definitions adopted for these arrangements are: (a) licensing agreements: Both firms commit resources to the arrangement but they do not share ownership. Typically, one firm provides intangible assets (patents, trade secrets, know-how). In return, this company receives some form of compensation. The contractual agreement may include other agreements (e.g., supply of components, services, etc.); (b) equity joint ventures: both companies invest in assets, share ownership and profits. One party holds at least 10% of the equity. The arrangement may include the creation of a new entity. In conjunction with the equity joint venture, there may be other agreements such as licensing agreements. Tables 2.2 and 2.3 offer additional definitions of these arrangements.

Cooperative arrangements have been classified according to the degree of interorganizational dependence (Contractor and Lorange, 1988); the degree of equity and control (Harrigan, 1985); or several dimensions (Buckley, 1985; Berg et al., 1982). For example, Buckley classified cooperative arrangements on the basis of: equity vs. non-equity, time limitations, space limitations, transfer of resources and rights, and mode of transfer (internal vs. market). Table 2.4 offers a comparison of characteristics of selected cooperative arrangements with those of a wholly-owned subsidiary. Twelve factors permit one to distinguish between licensing agreements, joint ventures, and wholly-owned subsidiaries.

Table 2.2
Licensing Agreements: Definitions

Patent Licensing: "Involves a one-time transfer of the patent right. Compensation, however, is often in the form of a running royalty, expressed as a fraction of sales value" (Contractor and Lorange, 1988: p. 6)

Know-How Licensing: "It is not simply a matter of transferring a patent right or providing start-up training. It involves extended links between the two firms and on-going interaction on technical or administrative issues. Payment in these cases will typically be in the form of a lump-sum fee plus running royalties" (Contractor and Lorange, 1988: p. 6)

International Licensing: (Broad Definition) "Includes a variety of contractual arrangements whereby domestic companies (licensors) make available their intangible assets (patents, trade secrets, know-how, trade marks, and company name) to foreign companies (licensees) in return for royalties and/or other forms of payments" (Root, 1987: p. 85)

Cross-Licensing Arrangements: "Cover technology developed independently by separate firms for the same (or similar) product or processes. Firms trade licenses to gain knowledge about processes that other firms may have developed" (Harrigan, 1985: p. 24)

Minority Equity Investments: "Minority investments do not create a new entity; investors share the equity of the ongoing firm" (Harrigan, 1985: p. 21)

Table 2.3
Joint Ventures: Definitions

1. "Separate organizational entities whose ownership is shared by firms based in different countries" (Artisien, 1985: p. 3)

2. "A corporation formed by two or more separate entities, usually corporation, which typically allocate ownership based on shares of stock controlled" (Berg et al., 1982: p. 3)

3. "Shared-equity undertakings between two or more parties, each of whom holds at least five percent of the equity" (Beamish, 1987: p. 23)

4. "An independent entity formed by two or more parent firms" (Lyles, 1988: p. 301)

Table 2.4
Characteristics of Selected Cooperative Arrangements

Supplier of Technology Perspective	Wholly-Owned Subsidiary[1]	Joint Venture	Minority Equity Investment	Cross-Licensing	Know-How Licensing	Patent Licensing
Interaction Mechanism	internal	external	external	external	external	external
Governance Structure	unified	bilateral	bilateral	bilateral	bilateral	market
Perceived Degree of Control	+++++	+++	++	++	++	+
Level of Investment (Resources)	+++++	++++	++	++	++	+
Level of Commitment	+++++	++++	++	++	++	+
Perceived Level of Environmental Risk	+++++	+++	+	+	+	+
Perceived Level of Fiduciary Risk	+	+++++	++	++	++	+
Perceived Level of Benefits/Rewards	+++++	+++	++	+++	+++	+
Perceived Level of Protection of Technology	+++++	+++	++	++	+	+
Perceived Stability of the Venture	+++++	+	++	d/a	d/a	d/a
Importance of Partner Selection	N/A	+++++	++	+++	+++	+
Importance of Negotiations	N/A	+++++	++	+++	+++	+

Key: +++++ highest degree of importance/level
+ lowest degree of importance/level
d/a duration of agreement
N/A not applicable

Sources: Root (1988); Root (1987); Williamson (1985); Harrigan (1985) Contractor (1981); Contractor (1985); Anderson and Gatignon (1986); Lorange (1989).
1: included for comparison purposes

Relevant Frameworks

According to several definitions (Root, 1988; Auster, 1987; Oman, 1988; Mowery, 1988; Harrigan, 1988), and the definition adopted in this research, the following elements are present in international cooperative arrangements: (1) long-term cooperative relationship between independent firms. This relationship may include shared ownership; (2) exchange of tangible and intangible goods, and (3) a formal relationship. Hakannson (1988) classified international cooperative arrangements as formal relationships. He suggested that large international firms are particularly inclined to rely on formal relationships. International cooperative arrangements are formalized by negotiating and signing a contractual agreement. Therefore, international cooperative arrangements can be approached from three perspectives: (1) as a cooperation; (2) as an exchange; or (3) as a contract.

Theory of Cooperation

The three elements that have been identified as basic components of international cooperative arrangements are goals, rewards/benefits, and risks (Marwell and Schmitt, 1975; Root, 1988; Contractor and Lorange, 1988). In addition, Buckley and Casson (1988), in their theory of cooperation, identified two other dimensions of a cooperative effort: trust and commitment. By using cooperation as a framework, three questions are addressed: (1) Why do companies participate in international cooperative arrangements? (2) Why are companies reluctant to participate in international cooperative arrangements? (3) How do companies that

get involved in international cooperative arrangements balance the desire and reluctance to participate in international cooperative arrangements?

Compatible Goals

Cooperation usually implies commonality of goals among participants. A common goal in technology joint venture and licensing agreements is the transfer of technology. However, other goods such as the duration of the arrangement, the products/markets included on it may be different. For example, Auster (1987) indicated that in international cooperative arrangements, goals may be conflicting, shared or any intermediate mix between these extremes. Moreover, Buckley and Casson (1988) suggested that in some cases, conflicting elements are not only present, but may dominate. Yet, Goldenberg (1988) explained that in international cooperative arrangements, conflicting goals can lead to cancellation of the arrangement or disruption of its formation. Doz (1988) pointed out that international cooperative arrangements require "a minimum common set of operational goals." (p. 319) Dymsza (1988) explained that a key factor for success in international cooperative arrangements is the achievement of major goals by each partner. This implies that each partner has different goals. There is the alternative, as Goldenberg indicated, that companies may have different, yet compatible goals. Accordingly, partners may have some conflicting goals; yet, as long as the major goals are not in conflict (e.g., compatible goals), the likelihood of forming and operating successful cooperative arrangements is high.

Rewards/Benefits

Rewards/benefits are important incentives for the formation and maintenance of international cooperative arrangements (Beamish, 1987; Artisien and Buckley, 1985). However, firms planning to participate in international cooperative arrangements consider not only the benefits derived from them, but also the costs of participating in the arrangement (Contractor and Lorange, 1988; Harrigan, 1985; Contractor, 1981). Still, a third important issue for analysis is the distribution of these benefits between partners (Marwell and Schmitt, 1975; Buckley and Casson, 1988).

Dymsza (1988) explained that one of the factors for success in joint ventures is that each party contributes with complementary assets that are valuable for the partners. Likewise, Beamish suggested that satisfactory performance is reached when there is greater need for each party of the resources of the other party. Writers have classified the different rewards that firms can obtain from international arrangements. Harrigan, for example, analyzed domestic cooperative arrangements and identified three major groups of benefits: internal (e.g., cost reduction), competitive (e.g., preempt a market), and strategic (e.g., access to technology). Thus, two strong motivational factors for forming cooperative arrangements are satisfying the needs of the firm and/or obtaining benefits from the arrangement.

Regarding the distribution of rewards between the parties or how equitable is the arrangement, parties usually compare with each other the magnitude of the benefits obtained from the arrangement. As long as the distribution of rewards is perceived as fair or equitable by both parties, the likelihood of continuing the

arrangement is high. In other words, cooperative arrangements are more stable under conditions of perceived equity by both parties.

Therefore, as long as partners perceive the benefits from the cooperative arrangement superior to its costs, an equitable distribution of these benefits, and/or satisfied their needs, they will form or continue participating in the arrangement. This suggests that: (1) low levels of these motivational factors do not lead to a formation of arrangements, and (2) significant differences in the levels of motivational factors between parties (e.g., asymmetric levels of motivational factors) reduce the likelihood of forming cooperative arrangements.

Risks

When planning participation in international cooperative arrangements, companies not only analyze costs and benefits, but they are also concerned with the risks involved in participating in the arrangements (Contractor and Lorange, 1988; Berg, et al., 1982; Root, 1988). The two major risks parties are exposed to in international cooperative arrangements are fiduciary risk and environmental risk. Root defined fiduciary risk as "the probability that the other participant will fail to carry out the responsibilities under the arrangement" (p. 73). Fiduciary risk includes performance failure and disclosure risk.

An inherent characteristic of a cooperative relationship is dependence. Fiduciary risk is the result of this interdependence. Each party depends on the performance and/or actions of the other party. Both parties have a role in the arrangement. If one party does not perform its role (performance failure), then both

parties will suffer. In addition, both parties have access to and control of resources such as proprietary knowledge. If one party decides to misuse/appropriate the technology of the supplier (disclosure risk), then one party will obtain benefits while the other party will suffer losses.

Environmental risk (Root, 1988), refers to "the size of a given participant's assets (both financial and real) that would be directly affected by changes in the political, economic, competitive, and other aspects of the cooperative arrangement's environment." (p. 74) Root identified four types of environmental risk: (1) general instability risk (e.g., turmoil); (2) ownership/control risk (e.g., contract revocation by the host government); (3) operations risk (e.g., price control); and (4) transfer risk (e.g., restrictions on repatriation of dividends) (Root, 1987).

Some writers, however, talk about the "risk reduction effect" of international cooperative arrangements (Contractor and Lorange, 1988; Berg et al., 1982). They were referring to the advantages of international cooperative arrangements over wholly-owned subsidiaries. They pointed out that international cooperative arrangements have lower environmental risks than that of wholly-owned subsidiaries. Contractor and Lorange, for instance, cited these advantages: (1) lower investments; (2) use of the international cooperative arrangements as a guinea pig; and (3) diversified and limited risk reduction effect of international cooperative arrangements. They indicated risk reduction as one of the important motivational factors to induce firms to participate in international cooperative arrangements.

In summary, participating in an international cooperative arrangement involves: (1) the risk associated with entering into an arrangement with a partner

(fiduciary risk) and (2) the risk associated with doing business in a host country or partner's country (environmental risk). Environmental risk, however, is found in other types of investments such as wholly-owned subsidiaries. It is not detected specifically in international cooperative arrangements. As was mentioned above, some authors have pointed out the advantage of international cooperative arrangements (lower environmental risk) over wholly-owned subsidiaries. There are trade-offs in the levels of fiduciary risk and environmental risk depending upon whether the venture is a cooperative arrangement or a wholly-owned subsidiary: (1) higher fiduciary risk if the companies enter into international cooperative arrangements, and (2) higher environmental risk if the firm prefers a wholly-owned subsidiary.

Companies usually are risk averse. Thus, if fiduciary and environmental risks are high, firms usually avoid the investment. If only fiduciary risk is important, then the firm may consider to go by itself. On the other hand, if environmental risk is high, yet reduced by entering into an international cooperative arrangement, then firms will prefer the cooperative arrangement. All in all, if the level of risk (fiduciary and environmental) is high, the likelihood of forming a cooperative arrangement is low.

Trust and Commitment

Before entering into international cooperative arrangements companies look into the rewards/benefits, costs and risk of the arrangements. They are also concerned about the compatibility with the potential partners. Moreover, managers

of the participant firms are interested in two other important components of cooperative efforts: trust and commitment (Buckley and Casson, 1988). Regarding trust, Buckley and Casson in their theory of cooperation proposed the following: (1) mutual trust is the result of mutual forbearance. Forbearance involves fulfilling all the obligations established between the parties. Fulfilling obligations is a function of two factors (Deutsch, 1973): (a) the intentions of the party (e.g., deals fairly), and (b) its ability (e.g., skills and resources) to deliver its promises; (2) trust is the true mechanism of cooperation; and (3) trust generates loyalty. Accordingly, cooperation is possible only if there is some level of trust between parties. Low levels of trust reduce the likelihood of forming cooperative arrangements.

With regard to commitment Buckley and Casson proposed that commitment results when: (1) there are interactions and sharing of information between parties. This implies some levels of effort from both parties and some investments "specific" to the interaction; (2) the parties perceive an equitable distribution of rewards; and (3) the output is strategically important for the partners. In other words, cooperation requires certain level of commitment from both parties. In addition, differences in the levels of commitment between parties (e.g., asymmetry in the levels of commitment) may influence the formation and implementation of the arrangement.

In summary, firms enter into international cooperative arrangements because of rewards, expected benefits, and needs. Firms analyze costs and risks. After their analysis and decision to enter into a cooperative arrangement, they look for a suitable partner. Here is where compatibility of goals becomes relevant. Managers assess their feelings about potential partners. If they do not feel comfortable, they

do not enter into the relationship (Harrigan, 1985). This involves a subjective assessment of the levels of trust and commitment of each party in the relationship.

All in all, by analyzing international cooperative arrangements as cooperative efforts, four key factors which impact on the formation and implementation of the arrangements were identified: motivation (benefits/rewards and needs), risks (fiduciary and environmental risks), trust, and commitment. The impact of symmetric levels of motivation and commitment for the parties (balanced relationship) upon the formation/implementation of cooperative arrangements was also discussed. In the next section, another framework -- exchange -- helps to identify additional key factors.

Theory of Exchange

Exchange systems include, among other elements the transfer of something tangible, intangible or symbolic between parties and social influence or negotiation between actors (Bagozzi, 1975). Exchange framework is useful for international cooperative arrangements because it helps to answer the following questions: (1) What are the characteristics of the "object of exchange" in this transaction? and (2) How is this exchange established?

Technology

In technology transfer cooperative arrangements, technology is the major intangible transferred between parties. This includes the transfer of patents, know-how, trade secrets, and trademarks. In international cooperative arrangements, technology and knowledge are used as synonyms by some authors (Millman, 1983).

According to several definitions, technology includes knowledge ("all forms of knowledge"), information, and skills (Dunning, 1988; Contractor, 1981). In addition, some authors (Teece, 1987; Rosenberg, 1985) suggested that technology exists under two possible forms: (1) as a codified or explicit knowledge; and (2) as uncodified or tacit knowledge. Contractor (1981) called the former "system-specific information" (information easily reduced to manuals and blueprints) and the latter, "firm-specific information." This is the knowledge acquired through experience, personal interaction, and practice. This knowledge is the result of cumulative information and experiences through time.

Firms enter into international cooperative arrangements, among other reasons, to gain knowledge (Berg et al., 1982). In general, the more codified and explicit the technology, the easier the transfer and the lower the level of interaction between parties (assuming that the transferee is receptive to the technology, e.g., it has the necessary infrastructure). In many cases, firms prefer a strong interaction during the transfer of technology. Under this circumstance, they favor joint ventures over licensing agreements. One of the reasons for this preference is to gain not only explicit knowledge, but also tacit information.

Technology has peculiar characteristics: (1) it is a transferable asset and as such it has value; (2) it shares characteristics of public good (the consumption of the good by one party does not prevent the other parties from using it); and (3) it exhibits characteristics of economies of scale (the first "unit" is expensive to produce, yet, any new "unit" is produced at lower cost than the average cost) (Casson, 1986).

In addition, the market for technology is imperfect. Casson (1986) cited two types of imperfections: market structure (e.g., monopoly) and transaction costs (the costs of negotiating and enforcing the contractual agreements). Furthermore, when technology is considered a "product," there are these difficulties during its commercialization: (1) quality uncertainty; (2) irreversible supply; (3) indivisible unit; and (4) creation of competitors (Casson, 1986). Quality uncertainty refers to the asymmetric information between sellers and buyers. The seller knows the quality of the "product" while the buyer does not. Yet, the seller cannot provide a sample of the "product" to show its quality.

Irreversible supply refers to the problem that if the technology is shown to the buyer, this actor does not need the technology any longer. The recipient of technology may begin using (and producing it itself) without the participation of the owner and supplier of technology. Indivisible unit refers to the quantity of knowledge (technology) needed to accomplish a task. This quantity is fixed (a quantum or an indivisible unit). Any amount short of this unit will lead to different output or no output at all. Finally, if technology is shared with other firms, this company has access to the "product". Hence, the firm now has the ability to produce the "product" which in turn may compete with the original "product". So, sharing knowledge has the risk of creating a potential competitor.

In summary, the characteristics of technology are that it is a transferable asset, indivisible, irreversible, and usually of uncertain quality. These characteristics of technology and the characteristics of the market for technology define the type of contract or governance structure (Williamson, 1986).

Negotiations

Another element of an exchange system is the communication of desires and intentions between participants. This is social interaction between actors or negotiation. The two conditions that lead to social interaction or bargaining between parties are availability and distribution of resources (Bacharach and Lowry, 1981). Usually, resources are scarce. Each party needs each other's resources. Therefore, both parties enter into bargaining or negotiation. Thus, bargaining is based on this interdependence of parties. In international cooperative arrangements, each party has resources that are valuable to the other party. This means that each party expects certain benefits from the relationship such as complementary resources.

In international cooperative arrangements, negotiations are very pervasive. Negotiations are part of the formation process and also very important during the implementation of the arrangement. During the formation of the cooperative arrangement, one important component is the negotiation of the agreement. Gottfredson and White (1982) defined the negotiation of an agreement as "the process of determining a mutually acceptable rule". (p. 477) They pointed out that through this negotiation, partners make "future behavior and outcomes more predictable". (p. 477)

Negotiations are also relevant when the day-to-day control of the cooperative arrangement is shared by both partners. During the operation of the arrangement, there is constantly a negotiation process. This makes the management of the venture very challenging and sometimes there is considerable delay in the decisions. In addition, if there are internal and/or external changes, they may affect the original

terms of the cooperative arrangement. As a result, partners may be pushed to renegotiate the original agreement.

Power and Trust

Power and trust have been identified as important parameters in negotiations (Rubin and Brown, 1975; Bacharach and Lowry, 1981; Schoonmaker, 1989). Rubin and Brown pointed out two parameters that affect the level of interdependence: (1) power and (2) two elements associated with trust: attitudes and characteristics of the negotiators (motivational orientation and interpersonal orientation). Moreover, Schoonmaker suggested that any approach to negotiations involves both power and trust.

The concept of power is interpreted by Rubin and Brown as the influence one party has over the outcomes of the other party. Bacharach and Lowry stated, "power is the essence of bargaining". What is the relationship between power and dependence? Bacharach and Lowry explained that, "the power of one party is based on the opponent's dependence of the party." Moreover, they talked about two dimensions of dependence: (1) party's alternatives (availability of similar outcomes from other sources) and (2) importance assigned to the outcomes.

Furthermore, power has been associated with effective bargaining, satisfaction and performance (Rubin and Brown, 1975; Bacharach and Lowry, 1981; Gaski and Nevin, 1985). Rubin and Brown suggested that effective bargaining requires two conditions regarding relative and total power: (1) similar levels of power between bargainers (symmetric levels of power) and (2) small amount of total power in the

system. Gaski and Nevin in their study on power between suppliers and dealers, pointed out that: (1) when coercive power is exercised, it has a negative effect on satisfaction; and (2) when reward power is exercised, it has a positive impact on performance.

In other words, power can positively affect negotiations (during the formation and implementation of the arrangements) as long as: (1) there are symmetric levels of power between parties; (2) coercive power is not exercised (i.e., small amount of coercive power in the system); and (3) reward power is exercised (i.e., both firms anticipate benefits such as complementary resources/skills from the arrangement).

Some authors consider not only power but also trust as important factors in negotiations. Schoonmaker identified two diametrically opposed approaches to negotiations: pure bargaining and joint problem solving. He suggested that pure bargaining is based on power and joint problem solving is based on trust. He indicated, however, that pure bargaining contains elements of trust and joint problem solving contains elements of power. In other words, power and trust are always present in negotiations. Likewise, Rubin and Brown have indicated that power is one important parameter in negotiations; yet, there are other elements such as attitudes (e.g., cooperative orientation) and characteristics of the negotiators (e.g., sensitivity to the relationship) which effect whether a firm enters into an international cooperative arrangement or not.

In summary, looking at international cooperative arrangements as exchange, two elements that are relevant are technology and negotiations. Technology as a "product" offers special characteristics that impact on the type of interfirm

relationship. Negotiations are very pervasive in international cooperative arrangements. Bargaining power and trust are two major variables that affect the negotiation of agreements during the formation of international cooperative arrangements. The next framework -- transactions costs theory -- suggests that depending upon the type, and frequency of the interactions between parties as well as the investment characteristics, the governance structure ruling the relationship can be based on trust, commitment and mutual understanding (relational contracting) or on bargaining power (classical contracting).

Transactions Cost Theory

International cooperative arrangements are classified as formal or contractual relationships (Hakannson, 1988; Nisbet, 1960). This means that the terms of cooperation are spelled out in a written agreement. There are costs involved before and after the agreement is written (gathering information, preparing documents, and enforcing the agreement). Written contracts, even the best, cannot foresee all the events in the life of a cooperative arrangement. Hence, they are instruments of limited reach. These limitations become more evident depending upon the frequency of the transactions between parties and the characteristics of the assets involved in the transaction (Gottfredson and White, 1982; Williamson, 1985).

Approaching international cooperative arrangements as contracts helps in answering the following questions: (1) How precise should a contract be written? and (2) When is a written contract powerful enough to assure stable relationships?

Contractual Agreements

As suggested by Gottfredson and White as well as Williamson, written contracts are tools of limited scope and reach. These limitations are related to the concept of bounded rationality or economies of information. Formulating contractual agreements is an expensive process. It requires personnel and time for collecting, analyzing, and processing information. These are some of the expenditures that companies incur when participating in cooperative arrangements (transaction costs). The more detailed and precise the contract, the more expensive it becomes. The two principles firms usually rely on for gathering and analyzing information are relevance and cost (Gottfredson and White, 1982). The latter means to gather and process all the available information with a limited budget. The former refers to the idea of gathering and analyzing useful information.

In other words, limited and select information leads to a contract that cannot include all the possible contingencies that may happen during the operation of a cooperative arrangement. As a result, some authors (Doz, 1988) have suggested to leave some gaps in the agreements in order to be more responsive to unforeseen events. He indicated that the agreement should be precise enough to spur commitment; yet, not too precise. He stated, "partnerships most likely to succeed are not the most precisely defined." (p. 326)

Still, there are suggestions from other authors to write agreements as comprehensive as possible (Harrigan, 1985; Dymsza, 1988). Harrigan brought the example of companies that rushed to form a partnership without contemplating all of the relevant points. She explained, "if they missed a key point in their agreements,

. . . such haste often came back to haunt them". (p. 364) Moreover, Dymsza identified comprehensive contracts as a factor that leads to successful joint ventures. He suggested covering all major aspects of the business before implementing the venture. The following issues should be covered in a contract (Root, 1987; Dymsza, 1988): (1) objectives of the venture (objectives of each partner and reconciliation); (2) contributions of each partner (capital, technical skills, local contacts); (3) capital structure (equity capital, future increases of capital); (4) ownership shares (majority, minority); (5) management (board of directors, organizations); (6) production (machineries, operations); (7) financing (accounting, dividends); (8) marketing (products, customers); (9) other agreements (licensing, technical); (10) provisions for safeguarding technology and know-how; and (11) role of the host government (interest of the venture for the government, requirements).

Governance Structures

Williamson (1986) indicated that a contract can be interpreted as a governance structure when three elements are present: (1) opportunism ("self-interest seeking with guile"); (2) asset-specificity (assets dedicated to a specific transaction); and (3) bounded rationality (economies of information). He distinguished three governance structures: (1) market structure where classical contracting is prevalent (emphasis on legal rules and litigations); (2) trilateral structure where neo-classical contracting holds (arbitration); and (3) bilateral structure or relational contracting (based on norms developed in the relationship).

According to Williamson, if the assets and the transactions between parties are standardized, the classical idea of market prevails. In this market governance, formal documents and commercial law determine the type of interactions between parties. On the other hand, if the assets are very specialized, and the transactions are recurrent and non-standardized, they require a transaction-specific governance. Here, written agreements are not important. The "reference point" now is the entire relationship.

As was mentioned earlier in this analysis, international cooperative arrangements that involve the transfer of technology between international parties, usually deal with very specialized technology. Technology has the problems of quality uncertainty and irreversibility. In addition, the transfer of technology is generally established by negotiating a written agreement. Therefore, for these cooperative arrangements the framework proposed by Williamson can be applied: (1) uncertainty regarding the quality of the technology and the behavior of the recipient of technology may lead to opportunistic behavior; (2) because of the character of irreversible technology, it becomes an asset specific to the arrangement; and (3) contractual agreements cannot foresee all of the alternatives that may happen during the life of the arrangement and as such always contain gaps (bounded rationality). Therefore, the concept of governance structure proposed by Williamson applies to contracts in international cooperative agreements. Still, there is the need to identify the preferred governance structure in international cooperative arrangements.

In order to determine the preferred governance structure, Williamson cited two critical dimensions of a contractual relationship: (1) frequency and (2) investment characteristics. Frequency refers to how often transactions recur. In international cooperative arrangements, the frequency of transactions depends upon the type of arrangement. In general, joint ventures require considerable interaction between partners not only during the formation of the venture, but also during its implementation as well. On the other hand, some licensing agreements such as patent licensing require only occasional interaction between companies. Regarding investment characteristics, most of the technology transferred to international industrial markets is specific to the arrangement. However, there are cases in which technology is standardized.

Accordingly, market governance or classical contracting is applicable to these cases in which the technology transferred is standardized and there are a large number of suppliers. On the other hand, transaction-specific governance or relational contracting is applicable to cases in which technology is very specific and valuable to the supplier of technology.

Several authors have suggested the character relational of cooperative arrangements (Harrigan, 1986; Goldenberg, 1988; Root, 1987; Buckley and Casson, 1988). Root suggested that the foundations of a successful joint venture are mutual trust and understanding between partners. Goldenberg, capturing the thinking of managers, stated, "agreements should be filed, not used; the only time they should be referred to is in a dispute". (p. 50) Moreover, Buckley and Casson suggested that a formal agreement contains only a minimal number of obligations for the parties.

The full set of obligations is contained in the informal, subjective, non-codifiable understanding between parties.

Likewise, contracting framework has shown the limitations of classical contracting and written agreements for technology transfer arrangements which involve non-standardized technology. Accordingly, these arrangements require a governance structure based upon trust, commitment and informal understanding between firms.

All in all, by analyzing three theories, cooperation, exchange and transaction costs, five factors were identified as critical elements for the formation and implementation of cooperative arrangements: motivation, risk, trust, commitment and power. Three of these factors (motivation, trust, and commitment) seem to foster the formation and implementation of cooperative arrangements. The impact of symmetric levels of motivation and commitment on the formation of cooperative arrangements was discussed. A fourth factor (risk) seems to hinder their formation and implementation.

The fifth factor (power) seems to have a positive impact on the formation and implementation of arrangements only if: (1) there are symmetric levels of power between parties; and (2) reward power is exercised. Under other conditions (asymmetric levels of power, coercive power exercised) the impact of power on the formation of cooperative arrangements may be negative. A summary of the key factors associated with each of the theories and their manifestations (and/or the interactions required between parties), in the context of cooperative arrangements, is offered in Table 2.5.

Table 2.5
Theories and Key Factors

Theory involved	Manifestations/ Interactions needed	Associated Factor
Cooperation	Rewards/Benefits Needs	Motivation
Cooperation	Fiduciary Risk Environmental Risk	Risk
Cooperation	Trust	
Exchange	Negotiations	Trust
Transaction Costs	Relational Contracting	
Cooperation	Commitment	
Transaction Costs	Relational Contracting	Commitment
Exchange	Negotiations	
Transaction Costs	Classical Contracting	Power

The next three sections focus on two topics: the formation of international cooperative arrangements and the criteria for evaluating effective formation of cooperative arrangements. First, an overview of the life cycle of an international cooperative arrangement is presented. The formation stage of cooperative arrangements is defined. Next, the major research works on formation of international cooperative arrangements are reviewed. Finally, four criteria for assessing the effective formation of cooperative arrangements are presented.

Stages in the Life of A Cooperative Arrangement

Three stages have been identified in the life of international cooperative arrangements (Kogut, 1988; Berg et al., 1982; Koot, 1988): (1) formation or negotiation stage; (2) implementation or institutionalization stage; and (3) termination or separation of partners. The boundaries of each stage are not described explicitly in the literature. For the purposes of this study, the following boundaries are proposed:

1. Formation goes from the point in which a company realizes the need of a partner up to the formalization of the arrangement with the signing of a contractual agreement.
2. Implementation begins with the actual organization of the cooperative arrangement up to the point of full operation. Some renegotiations may take place during this stage.
3. Termination includes the realization by each party or both of the changing conditions and the need to go separately. This means

liquidating the cooperative arrangement according to the terms established in the agreement.

Next, follows a review of the literature on formation of international cooperative arrangements.

Formation of International Cooperative Arrangements

Formation of international cooperative arrangements includes at least three steps (Root, 1987; Gottfredson and White, 1982): (1) planning, analysis and selection of the type of venture; (2) partner selection; and (3) negotiation which culminates with the signing of a contractual agreement. This description does not mean that formation of international cooperative arrangements goes through these stages exactly in this order. Things are different in practice. A potential partner may approach a company. Thus, the analysis and planning comes after both parties meet together. Other times firms may have other business relationships and may begin negotiating the new arrangement without giving too much thought to the planning and selection of a partner.

Formation of international cooperative arrangements has not been analyzed extensively. Auster (1987) called formation of cooperative ventures the "forgotten dimension" in the literature of interfirm arrangements. Earlier in this chapter, several types of international cooperative arrangements were identified. This review is concerned with joint ventures and licensing agreements. In general, in the literature on cooperative arrangements, there has been more research regarding joint ventures than that on licensing agreements. Thus, the few articles that deal with the formation of interfirm arrangements usually refer to the formation of joint ventures.

Several authors have described the formation period of cooperative arrangements as costly, cumbersome, frustrating (Koot, 1988; Weiss, 1987; Harrigan, 1985). For example, Weiss stated, "creating an international joint venture is neither an easy nor certain process". (p. 23) Then, he further stated, "so the agreement leading to the establishment of the joint venture . . . represents an important accomplishment". (p. 23) Harrigan indicated that the period of forming a venture can last between five months to three years. Other writers (e.g., Koot) suggested that this period should be considered as an opportunity, for the partners to get to know and understand each other. It follows a review of the major works which deal with the formation of joint ventures and licensing agreements. The review concentrates on the factors that seem to lead to an effective formation of international cooperative arrangements.

Earlier works on joint ventures focused on narrow topics of the formation of the venture. Ballon (1968), for instance, described the legal aspects of establishing a joint venture. The objective of Ballon's analysis was to make managers aware of the differences in legal systems when dealing with foreign countries. Tomlinson (1970) focused on the decision to enter into a joint venture and the selection of partners. Yet, he did not mention the negotiation of a contractual agreement. In general, earlier works lacked a broad perspective. In addition, the concept of life cycle of a venture seems absent in the conceptualization of joint ventures.

Berg et al., (1982) described the evolution of joint ventures. Moreover, they introduced the idea of "courtship" as a descriptive term for the earlier stage or formation process of joint ventures. The courtship stage involves not just the decision and selection of parties, but also a "trial" period between partners which if

satisfactory, leads to negotiations of a contractual agreement. This study, the first in considering joint ventures as strategic tools, focuses on technologically and non-technologically oriented firms, they pointed out the importance of the resources contributed by each partner as motivating factors for entering into a joint venture.

Perhaps the most comprehensive analysis to date on cooperative arrangements is Harrigan's (1985). This cross-sectional study analyzes 884 domestic cooperative arrangements. The result is the most comprehensive analytical framework for joint ventures. The framework includes a model of the formation of ventures. Although the study refers to domestic cooperative arrangements and does not offer quantitative analysis, it points out the following key factors in the formation of cooperative arrangements: motivating factors (benefits vs. cost analysis) and bargaining power of the actors (resources, alternatives, and needs). Some of the major hypotheses proposed by Harrigan refer to power and needs, as well as cost and benefits. Regarding bargaining power, she proposed: "The greater the firms' (3) resources and (4) alternatives for attaining their objectives, the greater their bargaining power" (p. 53) and "the greater their need (5) to cooperate, the less their bargaining power". (p. 53) Harrigan stated with reference to needs, "joint ventures (or other forms of cooperative strategy) will not occur unless firms need . . . to attain . . . objectives that they cannot reach alone". (p. 57) In her opinion, the cost/benefits analysis is a key determinant for an effective formation of a joint venture. She proposed, "effective joint ventures will be formed only if each firm believes that there is greater advantage in cooperating than there will be costs." (p. 52)

Based on Harrigan's model of formation of joint ventures, Tyebjee (1988) offered a model of joint venture formation for Japanese joint ventures in the United States. He expanded Harrigan's framework further. He indicated that the decision to enter into a joint venture depends upon the desire to form a venture and the potential synergy created between partners. Furthermore, the researcher explained that the desire to form a venture is a function of the difference between strategic goals and realizable goals (strategic gap). Accordingly, firms identify the strategic gap by assessing their resources, capabilities, and current positions as well as their environment. Thus, according to Tyebjee, the factors that impact the formation of the venture are the strategic needs of the partner (motivational factor) and the strategic resources and capabilities of the firm. The author also suggested, very briefly, that firms take into consideration cost and risk of the venture. Another dimension that Tyebjee expanded in his model is power. Tyebjee argued that bargaining power determines the degree and domain of control in the configuration of a venture (e.g., the composition of the board of directors, operational management of the venture, etc). In summary, the major factors discussed in Tyebjee's paper were needs, resources and strategic advantages, and power.

A different approach is Weiss' (1987) case study regarding the formation of a complex joint venture between an American and a Japanese automobile company. The analysis mainly focused on the negotiations of the agreement during the formation of the venture. The case briefly mentioned the search for a partner by the Japanese company. However, it described in detail the planning and decision-making process in the negotiations. Weiss mentioned the following factors as important

elements in the formation of the venture: (1) motivational factors (needs of each party and complementary resources, and (2) commitment (the importance of showing top management support during the formation of the venture). A summary of Harrigan's, Tyebjee's and Weiss' studies is presented in Table 2.6.

Koot (1988) basically suggested paying more attention to the formation period. He explained that the formation period causes a lot of trouble to managers (costly, cumbersome, etc.). His objective in his paper was to point out new approaches to old problems in the formation and implementation of a venture.

In the area of licensing agreements, none of the researchers focused solely on the formation of this type of arrangement. However, Contractor's analysis of licensing agreements is the most comprehensive to date on this topic. In his first work Contractor (1981), analyzed as part of his description the whole process of licensing, the formation of this type of cooperative arrangement. Yet, the study mainly focuses on the negotiations to assess the value of the technology transferred between parties. Contractor's approach is based on microeconomic analysis of costs and benefits derived from the utilization of technology. In addition, he introduced other factors, important in a negotiation framework, such as bargaining power. Accordingly, bargaining power is a function of the characteristics of the technology (importance of the resources) and the number of competitors (number of available alternatives). A summary of Contractor's and Koot's studies is presented on Table 2.7.

In his second work on licensing (Contractor, 1985) classified licensing according to three definitions -- a narrow definition, a broader definition, and the

Table 2.6
Joint Ventures: Selected Previous Studies

	Harrigan (1985)	Tyebjee (1987)	Weiss (1987)
Objective of the study	Strategies for JV	Japan's JV in US	Creation of Complex JV
Other issues	Model Formation JV	Model of JV Formation	--
Framework	Hybrid *Resource Dependence *Contingency Model	Harrigan's Model	Contingency Model
Variables identified	Motivation (benefit/cost) Bargaining Power (Need, Resources, Alternatives)	Motivation Power	Motivation Commitment Resources/ Skills
Methodology	Interviews Questionnaires Delphi-Method Descriptive	Interviews Descriptive	In-depth Case Study Descriptive
Sample size	884 CA (442 JV) Cross-Sectional 25 Industries	21 Cross-Sectional	1
Comments	Most Comprehensive No Quantitative Analysis	No Quantitative Analysis	Model of Negotiation No Quantitative Analysis

JV = Joint Venture; CA = Cooperative Arrangement

Table 2.7
Cooperative Arrangements: Selected Studies

	Contractor (1981)	Koot (1988)
Objective of the Study	International Technology Licensing	Dilemmas in Management of JV
Other Issues	Guidelines for Licensing Negotiations	Formation (as a problem)
Framework	Micro-economics (cost/benefit)	---
Variables Identified	-cost (c) -benefits (b) -resources (r) -alternatives (a) -risk (no tested)	---
Methodology	-interviews (i) -survey (s)	in-depth interviews
Sample Size	12 (i) 37 (s) cross-sec. 102 LAs (testing)	20 JVs 55 experts cross-sec.

Comments	quantitative (testing)
	Multiple Linear Regression
	b = f(c,r,a)
	r: e.g., technology
	a: e.g., # suppliers
	BP = f(r,a)
	(bargaining power)	

JV = Joint Venture; LA = Licensing Agreement

broadest definition of licensing. In his broadest concept, licensing is a long-term relationship between partners and as such it includes additional factors such as trust and commitment. Thus, the major factors identified and tested by Contractor were: (1) motivation (costs and benefits) and (2) bargaining power (strategic resources and number of available alternatives).

In summary, these major research works regarding the formation of international cooperative arrangements have identified and accumulated empirical evidence about the importance of the following factors: (1) motivating factors (strategic needs and benefits from the venture) which determine the initial interest in the formation of the venture and (2) controlling factors (power, resources, and number of available alternatives) which determine the configuration of the venture. Additionally, three other factors were identified in the literature as important elements in the formation of cooperative arrangements: trust, risk, and commitment. However, empirical evidence about these factors and the interaction among them is lacking.

Performance Dimensions

After a cooperative arrangement is formed, it is important to evaluate how effective the formation of the cooperative arrangement was. This requires defining a standard for effectiveness.

In his analysis of a formation of a complex joint venture, Weiss (1987) described four elements that may become the basis for such a standard for effectiveness. The four criteria includes: (1) an agreement was reached; (2) time

was spent in the formation process; (3) each party obtained certain benefits as stated in the agreement; and (4) an evaluation of how these benefits were distributed between partners.

Likewise, Rubin and Brown (1975) suggested how to measure the effectiveness of a bargaining process. They explained that an evaluation of costs and benefits has the difficult problem of assessing future benefits and costs of tangible as well as intangible elements (e.g., reputation). They suggested other measures such as number of issues in which both parties agreed, the time spent in the negotiations, distribution of benefits (how equitable was the distribution), the difference between expected and accomplished goals, overall satisfaction, and the tone of the bargaining (e.g., cooperative).

Based on these suggestions from the literature, the four criteria for measuring effectiveness used in this study are:

1. A formal agreement was reached.
2. Overall satisfaction perceived by both parties:
    a. with the agreement, its content and implications.
    b. with the other party and the behavior during the formation process.
3. Benefits obtained as stated in the agreement.
4. Level of goals achieved (percentage of expected goals actually obtained during the formation of the venture).

Hence, these criteria define effective formation of international cooperative arrangements. Early in this chapter, formation of cooperative arrangements has been associated with five key factors. Three of these constructs (motivation, trust and commitment) seem to influence positively on the formation of cooperative arrangements; another factor (risk) seems to impact negatively on it; and another one (power) seems to influence positively on the formation of arrangements only under certain condition. In addition, the issue of symmetry in the levels of three constructs (motivation, commitment and power) was discussed.

Several authors suggested the importance of partner symmetries (e.g., balance in the levels of constructs) as stabilizing factors in the formation and implementation of international cooperative arrangements (Hladik, 1988; Harrigan, 1988; Rubin and Brown, 1975). Harrigan, for instance, indicated: "A wide variety of asymmetries are destabilizing to a venturing relationship". (p. 54) She tested her hypothesis with asset size, national origin, and venturing experience level. She concluded: "Results suggest that ventures last longer between partners of similar cultures, asset sizes and venturing experience levels." (p. 70)

Therefore, in addition to considering key factors in the formation of a cooperative arrangement, it is important to analyze the impact of balanced levels of constructs (motivation, commitment and power) upon effectiveness. In the next section, eight hypotheses are presented regarding the relationships between each of the constructs and effectiveness as well as the impact of symmetric levels of constructs on effectiveness.

Hypotheses

The main factors identified in this literature search -- motivation, commitment, bargaining power, risk, and trust -- seem to have an impact on the formation of the cooperative arrangement and as such on the effectiveness of this process. Based on these suggestions and the concept of symmetry in the relationship, the following hypotheses are proposed:

Motivation

H_1 During the formation of a cooperative arrangement, a positive association between motivation and effectiveness is expected.

H_2 During the formation of a cooperative arrangement, if the levels of motivation of both companies are balanced (symmetric relationship), then a stronger association (than that of an unbalanced relationship) between motivation and effectiveness is expected.

Commitment

H_3 During the formation of a cooperative arrangement, a positive association between commitment and effectiveness is anticipated.

H_4 During the formation of a cooperative arrangement, if the levels of commitment of both companies are balanced (symmetric relationship), then a stronger association (than that of an unbalanced relationship) between commitment and effectiveness is anticipated.

Power

H_5 During the formation of a cooperative arrangement, if the levels of power of both companies are balanced (symmetric relationship), then a positive association between power and effectiveness is expected.

H_6 During the formation of a cooperative arrangement, if the levels of power of both companies are unbalanced (asymmetric relationship), then it is not possible to predict the sign of the association between power and effectiveness.

Risk

H_7 During the formation of a cooperative arrangement, a negative association between risk (as perceived by the supplier of technology) and effectiveness is expected.

Trust

H_8 During the formation of a cooperative arrangement, a positive association between trust (as perceived by the supplier of technology) and effectiveness is expected.

Eight hypotheses regarding key factors that influence the effective formation of international cooperative arrangements have been presented. This group of hypotheses constitute a framework that helps in understanding formation of cooperative arrangements better. Issues regarding cooperative arrangements have become important topics in international marketing literature since it has become apparent that: (1) they can play strategic roles in a global economy; (2) they can be alternatives to direct investment; and (3) they can work as channels for the transfer of technology. For instance, several researchers (Killing, 1983; Auster, 1987; Harrigan, 1985; Contractor and Lorange, 1988; Hladik, 1988) have suggested that cooperative arrangements have grown rapidly in the last 15 years and that multinational firms are increasing their propensity to use them as strategic tools.

Despite this significant increase in the importance of cooperative arrangements, specific issues of these arrangements such as the planning and design of the formation stage has been overlooked by researchers. In other words, this increase in popularity of cooperative arrangements added to the lack of studies regarding the formation process suggest the need of: (1) a better understanding of

specific issues of international cooperative arrangements. In particular, studies with regard to factors which influence the performance of the formation process; (2) conceptual models and empirical studies regarding this process; and (3) practical guidelines for practitioners derived from these models. This study attempts to fulfill these needs by providing conceptual and empirical data regarding formation of cooperative arrangements.

Table 2.8 offers a summary of selected studies on cooperative arrangements and issues relevant to them (e.g., theoretical frameworks). This "map" of the knowledge on cooperative arrangements helps to identify the position of this research with references to existing conceptual frameworks and research streams in the area of international cooperative arrangements.

Five disciplines provided conceptual frameworks for studies on cooperative arrangements: (1) sociology (interorganizational relations); (2) social psychology (cooperation and exchange); (3) economics (transaction costs); (4) law (social contract); and (5) marketing (paradigms on cooperative arrangements and buyer-seller relationships). Studies which particularly focus on the formation of interorganization relationships come from sociology (Aldrich, 1979; Van de Ven, 1980; Pfeiffer and Salancik, 1978) and the buyer-seller literature from industrial and international marketing (Ford, 1982; Dwyer et al., 1987; Hakansson, 1982). Research on international cooperative arrangements has included studies on formation, implementation and termination stages as well as models and taxonomies.

This study has used concepts from the cooperation, exchange, and transaction costs frameworks. It focuses on formation of international cooperative arrangements

Table 2.8
Literature Review

International Cooperative Ventures	Sociology	Social Psychology
	Inter-organizational Relations	Exchange
	Resource Dependence	Negotiations Cooperation
	-Aldrich, 1979 -Grandori, 1987 -Hall, 1982 -Pfeffer and Salancik, 1978 -Van de Ven, 1980 -Gottfredson and White, 1982 -Bacharch and Lawler, 1981	-Pruitt, 1981 -Rubin and Brown, 1975 -Marwell and Schmitt, 1975 -Bagozzi, 1975, 1979
I. Formation Model	-Tyebjee, 1988a -Harrigan, 1985	-Weiss, 1987
Reasons		
Cost/Benefit		
Partner Selection		
Control		
II. Implementation Success Performance Mistakes	-Harrigan, 1988	-Tung, 1984
III. Termination Stability		
IV. Models	-Harrigan, 1984, 1985 -Pfeffer and Nowak, 1976	-McCall and Warrington, 1984 -Buckley and Casson, 1988
V. Taxonomies		

Table 2.8
Literature Review (cont.)

International Cooperative Ventures	Economics	Law	Marketing
	Internalization	Social Contract	International Managerial
	Microeconomics/IO Transaction Costs		Buyer/Seller
	-Casson, 1985 -Casson, 1979 -Buckley and Casson, 1985 -Dunning, 1988 -Williamson, 1985, 1986	-McNeil, 1980	-Varadarajan and Rajaratnam, 1985 -Arndt, 1979 -Zeithaml and Zeithaml, 1984 -Hakansson, 1982 -Turnbull and Valla, 1986
I. Formation Model			-Ford, 1982 -Dwyer, et al., 1987 -Killing, 1988
Reasons	-Contractor and Lorange, 1988		-Artisian and Buckley, 1985 -Quelch, 1985
Cost/Benefit	-Contractor, 1981, 1984, 1985		
Partner Selection			-Lasserre, 1984 -Beamish, 1987 -Geringer, 1988
Control			-Lorange, 1989
II. Implementation Success Performance Mistakes	-Beamish and Bank, 1987		-Killing, 1982 -Hendryx, 1986 -Schillaci, 1986 -Beamish, 1987 -Harrigan, 1985 -Tung, 1984 -Goldenberg, 1988 -Lyles, 1988 -Dymsza, 1988 -Artisien, 1985
III. Termination Stability	-Kogut, 1988		-Gomes-Casseres, 1987
IV. Models	-Hladik, 1985, 1988 -Berg et al., 1982		
V. Taxonomies	-Anderson and Gatignon, 1986		-Tyebjee, 1988b -Root, 1988, 1987 -Koot, 1988

and the factors that lead to effective formation of arrangements. Specifically, this research is going to provide: (1) a conceptual model for the formation of international cooperative arrangements; (2) analysis of five key constructs which seem to impact on the effective formation of arrangements; (3) empirical support for the relationships between key constructs and effectiveness; and (4) normative guidelines regarding the effective formation of arrangements.

In summary, in this chapter, first, definitions regarding international cooperative arrangements were offered. Next, by analyzing three theoretical frameworks (cooperation, exchange, and transaction cost), five key constructs which seem to affect the formation of cooperative arrangements were identified. The issue of balanced levels of constructs and their impact on the process of formation were also analyzed. Then, a literature review on the works on formation of international cooperative arrangements was presented. After that, the concept of effective formation of cooperative arrangements (effectiveness) was offered. Eight hypotheses which describe the interaction between each of the key constructs and effectiveness were stated. Finally, a "map" of the main research streams on international cooperative arrangements and the major theoretical frameworks from which this research was derived were offered.

CHAPTER III

RESEARCH METHODOLOGY

This research involved two phases: (1) an exploratory research and (2) a descriptive research.

Exploratory Research

The purpose of this approach was to acquire knowledge directly from experts and people involved in the formation of international cooperative arrangements. The goals of this approach included: (1) identification of problems; (2) identification of relevant variables; (3) acquiring experts' point of view and vocabulary; and (4) suggesting concepts, hypotheses, and propositions (Green et al., 1988; Aaker and Day, 1986; Zaltman et al., 1982). Several stages were included in this exploratory research including data collection, sampling, measurements, and data processing and analysis.

Research Design

Data Collection

Data were collected through unstructured in-depth interviews of experts (managers from different functional areas who were directly involved in the formation of cooperative arrangements). Unstructured interview refers to a process in which the interviewer has a general plan of inquiry (researcher's guide) but not a specific set of questions that must be asked in particular words and in particular order (Babbie, 1989). Ideally, in this type of interview, the respondent does most of the talking. The interviewer, however, does the probing and provides the guidelines

of the topics to be covered in the interview. Some researchers (Aaker and Day, 1986), identify qualitative research with unstructured interviews. They indicated that for an exploratory approach, qualitative research is a "very appropriate" method.

The unit of analysis for this research was the cooperative arrangement identified with a contractual agreement. This research attempted to understand the process of forming cooperative arrangements. Each cooperative relationship is unique in the sense that the cooperative arrangement has been shaped by unique multiple influences: the parties, the atmosphere created by the interaction, and the environment at the time of the formation process. The final result or outcome of this formation process is the signing of a document, the contractual agreement, which guides the interactions between parties during the life of the arrangement. Thus, the cooperative arrangement and contractual agreement represent a distinctive unit on which to focus the researcher's attention.

Sampling

Since the objective of an exploratory (qualitative) research is to generate concepts, hypotheses and propositions, as well as a deep understanding of the formation of international cooperative ventures, some researchers (Taylor and Bogdan, 1984; Glaser and Strauss, 1967) suggested theoretical sampling or judgmental sampling as a good procedure. Aaker and Day defined judgmental sampling as the procedure in which "an 'expert' uses judgment to identify representative samples" (p. 291). This exploratory research used a judgmental sampling procedure.

The objective of the exploratory phase of this research was to develop a comprehensive understanding of two major types of cooperative arrangements: joint ventures and licensing agreements. Hence the sample selected in this study included several types of joint ventures and licensing agreements such as: equity joint ventures, joint research arrangements, minority equity ventures, patent licensing, know-how licensing, and cross-licensing agreements.

Measurements

Two elements guided this stage of the research: (1) a framework and (2) a researcher's guide. The framework suggested the major steps in the decision-making process during the formation of international cooperative arrangements. These steps range from the initial consideration to enter into a cooperative arrangement up to the negotiations and signing of a contractual agreement between the parties. Additionally, the framework suggested other steps which go beyond the formation of the venture. For each of the steps of the formation process, a major question captured the essence or major objective of that step. Figure 3.1 shows the framework developed for this research.

The researcher's guide follows the steps of the framework. Based on the current literature on joint ventures and licensing agreements, (Harrigan, 1985; Contractor, 1985; Hale, 1984; Lassarre, 1984; Root, 1987) for each step of the framework, several guiding questions were elaborated. Each question, however, was only a point of reference. During the interviews, questions were neither repeated

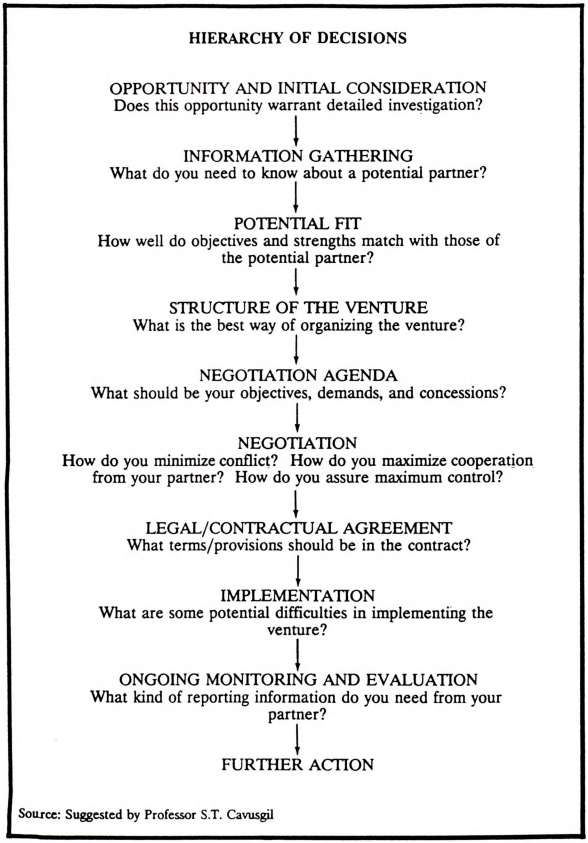
HIERARCHY OF DECISIONS
OPPORTUNITY AND INITIAL CONSIDERATION
Does this opportunity warrant detailed investigation?
INFORMATION GATHERING
What do you need to know about a potential partner?
POTENTIAL FIT
How well do objectives and strengths match with those of the potential partner?
STRUCTURE OF THE VENTURE
What is the best way of organizing the venture?
NEGOTIATION AGENDA
What should be your objectives, demands, and concessions?
NEGOTIATION
How do you minimize conflict? How do you maximize cooperation from your partner? How do you assure maximum control?
LEGAL/CONTRACTUAL AGREEMENT
What terms/provisions should be in the contract?
IMPLEMENTATION
What are some potential difficulties in implementing the venture?
ONGOING MONITORING AND EVALUATION
What kind of reporting information do you need from your partner?
FURTHER ACTION
Source: Suggested by Professor S.T. Cavusgil

FIGURE 3.1

verbatim nor in a given order. The importance of this researcher's guide was that the interviews had some direction. Typically, the researcher began the interviews with questions similar to the questions suggested in the researcher's guide and then depending upon the responses received, he moved into probing questions. Probing questions attempted to gain more insights and obtain clear answers from the respondents. Table 3.1 offers the researcher's guide.

Data Processing and Analysis

The raw materials (notes, transcripts from tapes, and documents) were processed into meaningful information. As suggested by several researchers (Babbie, 1989; Taylor and Bogdan, 1984; Glaser and Strauss, 1967; Griggs, 1985), there were three stages in the processing and analysis of the qualitative information. Stage one included: (1) elaboration of lists, worksheets, and charts; as well as (2) coding and sorting of data. Stage two included: (1) construction of typologies; (2) relationships and comparisons of different pieces of information; and (3) search for underlying patterns. Stage three included formulation of concepts, and hypotheses. Additionally, a literature search brought insights regarding the interpretation of information and useful ideas from other researchers.

In summary, four stages regarding the exploratory phase of the research have been described: data collection, sampling, measurements, and data processing and analysis. The exploratory phase of the research was instrumental for identifying: (1) key stages in the formation of international cooperative arrangements, (2) critical

Table 3.1
Researcher's Guide

Opportunity and initial consideration:

1. How did you get involved into international cooperative arrangements?
2. Specifically, how did you get in contact with this partner?
3. Why did you enter into this cooperative arrangement?
4. Who was involved (specifically, which functions/departments) in the initial analysis of this cooperative venture?
5. Did you consider other investment alternatives (e.g., going alone) at the time of initial contacts with this partner?

Information gathering about the other party and potential fit between partners:

6. Was this the only available partner?
7. Have you worked with this firm before?
8. What were you looking for in this partner?
9. What were the characteristics of your partner (size, country of origin, reputation, approach to proprietary rights)?
10. What resources did each partner bring to the formation of this cooperative arrangement?
11. Why did you select this partner?
12. How did you select this partner?
13. How important was this venture for the business unit/division involved?

Structure of the venture and negotiation of the contractual agreement:

14. Why did you choose licensing (joint venture) over joint venture (licensing)?
15. How did you select between licensing and joint venture with this partner?
16. Which levels of management were involved during the negotiations/ formation of this venture?
17. What investments were required for this venture?
18. What were the major issues considered during the negotiations?
19. How did you resolve potential problems regarding protection of technology/proprietary rights with this partner?
20. What were the major difficulties/conflicts confronted during the negotiation of the agreement?
21. What types of agreements (patents, services, component supply, etc.) were included in this venture?
22. How long did it take you to formalize the venture (from initial contacts up to signing the agreement)?
23. How did you solve the issue of control (board of directors, levels of management, daily operations) in this venture?
24. What approaches included in the agreement, were selected for dealing with conflictive situations during the implementation of the venture?
25. What provisions were included in the agreement regarding divorce or termination clauses?
26. What were the major agreements regarding the outputs (e.g., final products) of the venture?
27. What were the provisions in the agreement regarding the scope of the venture, geographic location, and number of partners?

Sources: Harrigan, 1985; Contractor, 1985; Root, 1987; Hale, 1984; Lassarre, 1984; Professor S.T. Cavusgil

factors that lead to the effective formation of these arrangements, and (3) key components in developing a conceptual framework of the formation of cooperative arrangements. Furthermore, this exploratory phase provided substantial input for developing the hypotheses, research questions and survey instrument. The results from this exploratory phase are presented in Chapter IV.

Tables 3.2 and 3.3 present a summary of this exploratory stage of the research. Characteristics of the sample (type of arrangements and type of technologies involved) and data collection (functional areas involved, number of participants and number of hours of interviews) are also offered. The next sections set forth the stages of the descriptive phase of the research.

Table 3.2
Exploratory Research Phase: A Summary

Objective: In-depth analysis of the decision-making process during the formation of international cooperative arrangements.

- unit of analysis: cooperative arrangement (a specific case)
- one company analysis
- one party perceptions (supplier of technology)

Data collection:
- unstructured in-depth interviews
  managers directly involved in the formation process
  (business persons, legal counsels, and researchers)

Data sources:
- interviews
- feedback panels, documents and secondary information

Population:
- total number of cooperative arrangements in the firm (unknown)

Sampling procedure:
- non-probability sampling (theoretical sampling or judgmental sampling)

Measurements:
-suggested by hierarchy of decisions framework and researcher's guide

Data processing:
Coding and analysis of qualitative data
-lists, worksheets and charts
-typologies
-concepts, propositions

Table 3.3
Characteristics of the Sample

Number of Arrangements by Type

Joint Venture			Licensing						
Equity	Joint Research[1]	Total	Know-how	Patent	Option	Cross	Small Equity	In[2]	Total
6	2	8	6	6	1	2	1	3	19

[1] these arrangements evolved into joint ventures
[2] in these arrangements the firm was recipient of technology ("licensing in" arrangements)

Number of Arrangements by Technology[3]

Core Technology		Non-Core Technology		
Standardized	Non-Standardized	Peripheral	Emerging	Total[4]
9	3	9	3	24

[3] this classification was developed in this research (see Chapter IV)
[4] three arrangements were not classified because they were "licensing in" arrangements

In-Depth Interviews
Backgrounds of Executives (number)

Functional Area Involved				
Licensing	R&D	Business	Legal	Total
7	4	12	12	35

* each interview took 45 minutes to 1 hour
* eight arrangements involved multiple respondents (2/3 respondents, each interview took 2-3 hours)
* all the interviews took a total of 36 hours
* in addition, there were four feedback panels involving 15 executives from the same functional areas. Each feedback panel took 2-3 hours.

Descriptive Research

Problem Formulation and Research Objectives

This descriptive research attempted to provide a comprehensive understanding of the factors which lead to effective formations of international cooperative arrangements (joint ventures and licensing agreements) in the chemical industry. Several factors facilitate, control, and hinder the effective formation of cooperative arrangements. The descriptive research phase of the study analyzed relationships among these factors.

First, the research involved an empirical verification of eight research hypotheses referred to the effective formation of international cooperative arrangements. The hypotheses postulated association between effectiveness and each of these constructs: commitment, motivation, risk, power and trust. The research, using quantitative tools, identified which relationships were significant for an effective formation of cooperative arrangements. Second, four research questions inquired about the relationships among three variables: a predictor variable (a composite of three constructs: power, motivation and commitment), a contingency variable (a composite of two constructs: trust and risk), and a criterion variable (effectiveness). These relationships were investigated using multivariate techniques.

Research Design

A description of how to measure the constructs mentioned above, the sampling procedure, data collection and data analysis follows.

Measurements

Six constructs (commitment, motivation, power, risk, trust, and effectiveness) were measured with multi-item indicators. These constructs, by using a contingency framework (Heller et al., 1988; Zeithaml et al., 1987; Weiss, 1987) were partitioned into three types of variables: (1) predictor variables (variables under the control of the supplier of technology); (2) contingency variables (variables not influenced or less influenced by the supplier of technology); and (3) criterion variables. The predictor or independent variable was a composite measure of three constructs: commitment, motivation, and power. The contingency variable was a composite measure of two constructs: risk and trust. The criterion variable was effectiveness. Figure 3.2 shows the five constructs and the hypothesized relationships with effectiveness.

The constructs (commitment, motivation, power, risk, trust, and effectiveness) have been identified, defined and measured by several researchers in various domains. Some changes on the items/ dimensions of each construct were necessary to make them more relevant for using the constructs in the specific domain of formation of international cooperative arrangements. A description of the analysis and measurement of each construct -- commitment, motivation, power, risk, trust, and effectiveness -- follows.

Commitment (firm/executive commitment to the formation and implementation of a cooperative arrangement).

Several authors have studied this construct (Dwyer et al., 1987; Ford, 1982; Casson and Buckley, 1988; Deutsch, 1973; Mowday et al., 1979). A definition of

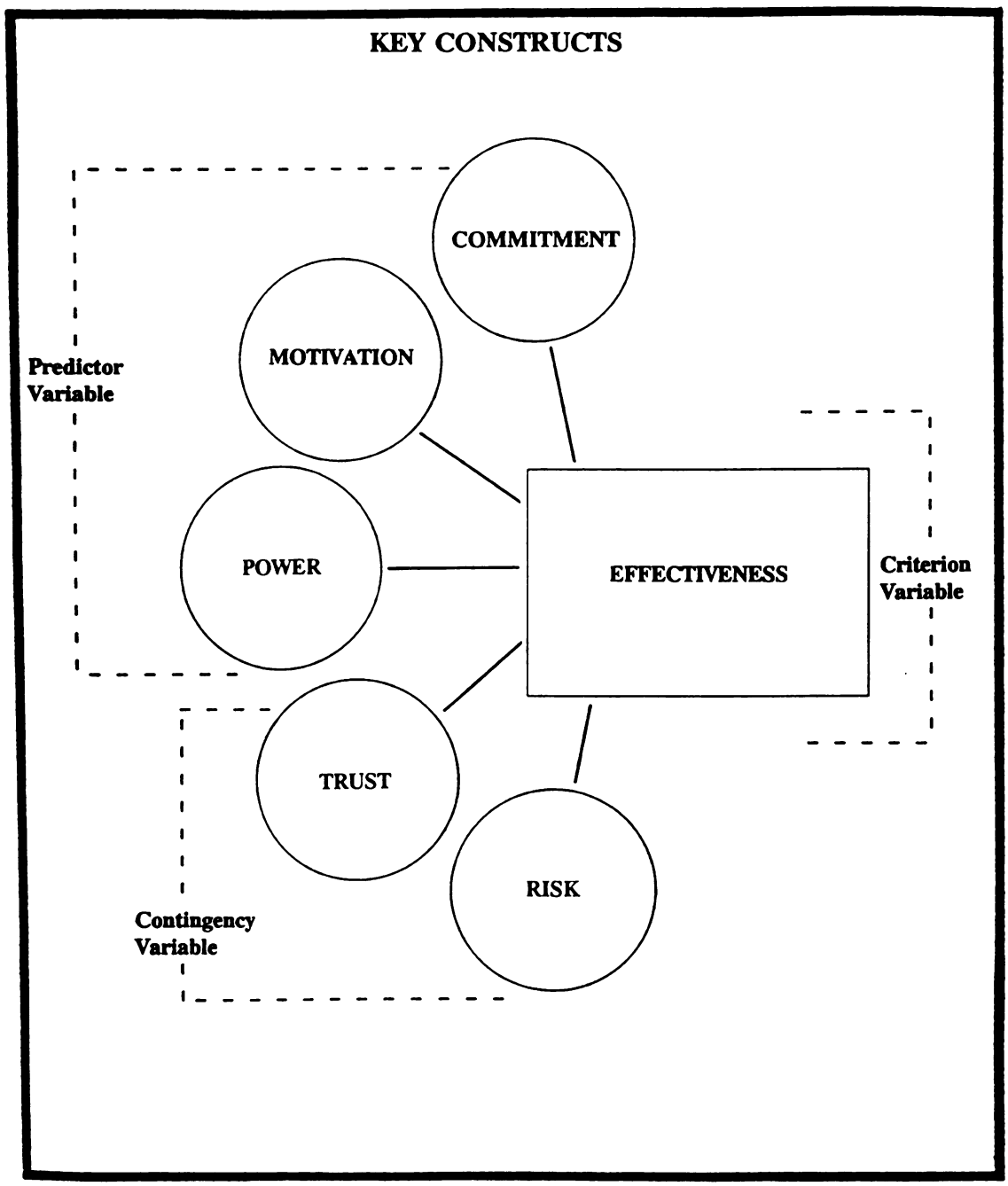
KEY CONSTRUCTS
COMMITMENT
MOTIVATION
Predictor Variable
POWER
EFFECTIVENESS
Criterion Variable
TRUST
RISK
Contingency Variable

Figure 3.2

commitment states, "a formal promise to do something as the performance of an obligation or duty, or to refrain from doing something." This definition suggests that commitment is associated with some type of effort. In this research, the construct referred to the efforts exerted by both parties to arrive to a cooperative arrangement (commitment to the formation of the venture).

Ford (1982) and Dwyer et al., (1987) in the context of buyer-seller relationships, and Casson and Buckley (1988), in the context of cooperation, have identified, among other elements, three major dimensions of commitment: (1) social interaction efforts or the efforts made by both parties to know each other better. For instance, Ford talked about the efforts of reducing "social distance"; (2) communication efforts which refers to the intensity of communications (written, verbal, etc.) between parties and the level of personnel involved in the contacts; and (3) asset-specificity or the level of investments or adaptations specific to the interaction between parties.

Other researchers support these findings. Deutsch (1973), for example, referring to personal commitment, stressed the importance of "investments" specific to the interaction. Mowday et al. (1979), in their study of organization commitment, identified, among other dimensions, the efforts on behalf of the organization (asset-specificity) and efforts to maintain membership (social interaction). Mowday's analysis, one of the most complete studies on organizational commitment, includes a measurement instrument and analysis of validity and reliability of the instrument.

In summary, for this research, commitment was identified with the efforts to initiate, develop, and formalize international cooperative arrangements. The

operational definition of commitment adopted in this research states: willingness to exert considerable effort (inputs, communications, etc.) in order to arrive at a contractual agreement and make the cooperative arrangement work. This includes the willingness to exchange and/or invest in transaction-specific assets during the formation and implementation of the cooperative arrangement. Commitment was measured by an index or composite measure which represents a linear combination

$$C = \frac{\sum Xi}{n}$$

C = commitment index
Xi = item i
n = # of items

of five items in the following question:

7. During the formation of this cooperative arrangement:	Strongly Disagree				Strongly Agree	
- senior managers from your company (CEO, president, vice-president) were active participants	SD	D	N	A	SA	NA
- there was a great deal of communication between companies (visits to each other's companies, meetings, written and telephone communications)	SD	D	N	A	SA	NA
- your company made several major adaptations in technology and/or products to better satisfy the needs of the other party	SD	D	N	A	SA	NA
- your company made several investments in fixed assets (e.g., buildings) to be assigned to this arrangement	SD	D	N	A	SA	NA
- your firm made considerable efforts to acquire a great deal of information about the other firm	SD	D	N	A	SA	NA

Motivation (motivation to enter into a cooperative arrangement).

Motivational factors have been described in the literature of cooperative arrangements as benefits and needs (Harrigan, 1985; Contractor and Lorange, 1988; Beamish, 1985). These motivational factors have been understood as internally generated forces which impel firms to enter into international cooperative arrangements.

On the other hand, other researchers have argued in favor of external stimuli as other sources for the formation of interfirm arrangements (Van de Ven, 1980). One can argue that external stimuli can be internalized by the firm and interpreted as benefits or need. For instance, the opening up of China (external stimulus) to American companies may generate (in a firm) the need to participate in that market. Thus, in this research, the concern was with strategic needs and benefits as the dimensions which motivate firms to enter into international cooperative arrangements.

Harrigan (1985) described benefits as, "what managers hoped to attain" (p. 27) by using a cooperative arrangement. Contractor and Lorange (1988) identified benefits as "the necessary conditions" for forming cooperative arrangements. Van de Ven (1980) talked about needs when referring to motivational factors. He explained that, (1) organizations need resources for their survival, and (2) they obtain these resources from other organizations (Resource Dependence Model). One way to overcome this dependence is by forming interfirm arrangements. Therefore, benefits and needs represent the necessary condition for the formation of cooperative arrangements.

The operational definition of motivation for this research states: necessary conditions (needs and benefits) that impel (firms) to enter into a cooperative arrangement. Dimensions of motivation, developed using elements suggested by Harrigan (1985), Contractor and Lorange (1988), and Beamish (1985) include: (1) strategic needs (e.g., need to acquire resources, new skills, etc.), and (2) benefits (e.g.,

increased revenues coming from accessing a market otherwise foreclosed, or decreased costs due to economies of scale from larger market share, etc).

Motivation was measured by an index or composite measure

$$M = \frac{\sum Xi}{n}$$

M = motivation index
Xi = i measure
n = # of items

which includes all the items from this question:

13. At the time this arrangement was planned, what benefits did you anticipate? Please check (✓) the anticipated benefits from the following list. Also, indicate on a scale of 1 to 5, how important each item was to your firm.

	anticipated benefits	not important				very important
- obtaining earnings/royalties	____	1	2	3	4	5
- developing/obtaining a new product which complemented your product line	____	1	2	3	4	5
- using excess capacity of your plants	____	1	2	3	4	5
- gaining access to proprietary rights/patents	____	1	2	3	4	5
- sharing total capital investment needed for the arrangement	____	1	2	3	4	5
- entering into a market quickly	____	1	2	3	4	5
- linking your firm with strong local political ties	____	1	2	3	4	5
- achieving economies of scale	____	1	2	3	4	5
- obtaining products at lower cost	____	1	2	3	4	5
- increasing market share	____	1	2	3	4	5
- overcoming trade barriers/government mandates	____	1	2	3	4	5
- gaining knowledge of foreign markets	____	1	2	3	4	5
- reducing the time for building your company's own distribution/sales force network	____	1	2	3	4	5
- gaining new skills/knowledge/technology	____	1	2	3	4	5
- gaining access to raw materials/components	____	1	2	3	4	5
- reducing research and development costs	____	1	2	3	4	5
- achieving higher product quality	____	1	2	3	4	5
- reducing competition (one less competitor) in the specific area of the arrangement	____	1	2	3	4	5
- reducing risk of expropriation	____	1	2	3	4	5
- other (please specify)_____		1	2	3	4	5

Risk (risk associated with participating in a cooperative arrangement).

Risk is presented in the literature of cooperative arrangements under two different situations: (1) the advantage of cooperative arrangements as risk reduction strategy (Contractor and Lorange, 1988; Berg et al., 1982); and (2) the risk of suffering losses or damages as a result of entering into cooperative arrangements (Root, 1988; Marwell and Schmitt, 1975). This research is concerned with the latter aspect of risk.

According to Root, international cooperative arrangements present two types of risk: fiduciary and environmental risks. Fiduciary risk involves the potential problem of having a partner who uses proprietary secrets and know-how outside of the arrangement (disclosure risk) and/or the risk that the partner does not perform its part in the arrangement (performance failure). Thus, fiduciary risk is associated with characteristics of the partner such as reputation, approach to proprietary rights/protection of trade secrets, experience with international cooperative arrangements, etc.

Environmental risk is associated with the country of origin of the partner (assuming the arrangement is established in that country). The different environments of the country (political, economic, competitive) impact on the level of risk perceived by the managers.

This research measures fiduciary risk and environmental risk by identifying the characteristics of the partner and its country of origin as perceived by managers. The operational definition of risk adopted in this research states: the possibility that during the formation/implementation of the arrangement, the partner will not

perform adequately its share of the work and/or the possibility that resources (e.g., trade secrets, reputation, etc.) may be taken/destroyed by the other party.

Risk was measured by an index or composite measure

$$R = \frac{\sum Xi}{n}$$

R = risk index
Xi = i measure
n = # of items

which included all the items from the following question:

10. During the formation of this cooperative arrangement:	Strongly Disagree					Strongly Agree
- the country of origin of your partner (the arrangement was located there) offered very few environmental risks (the economic and political system were very stable)	SD	D	N	A	SA	NA
- your partner had an excellent organization and procedures for protecting trade secrets and technology	SD	D	N	A	SA	NA
- your partner had a great deal of respect for proprietary rights	SD	D	N	A	SA	NA
- your partner had a strong reputation of honoring agreements	SD	D	N	A	SA	NA
- the risk of partner misuse and/or leakage of essential technology/trade secrets was very low	SD	D	N	A	SA	NA
- the risk of damaging your company's reputation (e.g., a licensee may manufacture low quality products using your technology and trade-mark) by entering in this arrangement was very low	SD	D	N	A	SA	NA
- the risk of the partner not living up to the terms of the agreement was very low	SD	D	N	A	SA	NA

Power (power to influence the outcomes of a negotiation during the formation and implementation of a cooperative arrangement).

Three major dimensions of power have been described in the literature of cooperative arrangements: resources, alternative ways of attaining a firm's objectives, and importance of the cooperative arrangement (Harrigan, 1985). For Harrigan, power is one of the major constructs which impacts on the formation of cooperative arrangements. A definition of power states, "the ability to impose one's will on others irrespective of or by manipulating their wishes" (MacNeil, 1980).

Bacharach and Lawler (1981), in the domain of management-labor negotiations, identify two dimensions of power: importance of the outcome and availability of similar or substitutable outcomes (alternatives). In the literature on channels, power has been studied quite extensively (El-Ansary and Stern, 1972; Hunt and Nevin, 1974; Gaski, 1984; Lush and Brown, 1982; Gaski, 1989).

Gaski (1989), in his article about measuring power in channels, identifies several dimensions of power. Two dimensions of power are relevant: power sources (rewards, coercive, expert, referent, and legitimate) and manipulative power (e.g., restriction of alternatives). It can be argued that resources represent the reward/coercive elements suggested by the sources of power. Alternatives, as another element of power, has been considered in manipulative power. Thus, in this research, power was measured by taking into account three dimensions: resources, importance of the arrangement, and available alternatives.

Power was measured by an index or composite measure

$$P = \frac{\sum Xi}{n}$$

P = power index
Xi = i measure
n = # items

which included all the items from the following two questions:

11. At the time this cooperative arrangement was signed:	Strongly Disagree				Strongly Agree	
- this arrangement was not seen as an important potential contributor to the overall profitability of your company	SD	D	N	A	SA	NA
- your company could have undertaken this arrangement by itself	SD	D	N	A	SA	NA
- there were several well-qualified potential partners interested in forming this cooperative arrangement with your firm	SD	D	N	A	SA	NA

12. At the time this cooperative arrangement was signed, what resources did your company and your partner contribute to the arrangement? Contributions should add up to 100%.

	your contribution	partner's contribution	not pertinent to the arrangement
- technology: proprietary rights and/or patents	____%	____%	NA
- technology: blueprints/manuals and know-how	____%	____%	NA
- managerial skills	____%	____%	NA
- marketing skills	____%	____%	NA
- experience in international business and/or cooperative arrangements	____%	____%	NA
- reputation/image	____%	____%	NA
- brand-name	____%	____%	NA
- network of suppliers	____%	____%	NA
- financial resources	____%	____%	NA
- raw materials	____%	____%	NA
- productive capacity	____%	____%	NA
- distribution/sales force	____%	____%	NA
- contacts with government officials	____%	____%	NA
- access to foreign markets	____%	____%	NA
- access to low labor costs	____%	____%	NA
- other (please specify)_____	____%	____%	NA

Trust (trust brought and developed during the formation/implementation of a cooperative arrangement).

This construct has received certain attention in the literature on international cooperative arrangements (Sullivan and Peterson, 1984; Buckley and Casson, 1988). Likewise, the literature on buyer-seller relationships has shown interest in the construct (Schurr and Ozanne, 1988; Swan et al., 1988). Measurements of trust can be found in the psychological/social-psychological literature (Rotter, 1967; Kaplan, 1979; Corazzini, 1979; Deutsch, 1973).

Sullivan and Peterson (1984), relying on early work of Rotter (1967), Corazzini (1979), and Kaplan (1979), have measured trust on joint ventures with Japanese companies. The measurement instrument includes items such as "trust toward others, perceived sincerity of others, expected good relationship, expected consensus, consistency between past behavior and future behavior."

Deutsch (1973) in his extensive experimental work on trust, identified two major dimensions: intentions and ability to accomplish what was promised. The intention dimension has been further developed by other researchers (Swan et al., and Schurr and Ozanne) who have measured the dimension using a bipolar scale.

In this research, trust was considered to be composed of two dimensions: intentions (e.g., the partner is reliable, interested in dealing fairly, expects good relations, etc.) and ability (e.g., skills and resources) to accomplish what was promised. The operational definition of trust states: the extent to which a party has the intentions and ability to perform according to its promise during the formation/ implementation of a cooperative arrangement. Trust was measured by an index or composite measure

$$T = \frac{\sum Xi}{n}$$

T = trust index
Xi = item i
n = # of items

which included all the items from the following two questions:

8. At the time this cooperative arrangement was signed:	Strongly Disagree				Strongly Agree	
- both firms had compatible philosophies/approaches to business dealings ..	SD	D	N	A	SA	NA
- both firms had compatible objectives regarding this arrangement	SD	D	N	A	SA	NA
- executives from both firms, involved in the negotiations, had compatible ethics about business dealings	SD	D	N	A	SA	NA
- executives from both firms, involved in the negotiations, had compatible time horizons	SD	D	N	A	SA	NA
9. During the formation of this cooperative arrangement:						
- your partner was very interested in dealing fairly	SD	D	N	A	SA	NA
- your partner was perceived as very reliable	SD	D	N	A	SA	NA
- your partner had technical skills and infrastructure for fulfilling its role in the arrangement	SD	D	N	A	SA	NA
- your partner had the managerial skills and organizational resources capable of accomplishing what was promised in the contractual agreement	SD	D	N	A	SA	NA

Effectiveness (effective formation of cooperative arrangements).

Performance is considered by researchers a multidimensional construct. One of its dimensions is effectiveness (Walker and Ruekert, 1987; Ruekert et al., 1985; Harrigan, 1988; Beamish, 1985; Beamish and Banks, 1987; Artisien and Buckley, 1985). Effectiveness is defined by some researchers as "the degree to which organizational goals are reached" (Ruekert et al., 1985: p. 15).

Research regarding negotiations and formation of international cooperative arrangements (Weiss, 1987; Rubin and Brown, 1975) suggests these performance dimensions: (1) whether the agreement was reached; (2) the duration of the formation process; (3) the benefits obtained by each party as stated in the agreement; (4) overall satisfaction perceived by both parties; and (5) level of objectives achieved. These dimensions reflect the effectiveness component of performance. In other words, these dimensions indicate how effective was the formation of the arrangement.

Other researchers in the literature of cooperative arrangements have measured the overall performance of the arrangement (e.g., from the formation to the termination of the venture). These measures also address the effectiveness component of performance (Harrigan, 1988; Beamish, 1985; Beamish and Banks, 1987; Artisien and Buckley, 1985). For instance, Harrigan (1988) measured performance of joint ventures by three dimensions: (1) survival (whether the joint venture is still alive); (2) duration (how long the joint venture lasted -- from formation to liquidation); and (3) success (managers' perceptions of joint venture success).

Beamish (1985) considered two dimensions to be important: (1) long-term viability, and (2) satisfaction with the arrangement (both parties were asked to identify their level of satisfaction). Artisien and Buckley (1985) measured performance, among other dimensions, by asking managers their perceptions regarding the overall performance of the venture (whether the company's objectives were fulfilled or not).

In summary, the dimensions of effectiveness suggested by the literature include duration, level of achievement, and level of satisfaction. This research adopted two dimensions as indicators of effectiveness (how effective was the formation of the international cooperative arrangement): level of satisfaction and level of achievement.

Thus, effectiveness first involved measuring the level of satisfaction perceived by both parties (measured at three levels: overall satisfaction, satisfaction with the agreement, and satisfaction with the partner), and second, measuring the level of objectives achieved (measured by: (1) overall level of achievement; (2) benefits obtained; and (3) perceptions of equity in the distributions of rewards).

Effectiveness was measured by an index or composite measure

$$E = \frac{\sum Xi}{n}$$

E = effectiveness index
Xi = i measure
n = # of items

which included all the items from the following question:

6. At the time the contractual agreement was signed:

	Strongly Disagree					Strongly Agree
- Overall, your company was very satisfied with the terms of the agreement .	SD	D	N	A	SA	NA
- Your company was very satisfied with this partner	SD	D	N	A	SA	NA
- The other party was also very satisfied with the terms of the agreement ..	SD	D	N	A	SA	NA
- The other party was also very satisfied with your company	SD	D	N	A	SA	NA
- The distribution of rewards, as stated in the agreement, was equitable for both companies	SD	D	N	A	SA	NA
- Forming this cooperative arrangement was a great accomplishment for your company	SD	D	N	A	SA	NA
- Overall, forming this arrangement brought a lot of benefits to your company	SD	D	N	A	SA	NA
- Overall, forming this arrangement brought a lot of benefits to your partner	SD	D	N	A	SA	NA
- Overall, your firm achieved a great deal of its expected objectives through negotiations	SD	D	N	A	SA	NA

In summary, six constructs germane to the empirical verification of the eight hypotheses presented in Chapter II have been analyzed. Each of the constructs (1) had been defined, (2) had its domain (dimensions) specified, and (3) had been indicated how it can be measured in the context of international cooperative arrangements. These constructs had been incorporated in the preparation of a questionnaire.

The questionnaire had been developed using elements from the literature and exploratory research. Several stages were involved in developing the survey instrument: (1) identification of the constructs of interest; (2) definitions (constitutive and operational); (3) specification of domain and dimensions; (4) selection of items or measurements for each dimension; and (5) preparation of the questionnaire (mechanics of preparation). The questionnaire received input from executives, faculty members, doctoral students, and was pre-tested, by administering

it to managers directly involved in the formation of international cooperative arrangements. Appendix A offers a copy of the questionnaire.

Sampling for the Descriptive Phase

This research relied on a judgmental sampling procedure. There were two sequential steps in this sampling process. Step one involved the selection of companies from the chemical processing industries. Step two included the selection of international cooperative arrangements. First, a list of leading multinational companies of the chemical processing industries (SIC #281) was prepared. Next, an expert in international cooperative arrangements from one of the leading chemical companies selected companies representative of the population of interest. A major factor in selecting companies was the number of agreements signed per year. Companies heavily involved in the formation of international cooperative arrangements in recent years were selected.

Second, the same expert provided a list of major contacts in each of the companies. Two letters, one from the expert's company and another from Michigan State University, were sent to these executives. Each of these executives indicated those managers who were involved in the formation of cooperative arrangements willing to participate in this research.

Although companies were interested in this research, the actual response from executives directly involved in the formation of cooperative arrangements (target) was delayed by several weeks, e.g., executives were busy travelling abroad. Because of these delays, ten additional firms were targeted. This time, however, the

sponsoring executive did not provide all the contacts. Names of corporate presidents and vice-presidents (e.g., from the Million Dollar Directory) of the international divisions of the target companies were contacts by mail. Only one letter (the letter from Michigan State University) was sent to these executives. Thus, two batches of ten companies constitute the total sample in this research. From the first batch, seven companies agreed to cooperate on this research (70% response rate). However, from the second batch, only two companies participated (20% response rate). Some of the reasons for not participating in this research were: (1) few executives in the firm and they were too busy; (2) firms, as a policy, do not participate in surveys (they receive too many every day); (3) conflicts/litigations with the sponsoring firm; and (4) reorganization of the company (they did not want to answer at this time). All in all, the overall response rate was 45%.

A major factor in selecting international cooperative arrangements was that the contractual agreement was signed within the last three calendar years. The rationale for selecting arrangements recently formed between leading multinational companies is presented below.

The most accurate data regarding the formation of international cooperative arrangements came from managers who directly participated in the different stages of the process of forming the arrangements. However, managers remember more accurately (and they provide more abundant details) when the formation had happened recently (Fowler, 1984). Also, these managers are available for interviews if the formation happened recently; otherwise, promotions and retirements would

make them difficult to contact. Thus, the more recent the formation of the venture, the higher the chances of obtaining accurate information about the venture.

This research focused on international joint ventures and licensing agreements between U.S. companies and foreign firms. One assumption was that the location of the arrangement (domain or territory) was in a foreign country. Another assumption was that these arrangements involved technology transferred from the American company to the foreign firm (licensing out). Leading multinational enterprises can easily fulfill these conditions. Therefore, a sample which included leading multinational companies in the chemical industry was representative of the population relevant for this research.

Data Collection for the Descriptive Phase

Data were collected through a combination of survey methods. Aaker and Day (1986) defined survey research as "structured collection of data directly from representative samples of respondents." There were two stages in this data collection effort: Stage one involved the completion of self-administered questionnaires by managers directly involved in the formation process of joint ventures and licensing agreements. Stage two included a semi-structured interview with the managers who completed the questionnaires. Major advantages of combining these two survey methods are: (a) great depth of understanding; (2) added flexibility (e.g., opportunity to probe questions further); (3) large amount of data collected in a short time; (4) reduction of variability in the type of information collected; and (5) reduction in the

amount of work during the processing of information (editing, coding, and tabulating) (Green et al., 1988; Aaker and Day, 1986; Babbie, 1989).

Data Processing and Analysis

The self-administered questionnaire and the personal interviews contained close-ended questions. Thus, the processing of the data was facilitated. In this research, data processing and analysis included: (1) editing; (2) coding; (3) preparing/analyzing data matrix (venture # versus measurements); (4) tabulating individual questions (statistical means); (5) computing statistical differences between means; (6) computing/analyzing correlation matrix (bivariate analysis, testing hypotheses); and (7) analyzing the data with other statistical techniques (multivariate analysis).

Bivariate and partial correlations were calculated. Bivariate correlations between effectiveness and each of the constructs -- commitment, motivation, power, risk, and trust -- were used to test the research hypotheses. Additionally, for each pair of constructs (e.g., commitment and motivation), Pearson correlation coefficients were computed and analyzed. These correlation coefficients provided information regarding the existence and strength of association between constructs. Also, for each question, means and percentages were computed. All statistical analysis followed the procedures suggested by the Statistical Package for Social Sciences (SPSS).

Multivariate analysis was used to investigate the complex relations suggested by the research questions. The selection of multivariate techniques for this research was based on six factors (Andrews et al., 1981; Dillon et al., 1987; Green et al.,

1988): (1) objectives of the research; (2) assumptions regarding association among variables; (3) number of variables; (4) whether variables can be partitioned into criterion and predictors; (5) number of items for measuring each construct; and (6) scales of measurement. Based on these considerations, three statistical techniques were selected: multiple linear regression, canonical correlation analysis, and factor analysis. An explanation for each of these six factors follows.

This research attempted to measure levels of association among variables. It did not intend to prove causal relationships among them. One major assumption regarding the association among variables was linearity. It was assumed that relationships among variables were linear in the coefficients and variables. There were six constructs in this research: commitment, motivation, power, risk, trust, and effectiveness. These constructs were partitioned into predictor, criterion and contingency variables. (Zeithaml et al., 1988)

Each of the constructs was measured by multi-item indicators. The variables, mostly managerial perceptions of the formation of cooperative arrangements, were measured by using a five-point scale. Although perceptions were identified with ordinal data, several researchers (Green et al., 1988; Aaker and Day, 1986) consider that measuring perceptions with a five-point scale can be approximated to interval data. Thus, this research used this approximation and considered the measurements at interval level.

Factor analysis was performed on effectiveness. The objective of factor analysis was to reduce the number of items representative of effectiveness used in the questionnaire to a small number of dimensions (Kim and Muller, 1978). Multiple

linear regression helped to investigate the relationships among variables indicated in the research questions: (1) the impact of the predictor variable on the criterion variable; and (2) the effect of the contingency variable upon the criterion variable (Goldberger, 1964; Kennedy, 1985; Pindyck and Rubinfeld, 1981). Canonical correlation analysis explored further the association between the dimensions of effectiveness and the predictor and contingency variables (Alpert and Peterson, 1971; Levine, 1977).

In summary, four issues were addressed in this section: (1) the measurements of five critical constructs. This analysis was very important for developing the survey instrument; (2) the sampling procedure; (3) data collection; and (4) data processing and analysis for the descriptive phase of this research. Tables 3.4 and 3.5 offer a summary of the descriptive phase of this research. This descriptive phase had two objectives: (1) verification of eight hypotheses and (2) analysis of four research questions. Major findings from this descriptive phase are presented in two chapters: Chapter V (bivariate analysis) and Chapter VI (multivariate analysis). At the end of Chapter VI, the support for the hypotheses and answers to the research questions are offered.

Overall, in this chapter, research design for the exploratory and descriptive phases of this research were presented.

Table 3.4
Descriptive Research Phase: A Summary

Objective:
1. empirical verification of 8 hypotheses (bivariate analysis)
2. empirical investigation of four research questions (multivariate analysis)

Unit of analysis: cooperative arrangement (cases)

Industry: segment from the chemical industry: firms above $1 billion sales/year, classified as basic/specialty firms, 60% sales or more from chemicals according to C&EN.*

Point of view: supplier of technology (and its perceptions regarding recipient of technology)

Measurements:
- six constructs: commitment, motivation, power, risk, trust, and effectiveness

Contingency framework:
- predictor variable (composite index of three constructs: commitment, motivation, and power)
- criterion variable (effectiveness)
- contingency variable (composite index of two constructs: trust and risk)

Data collection:
- questionnaire (five-point scale)
- personal interview (semi-structured)
- executives directly involved in the formation of cooperative arrangements

Sampling procedure
- judgmental sampling (two stages: companies and cooperative ventures)
- number of participants: 9 companies ("Fortune 500" firms)
  2-3 participants per company (on average)

Data processing and analysis
statistical tools
- bivariate correlations
- partial correlations
- factor analysis
- multiple linear regression
- canonical correlation analysis

statistical package
- SPSS-X version 4.0 for IBM VM/CMS

*C&EN: Chemical and Engineering News

Table 3.5
Characteristics of the Sample

Characteristics	Joint Ventures	Licensing Agreements
Arrangements		
Number of arrangements	24	24
Equity (Supplier % in the arrangement)	48.8*	--
Range capital invested (millions)	5 to 10*	--
Range annual income from royalties (thousands)	--	100-500**
Technology		
Arrangements involving core technology (%)	83.3	66.7
Negotiations		
Time formation (number of years)	2.6*	1.7*
Number of negotiators involved (supplier's side)	4.5*	3.1*
Number of meetings prior to signing agreement	14.0*	6.6*
Partners or Licensees		
Size (% of large firms)	87.5	79.2
Country of origin (% from developed countries)	79.2	66.7
Country of origin (% from developed and NIC[1] low risk)	87.5	79.2
Respondents		
Experience (number of years involved with ICA[2])	10.1*	11.1*
Functional areas (number of executives)		
Business	13	4
Legal/Patent	8	9
Licensing	2	9
R&D/Production	1	2

* mean values
** mode value
[1] New Industrialized Countries perceived by managers as low risk countries
[2] International Cooperative Arrangements

CHAPTER IV

EXPLORATORY RESEARCH: RESULTS

Major findings from the exploratory phase of this research are reported in this chapter. The chapter begins with a description of six cooperative arrangements. Data for these six arrangements were provided by multiple key informants during the in-depth interviews (see Chapter III, exploratory research). Then, in the context of these six cooperative arrangements, three critical components of the formation of international cooperative arrangements, (1) type of technology, (2) type of arrangement, and (3) five key factors are discussed in that order. During the interviews, five variables -- commitment, motivation, power, risk and trust -- were identified as key factors which seem to create conditions that can lead to effective formation of international cooperative arrangements. Next, key stages in the formation of these arrangements are presented. Finally, a framework is suggested to link these major components which influence the formation of international cooperative arrangements.

Description of Cooperative Arrangements

As was explained in Chapter III (Exploratory Research), 35 executives were interviewed covering a total of 27 international cooperative arrangements. These cooperative arrangements were explored in great detail, from different managerial perspectives (e.g., legal, business and R&D perspectives) and thus, a great deal of information was collected. As suggested by several researchers (Babbie, 1989; Glaser

and Strauss, 1967; Griggs, 1985; Taylor and Bogdan, 1984; Zaltman et al., 1982), there were three stages in processing and analyzing this qualitative information: (1) coding/sorting data and elaboration of lists and charts; (2) construction of typologies and search for underlying patterns; and (3) formulation of concepts and hypotheses. Six of these arrangements are presented in this chapter to illustrate major findings.

In order to provide some background information regarding these cooperative arrangements, a brief description of each of the six cooperative arrangements is presented in Table 4.1. In this description, the supplier of technology is company "A". The other companies (B through G) are either partners or licensees in the arrangement.

The description of each of these six cooperative arrangement includes: (1) type of cooperative arrangement; (2) percentage of equity (if joint venture) or type of compensation for the supplier of technology (if licensing agreement); (3) country of origin of the partner/licensee; (4) technology involved; (5) stages in the value-added chain covered by the arrangement; and (6) the limitations in the geographic area covered by the arrangement.

These six cases are analyzed with regard to their type of technology, type of cooperative arrangement and levels of key constructs (commitment, trust, motivation, power, and risk). Descriptions of the other arrangements included in this exploratory research are presented in Appendix B.

For the supplier of technology, a major asset involved in these arrangements is technology. The type of technology included in a cooperative arrangement has a very important role in the formation of the arrangement. The supplier, however,

Table 4.1
Description of Cooperative Arrangements

Company B
(Patent and technology license agreement with company B)
Leading manufacturer of equipment in England. Company B has built equipment for third parties. Company A provided the patent(s) and technology (gas conditioning) for building/operating the equipment. In return, company B paid a fee per unit. Six units have been built in different areas of the world.

Company C
(Equity joint venture -- 50/50 -- with company C)
Leading British company in the area of industrial gases. Company A and company C formed a 50/50 independent company for the production and commercialization of gas separation systems. Patent(s) and know-how were licensed to the joint venture. No limitations were imposed upon the geographic area covered by the joint venture.

Company D
(Equity joint venture -- 50/50 -- with company D)
Large distributor of products in Saudi Arabia. Former distributor of company A's products. Companies A and C formed a 50/50 venture for the production of plastics. Saudi Arabian government required a local partner. Company A received royalties for technology and trademarks. The geographic market was limited to Saudi Arabia and neighboring countries.

Company E
(Equity joint venture -- 50/50 -- with company E)
Large company manufacturer of chemicals in Japan. Initially, this joint venture was with a different party. Company A bought the business part of this party. After restructuring the venture, the partners agreed to initiate the production and commercialization of synthetic resins for the Japanese market.

Company F
(Patent license agreement with company F)
Large steel manufacturer from Japan. Company A had patent(s) for the manufacturing of MPL (Metal Plastic Laminates). Japanese firm had its own technology. License agreement included rights to manufacture product in Japan and sell it worldwide. Company F paid royalties and front-end payment.

Company G
(Cross-license agreement with company G)
Large Japanese manufacturer of chemicals. Company A and company G decided to exchange know-how and patents in specific area of the production of thermoplastic resins. Both companies granted each other worldwide, royalty-free license.

needs to take certain actions in order to assure that the firm is ready for involving a given technology in a cooperative arrangement. Thus, the management of the technology in the formation process and a typology of technology are discussed in the next section.

Type of Technology

Regarding the management of technology, executives pointed out two stages of the formation of international cooperative arrangements in which the supplier needs to consider carefully the technology: prior negotiations (during the phase of design and planning of the arrangement), and during the negotiations (early in the negotiations also in an advanced stage of negotiations, e.g. formal negotiations). They suggested that: prior to negotiations the supplier of technology defines and analyzes the technology (market potential of the technology and/or products derived from it, potential risk of technology and/or products derived from it, etc.). In short, the supplier knows its "product." At the beginning of negotiations (e.g., informal negotiations) the supplier provides information and/or demonstration of the technology to the other party. At this stage, only public information is disclosed. If the other party signals interest, then additional information is disclosed, but now under conditions of confidentiality. So, at this stage, the "product" is introduced and offered.

During formal negotiations, the value of the technology is established by both parties. For some arrangements, (e.g., licensing agreements) the value of the technology is the major issue to be resolved during negotiations. In fact, establishing

the value of the technology seems to be the most difficult and frustrating stage of the negotiations. So, at this point, the price of the "product" is determined. In other types of arrangements (e.g., equity joint venture) determining the value of the technology is one of several other important issues to be resolved (e.g., structure of the ventures, termination clauses, etc.).

This description of the management of technology points out three behaviors of the suppliers and recipients of technology: (1) only the supplier knows its technology; (2) the supplier discloses specific information about a technology only under conditions of confidentiality; and (3) suppliers and recipients establish the value of the technology through a cumbersome negotiation process. These behaviors are the result of the peculiar characteristics of technology when treated as a "product." Casson (1986) pointed out four peculiar characteristics of technology during its commercialization: (1) quality uncertainty; (2) irreversible supply; (3) indivisible unit; and (4) likelihood of creating competitors. The description of the management of technology presented here is consistent with Casson's characterization of the peculiar features of technology. This description of the management of technology suggests that technology impacts upon several stages of the formation of cooperative arrangements. In particular, the type of technology involved in the arrangement influences several stages during the planning and designing of the arrangement.

Managers in technology driven firms are well acquainted with technology and its intricacies (e.g., they usually have an engineering background). However, depending upon the functional area in which they actually work (e.g., legal, R&D,

business) their focus, interest and general conception of technology are different. By talking with executives from different functional areas and after several interviews, it became apparent that although each technology involved in a cooperative arrangement had unique characteristics, several technologies (as a group) had certain common characteristics.

A major distinguishing feature of technologies was the level of importance assigned to them by the managers. For example, during the interviews managers described technologies in these terms: "This is a very important technology for the company," or for other arrangements they indicated: "We were not really interested in this technology." Hence, initially, a broad division in the type of technology was proposed: core technology (that is, important technology for the firm) and non-core technology.

However, after collecting and analyzing data on several cooperative arrangements, it became clear that a broad division of technology was not enough for explaining the different approaches to the formation of international cooperative arrangements (e.g., the desired type of cooperative arrangement, the approach to negotiations, etc.). A careful analysis of the technologies involved in each of the 27 arrangements permitted identification of four types of technologies based on two major dimensions: (1) level of importance of the technology (Is this technology central to the firm?) and (2) level of maturity and/or development of the technology (Is the development of this technology still strong?).

According to the first dimension (importance), technology can be classified as core or non-core. According to the second dimension (development), technology can

be classified as developed or developing. Therefore, the four types of technology are: (1) core standardized (central to the firm and mature or developed); (2) core non-standardized (central and still developing); (3) non-core peripheral (not central to the firm; development stopped); and (4) non-core emerging (not central; yet, developing). A description of each of these four types of technologies is presented next.

Core Technology

Core technology refers to knowledge and skills considered very important by the firm. Moreover, it makes significant contributions to the profitability of the firm. The company's first choice for this technology is to keep it "in house": that is, for a business venture in international markets involving this technology, the firm's first choice is a wholly-owned subsidiary. Core technology includes a technological development well known and developed plus a body of knowledge accumulated through years of practicing the technology, e.g., trade secrets in process improvements, design of equipment, product quality, etc.

Some of the characteristics included in a core technology are: it may have either patents, trade secrets or both; the company prefers extensive control of its manufacturing process, allocates funds to continue research programs on it, and seeks constant improvements on the commercial development of this technology. In addition, the customer base of this technology is well known and well developed by the firm (it is its traditional customer base). Although a firm's preference for utilizing core technology is through a direct investment, a firm may license core technology

(particularly standardized core technology) under certain circumstances such as strong pressure from customers willing to have this technology and concurrently, pressure from other suppliers of technology willing to license their own version of the technology. Core technology can be standardized or non-standardized.

Standardized Technology

In general, a standardized technology is a mature technology. Thus, there are several suppliers which offer different version of the same technology. Some suppliers may offer a technology developed by themselves, yet, they want to exit the business. Others may offer a technology not developed by themselves e.g., engineering companies.

Non-Standardized Technology

Non-standardized core technology refers to technology developed by few or only one supplier. In general, it is a unique technology. It also includes recent advances or breakthroughs in the existing body of knowledge. Due to its characteristics, this technology represents a strategic asset for a firm.

In general, companies are very reluctant to share non-standardized core technology with other parties. Additional arguments which support this decision are: (1) the value of the technology is very difficult to establish; (2) the interest in protecting the technology may be different for suppliers and recipients of the technology; and (3) the recipient's involvement with this unique and innovative technology may include sharing important trade secrets and/or the firm's approach to a major stream of research. Thus, in general, suppliers are not interested in

entering into cooperative arrangements with non-standardized core technology.

Non-Core Technology

Non-core technology refers to knowledge and skills which are defined as less important and are of less interest to the firm. It can be divided into peripheral and emerging.

Peripheral Technology

Non-core peripheral technology involves knowledge and skills which are not major strengths of the firm. The company is neither interested in the technology nor in its development. No further investments are allocated to this technology. The technology may include patents (and in some cases trade secrets). However, research has been stopped (usually the development is stopped at laboratory level), the company is not interested in controlling its manufacturing process since it relates to a very different customer base (e.g., very different than the traditional customer base).

Emerging Technology

Non-core emerging technology is that body of knowledge and skills that the company either can not fully develop by itself (e.g., the firm lacks some resources, skills or knowledge), or it can not invest considerable assets because it is not interested in taking full control of the technology's development. Yet, the firm perceives the potential of this technology. Because of this potential, the firm provides some support to its development. So, there is an ongoing research program on this

technology for a while in the firm. Additionally, the technology is developed beyond laboratory level, since the company is interested in gaining some control over the commercialization and manufacturing process. The customer base of this technology is related, yet it has its own characteristics (it is not well known by the firm).

In Table 4.2, the six selected cooperative arrangements are presented. For each arrangement, the technology involved and its characteristics are offered. In addition, each technology is classified into core (standardized, nonstandardized) and non-core (emerging and peripheral). Of the total of 27 cooperative arrangements, 12 included core technology (9 of these with standardized technologies) and 12 included noncore technology (9 of these with peripheral technologies). Three arrangements were not included because they were "licensing in" arrangements.

Regarding this classification, two points should be clarified: (1) the classification does not refer to four different versions of the same technology (and existing concurrently) named core (standardized and nonstandardized), and non-core (emerging, and peripheral); and (2) technologies are constantly evolving. Thus, there is a dynamic element included in the classification. That is, a core standardized technology may become a peripheral technology (e.g., a technology may become obsolete and it may no longer continue as part of the firm's portfolio of technologies) or a peripheral technology may become an emerging technology. In other words, the classification only identifies the existing technologies at a given point in time.

Regarding the type of technology, four major findings can be derived from the interviews: first, suppliers of technology, in general, were willing to enter into cooperative arrangements with non-core peripheral and emerging technologies.

Table 4.2
Technology and Its Characteristics

Arrangement Between A and	Technology	Patent(s)	Trade Secret(s)	Control Mfg. Process	Ongoing Research	Level of Development	Customer Base	Type of Arrangement	Classification of Technology
B	Gas Conditioning	+	+	-	-	C	D	Know-how licensing	non-core (peripheral)
C	Gas Separation	+	+	O	+	P	R	Joint venture	non-core (emerging)
D	Manufacturing Plastics [1]	-	+	+	+	C	K	Joint venture	core (standardized)
E	Synthetic Resin [2]	+	+	+	+	C	K	Joint venture	core (non-standardized)
F	Laminate Plastic-Metal	+	-	-	-	L	D	Patent licensing	non-core (peripheral)
G	Thermoplastic Resin [1]	+	+	+	+	C	K	Cross-licensing	core (standardized)

KEY: + = yes, - = no, O = some/limited, C = commercial development, P = pilot plant,
L = laboratory scale, D = very different than traditional/unknown,
R = related; yet not well known, K = known/traditional
1 = several suppliers 2 = few suppliers

Second, depending upon the circumstances (e.g., strong competition), they entered, reluctantly, into arrangements with core standardized or nonstandardized technology. Third, depending upon whether the technology was core (standardized or nonstandardized), or non-core (emerging/peripheral), companies had different levels of motivation, commitment and power. Fourthly, the desired level of risk (disclosure risk) and trust by the company was determined by the type of technology, e.g., a peripheral technology involved less risk for the company than that of a core technology.

In summary, in this section management of technology and a classification were discussed. Management of technology (characteristics of the "product" and its value) is related to the importance (for the firm) and the level of development of the technology (the two dimensions of the classification). These two dimensions and thus the classification are very important in planning and designing an international cooperative arrangements.

As was mentioned above, the type of technology influences the levels of motivation, and commitment of the supplier of technology. These levels of motivation and commitment, in turn, impact on the selection of a cooperative arrangement (the desired arrangement for the supplier). In the next section, the importance of the type of cooperative arrangement selected is discussed.

Type of Cooperative Arrangement

Executives interviewed and the analysis of the 27 cooperative arrangements suggested an important relationship between the type of technology (involved in the

arrangement) and the type of cooperative arrangement. In this relationship, type of technology refers to the importance of the technology for the supplier (e.g., core/noncore technology) as was described in the classification of technology. Type of cooperative arrangement refers, among other things, to the degree of control the supplier wants to maintain over the technology and the arrangement. For instance, a low control cooperative arrangement refers to licensing agreements; a high control arrangement includes equity joint ventures in which the supplier retains a majority of the assets.

Thus, a proposition regarding this relationship derived from the interviews and the analysis of the 27 cooperative arrangements states, "the more important the technology (to be utilized in the arrangement) for the supplier of technology, then the greater will be the control sought over the technology." For instance, for a standardized core technology in general, the firm's first choice is a wholly owned subsidiary. If this choice is not permitted (e.g., local government mandate), then the next choice is a joint venture. The last type of arrangement sought by the firm for this type of technology is a licensing agreement. Thus, there is a relationship between the type of arrangement desired by the firm and the type of technology involved on it. The actual arrangement formed, however, will be influenced not only by the type of technology but also by contingency and power-dependence factors affecting the negotiations.

The type of cooperative arrangement and the type of technology are indicated for the six cooperative arrangements in Table 4.2. Two arrangements (with companies B and F) included peripheral technology. In both arrangements the

supplier was not interested in high control of the technology and/or the arrangement. Two arrangements (with companies D and E) involved core technology. In these cases, the supplier was interested in the maximum control permitted. In fact, the company initially wanted direct investment in both ventures.

One arrangement (with company C) included emerging technology. This was technology related to the main business of the supplier and there was high interest in developing the technology further (perhaps with the intention of developing it into a core technology). So, the supplier was seeking maximum control over the technology. The final arrangement (with company E) involved core technology. In this case, however, both parties had control over their own technologies. Both parties only wanted to "buy" time (e.g., reducing the time to put a product into a market). Thus, they both wanted exchange of information in a very specific area of technology.

Up to this point, the objective was to present two key components in the formation of international cooperative arrangements: type of technology and type of cooperative arrangement. A second objective of the exploratory phase of this research was to identify the factors which lead to effective formation of international cooperative arrangements. In the next section, a discussion of these key factors in the formation of cooperative arrangements is presented.

Key Factors

Five factors (commitment, motivation, power, trust, and risk) were briefly mentioned during the discussion of technology. In this study, the search and identification of these key factors and their connection with effective formation of

international cooperative arrangements progressed in parallel on two fronts: literature search and exploratory in-depth interviews. Each complemented the other The interviews were useful for identifying gaps in the literature while the literature search was useful for pointing out probing areas in the interviews with the executives.

During the interviews, in order to explain the satisfaction with the partner, and/or the benefits obtained from a cooperative arrangement (e.g., overall satisfaction with the arrangement) managers pointed out key elements such as commitment and motivation: "We [both parties] were committed to the venture," or "Both companies had strong motivation to enter into the arrangement." Four of these key factors were explicitly mentioned by the executives during the interviews: commitment, motivation, trust, and risk (several types of risk). One key factor not explicitly mentioned in the interviews was power. This factor was introduced by the researcher through direct and indirect (probing) questions.

Probing questions were used to learn more about each of these key factors and identify its dimensions. For instance, a question such as "How do you know that you can trust the other party?" was answered with a number of dimensions of the factor such as, reliable partner, deals fairly, and compatible partner. In Table 4.3 several dimensions of the five factors are presented for each of the six arrangements.

Commitment

Regarding commitment, some of the dimensions indicated in the interviews were: communication efforts (e.g., arrangements with companies B, C, E, and G); level of interest, importance of the business and level of investment in the technology

Table 4.3
Key Factors

Cooperative Arrangement Between Company A and Company	Commitment	Motivation	Power
B	Efforts to know each other through communications. Marginal business for both firms. A did not want to invest more in this business/technology.	Profits. Each company didn't (couldn't) want to go by itself.	Each company had key and complementary resources. B brought global manufacturing capability of equipment. A had the patents and know-how. Yet, the key for success (and the most profitable segment) was the manufacturing capability.
C	Very important technology and business for both firms. Both companies were willing to participate in a cooperative arrangement.	Company A wanted to expand into new product market. Company C wanted to become the leader in its industry.	Both parties brought key and complementary resources to the formation of the arrangement. They did not have other alternative partners.
D	Both firms very interested in forming the arrangement. This was a very important business for A.	Profits. Enter into a new market. Increase global market share.	D had the knowledge of the market and the advantage as a local. However, it didn't have managerial experience in manufacturing. A had technology/know-how/managerial experience.
E	A lot of interactions between parties (communications, visits). Both acquired great knowledge about each other. E was eager to expand and invest in the business. People were assigned to the arrangement and business activity. A was heavily committed to the business in global markets. Personnel assigned to the arrangement were stable for several years.	Enter into the market. Increase global market share. Offer a complete line of products. Reduce competition. Reduce costs. Reduce time of becoming a major force in the market/customer base.	Each saw the other as the best ("natural") partner. Each had the resources needed by the other party. Sharing resources created synergy. Neither searched for other potential partners. Both brought key resources to the arrangement. Balanced relationship.
F	Not much communication or interaction between parties. Neither party was very committed to this business. Marginal business. A did not want to invest further in business/ technology.	Profits. A wanted to push the technology. Peripheral business; yet some potential.	A had the advantage, yet there was some balance in the relationship -- F had know-how. The major issue in negotiations: the value of the technology/patent rights.
G	Communications/interactions between companies. (Yet, this arrangement had a short life.) This was a major technology/business for both companies. Both were committed to the business.	Access to know-how/patents in a specific area of technology. Exchange technology. Improve product quality. Reduce research costs.	Both companies brought a high level of knowledge and patents important for the other into the arrangement. Balanced level of power.

Table 4.3 (continued)

Cooperative Arrangement Between Company A and Company	Trust	Risk	Comments
B	B reliable, technically competent, solid organization (engineering, manufacturing, service, quality.)	B well known firm; strong reputation of living up to the terms of the agreement, protecting technology.	Moderate commitment to the arrangement; low commitment and motivation to the business (not much growth in the area) by both firms. Balanced power, yet B had an edge. B reliable, trustworthy; low disclosure risk.
C	Good compatibility between companies (compatible business philosophies, objectives, and expectations from the cooperative arrangement). C had strong technical skills.	Agreement provided specific safeguards to the technology. C had a good reputation honoring agreements.	Both companies had strong commitment to the business and the arrangement. Balanced level of power. Good level of trust established between parties. Low risk partner (disclosure risk).
D	D was a partner known from previous arrangements, and had the resources to undertake the business.	D was not interested in gaining access to the technology. A controlled all areas related to technology.	Both parties had strong commitment and motivation to enter into the arrangement and the business in that market. The level of power was balanced, yet A had control of the technology. Some level of trust and low risk in the relationship.
E	E stable, reputable organization. Very serious, reliable partner in its dealings. In some dimensions (e.g., time horizons for pay back on investment) both companies had different expectations; however, they reached agreement in those dimensions. Compatible partners in other dimensions (ethics, other objectives).	E was very reputable in honoring agreements. Great respect for technology/know-how/patents. E's country very stable with great respect for intellectual property rights. Technology protected by the way the arrangement was structured.	Strong commitment to the business and the arrangement by both parties (though initially A was not as eager as E to enter into the arrangement). Strong motivation - several benefits expected from the arrangement. Balanced levels of power. Both parties establish a very good level of trust in the arrangement. Low risk partner.
F	F dealt fairly; no opportunity or need to test compatibilities.	F respected intellectual proprietary rights. Very willing to enter into an agreement with A.	Low commitment and motivation to the business and arrangement. Balance of power, yet A had the upper hand. Trust was not fully tested. Low disclosure risk. Peripheral technology.
G	Compatible objectives in the exchange of technology. G reliable party.	Each company had the same risk (disclosure risk). By exchanging know-how the risk was canceled out..	Both companies committed to the business arrangement. Balanced level of power. Some trust was built between parties. Low risk arrangement.

and business (e.g., all the cooperative arrangements) and level of people assigned to the arrangement (e.g., arrangement with company E). In general, for the executives interviewed, commitment was associated with the willingness or effort to invest resources (e.g., time, assets, and personnel) in the formation of the arrangement. In the literature on international cooperative arrangements there is support for the importance of this construct from several researchers (Buckley and Casson, 1988; Beamish, 1987; Geringer, 1988; Lasserre, 1984; Young et al., 1989).

Motivation

Motivation was associated with the benefits that managers wanted to obtain from the arrangement. Some examples were profits (e.g., arrangements with companies B, D, and F), enter into a market (e.g., arrangements with companies C, D, and E) and increase market share (e.g., arrangement with company D). Several researchers have suggested the need of motivational factors during the formation and implementation of international cooperative arrangements (Beamish, 1987; Artisien and Buckley, 1985; Contractor and Lorange, 1988; Harrigan, 1985; Killing, 1982).

Power

Power was associated with the resources (skills, assets, competitive advantages) brought to the arrangement. There were a number of arrangements in which managers perceived a balance of power in the relationship (e.g., arrangements with companies C, E, and G). In the literature of cooperative arrangements three major dimensions of power were suggested: resources, alternative ways of attaining a firm's objectives, and importance of the cooperative arrangement (Harrigan, 1985; Contractor, 1981).

Trust

Regarding trust, several dimensions were suggested in the interviews such as previous experience with the partner (e.g., arrangement with company D), reliable partner (e.g., arrangements with companies B, C, and G) and compatibility (e.g., arrangements with companies C, E, and G). In general, for the managers interviewed, trust was related to how predictable the behavior (positive behavior) of the partner was. In the literature on cooperative arrangements there are indications of the importance of this construct (Buckley and Casson, 1988; Auster, 1987; Geringer, 1988; Doz, 1988; Harrigan, 1985). Researchers suggested two major dimensions for trust: intentions (reliability and compatibility) and ability (Deutsch, 1973).

Risk

Risk was associated with several characteristics of the arrangement. However, the focus suggested by the researcher was the likelihood of losing technology. These disclosure and performance failure risks were associated with characteristics of the partner such as its approach to protection of intellectual proprietary rights (e.g., arrangements with companies F and E) and whether it honored agreements of not (e.g., arrangements with companies E and B) as well as with characteristics of the host country (for the arrangement) such as its reputation in respecting intellectual proprietary rights (e.g., agreements with companies C and E). Root (1988) and Hill et al., (1990) have pointed out the importance of risk (disclosure risk and performance failure) in cooperative arrangements.

In order to illustrate the interpretation of Table 4.3 one of the six arrangements (the arrangement with company C) is described in more detail next.

In this arrangement, for both companies, the area of business and technology associated with it were very important. For instance, for firm A the technology involved was related to core technology and thus, considerable research efforts were devoted to it. For firm C, this technology was its major area of business. Both companies were willing to participate in an equity joint venture. That is, both firms wanted to share capital, risks, and benefits. Other potential partners (when initially approached by firm A), on the other hand, wanted to participate at most in a licensing agreement. These elements showed the level of commitment to the business technology, and the joint venture by both firms.

In the process of formal and informal communications, both companies found out that they were compatible in areas such as business philosophies, objectives, time horizons, and overall expectations regarding the joint venture. In addition, two other characteristics of the recipient of technology were: (1) the company had strong technical skills and infrastructure; and (2) its negotiations (and executives involved in negotiations) seemed very reliable. All of these characteristics were identified as elements of trust. In other words, both parties brought to the interaction a certain level of trust and were willing to build additional trust during the interactions.

The technology was perceived by both parties as the technology of the future. That is, comparing this technology with existing technology, this technology introduced a novel approach in obtaining a product. So, the expectations were that with considerable research and commercialization efforts this technology may become the new standard in a specific area of the chemical business. For company A, developing this technology meant expanding into a new business activity. The

technology was developed and was part of the core knowledge of the firm; yet, it was a new application of the technology in a very promising area. Thus, firm A was motivated by its chances to expand into a new business. Company C was in that business. Yet, with this technology, company C was increasing its chances of maintaining its leadership in its industry. It was investing in its future. Thus, both companies had strong motivations to enter into this cooperative arrangement.

Both parties brought key and complementary resources to the formation of the venture. In fact, without this pooling of resources, neither party could have undertaken the venture by itself. In addition, each party perceived the other as the best choice available. Therefore, they did not have other alternatives to choose from. Moreover, for both firms, this was a very important business in which they wanted to get involved and to become major developers. All of these characteristics were identified as elements of power (resources, available alternatives and importance of the outcomes). Accordingly, these characteristics indicated that this relationship had a balanced level of power.

From the perspective of the supplier of technology, this arrangement was perceived as a low fiduciary risk arrangement (Root, 1988). That is, the likelihood of losing technology due to misappropriation, or misuse by the recipient of technology was low. First the agreement was specific regarding how the technology will be managed by the partners, e.g., who initially will develop the technology, how the technology developed by the joint venture will be treated, to whom will go what technology in case of termination of the arrangement, etc. Second, characteristics of the partner and the partner's country encouraged the views held by company A's

managers: company B had a good reputation in keeping trade secrets, respecting patents and honoring agreements. Moreover, company B's country had well established laws regarding intellectual property rights and contractual agreements. Thus, in this arrangement disclosure risk was perceived as low.

So far, three critical components of the formation of international cooperative arrangements were identified and discussed: type of technology. type of cooperative arrangement and key constructs. These components were identified by analyzing information provided by executives experienced in the formation of international cooperative arrangements, during in-depth interviews. These key informants, in addition, were central in describing the actual stages through which an arrangement was formed. Thus, the next section focuses on the key stages in the formation of international cooperative arrangements. The description of key stages, however, does not reflect the actual formation procedures of any specific firm.

Key Stages

From the initial conceptualization of a cooperative arrangement, up to the point of signing a contractual agreement between the companies, the formation of an international cooperative arrangement includes four important stages: (1) conceptualization of the venture, (2) internal negotiations and consensus, (3) search, identification and selection of a partner, and (4) negotiations with the selected partner. These negotiations may lead to an agreement. The signing of this contractual agreement usually marks the end of the formation of the arrangement.

For the six international cooperative arrangements described in an early

section, these four stages were described in great detail by the key informants. Nevertheless, for each arrangement, the level of importance of each stage was different. For example, in one arrangement (with company F) the focus was in the negotiation stage. The other three stages of the formation process received less attention from managers (e.g., the partner was identified without a serious or extensive search). In another arrangement (with company C) each stage was subject to intense scrutiny and thus received considerable time and efforts from managers.

In the other four arrangements (with companies B, D, E, and G) the suppliers of technology did not search for a partner (the other party approached to the firm). However, in arrangements with companies D, E, and G the other three stages (conceptualization, internal negotiations and external negotiations) required considerably more attention than those in the arrangement with company B. Accordingly, the level of importance of each stage of the formation of cooperative arrangements seems to be associated with the type of technology and the type of arrangement. In the arrangement with F for instance, peripheral technology and a patent licensing agreement were involved, while in the arrangements with D and E, core technology and equity joint ventures were included.

Figure 4.1 presents these four stages and their connections among them. Some researchers have also identified and described a number of these basic steps when planning and managing cooperative arrangements (Walmsley, 1989; Young et al., 1989). Before describing each of these stages, it is important to mention that although the stages are depicted in a linear fashion, additional arrows in the figure show the complexity of the interaction among stages. For instance, the conception of

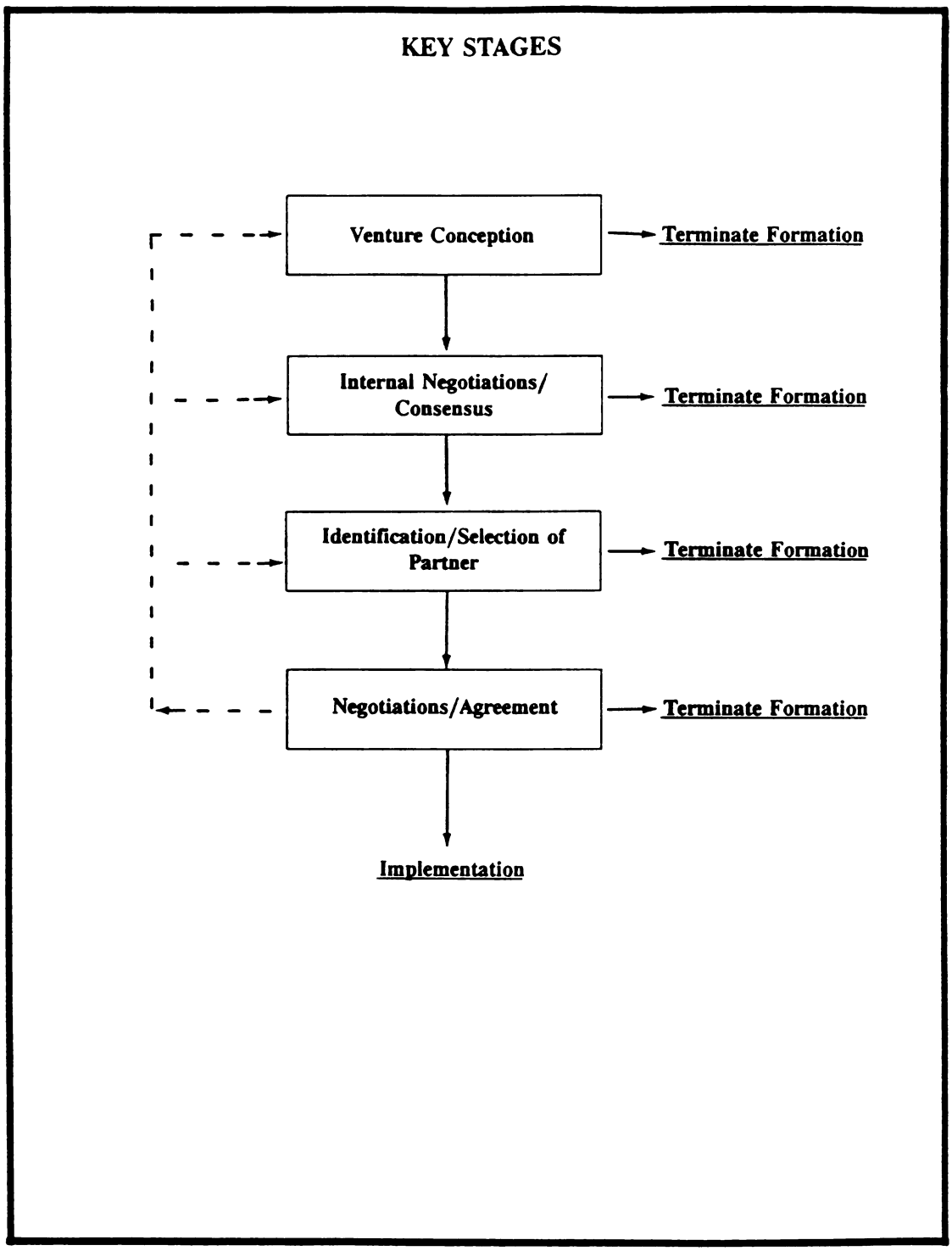
KEY STAGES
Venture Conception
Terminate Formation
Internal Negotiations/ Consensus
Terminate Formation
Identification/Selection of Partner
Terminate Formation
Negotiations/Agreement
Terminate Formation
Implementation

Figure 4.1

the venture may run parallel with internal negotiations. Besides, one stage may not lead to the next. The interest in the idea/venture may terminate at that stage.

Venture Conception

Venture conception may originate from two major sources: externally generated stimulus (e.g., unsolicited inquiry) and internally generated stimulus (e.g., internal development of products/technology). Other examples of stimuli include: perceived benefits of expanding into a new market and/or new products; new technology developed outside of the firm; environmental pressures (e.g., government regulation, competitors' moves, infringement of patents); and internal needs of skills or resources. Thus, the conception of a venture is associated with motivational factors such as perceived benefits, needed response to external events and skills and resources needed or desired by the firm.

In answer to these stimuli, a company has two major ways of developing the business concept further: the company may go into the business by itself or the company may go into the business together with another company (a partner or licensee). Thus, venture conception refers to the initial conceptualization of a business activity regardless of its final structure (e.g., a wholly owned subsidiary, a joint venture, or licensing agreement).

This stage begins with a stimulus/idea and continues until a clear conceptualization is reached, e.g., some studies/analyses may have been conducted. The conceptualization of the venture can be initiated at different levels and/or functions in the organization.

Internal Negotiations

Once a concept about a new business venture has formed, the next step is its dissemination among relevant constituencies within the firm. The "leader group" (one or a few managers involved in the development of the concept) sells the idea to other interested constituencies and levels of management. The objectives of this campaign are to generate as much interest as possible in the venture, as well as to obtain consensus and support for the new business. Other important learning steps taken at this stage include: (1) the company may attempt to explore the venture by itself, e.g., it may produce (in the laboratory) a small sample of the product to test its acceptance by potential customers; (2) the company may realize that it can not go into this venture by itself. That is, it diagnoses its needs and concludes a partner is necessary; (3) the company may identify its preferred type of cooperative arrangement; and (4) the leader group may get all the support and consensus needed for seriously undertaking the business venture.

These internal negotiations may lead to three resolutions: (1) the firm decides to enter into a cooperative arrangement, (2) the firm sets the level of investment -- resources and skills -- for this arrangement, e.g., the company determines its preferred type of arrangement, and (3) the firm establishes its level of importance in undertaking that arrangement, e.g., the firm sets a timetable for structuring the arrangement: selection of a partner, negotiations, etc. So, at this point, the firm sets its level of commitment to the business and the cooperative arrangement.

At this stage or at an early stage, depending upon the interest in the venture, two major analyses may have been conducted: (a) the analysis of the technology

involved in the venture (level of development, age, patents associated with the technology, potential risks of the products derived from the technology, value, etc.) and (b) the analysis of the market, environmental constraints (government regulations, competitors, etc.), and the overall risk of entering into a cooperative arrangement.

Partner Identification and Selection

After deciding to enter into a cooperative arrangement the company needs to find a suitable partner. This stage begins with the initial identification of potential partners and ends up with the selection of a partner. There is a mutual selection; both parties perceive each other as the optimal choice available at that time.

A partner may or may not be available. A partner may be available when (1) there is interest in the cooperative arrangement by a former partner (e.g., a partner in another arrangement or business transaction), or (2) there is desire and need for the technology involved in the arrangement by a potential new partner (unsolicited inquiry). This party may also be interested in forming a cooperative arrangement.

However, when no partner is available, the company needs to search for, identify, and select a partner. (In either case, the company selects a partner). During this process of search and selection, informal negotiations take place between potential partners. Through these interactions, they acquire knowledge about each other, identify their intentions, expectations, etc. In fact, in some cases, much of the interest in each other or in the arrangement can be generated through these exchanges and contacts.

In further meetings, depending upon the interest of the parties, additional exchange of information (under more strict conditions of confidentiality) may occur. At the end of this stage each party has accumulated considerable knowledge about the other party, its motivations, commitment, strengths, and weaknesses. Thus, through this intense interaction, each firm has chances of developing a good understanding of the other party.

In this stage, two important assessments are made by each of the participants of the cooperative arrangement (in particular, by the supplier of technology). They are the levels of risk and trust of the other party. Assessing risk includes identifying whether the recipient of the technology will misuse or misappropriate it -- disclosure risk (Root, 1988; Hill et al., 1990) -- while evaluating trust involves identifying whether the other firm will deliver its part in the arrangement e.g., whether it is reliable, trustworthy (Buckley and Casson, 1988; Geringer, 1988).

The advantage of having a previous positive experience with a partner is that risk and trust were already (to some extent) tested. Thus, in general, partners are more prone to go into cooperative arrangements with partners already known (Killing, 1983; Tomlinson, 1970).

Negotiations

Once a partner is selected, formal negotiations take place. Frequent communication and meetings between parties characterize this stage. The objective for both parties is to maximize their expected benefits from the cooperative arrangement. Optimally, these interactions improve the chances, for both companies,

of obtaining the desired gains.

Several factors influence negotiations. Some of these factors are: (1) the atmosphere created by both parties, e.g., whether the parties are cooperative or not. The atmosphere also includes certain levels of power and trust brought and perceived by each participant (Schoonmaker, 1989); (2) the approach to issues and the way parties resolve the inherent conflicts of the negotiations; (3) the cultural and individual characteristics brought to the exchange by the negotiators; (4) the audiences (or third parties) interested in affecting the outcomes of the negotiation; and (5) the place, time and circumstances under which negotiations are held (Bacharach and Lowry, 1981; Rubin and Brown, 1975).

Power is associated with certain characteristics or assets of a firm such as size, technologic reputation and resources. Resources are a prime source of power in a partnership (Harrigan, 1985). A firm has a higher level of power than that of another party whenever two conditions occur: (1) its resources are of great importance for the other party and (2) is the sole source of these resources. For example, a patent may become a very important asset and source of power for a firm.

Depending upon the circumstances under which both parties meet, power may be exercised (e.g., when a party is infringing a patent of the firm), or it may not be exercised (e.g., when both parties perceived a balance in the level of power). In this case, the interaction between parties relies more in trust developed between them.

Negotiations, if successful, result in an agreement between parties. Both parties sign a document, a contractual agreement which spells out their rights, obligations and penalties in case of breach of the agreement.

In summary, four key stages were presented in describing the process of forming international cooperative arrangements. Three components were identified as critical elements in this formation process: type of technology, type of cooperative arrangement, and five key constructs (motivation, commitment, risk, trust, and power). In addition, these constructs seem to have significant impact upon the effective formation of arrangements. As a summary of this chapter, an integrated model of these key stages and critical components is offered in the next section.

An Integrated Framework

All the components described so far which have impact on the formation of cooperative arrangements such as type of technology, type of cooperative arrangement, and key constructs were integrated in a framework. In addition, in the diagram are indicated the key stages in the formation of cooperative arrangements. Figure 4.2 shows: (1) the impact of the technology upon each of the constructs and the different stages of the formation of the arrangement, (2) the outcomes of internal negotiations (e.g., to enter into a cooperative arrangement, identify the characteristics of preferred partner, and the approach to negotiations), (3) the importance of the contingency factors (although only one contingency factor is shown, several other factors such as competitors and government regulations influence the negotiations) and (4) the importance of negotiations in determining the structure and characteristics of the actual cooperative arrangement formed.

All in all, in this chapter the major findings from the exploratory stage of this research were reported. Three critical components of the formation of international

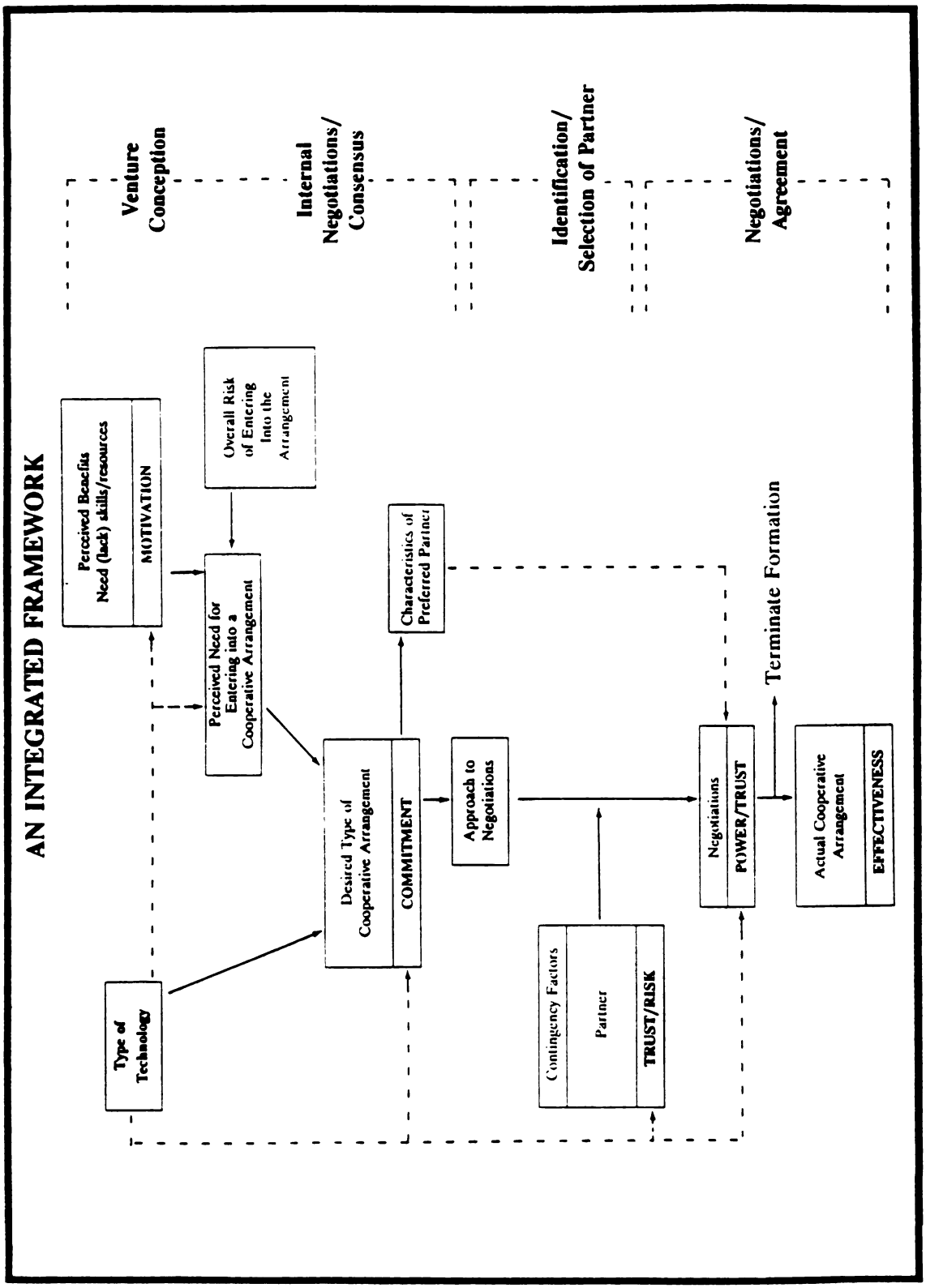
AN INTEGRATED FRAMEWORK
Venture Conception
Internal Negotiations/ Consensus
Identification/ Selection of Partner
Negotiations/ Agreement
Perceived Benefits
Need (lack) skills/resources
MOTIVATION
Overall Risk of Entering Into the Arrangement
Perceived Need for Entering into a Cooperative Arrangement
Characteristics of Preferred Partner
Type of Technology
Desired Type of Cooperative Arrangement
COMMITMENT
Approach to Negotiations
Contingency Factors
Partner
TRUST/RISK
Negotiations
POWER/TRUST
Terminate Formation
Actual Cooperative Arrangement
EFFECTIVENESS

Figure 4.2

cooperative arrangements were described: type of technology, type of arrangement, and five key factors, commitment, motivation, power, risk, and trust. These factors, as was identified in the interviews, seem to create the conditions that may lead to effective formation of international cooperative arrangements. Finally, key stages in the formation of cooperative arrangements were discussed.

CHAPTER V

UNIVARIATE AND BIVARIATE ANALYSIS

Eight hypotheses were proposed in Chapter II. These hypotheses suggested the association between each of the five constructs (motivation, commitment, power, risk and trust) and effectiveness. Testing these hypotheses required the use of statistical tools which measure the association (direction and strength) between each of the constructs and effectiveness. Hence, two objectives for this stage of the research were: (1) to measure these associations, and (2) to rule out, among them, spurious associations.

Each of the constructs as well as effectiveness were measured by multiple indicators. On the other hand, a summary measure of each construct was given by an index. Thus, there were two possibilities when measuring these associations: (1) to measure the level of association between items (e.g., between each item of a construct and each item of effectiveness); and (2) to measure the level of association between indexes (e.g., between the index of a construct and the index of effectiveness). In this chapter, measures of association (direction and strength) between items are indicated by Kendall correlation coefficients and measures of association between indexes are provided by Pearson correlation coefficients.

The second objective, to rule out spurious associations, required a statistical tool which measures the association between two factors when specified other variables are held constant. These variables may cause the spurious association. This objective was achieved by using partial correlation coefficients.

Analysis using statistical tools that leads to the testing of the hypotheses is the

focus of this chapter. However, it is also important to analyze the relative importance of the items within each construct. This is accomplished by using univariate analysis of data. Thus, in this chapter, univariate and bivariate analysis of data are offered in that order. In the next chapter, after presenting multivariate analysis germane to the testing of the hypotheses, the support for the eight hypotheses is offered.

Univariate Analysis

As stated in Chapter III, a survey instrument was used to collect data from nine chemical companies. Fifty-nine items of the questionnaire were designed to verify eight hypotheses and answer four research questions. The number of items for each of the constructs were: nine items for effectiveness, five items for commitment, eight items for trust, seven items for risk, eighteen items for power and nineteen items for motivation. These fifty-nine items listed according to short labels, are presented in Tables 5.1, 5.2, 5.3, 5.4, 5.5 and 5.6. The order of the items in each table is the same as they appear in the questionnaire. A copy of the complete questionnaire is offered in Appendix A.

The objective of this univariate analysis is to identify the relative importance of each item within a construct. In other words, by analyzing how managers responded, on average, to each item of a construct, it is possible to point out its relative importance within the construct. In turn, this analysis will lead to more detailed managerial recommendations. The relative importance of an item is indicated by its mean value measured by a 5-point scale. The higher its mean value, the higher its relative importance. Thus in the tables which summarize univariate

Table 5.1
Effectiveness: Labels

Label	Description
Company's Satisfaction/ Agreement	Overall, your company was very satisfied with the terms of the agreement
Company's Satisfaction/ Partner	Your company was very satisfied with this partner
Partner's Satisfaction/ Agreement	The other party was also very satisfied with the terms of the agreement
Partner's Satisfaction/ Company	The other party was also very satisfied with your company
Distribution Rewards	The distribution of rewards, as stated in the agreement, was equitable for both companies
Level Accomplishment	Forming this cooperative arrangement was a great accomplishment for your company
Benefits/Company	Overall, forming this arrangement brought a lot of benefits to your company
Benefits/Partner	Overall, forming this arrangement brought a lot of benefits to your partner
Achievement Objectives	Overall, your firm achieved a great deal of its expected objectives through negotiations

Table 5.2
Commitment: Labels

Label	Description
Participation	Senior managers from your company (CEO, president, vice-president) were active participants
Communications	There was a great deal of communication between companies (visits to each other's companies, meetings, written and telephone communications)
Adaptations	Your company made several major adaptations in technology and/or products to better satisfy the needs of the other party
Investments	Your company made several investments in fixed assets (e.g., buildings) to be assigned to this arrangement
Information	Your firm made considerable efforts to acquire a great deal of information about the other firm

Table 5.3
Trust: Labels

Label	Description
Compatible Philosophies	Both firms had compatible philosophies/approaches to business dealings
Compatible Objectives	Both firms had compatible objectives regarding this arrangement
Compatible Ethics	Executives from both firms, involved in the negotiations, had compatible ethics about business dealings
Compatible Time Horizons	Executives from both firms, involved in the negotiations, had compatible time horizons
Deals Fairly	Your partner was very interested in dealing fairly
Reliable	Your partner was perceived as reliable
Technical Skills	Your partner had technical skills and infrastructure for fulfilling its role in the arrangement
Managerial Skills	Your partner had the managerial skills and organizational resources capable of accomplishing what was promised in the contractual agreement

Table 5.4
Risk: Labels

Label	Description
Low Risk Country	The country of origin of your partner (the arrangement was located there) offered very few environmental risks (the economic and political system were very stable)
Protects Technology	Your partner had an excellent organization and procedures for protecting trade secrets and technology
Respects Proprietary Rights	Your partner had a great deal of respect for proprietary rights
Honors Agreements	Your partner had a strong reputation of honoring agreements
Avoids Misuse	The risk of partner misuse and/or leakage of essential technology/trade secrets was very low
Protects Reputation	The risk of damaging your company's reputation (e.g., a licensee may manufacture low quality product using your technology and trade-mark) by entering in this arrangement was very low
Low Risk Partner	The risk of the partner not living up to the terms of the agreement was very low

Table 5.5
Power: Labels

Label	Description
Agreement Not Important	This arrangement was not seen as an important potential contributor to the overall profitability of your company
Company By Itself	Your company could have undertaken this arrangement by itself
Available Partners	There were several well-qualified potential partners interested in forming this cooperative arrangement with your firm
Patents	Technology: proprietary rights and/or patents
Know-How	Technology: blueprints/manuals and know-how
Managerial Skills	Managerial skills
Marketing Skills	Marketing skills
Experience	Experience in international business and/or cooperative arrangements
Reputation	Reputation/image
Brand Name	Brand-name
Suppliers	Network of suppliers
Financial Resources	Financial resources
Raw Materials	Raw materials
Productive Capacity	Productive capacity
Distribution	Distribution/sales force
Contacts	Contacts with government officials
Markets	Access to foreign markets
Low Labor	Access to low labor costs

Table 5.6
Motivation: Labels

Label	Description
Earnings	Obtaining earnings/royalties
Products	Developing/obtaining a new product which complemented your product line
Using Capacity	Using excess capacity of your plants
Patents	Gaining access to proprietary rights/patents
Sharing Capital	Sharing total capital investment needed for the arrangement
Entering Markets	Entering into a market quickly
Contacts	Linking your firm with strong local political ties
Economies Scale	Achieving economies of scale
Reduce Cost/Products	Obtaining products at lower cost
Increase Market Share	Increasing market share
Overcoming Mandates	Overcoming trade barriers/government mandates
Knowledge Markets	Gaining knowledge of foreign markets
Reduce Time	Reducing the time for building your company's own distribution/sales force network
Know-How	Gaining new skills/knowledge/technology
Raw Materials	Gaining access to raw materials/components
Reduce Cost/R & D	Reducing research and development costs
Increase Quality	Achieving higher product quality
Reduce Competition	Reducing competition (one less competitor) in the specific area of the arrangement
Reduce Risk	Reducing risk of expropriation

analysis, the statistical means, standard deviations and frequencies obtained for each of the 59 items are presented. Items were listed in descending order, based upon the magnitude of their respective statistical means. Items were grouped within six constructs: effectiveness, commitment, trust, risk, power and motivation.

Effectiveness

For this construct, data are presented in Table 5.7. All items had an average value of 3.0 or above. Six items ("Distribution Rewards" through "Partner's Satisfaction/Agreement") had high mean values (around 4.0). These high values indicated, on average, that: (a) the distribution of rewards as stated in the agreement was equitable for both companies; (b) the supplier of technology was very satisfied with the terms of the agreement, achieved a great deal of its expected objectives and was very satisfied with the partner, and (c) the recipient of technology was very satisfied with the terms of the agreement.

Two items had moderate to high mean values (around 3.5). These values still showed that managers in a number of agreements perceived that "overall, forming the arrangement brought a lot of benefits to both companies." One item ("Level Accomplishment") had a moderate mean value (around 3.0). This mean value indicated that on average, managers were not clearly in agreement or disagreement with the statement "forming the arrangement was a great accomplishment."

All in all, the results suggest that for the arrangements included in this research, managers on average, were satisfied with the arrangements and the partners.

Table 5.7
Effectiveness: Mean Values

Label	Mean	Std. dev.	n
Distribution Rewards	4.11	0.66	41
Partner's Satisfaction/ Company	4.05	0.65	42
Company's Satisfaction/ Agreement	3.95	0.69	42
Achievement Objectives	3.89	0.61	42
Company's Satisfaction/ Partner	3.86	0.79	41
Partner's Satisfaction/ Agreement	3.84	0.72	42
Benefits/ Partner	3.63	0.79	42
Benefits/ Company	3.42	0.92	42
Level Accomplishment	3.24	1.04	41

1-5 scale 1=strongly disagree; 5=strongly agree

Commitment

For this construct, two items ("Communications" and "Information") had moderate to high mean values (above 3.0); one item had a mean value close to 3.0 ("Participation"), and two items ("Investments" and "Adaptations") had low mean values (close to 2.0). The high mean values pointed out items which were relevant for the formation of these cooperative arrangements. Thus, in general, the formation of cooperative arrangements demanded a great deal of communication between companies, and considerable efforts to acquire information about the other firm. Participation of senior managers was required in certain arrangements but it was not in others. Finally, investments in fixed assets and major adaptations in technology and/or products were not critical during the formation of the arrangements. Table 5.8 offers the mean values.

Table 5.8
Commitment: Mean Values

Label	Mean	Std. Dev.	n
Communications	3.90	0.93	46
Information	3.43	1.08	46
Participation	2.93	1.44	46
Investments	2.20	1.16	44
Adaptations	2.18	1.00	43

1-5 scale: Strongly disagree - strongly agree

Trust

All of the items of this construct had moderate to high mean values (above 3.0). The highest mean value was for "Managerial Skills" and the lowest for "Compatible Philosophies." Thus, all the items of this construct were perceived by managers as relevant elements during the formation of the arrangements. The top three items of the construct included: "Partner had the managerial skills and organizational resources capable of accomplishing what was promised in the contractual agreement," "Partner had technical skills and infrastructures for fulfilling its role in the arrangement," and "Partner was very interested in dealing fairly." Table 5.9 offers the mean values.

Table 5.9
Trust: Mean Values

Label	Mean	Std. Dev.	n
Managerial Skills	4.16	0.75	47
Technical Skills	4.14	0.74	47
Deals Fairly	3.93	0.70	47
Reliable	3.91	0.84	47
Compatible Ethics	3.88	0.77	46
Compatible Time Horizons	3.70	0.77	47
Compatible Objectives	3.63	0.98	47
Compatible Philosophies	3.30	1.01	47

1-5 scale: strongly disagree - strongly agree

Risk

All the items of this construct had moderate to high mean values (all were above 3.0). These values were in a narrow range between 3.6 and 4.0. Thus, most of the managers perceived low risk when entering into these arrangements with these partners. For instance, the top ranked items (3.9 or above) were, "The risk of damaging your company's reputation... by entering into this arrangement was very low," "The risk of the partner not living up to the terms of the agreement was very low," and "Your partner had a great deal of respect for proprietary rights." Table 5.10 presents the mean values.

Table 5.10
Risk: Mean Values

Label	Mean	Std. Dev.	n
Protects Reputation	3.98	1.02	46
Low Risk Partner	3.93	0.87	46
Respects Proprietary Rights	3.91	0.81	47
Low Risk Country	3.83	1.07	45
Avoids Misuse	3.79	0.74	47
Honors Agreements	3.77	0.87	47
Protects Technology	3.69	0.87	46

1-5 scale: strongly disagree - strongly agree

Power

For this construct, data are presented in Table 5.11. This table has two parts: Part One (Importance - Alternatives) and Part Two (Resources). In part one of the table the items had moderate to low mean values. The highest mean value was for "Arrangement Not Important" (a little above 3.0). This value indicated that some arrangements were seen as important contributors while others were seen as less important contributors to the profitability of the company. The other two items of part one had low mean values (below 3.0). This indicated that in general: (1) there were few (or just one) well-qualified potential partners; and (2) the suppliers of technology needed a partner in order to enter into this business.

Part two of the table refers to the resources contributed to the arrangement by the supplier of technology. Resources were measured in a percentage scale: the values indicate the average percentage (of the total amount of resources) contributed by the supplier. In part two, several items of power had a reduced sample size (non-applicable - NA - or missing values). A large number of missing values was expected in this part of the questionnaire. Since the questionnaire dealt with joint ventures and licensing agreements, each type of arrangement demanded a different level of contribution or participation by each party. Licensing agreements, in general, required less participation (regarding contribution of resources) than that of joint ventures. Thus for licensing agreements several items were not applicable (NA or missing values). These missing values did not take part in the computation of the averages (listwise deletion).

Four items ("Know-How," "Patents," "Reputation," and "Brand Name") had

Table 5.11
Power: Mean Values

Label	Mean	Std. Dev.	n
Part One: Importance - alternatives			
Arrangement Not Important	3.25	1.25	47
Available Partners	2.55	0.98	42
Company By Itself	2.10	1.06	44
Part Two: Resources			
Know-How	75.95	32.59	42
Patents	73.37	36.56	47
Reputation	63.21	16.79	19
Brand Name	60.31	43.76	19
Experience	54.67	14.32	17
Suppliers	52.50	34.62	24
Marketing Skills	47.97	34.98	35
Financial Resources	45.17	24.90	19
Raw Materials	45.00	35.06	24
Markets	39.21	34.17	19
Distribution	39.11	35.53	30
Managerial Skills	38.44	23.40	35
Productive Capacity	38.27	37.76	29
Low Labor	27.27	27.60	11
Contacts	26.19	27.61	24

Part One: 1-5 scale: strongly disagree - strongly agree
Part Two: 0-100% scale

mean values above 60%. This indicated that the supplier of technology, in general, contributed a high percentage of the know-how, patents, reputation, and brand name. Five items ("Experience" to "Raw Materials") had mean values close to 50%. For these items, the supplier of technology contributed, in general, with a balanced participation (50/50). The rest of the items ("Markets" to "Contacts") had low mean values (below 40%). For these items, the supplier of technology contributed a low percentage of each of these resources.

All in all, few items of power have moderate to high statistical mean values ("know-how" to "experience," and "arrangement not important"). This brings some information regarding the partner (the supplier needs the other party) and the level of participation of the supplier (as provider of resources) in the relationship. These mean values suggest that in general: (1) the other party was perceived by the supplier as important in the arrangement; and (2) the supplier's contribution to the arrangement was not dominant. In other words, the importance of the partner and the moderate level of participation of the supplier suggest symmetric relationships (regarding power) rather than imbalanced relationships between parties.

Motivation

Among the items of this construct, only one item ("Earnings") had a moderate to high mean value (above 3.0). Two items ("Entering Markets" and "Increase Market Share") had moderate mean values (close to 3.0). The rest of the items had low mean values. Nine items (from "Sharing Capital" to "Reduce Cost/R & D") had mean values close to 2.0. Seven items (from "Economies Scale" to "Reduce Risk") had

mean values below 2.0. Thus, the major motivator in the formation of cooperative arrangements was the likelihood of "obtaining earnings/royalties". Other important motivators were "entering into a market quickly" and "increasing market share." To a lesser degree, other motivators were: "sharing total capital investment," "gaining new skills/knowledge," "gaining access to proprietary rights/patents," "gaining knowledge of foreign markets," "overcoming trade barriers," "reducing the time for building own distribution network," "obtaining a new product which complemented product line," "linking the firm with local political ties," and "reducing research and development costs." Mean values are presented in Table 5.12.

In summary, this section has pointed out questionnaire items which seem to have influence on the formation of international cooperative arrangements. Three items from commitment, power and motivation were identified as relevant elements during the formation process. Two constructs, trust and risk, seem influential during the formation of arrangements (all of the items of these constructs seem relevant items). In this section, each item has been treated as independent of the others. Yet, each item is interrelated with other items, particularly with items of effectiveness. Interrelationships between items of each construct and items of effectiveness is the focus of the next section.

Table 5.12
Motivation: Mean Values

Label	Mean	Std. Dev.	n
Earnings	3.57	1.35	46
Entering Markets	2.95	1.72	46
Increase Market Share	2.62	1.56	46
Sharing Capital	2.26	1.46	47
Know-How	2.00	1.31	19
Patents	1.98	1.39	47
Knowledge Markets	1.98	1.32	47
Overcoming Mandates	1.95	1.46	17
Reduce Time	1.95	1.51	46
Products	1.93	1.50	47
Contacts	1.93	1.45	47
Reduce Cost/ R & D	1.74	1.09	47
Economies Scale	1.65	1.15	47
Raw Materials	1.58	1.20	47
Reduce Cost/ Products	1.49	1.05	11
Increase Quality	1.49	1.05	17
Using Capacity	1.39	1.00	47
Reduce Competition	1.23	0.78	47
Reduce Risk	1.16	0.65	7

1-5 scale: 1=not important 5=very important

Bivariate Analysis

Kendall Tau-B Correlations

One of the purposes of this research is to analyze the level of association between each construct and effectiveness. The constructs and effectiveness, as was indicated in the previous section, were measured by multiple items. This research, however, is not directly concerned with the level of association between items of each construct and items of effectiveness. Kendall Tau-B correlations are measures of the association between items. Thus, in this section, the analysis is centered upon the number of correlations between items of effectiveness and items of a construct since this number suggests the level of association between effectiveness and the construct. In other words, Kendall Tau-B Correlations provide a "crude" measure of the level of association between constructs and effectiveness.

Effectiveness is a multidimensional construct. Its three dimensions or composites are: composite one ("benefits obtained"), composite two ("satisfaction with the agreement"), and composite three ("satisfaction with the partner") (See Multivariate Analysis: Factor Analysis). During this research, it was found that each construct had a different level of association with each composite (e.g., commitment was significantly associated with composite one but it was not associated with composite three). Hence, the nine items of effectiveness were grouped according with these three composites.

This section offers a summary of the number of Tau-B correlations between the items of each of the composites and items of each construct. In turn, this number suggests the level of association between the construct and effectiveness. Appendix

C presents the Tau-B correlations between items of effectiveness and items of each of the constructs.

Correlations Between Items of Commitment and Effectiveness

Composite one ("benefits obtained") had nine positive correlations with four items of commitment. Seven correlations were significant at 0.05 or lower level (0.01); and two correlations were significant at 0.10 level. Thus, there were some significant correlations between items of composite one and four items of commitment.

Items of composite two ("satisfaction with the agreement") and composite three ("satisfaction with the partner") were not significantly correlated to any item of commitment. The exception was a negative correlation (significant at 0.10 level) between one item of composite two and one item of commitment. Thus, no significant correlation was found between items of composites 2 and 3 and items of commitment. Overall, only composite one ("benefits obtained") had some significant correlation with four items of commitment.

Correlations Between Items of Trust and Effectiveness

Composite one ("benefits obtained") had eight significant correlations with four items of trust. It had five positive correlations significant at 0.05 or lower level, one positive correlation significant at 0.10 level, and two negative correlations significant at 0.10 level. Composite two ("satisfaction with the agreement") had six significant correlations with five items of trust. Four correlations were significant at the 0.05 level, and two were significant at the 0.10 level. All the correlations were

positive but one.

Composite three ("satisfaction with the partner") had ten significant correlations with six items of trust. Eight correlations were significant at 0.05 or lower and two were significant at 0.10 level. All these correlations were positive. Thus, composites 1, 2, and 3 had some significant correlations with six items of trust. Composite three, however, had a higher number of correlations with trust than that of composites one and two. Overall, composite three had some significant correlations with six items of trust.

Correlations Between Items of Risk and Effectiveness

Composite one ("benefits obtained") had two significant correlations with one item of risk. Both correlations were positive and significant at 0.05 level. Composite two ("satisfaction with the agreement") had four significant correlations with three items of risk. It had two positive correlations (one significant at 0.05 and one significant at 0.10 level), one positive correlation significant at 0.10 level and one positive correlation significant at 0.05 level.

Composite three ("satisfaction with the partner") had thirteen correlations with seven items of risk. It had two positive correlations (both significant at 0.05 level), one positive correlation significant at 0.10 level, three positive correlations all significant at 0.05 or lower level, two positive correlations (one significant at 0.05 level and the other significant at 0.10 level), one positive correlation significant at 0.05 level, two positive correlations (one significant at the 0.05 level and the other at the 0.10 level), and two positive correlations (one significant at 0.05 and the other

significant at 0.10 level). Overall, only composite three had some significant correlation with seven items of risk.

Correlations Between Items of Power and Effectiveness

Composite one ("benefits obtained") had sixteen significant correlations with eleven items of power. Eight correlations were significant at 0.05 level or lower; and eight correlations were significant at the 0.10 level. Nine of these sixteen correlations were negative. Composite two ("satisfaction with the agreement") had seven significant correlations with six items of power. Six correlations were significant at 0.05 level and one correlation was significant at 0.10 level. Four of the seven correlations were negative.

Composite three ("satisfaction with the partner") had thirteen significant correlations with nine items of power. Seven correlations were significant at 0.05 level; and six correlations were significant at 0.10 level. Seven of the thirteen correlations were negative. Thus, the three composites had few significant positive correlations with items of power. Overall, each composite had few significant correlations with items of power.

Correlations Between Items of Motivation and Effectiveness

Composite one ("benefits obtained") had twenty-seven significant correlations with fourteen items of motivation. Fifteen correlations were significant at 0.05 level and twelve correlations were significant at 0.10 level. Three of these twenty-seven correlations were negative. Composite two ("satisfaction with the agreement") had eight significant correlations with five items of motivation. One correlation was

significant at 0.05 level and seven correlations were significant at 0.10 level. Two of these eight correlations were negative.

Composite three ("satisfaction with the partner") had twelve significant correlations with nine items of motivation. Six correlations were significant at 0.05 level and six correlations were significant at the 0.10 level. Four of these twelve correlations were negative. Thus, the three composites had some significant correlation with 17 items of motivation. Composites 2 and 3, however, had only a few significant correlations with few items of motivation. By far, composite one had the largest number of correlations with fourteen items of motivation. Overall, mainly composite one had some significant correlations with items of motivation.

In summary, composite one had some significant correlations with items of commitment and motivation. Composite two had few positive and significant correlations with items of trust, risk, power and motivation. Composite three had some significant correlations with items of trust and risk. These results suggest that: (1) commitment and motivation were related with effectiveness via composite one ("benefits obtained"), (2) trust and risk were associated with effectiveness via composite three ("satisfaction with the partner"), (3) power was not strongly associated with any composite, and (4) composite two ("satisfaction with the agreement") was not strongly associated with any construct and thus was less important as a component of effectiveness. Analysis of the association between effectiveness and each of the constructs is developed further in the next section since it deals with direct measures of the association between each construct and effectiveness.

Pearson Correlation Coefficients

Pearson correlation coefficients between effectiveness and each of the constructs, commitment, trust, risk, power and motivation, are presented in Table 5.13. All of the constructs but risk were significantly correlated with effectiveness. The correlations were moderate - low yet significant. Motivation and trust, were associated with effectiveness at 0.05 or lower level. Power and commitment were correlated with effectiveness at 0.10 level. All these significant correlations were positive. The Pearson correlation coefficient for the pair effectiveness-risk, after reversing the scale, was negative.

Table 5.13
Pearson Correlation Coefficients: Effectiveness

	Commitment	Trust	Risk	Power	Motivation
Effectiveness	.24*	.34**	-.18	.24*	.38***

*** significant at $p < .01$
** significant at $p < .05$
* significant at $p < .10$

In order to identify the strength of the association between each of the composites identified by factor analysis (composites one, two and three) and each of the constructs, Pearson correlation coefficients were also computed. The results are shown on Table 5.14. Composite one ("benefits obtained") had moderate yet significant correlations with commitment, power and motivation. All of these values were positive and significant at $p < 0.05$ or lower.

Composite two ("satisfaction with the agreement") was not significantly correlated to any of the constructs. Composite three ("satisfaction with the partner") had moderate yet significant correlations with trust and risk. The correlation with trust was positive and significant at 0.01 or lower. The correlation with risk (after reversing the scale) was negative and significant at 0.05 level.

Table 5.14
Pearson Correlation Coefficients: Composites

	Commitment	Trust	Risk	Power	Motivation
Benefits obtained	.50***	.17	-.03	.34**	.50***
Satisfaction with the agreement	.00	.12	-.05	.00	.16
Satisfaction with the partner	-.07	.47***	-.34**	.14	.10

*** significant at $p < .01$
** significant at $p < .05$
* significant at $p < .10$

All in all, effectiveness was significantly correlated with most of the constructs. Each composite, however, was correlated with only a few constructs. For instance, composite one ("benefits obtained") was correlated with three constructs (commitment, power and motivation) and composite three ("satisfaction with the partner") was correlated with two constructs (trust and risk). These results were consistent with the results obtained by computing item to item Kendall Tau-B correlations.

Partial Correlations

In order to rule out the influence of third variables upon bivariate correlations, partial correlations were also computed. First, partial correlation coefficients for the pairs, effectiveness - each of the constructs (commitment, trust, risk, power and motivation) were computed using the predictor (commitment/ power/motivation), the contingency variable (trust/risk), and each of their constructs as controlling factors. Second, partial correlation coefficients between the composites identified by factor analysis (composites one and three) and each of the constructs were computed.

The results presented on Tables 5.15 and 5.16 indicate that controlling for the predictor and contingency variables, most of the partial correlation coefficients between effectiveness-construct were still significant. For example, the partial correlations between effectiveness and each of the constructs of the predictor variable (commitment, motivation and power) were all significant at 0.10 or lower. Likewise, the partial correlation coefficients between effectiveness and trust were all significant at 0.05.

The partial correlation coefficient between effectiveness and risk, controlling for the predictor variable (commitment, power, and motivation) was significant at 0.10 level. However, the association effectiveness-risk was affected by motivation: the partial correlation coefficient was not significant when motivation was controlled for. Thus, motivation impacted upon the association between effectiveness and risk.

Table 5.15
Partial Correlations: Effectiveness (I)

First and Second Order Partial Correlations
Effectiveness and Commitment

Controlling For	Partial r	n
Trust	.21*	38
Risk	.29**	38
Trust and Risk	.21*	37

** significant at $p < .05$ (one-tail)
* significant at $p < .10$ (one-tail)

First and Second Order Partial Correlations
Effectiveness and Power

Controlling For	Partial r	n
Trust	.25*	38
Risk	.27**	38
Trust and Risk	.25*	37

** significant at $p < .05$ (one-tail)
* significant at $p < .10$ (one-tail)

First and Second Order Partial Correlations
Effectiveness and Motivation

Controlling For	Partial r	n
Trust	.36***	38
Risk	.37***	38
Trust and Risk	.36***	37

*** significant at $p < .01$ (one-tail)

Table 5.16
Partial Correlations: Effectiveness (II)

First, Second, and Third Order Partial Correlations
Effectiveness and Trust

Controlling For	Partial r	n
Commitment	.30**	38
Power	.34**	38
Motivation	.32**	38
Commitment/Power	.32**	37
Commitment/Motivation	.32**	37
Power/Motivation	.33**	37
Commitment/Power/ Motivation	.34**	36

** significant at $p < .05$ (one-tail)

First, Second, and Third Order Partial Correlations
Effectiveness and Risk

Controlling For	Partial r	n
Commitment	-.22*	38
Power	-.21*	38
Motivation	-.18	38
Commitment/Power	-.26*	37
Commitment/Motivation	-.19	37
Power/Motivation	-.21*	37
Commitment/Power/ Motivation	-.22*	36

* significant at $p < .10$ (one-tail)

Regarding the partial correlation coefficients for the association between composite one ("benefits obtained") and each of the constructs of the predictor variable, the results pointed out that: (1) partial correlation coefficients between composite one and commitment, after controlling for motivation, power and risk were all significant at 0.05 level or lower; (2) partial correlations between composite one and power were all but one not significant when controlling for commitment, motivation and risk. These results indicated that the association between effectiveness and power was affected by third variables. In fact, it was a spurious association; and (3) partial correlations between composite one and motivation after controlling for commitment and power were all significant at 0.10 or lower level. The results are presented in Table 5.17.

Regarding the association between composite three ("satisfaction with the partner") and the constructs of the contingency variable (trust and risk), the results shown on Table 5.18 indicated that: (1) partial correlations between composite three and trust, after controlling for risk and power, were all significant at 0.05 or lower level; and (2) some of the partial correlations between composite three and risk were significant (at 0.05 or lower level) while others were not significant. In particular, any time that trust was the controlled factor, partial correlation coefficients were not significant. This means that the association between composite three and risk was affected by a third variable: trust. Thus, the correlation between composite three and risk was a spurious correlation.

All in all, there were only three associations which were not affected by third variables (true associations): these were (a) effectiveness and commitment, (b)

Table 5.17
Partial Correlations: Composite One

First, Second, and Third Partial Correlations
Composite One and Commitment

Controlling For	Partial r	n
Motivation	.28**	38
Power	.46***	38
Risk	.51***	38
Motivation/Power	.27**	37
Motivation/Risk	.29**	37
Power/Risk	.47***	37
Motivation/Power/ Risk	.29**	36

*** significant at $p < .01$ (one-tail)
** significant at $p < .05$ (one-tail)

First, Second, and Third Partial Correlations
Composite One and Power

Controlling For	Partial r	n
Commitment	.17	38
Motivation	.14	38
Risk	.32**	38
Commitment/Motivation	.11	37
Commitment/Risk	.19	37
Motivation/Risk	.14	37
Commitment/Motivation/ Risk	.13	36

** significant at $p < .05$ (one-tail)

First and Second Partial Correlations
Composite One and Motivation

Controlling For	Partial r	n
Commitment	.24*	38
Power	.44***	38
Commitment/Power	.23*	37

*** significant at $p < .01$ (one-tail)
* significant at $p < .10$ (one-tail)

Table 5.18
Partial Correlations: Composite Three

First and Second Order Partial Correlations
Composite Three and Trust

Controlling For	Partial r	n
Risk	.35**	39
Power	.48***	39
Risk/Power	.36**	38

*** significant at p < .01 (one-tail)
** significant at p < .05 (one-tail)

First, Second, and Third Order Partial Correlations
Composite Three and Risk

Controlling For	Partial r	n
Trust	-.09	38
Power	-.41***	38
Commitment	-.33**	38
Trust/Power	-.10	37
Trust/Commitment	-.03	37
Power/Commitment	-.39***	37
Trust/Power/Commitment	-.05	36

*** significant at p < .01 (one-tail)
** significant at p < .05 (one-tail)

effectiveness and trust, and (c) effectiveness and motivation. The other two associations -- effectiveness and risk as well as effectiveness and power --- were caused by third variables and thus they were not true associations.

The association between effectiveness and each of the constructs, commitment, trust, risk, motivation and power is summarized in Figure 5.1. The predictor and contingency variable are also indicated. A double line in the diagram shows true associations. A dotted line indicates spurious associations. Figure 5.2 summarizes the association between each of the composites (composites one, two, and three) and each of the constructs.

So far, the analysis has focused on the association between constructs and effectiveness without including the impact that similar (or symmetric) levels of a construct in both parties may have on effectiveness. The relationships between constructs and effectiveness may be affected by the level of symmetry of the relationship. Thus, in the next section, Pearson correlation coefficients were computed for cooperative arrangements perceived as symmetric (balanced level of construct) or asymmetric by the managers.

Perceived Symmetry in the Arrangement

Perceived symmetry on commitment, motivation and power was measured by three questions. Each question measured the level of construct (commitment, motivation, and power) of a firm in comparison with the level of construct of the partner in a 5-point scale. A description of each of the questions and their labels are presented in Table 5.19. The objective of each of these questions was to divide the sample into two groups: group one, in which managers perceived a balance in the

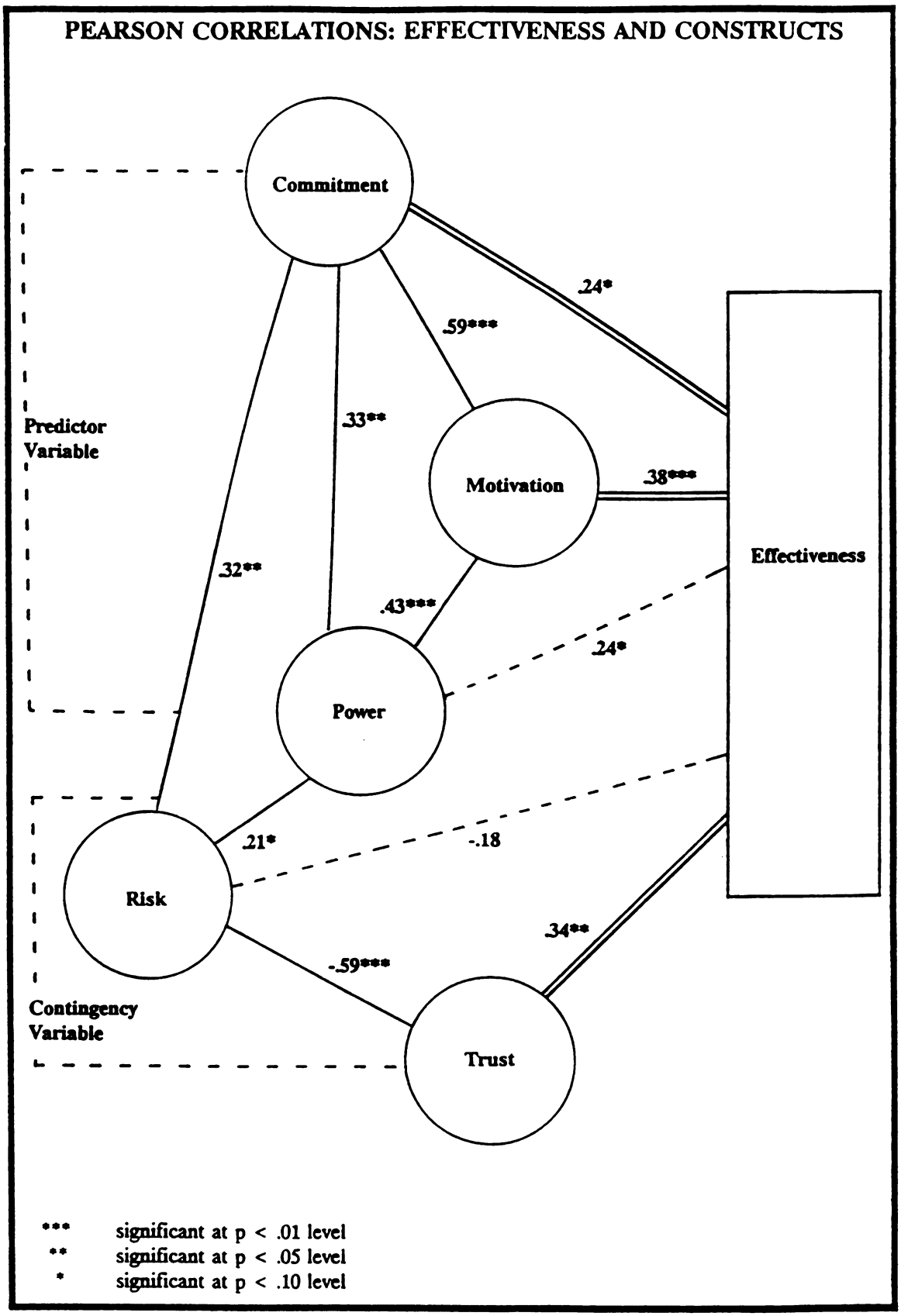
PEARSON CORRELATIONS: EFFECTIVENESS AND CONSTRUCTS
Commitment
Predictor Variable
Motivation
Effectiveness
Power
Risk
Contingency Variable
Trust
.24*
.59***
.33**
.38***
.32**
.43***
.24*
.21*
-.18
.34**
-.59***
*** significant at p < .01 level
** significant at p < .05 level
* significant at p < .10 level

Figure 5.1

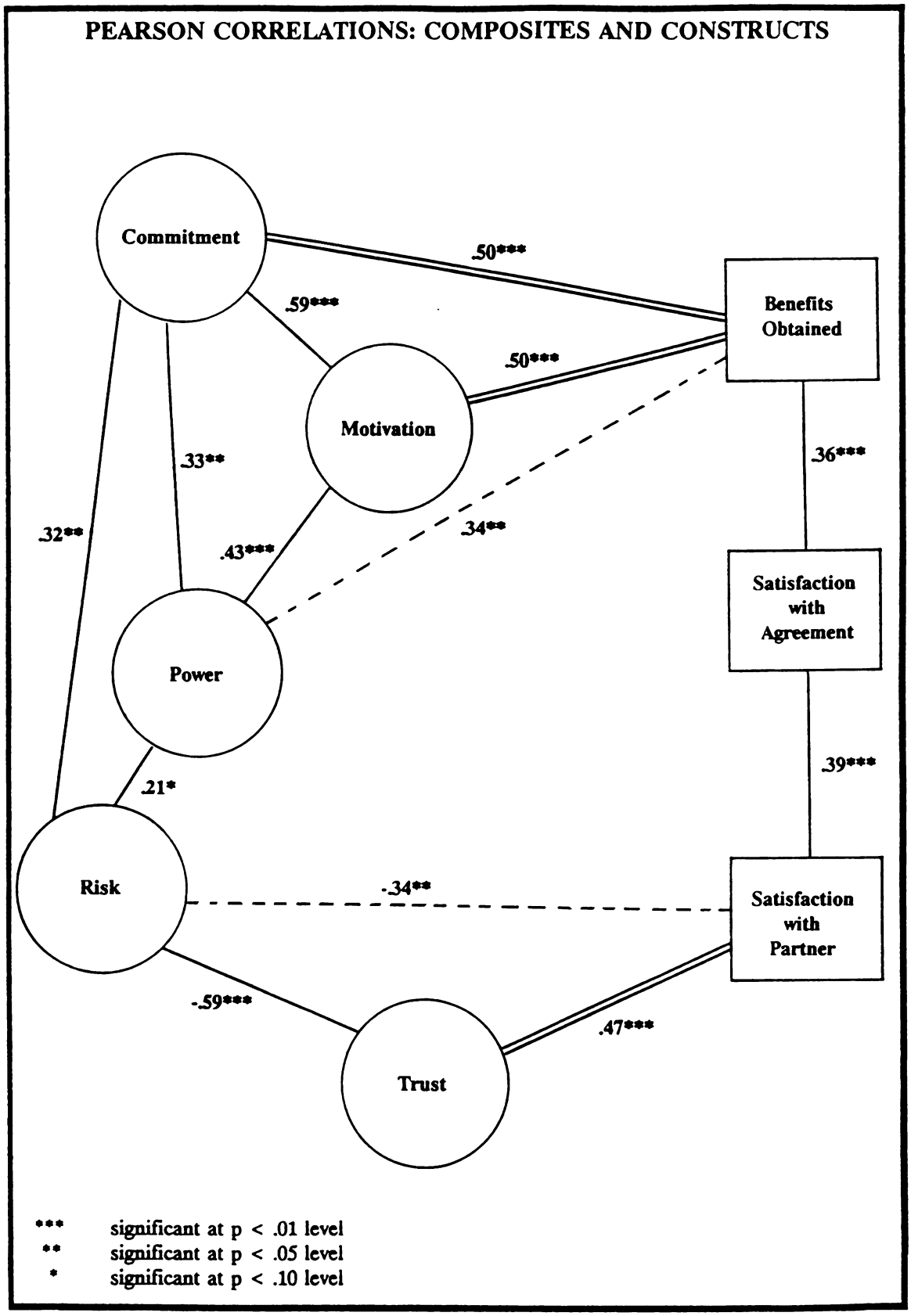
PEARSON CORRELATIONS: COMPOSITES AND CONSTRUCTS
Commitment
Motivation
Power
Risk
Trust
Benefits Obtained
Satisfaction with Agreement
Satisfaction with Partner
.50***
.59***
.50***
.33**
.32**
.43***
.34**
.36***
.39***
.21*
-.34**
-.59***
.47***
*** significant at p < .01 level
** significant at p < .05 level
* significant at p < .10 level

Figure 5.2

Table 5.19
Perceived Symmetry:
Commitment, Motivation, and Power

Label: Commitment/Comparison

Description:
During formation of this cooperative arrangement,
the level of commitment to the arrangement from your partner was:

a lot lower than your own level of commitment		equal (balanced)		a lot higher than your own level of commitment
1	2	3	4	5

Label: Motivation/Comparison

Description:
During formation of this cooperative arrangement, your
partner's need and desire to form this arrangement were:

a lot lower than your own need and desire		equal (balanced)		a lot higher than your own need and desire
1	2	3	4	5

Label: Power/Comparison

Description:
During the negotiations of this cooperative arrangement,
who had "the upper hand"?

clearly your company		neither your firm nor the other company (balanced)		clearly the other firm
1	2	3	4	5

---

level of the construct -- symmetry (e.g., balance in the level of commitment: Commitment/Comparison = 3); and group two, in which managers did perceive a difference in the levels of the construct between partners during the formation of the cooperative arrangement -- asymmetry (e.g., any other value for commitment different from three: Comparison/Commitment ≠ 3).

For each of these groups, Pearson correlation coefficients were computed. Two correlations were calculated: (a) Pearson correlation coefficients between effectiveness and the construct (e.g., commitment); and (b) Pearson correlation coefficients between composite one ("benefits obtained") and each of the constructs (commitment, power and motivation).

Effectiveness and Commitment

When the level of commitment was balanced (Commitment/Comparison = 3) there was not a significant association between effectiveness and commitment. However, when the level of commitment was not balanced (Commitment/ Comparison ≠ 3) the association was moderate - low yet significant(Pearson correlation coefficient significant at 0.10 level).

Effectiveness and Motivation

In this case also, only when there was not balance in the level of motivation (Motivation/Comparison ≠ 3) the association was significant (high positive Pearson correlation coefficient significant at .01 level).

Effectiveness and Power

Neither when the level of power was balanced, nor when the level of power was asymmetric, was there a significant association between effectiveness and power. Yet, the magnitude of the Pearson coefficient was higher in the asymmetric case than that in the balanced relationship. The results are presented on Table 5.20.

Composite One and Constructs

Correlations between composite one ("benefits obtained") and commitment as well as composite one and motivation followed the same pattern: Pearson correlation coefficients were significant when the level of construct was asymmetric. In the case of composite one and power, however, the Pearson correlation coefficient was significant (correlation significant at 0.10 level) when there was a balance in the level of power.

All in all, the results of comparing symmetric versus asymmetric arrangements on a level of a construct (commitment and motivation) suggest that a stronger correlation between effectiveness and the construct was observed when there were asymmetric levels of the construct. Power, however, did not follow such a clear pattern. Only one (out of four correlations) was significant.

In summary, in this chapter univariate and bivariate analysis were presented. Items relevant for the formation of international cooperative arrangements were indicated (all the items of trust and risk, almost all the items of commitment and few items of power and motivation). Tau-B correlations suggested associations between effectiveness and the constructs. Pearson correlation coefficients provided support for some of these associations. Partial correlations were useful in identifying true

Table 5.20
Perceived Symmetry: Pearson Correlation Coefficients

Effectiveness vs. Commitment	
Commitment/Comparison = 3 (Symmetry)	Commitment/Comparison ≠ 3 (Asymmetry)
.04 n=24	.39* n=17

Effectiveness vs. Motivation	
Motivation/Comparison = 3 (Symmetry)	Motivation/Comparison ≠ 3 (Asymmetry)
.09 n=21	.70*** n=21

Effectiveness vs. Power	
Power/Comparison = 3 (Symmetry)	Power/Comparison ≠ 3 (Asymmetry)
.04 n=29	.36 n=13

Composite One vs. Commitment	
Commitment/Comparison = 3 (Symmetry)	Commitment/Comparison ≠ 3 (Asymmetry)
.22 n=24	.71*** n=17

Composite One vs. Motivation	
Motivation/Comparison = 3 (Symmetry)	Motivation/Comparison ≠ 3 (Asymmetry)
.19 n=21	.70*** n=21

Composite One vs. Power	
Power/Commitment = 3 (Symmetry)	Power/Commitment ≠ 3 (Asymmetry)
.26* n=29	.19 n=13

*** significant at $p < .01$
** significant at $p < .05$
* significant at $p < .10$

associations between effectiveness and the constructs (only associations with commitment, trust and motivation resulted true associations). Finally, the importance of asymmetric levels of commitment and motivation between partners were analyzed.

CHAPTER VI

MULTIVARIATE ANALYSIS

In this chapter, first, multivariate analysis of data is presented. Then, the support for the research hypotheses and the analyses of the research questions are offered.

Support for the research hypotheses and answers to the research questions have been postponed until the end of this chapter. There are three reasons for this: first, multivariate techniques were included for testing the hypotheses. Bivariate analysis provided measures of association between each of the constructs and effectiveness as well as measures of association between each construct and each dimension (or composite) of effectiveness. Yet, factor analysis was instrumental for determining these dimensions of effectiveness. Thus, factor analysis constituted a relevant tool in testing the hypotheses.

Second, multivariate analysis was used to confirm results from bivariate analysis. Two multivariate tools (multiple regression and canonical correlation analysis) were not directly relevant for hypotheses testing. However, they provided additional results consistent with results from bivariate analysis. For instance, the association between the predictor variable (an index of motivation, commitment and power) and one of the dimension of effectiveness (composite one) was identified and measured by regression analysis. This association was also suggested by bivariate analysis (Pearson correlation coefficients for motivation, commitment and power).

Third, conclusions from hypotheses testing were required for the analysis of the research questions. Two of the research questions investigated the impact of each

of the constructs on effectiveness. The results of analyzing these associations, in the hypotheses testing section, were important elements for suggesting answers to these research questions. In other words, an efficient way of organizing this chapter was offering the analysis of the research questions right after the research hypotheses. Thus, efficiency and clarity were gained by placing together both the research hypotheses and the research questions at the end of bivariate and multivariate analysis.

As explained in Chapter III, the selection of multivariate techniques was based on six factors (Andrews et al., 1981; Dillon et al., 1987; Green et al., 1988): (1) objectives of the research (the research attempted to measure associations among variables rather than causal relationships); (2) assumptions regarding association among variables (linear relationships); (3) number of variables and whether they can be partitioned into criterion and predictors (three variables; a criterion (multidimensional) and two predictors); (4) number of items for measuring each variable (multi-item indicators); and (5) scales of measurement (5-point Likert-type scale). Hence, three multivariate tools were selected: Factor Analysis, Multiple Regression Analysis and Canonical Correlation Analysis.

Factor Analysis

Factor analysis was applied to nine items of the dependent variable "effectiveness". The results are shown in Table 6.1. The analysis produced three interpretable factors which explained a total of 70.3 percent of the observed variance. The eigenvalues of these three factors were all above 1.0 (Kim and Muller, 1978; Norusis, 1985; SPSS-X Users Guide, 1988).

Table 6.1
Factor Analysis: Effectiveness

Rotated Factor Matrix

Variable	Loadings		
	Factor 1	Factor 2	Factor 3
Benefits/Company	.85		
Benefits/Partner	.81		
Level accomplishment	.81		
Company's satisfaction/ agreement		.91	
Achievement objectives		.75	
Partner's satisfaction/ agreement		.73	
Company's satisfaction/ partner			.87
Distribution rewards			.69
Partner's satisfaction/ company			.59
Eigenvalue	3.60	1.62	1.11
Pct. of Var.	40.00	18.00	12.30
Cum. Pct.	40.00	58.00	70.30

Only factor loadings > .50 are shown

Factor 1: Benefits Obtained

This first factor had high positive loadings on three items: "Overall, forming this arrangement brought a lot of benefits to your company"; "Overall, forming this arrangement brought a lot of benefits to your partner"; and "Forming this cooperative arrangement was a great accomplishment for your company." A composite of these three items was used for subsequent analysis as representative of the factor "benefits obtained."

Factor 2: Satisfaction with the Agreement

This factor had a high positive loading on one item: "Overall, your company was very satisfied with the terms of the agreement." In addition, two other items received moderate to high positive loadings: "Overall, your firm achieved a great deal of its expected objectives through negotiations," and "The other party was also very satisfied with the terms of the agreement." Thus, this factor was interpreted as the satisfaction by both parties with the agreement.

Factor 3: Satisfaction with the Partner

This third factor included a high positive loading on one item: "Your company was very satisfied with this partner." In addition, two other items received moderate positive loadings: "The distribution of rewards, as stated in the agreement, was equitable for both companies"; and "The other party was also very satisfied with your company." A composite of these three items was used for subsequent analysis and named "satisfaction with the partner."

Multiple Regression Analysis

In order to investigate further the relationship between constructs and the criterion variable, multiple linear regression analysis was employed (Goldberger, 1964; Kennedy, 1985; Pindyck and Rubinfeld, 1981). Effectiveness, the criterion variable, was regressed on the predictor (a composite of items of commitment, motivation, and power) and contingency (a composite of items of trust and risk) variables. The results are presented in Table 6.2. In addition, each of the composites identified by factor analysis (composites one, two, and three) were regressed also on the predictor and contingency variables. All the models were significant at $p < .01$. Yet, while two models were linear on the independent variables, two models required the introduction of quadratic terms.

Effectiveness

This model included a quadratic term. The model was significant at $p < 0.01$. The criterion variable was positively related to the predictor variable (beta weight significant at $p < 0.01$), negatively related to the contingency variable (beta weight significant at $p < 0.10$), and positively related to a quadratic term of the contingency variable (C^2) (beta weight significant at $p < 0.05$). The introduction of an interaction term (a factor obtained by multiplying the contingency and predictor variables: C x P) did not improve the explanatory power of the model. So, predictor and contingency variables seemed to impact independently upon effectiveness. Overall, the model explained 32% of the variance.

Table 6.2
Multiple Regression Analysis

Criterion Variable	Constant	Predictor (P)	Contingency (C)	(Predictor)^2 $(P)^2$	(Contingency)^2 $(C)^2$	R	R^2	R^2 (adj.)	F
Effectiveness									
Beta-weight	5.53	.30	-1.73	--	.28	.57	.32	.27	5.98
(t)		(3.04)[a]	(-1.97)[c]		(2.26)[b]				(p<.01)
Composite One									
Beta-weight	1.72	.70	--	--	--	.57	.32	.31	19.21
(t)		(4.38)[a]							(p<.01)
Composite Two									
Beta-weight	11.11	-1.90	-3.33	.47	.48	.54	.29	.22	3.84
(t)		(-1.81)[c]	(-2.79)[a]	(2.02)[b]	(3.01)[a]				(p<.01)
Composite Three									
Beta-weight	2.09	--	.47	--	--	.42	.18	.16	8.76
(t)			(2.96)[a]						(p<.01)

[a] $p < .01$

[b] $p < .05$

[c] $p < .10$

Composite One ("Benefits Obtained")

Composite one as criterion variable was linearly related to the predictor variable. The regression model was highly significant (high F and significant at 0.01 or lower) and explained 32 percent of the variance. The beta value was also very significant ($p < 0.01$). Thus, composite one was positively related to the predictor variable.

Composite Two ("Satisfaction with the agreement")

A linear model of composite two, as criterion variable, was not significant. The introduction of quadratic terms permitted to obtain a significant model. Composite two was negatively associated with the predictor and contingency variables. Yet, it was positively correlated with quadratic terms of the contingency variable. All the betas in the equation were significant. The model was significant (at 0.01 or lower) and explained 29 percent of the variance.

Composite Three ("Satisfaction with the partner")

Composite three was linearly associated with the contingency variable. The model was significant at 0.01 or lower level and explained 18 percent of the variance. The beta coefficient was also significant at 0.01 level. Thus, there was a positive association between composite three and the contingency variable.

Canonical Correlation Analysis

Canonical correlation is a multivariate statistical tool for analyzing interrelationships between a set of multiple criterion variables and a set of multiple

predictor variables. Since effectiveness is composed of three interrelated composites (composites one, two, and three) canonical correlation is then applicable. The objective in canonical correlation is to determine whether the sets of variables are independent of one another and if not, determining the magnitude of the relationships which may exist between the dependent and the independent set (Alpert and Peterson, 1971; Levine, 1977).

The analysis of the set of dependent variables, composite one ("benefits obtained"), composite two ("satisfaction with the agreement"), and composite three ("satisfaction with the partner"), is shown on Table 6.3. The eigenvalues and canonical correlations are presented. The first two roots (root one and root two) explained 93.02 percent of the variance. The first two canonical correlations were moderately sized (canonical correlations equal 0.59 and 0.50; squared values equal 0.35 and 0.25). The third canonical correlation was less important in size (canonical correlation equal 0.25; square value equals 0.06).

Table 6.3 also shows the results of multivariate and univariate analysis of significance of the dependent variable (composites one, two, and three). Both tests indicate that the predictor set had statistically significant impact on the dependent variables (Norusis, 1985). However, only two composites were significant (composite one and composite three -- both significant at 0.05 or lower).

The step-down F test confirmed that composite one ("benefits obtained") and composite three ("satisfaction with the partner") were the major contributors to the association with the predictor variables (F-test significant at $p < .02$ or better). Composite two ("satisfaction with the agreement") did not bring significant contribution (F-test not significant) to the association with the predictors.

Table 6.3
Eigenvalues, Canonical Correlations, and Tests

Eigenvalues and Canonical Correlations

Root No.	Eigen-value	Pct.	Cum. Pct.	Canonical Correlation	Squared Correlation
1	.54	57.98	57.98	.59	.35
2	.33	35.04	93.02	.50	.25
3	.06	6.97	100.00	.25	.06

Multivariate Test of Significance

Testname	Value	Approximate F	Significance
Pillais	.66	3.57	.00
Hotellings	.93	3.60	.00
Wilks	.46	3.68	.00
Roys	.35	--	--

Univariate F-test (3,38 D.F)

Variable	Sq.Mul.R	Mul.R	F	Significance
Composite One	.35	.59	6.83	.00
Composite Two	.09	.30	1.31	.29
Composite Three	.19	.44	3.07	.04

Roy-Bargman Stepdown F-test

Variable	Stepdown F	Significance
Composite One	6.83	.00
Composite Two	0.92	.44
Composite Three	3.82	.02

Correlations between dependent and canonical variables are shown in Table 6.4. Composite one was highly correlated with canonical one; composite three was highly correlated with canonical two; and composite two was highly correlated with the third canonical variable. All of these associations were positive. Composites one and three were strongly associated with the most important roots (root one and root two). Thus, regarding the set of dependent variables, the most important variables were composites one ("benefits obtained") and three ("satisfaction with the partner").

Correlations between the set of independent variables and the canonical variables are also offered in Table 6.4. Three independent variables were included: predictor one, predictor two and contingency variable. Predictor one was an index of items of commitment, motivation, and only two items of power ("available partners" and "patents"). Predictor two was a composite of only two items of power ("agreement not important" and "know-how"). These two items had significant correlations with composite two; yet, they did not have significant correlations with items of predictor one. These four items of power were selected because they did not have, overall, more than five missing questions (the canonical correlation program deletes any case with missing data). Predictor one was strongly correlated with canonical one; contingency variable was strongly correlated with canonical two (these two correlations were positive); and predictor two was strongly correlated with canonical three (a negative correlation).

All in all, canonical one (one of the important roots) was correlated with composite one ("benefits obtained") as well as predictor one (commitment and motivation mainly); canonical two (the other important root) was correlated with

Table 6.4
Canonical Variables: Correlations

Correlations Between Dependent and Canonical Variables

	Function No.		
Variable	1	2	3
Composite One	.99		
Composite Two			.94
Composite Three		.84	

Only correlations above .84 are shown

Correlations Between Covariates and Canonical Variables

	Canonical Variables		
Covariates	1	2	3
Predictor One	.97		
Predictor Two			-.89
Contingency Variable		.82	

Only correlations above .60 are shown

composite three ("satisfaction with the partner") as well as the contingency variable (trust and risk); and canonical three (the least important of the roots) was associated with composite two ("satisfaction with the agreement") as well as predictor two (only two items of power). Thus, the two major findings were: (a) the set of dependent variables (composites one, two, and three) and the set of independent variables (predictors one, two, and the contingency variable) were significantly associated; and (b) the pairs composite one and predictor one as well as composite three and contingency variable were very important for explaining the relationship between effectiveness (and its composites) and predictor and contingency variables (Norusis, 1985; SPSS-X User's Guide, 1988).

In this research, bivariate and multivariate analysis were the tools utilized for investigating the association between effectiveness and the constructs. Up to this point, the major objective was to present the analytical results. These results are helpful in providing support for the propositions advanced in Chapter II. Thus, in the next section the analytical results are brought to discuss and support the hypotheses.

Hypotheses Testing

Eight hypotheses were presented in Chapter II. Five hypotheses referred to the relationship between effectiveness and each of the five constructs: commitment, motivation, power, risk and trust. Additionally, three hypotheses explored the impact of a symmetric level of commitment, motivation or power upon the effective formation of cooperative arrangements. Following is an analysis of the support for each hypothesis.

Motivation

Hypothesis One

A positive relationship between motivation and effectiveness was hypothesized. This hypothesis was supported by the data. First, Kendall Tau-B correlations and the Pearson correlation coefficient suggested a relationship between effectiveness and motivation. Second, ruling out the influence of third variables, partial correlations pointed out a significant positive association between effectiveness and motivation. Moreover, the relationship between composite one and motivation was moderate-low, yet significant. Thus, there was support for a positive association between effectiveness and motivation.

Motivation is an important construct in the formation of international cooperative arrangements. This conclusion is in agreement with similar assertions regarding motivation made by other researchers (Harrigan, 1985; Contractor and Lorange, 1988; Beamish, 1987; Artisien and Buckley, 1985). In brief, this study has presented empirical support for a positive association between motivation and the effective formation of international cooperative arrangements.

Hypothesis Two

This hypothesis suggested that if the levels of motivation of both companies were balanced, then a stronger association (than that of an unbalanced relationship) between effectiveness and motivation was expected. This hypothesis was not supported. The results regarding this hypothesis indicated that when the levels of motivation of the parties were different (asymmetric relationship), the association

between effectiveness and motivation was stronger (a moderate-high and highly significant correlation coefficient). Furthermore, there was a significant difference between the Pearson correlation coefficients obtained for a symmetric and an asymmetric relationship.

This finding regarding the significant impact of unbalanced (asymmetric) levels of motivation upon effectiveness is not in agreement with suggestions from some authors (Hladik, 1988; Harrigan, 1988). On the other hand, this finding is in agreement with some researchers (Killing, 1983) who indicated that unbalanced relationships impact significantly on performance. Specifically, Killing reported an association between unbalanced managerial control (e.g., a dominant partner) and a lower failure rate in joint ventures. He identified two types of managerial control: (1) "dominant management" (asymmetric or unbalanced management) e.g., one party heavily involved in the control and management of the arrangement, and (2) "shared management" (symmetric management) e.g., both parties heavily involved in the management of the arrangement. He indicated that "dominant management" joint ventures had a lower failure rate than those of "shared management" joint ventures.

The existence of an asymmetric relationship does not imply that one party has no motivation at all while the other party has a high level of motivation. First, the questionnaire measured relative levels of motivation, and second, managers suggested, during the interviews, the importance of having some level of motivation in both companies. This finding suggests that one company should have the lead in the level of motivation. (One company should have a higher level of motivation than that of the other company.) Yet, both companies should have certain levels of

motivation before entering into the arrangement.

Commitment

Hypothesis Three

A positive relationship between commitment and effectiveness was hypothesized. This hypothesis was supported by the data. First, Kendall Tau-B correlations showed that there were some significant correlations between items of effectiveness and items of commitment. Second, the Pearson correlation coefficient for this pair was a significant yet moderate-low value. Third, partial correlation analysis confirmed that there was a "true" relationship between effectiveness and commitment. Furthermore, the correlation between component one ("benefits obtained") and commitment was a moderate, yet significant value. In brief, there was support for a positive association between commitment and effectiveness.

Commitment is an important construct in the formation of international cooperative arrangements. This conclusion is in agreement with similar suggestions regarding commitment made by other researchers (Buckley and Casson, 1988; Ford, 1982; Dwyer et al., 1987). All in all, this research has presented empirical support for a positive association between commitment and the effective formation of international cooperative arrangements.

Hypothesis Four

It was proposed that if the level of commitment between parties was balanced (symmetric relationship), then a stronger association (than that of an unbalanced relationship) between commitment and effectiveness was expected. This hypothesis

was not supported. Results suggested that the association between effectiveness and commitment was stronger whenever the relationship was asymmetric. Significant differences were found between the correlation coefficients for symmetric and asymmetric levels of commitment.

This finding regarding the significant impact of asymmetric levels of commitment on effectiveness contradicts suggestions from some researchers (Hladik, 1988; Harrigan, 1988). On the other hand, this finding is in agreement with Killing's result regarding the association between unbalanced managerial control (e.g., a dominant partner) and lower failure rate in joint ventures. In other words, Killing suggested that asymmetric relationships have positive impact on performance.

As in the above case of motivation, this result does not suggest that an effective formation of a cooperative arrangement includes one party with a high level of commitment and the other party with a low level of commitment. On the contrary, first, the questionnaire measures the relative level of commitment (the level of commitment of one party relative to the level of commitment of the other party), and second, during the interviews, managers indicated that effective formation of arrangements requires a certain level of commitment from both parties.

Thus, this finding suggests that one company should have a higher level of commitment than that of the other company. (Yet, both are committed to the arrangement and business.) This imbalance in the level of commitment may help "the leader" (the company with a higher level of commitment) to act more expediently on some of the decisions during the formation of the arrangement, e.g., the leading company may move things quickly in order to arrive faster at the objective of having

the arrangement work.

This finding is consistent with the finding regarding motivation. Both constructs - motivation and commitment - are positively related to each other. Thus, if a party has a higher level of motivation (relative to the other party), it may also have a higher level of commitment, and having a higher level of motivation and commitment, the party may be more expedient during the formation of the arrangement.

Power

Hypothesis Five

It was hypothesized that in a symmetric relationship, (that is, a relationship in which both parties perceive a balanced level of power), a positive association between power and effectiveness was expected. This hypothesis was not supported.

First, there were some significant Kendall Tau-B correlations between items of power and items of effectiveness. Second, the Pearson correlation coefficient for the association effectiveness-power was positive, moderate-low, yet significant. Third, the results of analyzing the impact of symmetric levels of power upon the association effectiveness-power indicated, on one hand, a non-significant correlation between effectiveness and power, and on the other hand, a positive, moderate-low, yet significant correlation between composite one and power.

However, the results obtained after ruling out the impact of third variables (e.g., commitment and motivation) pointed out a non-significant association between effectiveness and power. In other words, any correlation coefficient showing

association between effectiveness and power was due to the presence of third variables.

Hence, power is not significantly associated with the effective formation of cooperative arrangements. This is not in agreement with suggestions stated by some researchers (Bacharach and Lowry, 1981; Rubin and Brown, 1975).

However, the definitions of symmetric relationships and effectiveness may help to understand this lack of association between power and effectiveness. A symmetric (balanced) relationship on the level of power of each party, implies that (1) both parties bring complementary and key resources to the arrangement; (2) both parties perceive that there is a good match; and (3) both parties perceive each other as the best alternative available at the time of formation of the arrangement.

Under these conditions, parties have high chances of being satisfied with each other, with the agreement, and with the benefits obtained; that is, to have an effective formation of the arrangement. This suggests that in a balanced relationship, the impact of power upon effectiveness may not be significant and thus, the correlation between these constructs may not be significant either.

All in all, the association between power and effectiveness seems to be caused by third variables and therefore there is no association between these constructs. The sign of the Pearson correlation coefficients, however, has been consistently positive as was suggested in the hypothesis.

Hypothesis Six

It was hypothesized that if the relationship was not symmetric (that is,

different levels of power exist between the parties), it was not possible to predict the sign of the relationship. Although the sign of the association was not indicated, the hypothesis suggested association between power and effectiveness for unbalanced relationships. This hypothesis was not supported. As suggested above, the data did not support association between effectiveness and power. This finding is in agreement with suggestions from several researchers (Bacharach and Lowry, 1981; Rubin and Brown, 1975; Gaski and Nevin, 1985).

Next, an analysis is presented to understand the lack of association between power and effectiveness for a case in which the level of power of each party is different (asymmetric relationship). Unlike both associations motivation-effectiveness and commitment-effectiveness, which had significant correlation coefficients for unbalanced relationships, the association between power and effectiveness did not have a significant correlation coefficient. This suggests that power may behave differently than motivation and commitment.

During the interviews, managers suggested that they enter into a cooperative arrangement as long as they perceive a balanced level of power between the parties. Yet, a balanced level of power does not necessarily mean equal levels of power. It may mean a relative difference in the levels of power. However, if there is too much difference in the levels of power (beyond a certain point), forming a cooperative arrangement may be very difficult.

At the time of formation, all the arrangements analyzed in this research had a certain balance of power (or a certain relative imbalance of power) enough to induce managers to enter into the arrangement. However, this imbalance in the level

of power, perhaps was not enough to have an impact upon effectiveness. The instrument measured this relative balance (or imbalance) of power. Thus, a non-significant association between effectiveness and power was expected.

All in all, (1) power seems to behave differently than motivation and commitment; (2) a non-significant association between power and effectiveness was found; (3) relative imbalance of power in the relationship does not have impact upon effectiveness (absolute imbalance of power may lead to no arrangement at all); and (4) the sign of the Pearson correlation coefficients has been positive for both balanced and unbalanced (relative imbalance of power) relationships.

Risk

Hypothesis Seven

A negative relationship between risk and effectiveness was proposed. This hypothesis was partially supported. Regarding the sign of the association, it was the expected sign, yet some explanation is necessary. First, risk was measured by eight statements. All these statements referred to low risk situations. Second, the design of this part of the questionnaire required to reverse the scale. After doing so, risk and effectiveness were negatively correlated. Risk in this research mainly referred to fiduciary risk -- disclosure risk and performance failure (Hill et al., 1990; Marwell and Schmitt, 1975; Root, 1988). In addition, the country in which the arrangement was established provided an overall measure of the level of environmental risk (Root, 1987, 1988).

The assumed association between risk and effectiveness, however, was not

supported by the data. First, there were some significant Kendall Tau-B correlation coefficients between some items of risk and some items of effectiveness. However, the Pearson correlation coefficient for this relationship was not significant. Second, composite three and risk were significantly associated (significant Pearson correlation coefficient). However, partial correlation coefficients indicate that the association between effectiveness and risk was caused by third variables (mainly trust). Thus, no significant association was found between risk and effectiveness. In the literature on cooperative arrangements, researchers did not suggest directly a connection between risk and effectiveness. This association was suggested by the executives during the in-depth interviews. Yet, researchers indicated that, in general, only low levels of perceived risk lead to the formation of cooperative arrangements (Marwell and Schmitt, 1975; Root, 1988).

The cooperative arrangements included in this research have some characteristics which explain the lack of significant association between risk and effectiveness: First, the country in which the arrangement was located/practiced (and also the country of origin of the partner) had impact on the perceived level of risk. As was discussed on Chapter II, characteristics of a country such as general instability risk, operations risk and transfer risk provide clues regarding its level of environmental risk for a firm (Root 1987, 1988). In general, managers have a good assessment of the levels of environmental risk in various countries. In this sample, 72 percent of the arrangements involved the participation of developed countries and 83 percent of the arrangements included developed and newly industrialized countries which were perceived, by managers, as low risk countries (e.g., Taiwan).

Second, whether there was a previous business experience or not had strong impact on the level of risk perceived by managers. In Chapter II it was pointed out that one of the inherent risks of a cooperative arrangement is fiduciary risk -- performance failure and disclosure risk -- (Hill et al., 1990; Marwell and Schmitt, 1975; Root, 1988). Any time that two companies get together to initiate a cooperative arrangement, both companies are concerned with the performance level of the other company. In addition, suppliers of technology are concerned with misuse of their technology by the recipients.

Whenever companies engage in a second cooperative arrangement chances are that both companies have a good assessment of the level of fiduciary risk involved in the partnership. In particular, it is assumed that in this case, the level of fiduciary risk is lower than that of an arrangement in which partners do not have previous experience. In this sample, 63 percent of the arrangements were between parties who already had previous business dealings.

Therefore, for this sample, perhaps risk (environmental and fiduciary) was not a major concern for managers (the perceived risk was low), and therefore, risk did not impact significantly upon effectiveness. All in all, it seems that risk does not have a significant impact upon effectiveness. Yet, the sign of the association between risk and effectiveness was in agreement with the expectations.

Trust

Hypothesis Eight

A positive relationship between trust and effectiveness was hypothesized. This

hypothesis was supported by the data. First, there were several significant Kendall Tau-B correlations between items of effectiveness and commitment. Second, the Pearson correlation coefficient for this pair was moderate and significant. Third, partial correlation analysis, which rules out the impact of third variables, showed that there was indeed a correlation between effectiveness and trust. Moreover, the Pearson correlation coefficient for the pair composite three ("satisfaction with the partner") and trust was moderate and highly significant. All these Pearson correlations were positive. All in all, there is support for a positive association between trust and effectiveness. This finding is in agreement with suggestions from researchers who pointed out the importance of trust in cooperative arrangements (Buckley and Casson, 1988; Deutsch, 1973; Sullivan and Peterson, 1984).

Research Questions

Four research questions were advanced in Chapter I. Answers to these questions are presented in this section. Two questions referred to the predictor variable and its constructs (commitment, power and motivation) as well as their impact upon effectiveness and its composites. The other two questions dealt with the contingency variable and its constructs (trust and risk) as well as their impact upon effectiveness and/or the relationship between the predictor variable and effectiveness.

Predictor Variable and its Constructs

The overall impact of the predictor variable upon effectiveness was investigated by using multiple linear regression and canonical correlation analysis.

The analytical results from both tools pointed out the same conclusions: the predictor variable had a strong impact upon effectiveness. Its impact was even stronger than that of the contingency variable.

The regression equation for effectiveness (as criterion variable) showed that the beta coefficient of the predictor variable was positive and highly significant. Thus, there was a linear relationship between effectiveness and the predictor variable. In other words, holding the contingency variable constant, an increase in the predictor variable produced an increase in the criterion variable (effectiveness). Moreover, the regression equation for composite one ("benefits obtained") (as criterion variable) included only one independent variable - the predictor variable. This variable also had a positive and highly significant beta coefficient.

Canonical correlation analysis also pointed out the importance of the predictor variable: of three canonical roots identified by the analysis, the most important and significant root was strongly associated with the predictor variable. Thus, all these findings suggested that the predictor variable had a very important role in the effective formation of cooperative arrangements.

In order to interpret the relative importance of each construct (commitment, motivation, and power) within the predictor variable and thus its impact upon effectiveness, it is necessary to refer to the association that each construct has with effectiveness. As was discussed in the hypotheses testing section, commitment and motivation were significantly associated with effectiveness. Power, however, was not significantly associated with it. Of these three constructs, motivation had the strongest association with the criterion variable. Therefore, motivation had the strongest

impact upon effectiveness, followed by commitment. Power on the other hand, may have no impact at all or just marginal impact on effectiveness.

Contingency Variable and its constructs

As with the predictor variable, multivariate analysis -- multiple linear regression and canonical correlation analysis -- was used to investigate further the relationship between the contingency variable and effectiveness. The contingency variable also had significant impact upon the criterion variable. Yet, its impact upon effective formation of cooperative arrangements was relatively less important than that of the predictor variable.

The association between effectiveness and the contingency variable, as indicated by the regression equation, was not linear. It was necessary to introduce a quadratic term (the squared value of the contingency variable) into the equation to obtain significant results. In this equation, one of the beta coefficients was negative while the other (the quadratic term) was positive. Both beta coefficients were significant. On the other hand, the association between composite three ("satisfaction with the partner") and the contingency variable was linear, with a highly significant beta coefficient. In fact, the only independent variable in this equation was the contingency variable. This indicates that the contingency variable had a significant impact upon one of the composites ("satisfaction with the partner") of the criterion variable.

Results from canonical correlation analysis pointed out the relative importance of the contingency variable. This variable was strongly associated with root #2,

second in importance and significance.

Regarding the relative importance of each of the constructs of the contingency variable (trust and risk), trust was strongly associated with effectiveness, while risk was not significantly associated with the criterion variable. These findings were suggested in a more detailed discussion in the hypotheses testing section. Thus, the impact of trust upon effectiveness is more important than that of risk.

All in all, the contingency variable has some impact upon effectiveness. In particular, it has significant effect on composite three ("satisfaction with the partner"). The contingency variable includes two constructs - trust and risk. Yet, trust seems to be more important than risk.

A Revised Model

Bivariate and multivariate analyses were useful for investigating the association between constructs (motivation, commitment, power, risk and trust) and effectiveness as well as the nature of effectiveness (a multidimensional construct). Two main conclusions were suggested above: (1) three constructs (motivation, commitment and trust) seem to lead to an effective formation of international cooperative arrangements; and (2) two dimensions of effectiveness seem to be the important components of effectiveness. In this case, the lack of association between the constructs and composite two ("satisfaction with the agreement") was interpreted as an indicator of the lower status of this dimension of effectiveness.

However, composite two ("satisfaction with the agreement") is significantly associated with both composite one ("benefits obtained") and composite three ("satisfaction with the partner"). The association between composite one and composite three, however, is statistically insignificant. Based in this finding, another

interpretation regarding the nature of effectiveness is possible.

It seems that there are two levels for the dimensions of effectiveness. At the first level, two dimensions of effectiveness ("benefits obtained" and "satisfaction with the partner") are associated with three constructs (motivation, commitment and trust). At the second level, one dimension of effectiveness -- composite two ("satisfaction with the agreement") is only associated with the other two dimensions of effectiveness (composites one and three). Composite two is not significantly associated with any of the constructs (motivation, commitment, and trust). In other words, composite two ("satisfaction with the agreement") is a function of composite one ("benefits obtained") and composite three ("satisfaction with the partner"). A company is going to be satisfied with the agreement as long as it first gets the expected benefits from the arrangement and second, it is satisfied with the partner. A revised model showing this interpretation of results is presented in Figure 6.1.

In summary, in this chapter, factor analysis, multiple regression, and canonical correlation analysis were presented. Factor analysis pointed out the multi-dimensionality of effectiveness. This information was very important for understanding the nature of effectiveness and its relationships with the constructs and the predictor and contingency variables. By including these dimensions or composites of effectiveness into the analysis, for example, regressing the composites on the predictor and contingency variables, rich insights were obtained regarding the role that the composites play during the formation of cooperative arrangements: composite one ("benefits obtained") and composite three ("satisfaction with the partner") seem to be the most important dimensions of effectiveness. Canonical

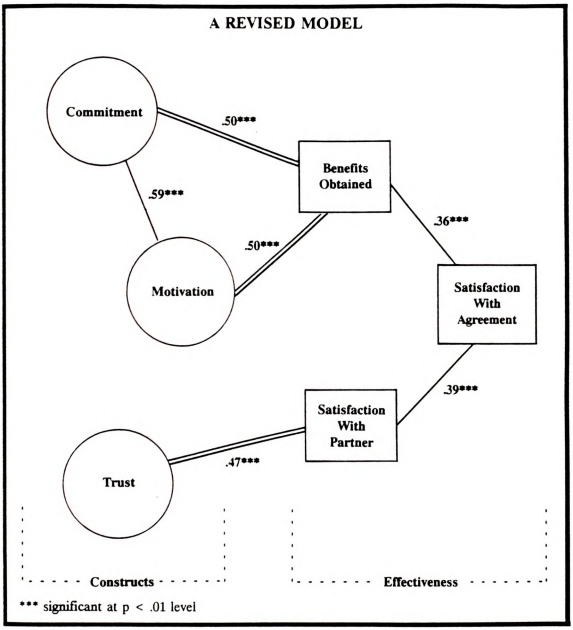

Figure 6.1

Suggested by Professor S.T. Cavusgil

correlation analysis was useful in providing an analysis of the whole interaction between the two sets of variables (dependent and independent) and providing additional support for the findings.

The results obtained using bivariate and multivariate techniques provided analytical support for some of the hypotheses and permitted to suggest answers to the research questions. Three hypotheses were supported, two hypotheses were partially supported, and three hypotheses were not supported. Accordingly, only three constructs (motivation, commitment, and trust) seem to be associated with the effective formation of international cooperative arrangements. In addition, alternative explanations for the association between constructs and the dimensions of effectiveness were offered.

CHAPTER VII

CONCLUSIONS AND IMPLICATIONS

In this chapter conclusions regarding the formation of international cooperative arrangements -- an integrated framework, type of technology, type of cooperative arrangement and five key constructs -- are presented in that order. Next, managerial implications are offered. Finally, limitations of the study and directions for future research are indicated.

Formation of International Cooperative Arrangements

This research contributes to the literature on international cooperative arrangements by offering an integrated conceptual framework of the formation of cooperative arrangements and an empirical analysis of the relationships between effectiveness (or effective formation of arrangements) and five constructs: motivation, commitment, power, risk, and trust.

In Chapter II, Table 2.8 offered a "map" of the existing research streams and major works on cooperative arrangements. The works presented in the literature on international cooperative arrangements focused on narrow issues of the formation of cooperative arrangements and/or on only some of the factors which influence the formation of cooperative arrangements. For instance, McCall and Warrington (1984) concentrated on the negotiations of cooperative arrangements, Geringer (1988) focused on selection of partners, Contractor and Lorange (1988) wrote on motivational factors which induce firms to enter into cooperative arrangements, and

Harrigan (1985) described bargaining power of the parties involved in cooperative arrangements. Few studies concentrated on the formation of arrangements. None of them on the effective formation of international cooperative arrangements.

This study contributes to the knowledge of international cooperative arrangements by presenting: (1) an integrated view of the formation of international cooperative arrangements. The framework, developed in Chapter IV, pointed out three elements in the formation of cooperative arrangements: type of technology, type of cooperative arrangement, and five constructs. These constructs (motivation, commitment, power, risk and trust) were identified as critical factors for the effective formation of cooperative arrangements; (2) empirical evidence regarding the impact of each of these constructs on effectiveness; and (3) managerial guidelines for the effective formation of international cooperative arrangements.

An Integrated Framework

The same framework developed in Chapter IV is presented here. However, the statistical significance of each of the constructs upon effectiveness is indicated. The framework suggests that the needs, expected benefits, overall risk of the arrangement and type of technology influence the type of cooperative arrangement selected by the firm. In addition, the conceptual model proposes that when the company identifies its desired type of cooperative arrangement, it sets its levels of commitment, and expected risk (e.g., the level of fiduciary risk the company can bear). Moreover, the framework suggests that the type of cooperative arrangement influences the firm's approach to negotiations. In other words, by selecting a given

cooperative arrangement, the firm is also delineating the preferred characteristics of a partner (risk and trust associated with it) and its approach to negotiations (power and trust associated with it). Contingency factors such as availability of partners impact upon negotiations and the actual type of cooperative arrangement formed. Figure 7.1 presents the framework.

In addition, the framework offers the key stages in the formation of cooperative arrangements. The formation of international cooperative arrangements is a very complex process. Several stages are included in this formation. It begins with the conception of the venture and it may proceed through internal negotiations and consensus, search and selection of a partner, negotiations and eventually end up with the signing of a written agreement by the parties involved in the arrangement.

The framework represents a parsimonious approach to the analysis of the different stages of the formation of international cooperative arrangements. For example, in Chapter II a table showing twelve characteristics of five selected international cooperative arrangements was presented. The table is useful in helping identify the most suitable cooperative arrangement for a firm depending upon its expectations and needs. However, the integrated framework showing the conceptual relationships influencing the selection of the type of arrangement, as well as indicating the impact that the type of cooperative arrangement has upon other components in the process of forming arrangements represents a further advance in the understanding of these arrangements.

In summary, the integrated framework describes the conceptual relationships among components (e.g., the type of technology, type of cooperative arrangement and the constructs) at different stages of the formation of international cooperative

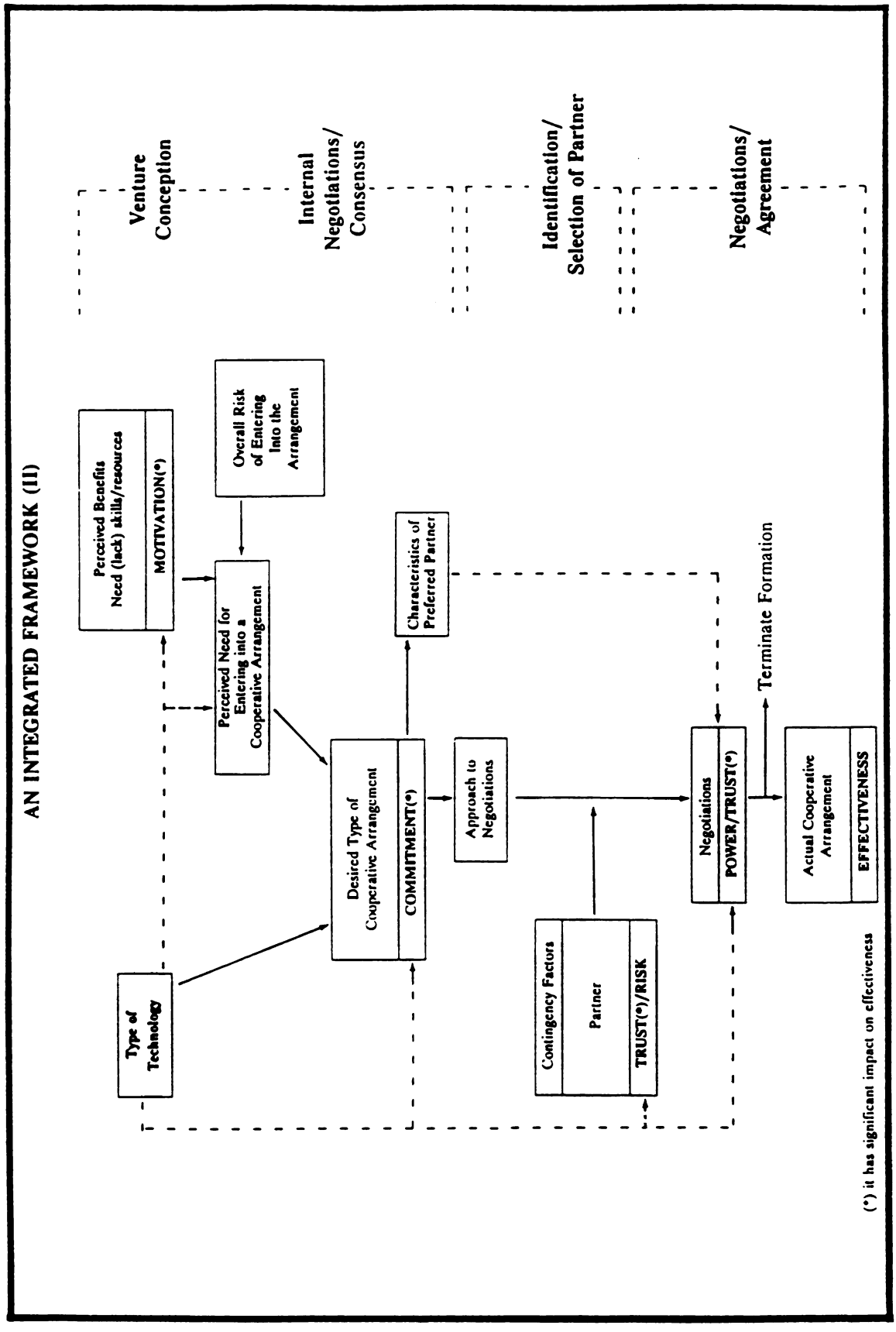
AN INTEGRATED FRAMEWORK (II)
Venture Conception
Internal Negotiations/ Consensus
Identification/ Selection of Partner
Negotiations/ Agreement
Type of Technology
Perceived Benefits
Need (lack) skills/resources
MOTIVATION(*)
Overall Risk of Entering into the Arrangement
Perceived Need for Entering into a Cooperative Arrangement
Characteristics of Preferred Partner
Desired Type of Cooperative Arrangement
COMMITMENT(*)
Approach to Negotiations
Contingency Factors
Partner
TRUST(*)/RISK
Negotiations
POWER/TRUST(*)
Terminate Formation
Actual Cooperative Arrangement
EFFECTIVENESS
(*) it has significant impact on effectiveness

Figure 7.1

arrangements. Following are major conclusions regarding each component of the framework and the key constructs in the formation of international cooperative arrangements.

Type of Technology

In this research, one of the factors which emerged as a pervasive influence over the stages of the formation of international cooperative arrangements was technology. In Chapter IV, a classification of technology was presented. The classification included four types of technologies: core, (standardized, and non-standardized), and non-core (peripheral and emerging).

This classification amplifies the existing knowledge about technology in the literature on international cooperative arrangements. First, it permits the identification of the role of technology in an international cooperative arrangement. Second, it helps the understanding of what mechanism (governance structure) regulates the interactions between parties in a cooperative arrangement (Williamson, 1986).

The role of technology in a cooperative arrangement refers to the impact that technology has on the type of arrangement, the level of commitment, or on the negotiations (e.g. determining its value). Certain characteristics of technology such as quality and transferability (Casson, 1986) determine the role of technology in a cooperative arrangement. For instance, the assessment of the quality and the degree of transferability of a technology are major concerns for recipients of technology. Both characteristics, quality and transferability are related to the level of codification

of the technology. Researchers (Teece, 1987; Rosenberg, 1985) suggested that technology exists under two forms: codified and uncodified. In general, codified knowledge is easier to transfer (and assess its quality) than uncodified knowledge. The more developed and mature a technology, the more codified it becomes. In general, the number of suppliers of technology in the market indicates the level of codification of a technology. The larger the number of suppliers, the higher the level of codification.

The classification presented in this research deals with two dimensions of technology: the level of codification (codified/uncodified) and the level of importance of the technology for the supplier (core/non-core). For instance, regarding non-core technology, peripheral technology mainly includes codified (e.g. patents), while emerging technology mainly comprises uncodified knowledge (e.g., person-embodied knowledge). With reference to core technology, standardized or mature technology, as was discussed above, includes a significant proportion of codified knowledge while non-standardized technology mainly includes uncodified knowledge.

Thus, in general, non-core and codified technologies are transferable assets, while core and uncodified technologies are not as easily transferable assets as the other two types of technology. This might explain why suppliers of technology are willing to transfer peripheral, emerging, and under certain circumstances (namely a large number of suppliers in the market), core standardized technologies, and why they are reluctant to transfer non-standardized technologies (there is an inherent difficulty in transferring these technologies).

The concept of governance structure has been advanced by Williamson (1986). He suggested that depending upon whether three elements (opportunism, asset specificity, and bounded rationality) are present or not, the governance structure for the interaction between parties is different e.g., market structure (classical contracting) for transactions which involve non-specific assets, and bilateral structure (or relational contracting) when specific assets are involved. Accordingly, only for peripheral technology classical contracting will suffice. For emerging and particularly for core technologies, relational contracting is relevant. Thus, the type of technology influences the type of governance structure in a cooperative arrangement.

Most of the cooperative arrangements included in this research involved core technology. More than three-fourths of the arrangements (76.6%) dealt with core technology. The appropriate governance structure for these arrangements is a bilateral structure or relational contracting, that is, the entire relationship is what is relevant. Elements such as trust, motivation and commitment are of prime importance. A written agreement is not a determining factor in the interaction between parties.

Results from canonical correlation analysis obtained in this research support this assertion. The results indicate that of three canonical roots, the least important and significant root was associated with composite two, "satisfaction with the agreement." In addition, this canonical root was correlated with only a few items of the predictor variable (mainly items of power).

In other words, composite two ("satisfaction with the agreement") was not a significant component of effectiveness. Few items of the predictor and contingency

variables explained the variance associated with this composite. Thus, the agreement was not a significant factor for establishing and maintaining the cooperative association. The arrangement was based mainly upon the entire relationship (e.g., informal and formal elements established as rules directing the interaction between partners). In summary, there was agreement between what was suggested by the transaction costs theory and the empirical results obtained in the research.

Type of Cooperative Arrangement

It was mentioned during the discussion of the integrated framework that when a firm identifies a desired type of cooperative arrangement, it sets its level of commitment (and hence its expected level of control in the arrangement), its level of fiduciary risk and its approach to negotiations. For instance, if a supplier of technology prefers an equity joint venture over a licensing agreement, the firm is showing: (1) a higher level of commitment than that of a licensing agreement; (2) a desire in reducing its level of fiduciary risk (the firm has more control over its technology and partner). The firm, however, by preferring one arrangement over the other is increasing its level of environmental risk; and (3) a preference for a cooperative approach rather than a competitive orientation during negotiations. All in all, the firm's expectations and approaches during the formation of a cooperative arrangement change depending upon the desired type of arrangement.

Key Constructs

Motivation

In this research, a positive association between motivation and effectiveness

was proposed (Hypothesis 1). Empirical results presented in Chapter VI supported this hypothesis. Consequently, motivation plays a very important role in the effective formation of international cooperative arrangements.

Major motivational items identified by managers as important elements in the formation of cooperative arrangements were: (1) the incentive of obtaining earnings/royalties; (2) entering into a market quickly; (3) increasing market share; and (4) sharing total capital investment needed for the arrangement. All the other fifteen motivational items suggested in the questionnaire were ranked by managers as "not important." Of all the items of motivation, the most important items were obtaining earnings and entering into a market.

Motivation was significantly associated with effectiveness and composite one ("benefits obtained"). It was one of the major constructs of the predictor variable. This variable was identified by multiple linear regression and canonical correlation analysis as a very important variable in explaining the relationship between effectiveness and composite one.

Thus, motivation is an important construct in the formation of international cooperative arrangements. This conclusion is in agreement with similar assertions regarding motivation made by other researchers (Harrigan, 1985; Contractor and Lorange, 1988; Beamish, 1987; Artisien and Buckley, 1985). In brief, this study has presented empirical support for a positive association between motivation and the effective formation of international cooperative arrangements.

Another important issue empirically analyzed in this research was the impact of symmetric levels of motivation upon effectiveness. It was proposed that symmetric

levels of motivation have a stronger impact upon effectiveness than asymmetric levels of motivation (Hypothesis 2). This hypothesis was not supported. Contrary to what was proposed, the empirical evidence presented in this research suggested that relative imbalance in the level of motivation between parties during the formation of cooperative arrangements seems to have greater impact upon effectiveness than that of a balanced level of motivation between partners.

Commitment

In this research it was hypothesized that commitment impacts positively on effectiveness (Hypothesis 3). This hypothesis was supported. Thus, this study provides empirical support to the importance of commitment in the effective formation of international cooperative arrangements.

Three items of commitment were indicated by managers as relevant elements during the formation of arrangements: communications between companies, efforts to acquire information about the other firm, and participation of senior managers. Two other items of commitment, investments and adaptations, were not identified by managers as relevant elements during the formation of cooperative arrangements.

In the exploratory and descriptive stages of this research, commitment was identified as a significant component in the formation of cooperative arrangements. For instance: (1) during the interviews, managers cited commitment as a necessary element in the formation of arrangements; (2) commitment was significantly correlated with composite one ("benefits obtained"); and (3) commitment was one of the components of the predictor variable. (This variable had significant impact

upon effectiveness and composite one in the models analyzed by multiple linear regression and canonical correlation analysis.)

Thus, commitment is an important construct in the formation of international cooperative arrangements. This conclusion is in agreement with similar suggestions regarding commitment made by other researchers (Buckley and Casson, 1988; Ford, 1982; Dwyer et al., 1987). In summary, this research has presented empirical support for a positive association between commitment and the effective formation of international cooperative arrangements.

In addition, another relevant issue explored in this research was whether a symmetric level of commitment in the relationship had a strong impact on effectiveness (Hypothesis 4). This proposition was not supported. Contrary to what was advanced, results indicate that a relative asymmetry regarding commitment in the relationship had greater impact upon the effective formation of international cooperative arrangements.

Some authors (Hladik, 1988; Harrigan, 1988; Rubin and Brown, 1975) have explored the importance of partner symmetries as stabilizing factors in the formation and implementation of international cooperative arrangements. However, these researchers did not offer a proposition regarding symmetric commitment.

The empirical evidence presented in this research suggests that relative differences in the levels of commitment between partners are not harmful to the formation of international cooperative arrangements. On the contrary, this relative asymmetry may lead to effective formation of arrangements. Thus, relative imbalance in the level of commitment between parties during the formation of cooperative

arrangements seems to have greater impact upon effectiveness than a balanced level of commitment between partners.

Power

In a symmetric relationship (balanced level of power), it was hypothesized that power was positively correlated with effectiveness (Hypothesis 5). This proposition was not supported. It was found that a third variable was responsible for the spurious relationship between effectiveness and power. Thus, power was not significantly correlated with effectiveness.

Three dimensions were included in the measurement of power: alternative ways of attaining a firm's objectives, importance of the cooperative arrangement, and resources brought to the arrangement. Three items measured the first two dimensions, fifteen items measured the third dimension and one item measured perceived balance of power in the relationship.

Analysis of the questions pertaining to power revealed that, for the suppliers of technology in general: first, they did not have many available alternatives (e.g., there were few - or just one - qualified potential partner, and they could not have undertaken the arrangements by themselves). Second, the arrangements were of relative importance, and third, their major resources involved in the arrangements were patents and know-how/technology. The analysis of these three dimensions indicate that suppliers were dealing with partners of relatively similar levels of power.

Furthermore, most of the arrangements were between large reputable leaders in the industry, with comparable overall levels of power. Thus, it seems that in most

of the arrangements included in this research, there was a balance of power in the relationship. In fact, 69 percent of the arrangements reported a balance of power in the partnership. This may indicate that in general, companies seek partners with a comparable level of power. A manager, for instance, stated, "We don't enter into a cooperative arrangement unless there is balance of power". Thus, companies, in general, form cooperative arrangements when they perceive a certain balance of power in the relationship. If the difference in levels of power is large, then companies prefer not to form cooperative arrangements.

In summary, according to the empirical results of this research, it seems that power is not significantly associated with effectiveness and it does not impact upon the effective formation of international cooperative arrangements. This conclusion, however, does not mean that power is not important in the formation of cooperative arrangements. On the contrary, it seems that companies carefully assess the level of power of the partners before entering into the arrangement.

Risk

It was hypothesized that risk was negatively related to effectiveness (Hypothesis 7). This hypothesis was not supported. Pearson correlation coefficients measuring the level of association between risk and effectiveness were affected by a third variable. Thus, risk was not significantly associated with effectiveness. In other words, risk was not a key construct in the formation of cooperative arrangements since it did not impact significantly upon the effective formation of cooperative arrangements. Risk in this research mainly referred to fiduciary risk -- disclosure risk

and performance failure (Hill et al., 1990; Marwell and Schmitt, 1975; Root, 1988). In addition, the country in which the arrangement was established provided an overall measure of the level of environmental risk (Root, 1987, 1988).

During the interviews, risk was identified as one of the major concerns for suppliers of technology. In attempting to explain why the research failed to reject the null hypothesis, operationalization problems may be suggested. For example, the multi-item question measuring this construct may not have adequately captured the construct or its relationship with effectiveness.

However, analysis of several characteristics of the cooperative arrangements included in this research and managers' risk-taking behavior when approaching formation of cooperative arrangements provide another plausible explanation. First, most of the arrangements involved partners from countries perceived by managers as low risk countries (e.g. developed countries). Second, these partners had been already partners in previous business transactions or cooperative arrangements. Third, the mean values of items of risk indicated that most of the partners in these arrangements were perceived by managers as low risk partners.

Regarding managers' risk-taking behavior, in general, they are risk averse. Missing an opportunity to form a cooperative arrangement may be preferred over the alternative of having to live with a high risk partner in an arrangement. In other words, if the partner is a low risk partner, then the supplier of technology will form an arrangement.

This research has failed to reject the null hypothesis of no association between risk and effectiveness. This result does not mean, however, that risk is not an

important element in the formation of international cooperative arrangements. On the contrary, characteristics of the arrangements included in this research indicate that in general, prior to entering into the arrangement, the partners were carefully screened regarding their levels of risk. Thus, it seems that in international cooperative arrangements, suppliers of technology are extremely careful in assessing the levels of fiduciary risk -- disclosure risk and performance failure (Hill et al., 1990; Marwell and Schmitt, 1975; Root 1988) and environmental risk (Root, 1987) of the partners.

Trust

In this research, trust was identified as a key construct in the effective formation of international cooperative arrangements. Thus, a positive association was proposed between trust and effectiveness (Hypothesis 8). This hypothesis was supported. Therefore, this research provided empirical support to the relevance of trust in the effective formation of international cooperative arrangements.

Trust was measured by eight items which represented three dimensions: (1) compatibility between partners, (2) intentions of the partner, and (3) partner's ability (resources available) to fulfill its role in the arrangement. All the managers rated these three dimensions of this construct as relevant dimensions for the formation of cooperative arrangements. Yet, the most important dimension was ability (managerial skills and organizational resources as well as technical skills and infrastructure). The other two dimensions were ranked in this order: first, intentions (partner deals fairly, and partner seems reliable), and then compatibility (compatible ethics, time horizons,

objectives, and philosophies).

Trust was significantly correlated with effectiveness and composite three ("satisfaction with the partner"). It was one of the major constructs of the contingency variable, and as such it had an important role in the explanation of the variability of effectiveness (and composite three) in multiple linear regression and canonical correlation analysis.

Thus, trust is an important construct in the formation of international cooperative arrangements. This conclusion is in agreement with similar suggestions regarding trust made by other researchers (Buckley and Casson, 1988; Sullivan and Peterson, 1984). Buckley and Casson, for example, explained in their theory of cooperation that trust is the true mechanism of cooperation. All in all, the current study has presented empirical support for a positive association between trust and the effective formation of international cooperative arrangements.

The major conclusions in this research have dealt with type of technology, type of cooperative arrangement and five key constructs which affect the formation of international cooperative arrangements.

Managerial Implications

Based on the conclusions presented in the first part of this chapter, this research suggests to follow certain basic precepts in order to arrive at effective formation of cooperative arrangements:

1) Avoid a muddling-through approach. The integrated framework presented in this chapter can help managers to achieve: (1) an overall view of the whole process of

forming cooperative arrangements; (2) an assessment of the complexity of the process of forming international cooperative arrangements; and (3) a better understanding of three components in the formation of arrangements: (a) type of technology, (b) type of cooperative arrangement, and (c) key constructs. Accordingly, the framework will enable managers to approach the formation of international cooperative arrangements in a more systematic fashion and prepare them better for each stage of the formation of the arrangement.

2) Assessing the technology involved in the arrangement. The type of technology has particular importance in the formation of international cooperative arrangements. Although it does not lead directly to effective formation of arrangements, it has a pervasive effect on each stage and component in the process of forming arrangements: it influences the level of motivation to enter into a cooperative arrangement, the level of commitment at the time of determining the type of cooperative arrangement, the level of risk and trust when selecting a partner, and the level of power during the negotiations between parties. Hence, identifying the type of technology involved in a cooperative arrangement is of paramount importance.

a) Identify the type of technology. There are two major questions that suppliers of technology should answer when identifying the type of technology: (1) what is the role or importance of the technology for the firm? and (2) what is the level of codification of the technology (and hence its degree of transferability)? The answers to these questions leads to a classification of technology into core (standardized/non-standardized) and non-core (peripheral/emerging) technologies. By analyzing characteristics of technology such as its level of development, the level of support and

research for its development, the desired degree of control over the manufacturing process and the number of competitive technologies in the market, managers are able to identify the type of technology involved in the cooperative arrangement.

b) Technology identification: key in determining its value, level of protection, and proper cooperative arrangement. By identifying and analyzing the type of technology, managers are better prepared to identify the desired type of cooperative arrangement and the level of safeguards required to protect the technology involved in the arrangement as well as to assess the value of the technology. For instance, regarding type of cooperative arrangement, an important (core) and less codified (non-standardized) technology requires different type of arrangement than a less important (non-core) and more codified (peripheral) technology. With reference to the protection of the technology, a core non-standardized technology requires more protection (not just the clauses included in the contractual agreement) than a non-core peripheral technology. Regarding its value, the value of a technology is related with its characteristics: the greater the number of features (commercial development, ongoing research, patents, know-how) offered to the recipient of technology and the more unique (few or no competitive technologies) the higher the value of the technology e.g., a core non-standardized technology.

All in all, one of the major tasks for managers involved in the formation of international cooperative arrangements should be to assess very well the technology involved in the arrangement. In particular, managers should identify clearly the type of technology.

3) **Type of cooperative arrangement: the need for being consistent.** The type of cooperative arrangement is not a factor which directly leads to effective formation of international cooperative arrangements. However, its association with the levels of motivation, commitment, and the type of technology as well as its influence upon the selection of partners and the approach to negotiations make the type of cooperative arrangement a key important component in the formation of international cooperative arrangements. An analysis of the type of cooperative arrangement should include two stages: (1) selecting the type of cooperative arrangement and (2) assessing the impact of the type of arrangement selected upon the formation process.

a) Selecting the cooperative arrangement. The selection of a type of cooperative arrangement is intimately related to the type of technology involved in the arrangement and the need of entering into the arrangement. Thus, in order to determine the desired type of cooperative arrangement, managers should analyze carefully the type of technology, the motivations to enter into the arrangement and the potential risks involved in entering into the arrangement.

b) Match the firm's level of commitment with the demands from the desired cooperative arrangement. An assessment of the impact of the desired type of cooperative arrangement upon the formation process entails the determination of the degree of consistency between the type of arrangement and each of the following elements: (1) the firm's level of commitment; (2) the characteristics of the partner; and (3) the approach to negotiations. For instance, regarding the level of commitment, managers should find the right match between the efforts

(communication efforts, managerial time, assets/resources invested) the firm is willing to offer to the formation and implementation of the arrangement and the demands from the selected type of cooperative arrangement.

b) Match the characteristics of the partner with those features of the desired cooperative arrangement. The characteristics of a partner should be in agreement with the type of cooperative arrangement. In other words, desirable characteristics of a partner are different depending upon the type of arrangement. The characteristics of a partner can be assessed by "hard" or "soft" measures (Contractor and Lorange, 1988). "Hard" measures refer to quantitative indicators that are made available by secondary sources of information (e.g., rank of a firm in its industry, financial ratios, number of salespersons in the firm). They are "objective" in nature. "Soft" measures refer to qualitative indicators that depend upon the judgement of managers. They are more "subjective" in nature, e.g. levels of commitment, motivation, or trust. In selecting a partner, the assessment of its "soft" characteristics is as important as the assessment of its "hard" characteristics. Thus, managers should match the type of cooperative arrangement with the "soft" and "hard" characteristics of the partner.

c) Establish the right negotiations "atmosphere." Two possible approaches to negotiations are a cooperative and a competitive approach (Schoonmaker, 1989). A firm's approach may fall anywhere between these two extremes. The firm's approach is more competitive or cooperative depending upon the type of cooperative arrangement, e.g., an equity joint venture demands a more cooperative approach than that of a patent licensing agreement. Managers may not use one approach throughout

the negotiations. They may use different approaches at different times during the negotiations. However, once the partners have "tested" each other and established a negotiation "atmosphere," the nature of this atmosphere (cooperative, competitive) should match the type of cooperative arrangement.

All in all, the type of cooperative arrangement has an important role in the formation of international cooperative arrangements. Managers should select carefully the type of arrangement and assess the level of agreement between the type of cooperative arrangement and the other components of the formation process. Lack of agreement or consistency between these components may lead to conflict during the implementation of the cooperative arrangement.

4) Motivation, commitment, and trust: the keys to effective formation of cooperative arrangements. Three constructs, motivation, commitment, and trust had empirical support as important constructs for the formation of international cooperative arrangements. These constructs impacted significantly upon effectiveness. Particularly, they were significantly correlated with two composites of effectiveness: "benefits obtained" and "satisfaction with the partner."

a) Assessing and monitoring the levels of key constructs. Managers should assess and monitor the levels of these constructs throughout the formation and implementation of the arrangement. They should keep track of the level of these constructs for their own firms and for their partners. For instance, managers should develop ratios or indexes, such as a combined measure of motivation, commitment and trust, (e.g., similar to financial ratios) to diagnose problems during the formation and implementation of a cooperative arrangement.

b) High levels of motivation and commitment. Both motivation and commitment are factors that lead to effective formation of international cooperative arrangements. This study has provided empirical support to this proposition. Specifically, motivation and commitment seem to impact positively upon the level of benefits obtained as stated in the agreement, and the feelings of accomplishment experienced by both parties during the formation of a cooperative arrangement. In addition, there seems to be an association between the importance assigned to a cooperative arrangement and the levels of motivation and commitment required. Specifically, strategic cooperative arrangements (e.g., core technology, high initial capital needed) require higher levels of motivation and commitment than those of a non-strategic arrangement.

c) Identify firm's needs and/or expected benefits from the cooperative arrangement. The assessment of motivation involves a self-analysis of the firm's needs and expected benefits from the arrangement. This requires a great deal of understanding of the internal conditions of the firm, e.g., to know the overall strategy of the division and/or the firm and the fit between the proposed arrangement and these strategies.

d) Signal the proper level of commitment. Unlike the level of motivation and the true reasons for entering into a cooperative arrangement which may be concealed by the firm, the level of commitment of a firm is relatively easier to detect. First, the desired type of arrangement indicates the level of commitment of the firm. Second, the level of efforts to communicate with and to know more about the partner as well as the personnel involved in the formation of the arrangement are other indicators of commitment to the arrangement. Third, the level of importance assigned to the

business and/or technology by the firm constitute another indicator of commitment. Thus, managers should be aware of the signals sent to and received from the partner regarding the level of commitment.

e) Assess the levels of motivation and commitment of your partner. Managers should determine the levels of motivation and commitment of the partner. This information provides clues regarding the relative balance (or imbalance) in the level of these constructs in the arrangement. As was discussed earlier in this chapter, it seems that a relative imbalance in the level of these constructs impacts positively upon the effective formation of cooperative arrangements.

f) Maintain consistent levels of motivation and commitment. It seems that effective formation of arrangements requires certain harmony in the levels of motivation and commitment within the firm. Motivation and commitment are positively correlated. The higher the level of motivation, the higher the level of commitment. In other words, the higher the need to enter into a partnership and the expected benefits from the arrangement, the higher the efforts by the firm to form the cooperative arrangement. Thus, managers should maintain internal consistency regarding the levels of motivation and commitment.

g) High level of trust. Trust is one of the factors which leads to effective formation of international cooperative arrangements. This research has provided empirical support for this assertion. Specifically, trust seems to influence the level of satisfaction with the partner and the distribution of rewards in the arrangement. The higher the level of trust between partners, the higher the level of satisfaction achieved.

h) Assessing trust: not an easy task. The assessment of trust in the partnership was based upon objective and subjective elements such as partner's managerial skills and organizational resources as well as reliability and compatibility of objectives. An evaluation of the level of trust of a partner involves a great deal of learning and understanding a partner's skills and resources, motivations, objectives, expectations, and approaches or philosophies to business. Moreover, it may also require testing the limits of each of these elements.

i) Developing trust demands time, mutual understanding and stable personnel. Assessing trust in a partnership demands time, realization of need, and stable personnel. First, learning is not an instant process. It requires time. Second, it is not enough to be aware of trust and its importance. Managers should realize the need of obtaining an accurate picture of the partner and its characteristics. Moreover, they should seek a high level of understanding of these characteristics. Third, frequent changes of the main actors involved in the formation and implementation of the arrangement are not conducive to establish relations of trust. So, when firms are designing the arrangement, they should plan to have the main actors assigned to the arrangement for several years. Key managers should be assigned to the cooperative arrangement during the whole process of formation, plus the first years of its implementation (a planning time of 5-7 years seems reasonable).

j) Match level of trust and strategic importance of the cooperative arrangement. In addition, there seems to be a connection between the importance assigned to an arrangement and the level of trust required in the relationship. Specifically, the higher the strategic importance assigned to the arrangement (e.g., core technology

involved, sizable capital investment, market of strategic importance), the stronger the need to build trust into the relationship. For instance, two of the cooperative arrangements described in Chapter IV with companies E and F involved different technologies (in E peripheral technology, in F core technology). The arrangement with E was a licensing agreement with no investment for the supplier of technology, and the arrangement with F was a joint venture involving a large investment. Furthermore, for the supplier of technology, the arrangement with E was a marginal business while the arrangement with F was a major global business. The levels of trust in these two arrangements were also different. While in the arrangement with E there was a low level of trust, in the arrangement with F there was a relatively high level of trust. Both parties worked diligently and spent considerable time and personal efforts building trust in the partnership. Therefore, it seems that the level of trust in a cooperative arrangement depends upon the assigned strategic importance, by both partners, to the arrangement.

k) Build both trust and safeguards for the technology. A major concern among suppliers of technology is the protection of the technology. Building trust in a cooperative arrangement, however, is not in conflict with this concern about technology. Actually, they complement each other since their roles are important at different stages in the life of an arrangement. Trust is very relevant during the formation and implementation of the arrangement since it directs parties to work cooperatively. Technology safeguards (e.g., protective clauses about technology in the agreement, structuring the arrangement in a way to protect the technology and/or patents) become relevant in the event of termination of the cooperative arrangement.

Thus, companies should work hard to achieve a high level of trust in the relationship. At the same time, (particularly for suppliers of technology) companies should build safeguards to protect their technologies or strategic advantages.

In summary, the importance of identifying the type of technology, selecting the proper cooperative arrangement, and assessing the levels of three factors, motivation, commitment and trust have been discussed. These elements of the formation process -- the type of technology, type of cooperative arrangement and the critical factors -- have been analyzed individually. However, they are linked together during the formation of cooperative arrangements. For instance, for the effective formation of a strategic cooperative arrangement, (e.g., a high control type such as a joint venture) which involves core technology: What are the required levels of motivation, commitment and trust? In other words, the effective formation of cooperative arrangements requires different levels of critical constructs depending upon the type of technology involved (e.g., core/non-core) and the type of cooperative arrangement desired (e.g., high/low control type). Thus, in Table 7.1 seven managerial guidelines regarding the effective formation of cooperative arrangements are offered. These statements indicate the levels of motivation, commitment and trust required for the effective formation of cooperative arrangements based on the type of technology involved and the type of arrangement desired.

These required levels of motivation, commitment and trust for each type of technology and cooperative arrangement are also presented in Figure 7.2. The axes of this 2 x 2 matrix are (1) the type of technology (its importance for the supplier; that is, core and non-core technology); and (2) the type of cooperative arrangement

Table 7.1
Managerial Guidelines

Effective Formation of International Cooperative Arrangements

(1) If core technology is involved in the cooperative arrangement, then high levels of motivation, commitment and trust are required. Regarding motivation and commitment one of the parties (the leader) should have relatively higher levels of both constructs than those of the other party.

(2) If peripheral technology is involved in the cooperative arrangement, then high levels of motivation, commitment, and trust are not required.

(3) If the cooperative arrangement is a high control type (e.g., joint venture), then high levels of motivation, commitment, and trust are required. One of the parties (the leader) should have relatively higher levels of motivation and commitment than those of the other party.

(4) If the cooperative arrangement is a low control type (e.g., licensing agreement) and core technology is involved, then high levels of motivation, commitment, and trust are required.

(5) If the cooperative arrangement is a low control type (e.g., licensing agreement), and peripheral technology is involved then high levels of motivation, commitment, and trust are not required.

(6) If a company wants an effective formation of a strategic cooperative arrangement (e.g., an arrangement which involves core technology), then motivation, commitment, and trust are required. These factors are not directly associated with the protection of technology (e.g., a high level of trust in the relationship does not guarantee a high level of protection of the technology).

(7) If a company wants a low disclosure risk arrangement (e.g., an arrangement in which the technology is well protected), then it should use available safeguards such as a patent, a contractual agreement (e.g., the agreement includes clauses which protect the technology), the structure of the arrangement (e.g., structuring the arrangement in such a way to protect the technology), and a careful selection of the partner.

LEVELS OF MOTIVATION, COMMITMENT, AND TRUST

Type of Cooperative Arrangement (Level of Control)	Type of Technology (Importance): Core	Type of Technology (Importance): Non-Core
high	High Levels Required	High Levels Required
low	High Levels Required	Not Required

Figure 7.2

(the level of control desired by the supplier; high and low control arrangements).

All in all, in this section, managerial guidelines which can lead to effective formation of international cooperative arrangements were offered. The importance of an integrated framework for the formation of cooperative arrangements and each of its components -- type of technology, type of cooperative arrangement, motivation, commitment and trust -- were discussed. These guidelines can help managers improve their approaches to the formation of international cooperative arrangements.

Limitations of the Study

One of the limitations of this research was its focus on one party of the dyadic interaction in the formation of international cooperative arrangements. This research has explored the perceptions of suppliers of technology. A more balanced study requires the participation of both suppliers and recipients of technology. Some of the reasons for limiting the focus of this research were prohibitive costs and a lengthy period of time for undertaking a more complete study. The objective of this study was to collect quantitative and qualitative data by using questionnaires and in-depth interviews. A complete study would involve travelling to several foreign countries mainly from Europe and Asia. Furthermore, in some arrangements, due to the confidentiality of the study, the names of the partners (recipients of technology) were not disclosed.

A second limitation of this research (and intimately related to the first one) was its focus on arrangements that involved outward flow of technology (licensing out). Traditionally, U.S. firms, particularly from the chemical industry, have been

suppliers of technology. So, these firms usually have had out licensing programs. However, the competitive pressure towards a global market has forced these traditional suppliers of technology to begin building "licensing in" programs. That is, through these programs traditional suppliers of technology had become recipients of technology. In these "licensing in" arrangements, several of the analyses and conclusion developed in licensing out arrangements may not be applicable.

Another limitation of this study was its focus upon one industry. This research has focused on the chemical industry. Major empirical works on international cooperative arrangements (Harrigan, 1985; Contractor, 1981, 1985) have been across several industries. By focusing on one industry, the external validity of this study has been reduced. On the other hand, by concentrating on one industry, this research has gained a more detailed and comprehensive understanding about formations of international cooperative arrangements in a specific context. This study, in turn, may help to understand better the formation of international cooperative arrangements in other industries.

A fourth limitation of this research was its focus on only one stage (formation) of the life of a cooperative arrangement. This research was not concerned with the other two stages -- implementation and termination. During the implementation stage, the parties work together obtaining certain output. Usually, this represents an "objective" measure of performance. In general, studies on cooperative arrangements tend to use these type of performance measures and hence they generally concentrate on the implementation stage. This in turn, may explain why there are few studies regarding the formation stage. On the other hand, by focusing on this stage, this

research has allowed a better understanding of the formation of international cooperative arrangements.

A final limitation of this study is associated with three elements of the research methodology employed: (1) the characteristics and size of the sample, as well as the response rate; (2) potential operationalization problems with two constructs; and (3) the interpretation of results from multivariate analysis. First, this study focused on large multinational firms ("Fortune 500" companies) that participate in international cooperative arrangements with companies mainly from developed countries such as Japan, Canada and European countries.

Regarding sample size and response rate, nine companies participate with a total of 48 cooperative arrangements in the descriptive stage of this research. The overall response rate was 45%. This relatively small sample size and moderate to low response rate represents a threat to the external validity of the results from the study. One of the major objectives of this study, however, was to develop an in-depth understanding of the formation of international cooperative arrangements. This objective was mainly achieved by analyzing in detail 27 international cooperative arrangements during the exploratory research. The questionnaires and follow-up interviews of the descriptive research were useful for testing the hypotheses and supporting the conclusions derived from the exploratory research.

Second, potential operationalization problems may have affected the measurements of two constructs: power and risk. Contrary to the propositions advanced, the data failed to reject the null hypothesis of no association between each of these constructs and effectiveness. Although alternative explanation to this lack

of association between variables were presented early in this chapter, the lack of support for the alternative hypothesis may warrant a more careful study of these two constructs. Third, multivariate analysis (factor analysis, multiple linear regression and canonical correlation analysis) were applied to data collected using a five-point Likert-type scale. Technically, the use of these multivariate tools require interval or ratio level data. In this research, an approximation was applied regarding ordinal level data. As suggested by other researchers, data collected with a five-point Likert-type scale can be treated as interval level data. This means that the researcher in interpreting the analytical results of the descriptive research should exercise a degree of caution. This research, however, by the nature of the study, exploratory and conceptual, does not rely exclusively upon the analytical results of the descriptive research.

Directions for Future Research

The topic of this research, formation of international cooperative arrangements, is a relatively unexplored area of research in international business. Thus, the same topic analyzed from another perspective, involving inward flow of technology, in other industries and for different types of partners constitute potential areas of research. In addition, several of the components of the formation of cooperative arrangements, analyzed in this research, deserve to be explored further.

As was pointed out when discussing the limitations of this research, a potential area for further analysis is the formation of international cooperative arrangements from the perspective of the recipient of technology. Furthermore, a closely related

area of research is a study of the formation of cooperative arrangements involving inward flow of technology ("licensing in" arrangements). This may be a follow-up study conducted even with the same suppliers of technology included in this research acting now as recipients of technology. These two follow-up studies may identify topics and/or concepts overlooked in the present research of the formation of international cooperative arrangements.

Expanding this research into other industries such as pharmaceutical, electronics, etc., may constitute a fruitful area of research. A comparative study of the formation of international cooperative arrangements among different industries may provide important insights regarding the conceptualization of the formation of these arrangements. In addition, a study including partners, e.g., recipients of technology mainly from developing countries may help to understand the behavior of suppliers and recipients of technology in this new context.

Besides these topics of research derived from the limitations of this study, the integrated framework for the formation of international cooperative arrangements provided with a list of potential topics for research such as: the impact of technology, the evolution of cooperative arrangements and better measures for the constructs included in this research. Regarding technology, the topic of research may be centered around the question: What is the role of technology in other industries such as electronics, when the formation of cooperative arrangements involves high-technology oriented firms? With reference to cooperative arrangements, they are not static structures. They are constantly evolving. For instance, from a dyadic interaction to a multiple interaction; from a formalized arrangement to an informal

arrangement; and from a simple, "pure" type of arrangement to a complex, hybrid arrangement involving several cooperative arrangements (a nested cooperative arrangement). How does this evolution of the cooperative arrangement impact on the formation of the arrangement? Finally, regarding the constructs explored in this research, risk and power may require better measures and perhaps individual analysis, e.g., a study may focus exclusively on power, its level in the interaction and its changes during the formation and implementation of a cooperative arrangement. In addition, trust is another construct that deserves more attention from researchers. Early in this chapter the importance of trust in the formation of international cooperative arrangements was pointed out. Measurements of trust and its conceptual relationships with other constructs warrant further research.

APPENDICES

APPENDIX A
Research Instrument

Confidential Study on
INTERNATIONAL COOPERATIVE ARRANGEMENTS
sponsored by
Michigan State University

INTRODUCTION:
In the context of this study, international cooperative arrangements refer to interfirm relationships entered into by two independent companies based in different countries. The focus of this research is on two types of cooperative arrangements: licensing agreements and equity joint ventures.

Licensing Agreements exist where firms commit resources to the arrangement but they do not share ownership or profits. Typically, one firm provides intangible assets (patents, trade secrets, etc.). In return, the company receives some form of compensation. The contractual agreement may include other agreements (e.g., supply of components, services, etc.)

Equity Joint Ventures refer to arrangements in which companies invest in assets, share ownership and profits. One party holds at least 10% of the equity. The venture may include the creation of a new entity (child). In conjunction with the equity joint venture, there may be other agreements such as licensing agreements.

Name of the cooperative arrangement or describe it if you wish it concealed:

_____
_____
_____

Date the agreement was signed (year):_____

Type of cooperative arrangement 1-16
_____ **Licensing agreement** - estimated annual income from this licensing agreement: $_____ 1-17
_____ **Equity Joint Venture**
- share of joint venture equity held by your firm at the time of signing the contract_____% 1-18-19
- approximate capital invested by your firm in this joint venture $_____ 1-20

Business unit/division involved_____
Name of the technology transferred_____

1. How long did it take to form this cooperative arrangement ---- from initial contacts up to signing the contract? (Please, round-up to the nearest year) _____(years) 1-21

2. How many executives from your company (negotiators) actively participated in the negotiations?_____ 1-22
(Please describe level and functional expertise) _____

3. Approximately how many meetings with the other company were needed prior to signing the agreement?_____ 1-23-24

4. What was the life of the arrangement as stated in the contract? _____(years) _____not applicable 1-25-26

[CIRCLE APPROPRIATE NUMBER]
5. At the time this cooperative arrangement was signed, the **technology** involved can be best described as:

new and emerging technology				well-developed standardized technology	1-27
1	2	3	4	5	
an incremental advance over older methods				a breakthrough over existing technologies	
1	2	3	4	5	1-28
technology not essential for your firm (peripheral technology)				technology very essential for your firm (core technology)	
1	2	3	4	5	1-29

- Remaining life of the patent(s) protecting this technology_____years 1-30-31
- Number of global suppliers who offered competitive technology at the time of signing_____ 1-32

Please circle the extent of your agreement or disagreement with the following statements. Use the following scale:

SD = Strongly Disagree D = Disagree N = Neither Agree or Disagree
A = Agree SA = Strongly Agree NA = Not Applicable

6. At the time the contractual agreement was signed:

	Strongly Disagree				Strongly Agree		
- Compared to other cooperative arrangements of similar magnitude (e.g., investments, complexity), this arrangement was formed in a relatively short time	SD	D	N	A	SA	NA	1-33
- Compared to other cooperative arrangements in which similar (or the same) technology was involved, this arrangement was formed in a relatively short time	SD	D	N	A	SA	NA	1-34
- Overall, your company was very satisfied with the terms of the agreement	SD	D	N	A	SA	NA	1-35
- Your company was very satisfied with this partner	SD	D	N	A	SA	NA	1-36
- The other party was also very satisfied with the terms of the agreement	SD	D	N	A	SA	NA	1-37
- The other party was also very satisfied with your company	SD	D	N	A	SA	NA	1-38
- The distribution of rewards, as stated in the agreement, was equitable for both companies	SD	D	N	A	SA	NA	1-39
- Forming this cooperative arrangement was a great accomplishment for your company	SD	D	N	A	SA	NA	1-40
- At the time, your company was very interested in forming other arrangements with this partner	SD	D	N	A	SA	NA	1-41
- At the time, the other party was very interested in forming other arrangements with your company	SD	D	N	A	SA	NA	1-42
- Overall, forming this arrangement brought a lot of benefits to your company	SD	D	N	A	SA	NA	1-43
- Overall, forming this arrangement brought a lot of benefits to your partner	SD	D	N	A	SA	NA	1-44
- Overall, your firm achieved a great deal of its expected objectives through negotiations	SD	D	N	A	SA	NA	1-45

7. During the formation of this cooperative arrangement:

- senior managers from your company (CEO, president, vice-president) were active participants	SD	D	N	A	SA	NA	1-46
- there was a great deal of communication between companies (visits to each other's companies, meetings, written and telephone communications)	SD	D	N	A	SA	NA	1-47
- your company made several major adaptations in technology and/or products to better satisfy the needs of the other party	SD	D	N	A	SA	NA	1-48
- your company made several investments in fixed assets (e.g., buildings) to be assigned to this arrangement	SD	D	N	A	SA	NA	1-49
- your firm made considerable efforts to acquire a great deal of information about the other firm	SD	D	N	A	SA	NA	1-50

8. At the time this cooperative arrangement was signed:

- both firms had compatible philosophies/approaches to business dealings	SD	D	N	A	SA	NA	1-51
- both firms had compatible objectives regarding this arrangement	SD	D	N	A	SA	NA	1-52
- executives from both firms, involved in the negotiations, had compatible ethics about business dealings	SD	D	N	A	SA	NA	1-53
- executives from both firms, involved in the negotiations, had compatible time horizons	SD	D	N	A	SA	NA	1-54

10. During the formation of this cooperative arrangement: **Strongly Disagree** **Strongly Agree**

- the country of origin of your partner (the arrangement was located there) offered very few environmental risks (the economic and political system were very stable)	SD	D	N	A	SA	NA	1-59
- your partner had an excellent organization and procedures for protecting trade secrets and technology	SD	D	N	A	SA	NA	1-60
- your partner had a great deal of respect for proprietary rights	SD	D	N	A	SA	NA	1-61
- your partner had a strong reputation of honoring agreements	SD	D	N	A	SA	NA	1-62
- the risk of partner misuse and/or leakage of essential technology/trade secrets was very low	SD	D	N	A	SA	NA	1-63
- the risk of damaging your company's reputation (e.g., a licensee may manufacture low quality products using your technology and trade-mark) by entering in this arrangement was very low	SD	D	N	A	SA	NA	1-64
- the risk of the partner not living up to the terms of the agreement was very low	SD	D	N	A	SA	NA	1-65

11. At the time this cooperative arrangement was signed:

- this arrangement was not seen as an important potential contributor to the overall profitability of your company	SD	D	N	A	SA	NA	1-66
- your company could have undertaken this arrangement by itself	SD	D	N	A	SA	NA	1-67
- there were several well-qualified potential partners interested in forming this cooperative arrangement with your firm	SD	D	N	A	SA	NA	1-68

12. At the time this cooperative arrangement was signed, what resources did your company and your partner contribute to the arrangement? Contributions should add up to 100%.

	your contribution	partner's contribution	not pertinent to the arrangement	
- technology: proprietary rights and/or patents	____%	____%	NA	1-69-71
- technology: blueprints/manuals and know-how	____%	____%	NA	1-72-74
- managerial skills	____%	____%	NA	1-75-77
- marketing skills	____%	____%	NA	1-78-80
- experience in international business and/or cooperative arrangements	____%	____%	NA	2-17-19
- reputation/image	____%	____%	NA	2-20-22
- brand-name	____%	____%	NA	2-23-25
- network of suppliers	____%	____%	NA	2-26-28
- financial resources	____%	____%	NA	2-29-31
- raw materials	____%	____%	NA	2-32-34
- productive capacity	____%	____%	NA	2-35-37
- distribution/sales force	____%	____%	NA	2-38-40
- contacts with government officials	____%	____%	NA	2-41-43
- access to foreign markets	____%	____%	NA	2-44-46
- access to low labor costs	____%	____%	NA	2-47-49
- other (please specify)_____	____%	____%	NA	2-50-52

13. At the time this arrangement was planned, what benefits did you anticipate? Please check (✓) the anticipated benefits from the following list. Also, indicate on a scale of 1 to 5, how important each item was to your firm.

	anticipated benefits	not important				very important	
- obtaining earnings/royalties	____	1	2	3	4	5	2-53-54
- developing/obtaining a new product which complemented your product line	____	1	2	3	4	5	2-55-56
- using excess capacity of your plants	____	1	2	3	4	5	2-57-58
- gaining access to proprietary rights/patents	____	1	2	3	4	5	2-59-60
- sharing total capital investment needed for the arrangement	____	1	2	3	4	5	2-61-62
- entering into a market quickly	____	1	2	3	4	5	2-63-64
- linking your firm with strong local political ties	____	1	2	3	4	5	2-65-66

(OVER, Please)

	anticipated benefits	not important				very important	
- achieving economies of scale	____	1	2	3	4	5	2-67-68
- obtaining products at lower cost	____	1	2	3	4	5	2-69-70
- increasing market share	____	1	2	3	4	5	2-71-72
- overcoming trade barriers/government mandates	____	1	2	3	4	5	2-73-74
- gaining knowledge of foreign markets	____	1	2	3	4	5	2-75-76
- reducing the time for building your company's own distribution/sales force network	____	1	2	3	4	5	2-77-78
- gaining new skills/knowledge/technology	____	1	2	3	4	5	2-79-80
- gaining access to raw materials/components	____	1	2	3	4	5	3-17-18
- reducing research and development costs	____	1	2	3	4	5	3-19-20
- achieving higher product quality	____	1	2	3	4	5	3-21-22
- reducing competition (one less competitor) in the specific area of the arrangement	____	1	2	3	4	5	3-23-24
- reducing risk of expropriation	____	1	2	3	4	5	3-25-26
- other (please specify)_____		1	2	3	4	5	3-27-28

YOUR PERCEPTIONS OF THE PARTNER
[CIRCLE APPROPRIATE NUMBER]

14. During formation of this cooperative arrangement, the level of commitment to the arrangement from your partner was:

a lot lower than your own level of commitment		equal (balanced)		a lot higher than your own level of commitment	
1	2	3	4	5	3-29

15. During formation of this cooperative arrangement, your partner's need and desire to form this arrangement were:

a lot lower than your own need and desire		equal (balanced)		a lot higher than your own need and desire	
1	2	3	4	5	3-30

16. During the negotiations of this cooperative arrangement, who had "the upper hand"?

clearly your company		neither your firm nor the other company (balanced)		clearly the other firm	
1	2	3	4	5	3-31

Information about your partner:
Name of the firm:_____ 3-32
Country of origin:_____ 3-33
Approximate number of employees:_____ 3-34
Has your company had any previous business transactions with this firm?
____ yes ____ no ____ don't know 3-35

Would your company do business with this partner again in the future?
____ yes ____ no ____ don't know 3-36

Information about yourself:
Name:_____ phone # (____)_____
Your job function (marketing, production, etc.):_____ 3-37
Your experience in international business (years):_____ 3-38
Your experience with joint ventures: years____ # of agreements____
licensing agreements: years____ # of agreements____

THANK YOU VERY MUCH FOR YOUR COOPERATION

APPENDIX B
Description of Cooperative Arrangements

Company B
(Patent and technology license agreement with company B)
Leading manufacturer of equipment in England. Company B has built equipment for third parties. Company A provided the patent(s) and technology (gas conditioning) for building/operating the equipment. In return, company B paid a fee per unit. Six units have been built in different areas of the world.

Company C
(Equity joint venture -- 50/50 -- with company C)
Leading British company in the area of industrial gases. Company A and company C formed a 50/50 independent company for the production and commercialization of gas separation systems. Patent(s) and know-how were licensed to the joint venture. No limitations were imposed upon the geographic area covered by the joint venture.

Company D
(Equity joint venture -- 50/50 -- with company D)
Large distributor of products in Saudi Arabia. Former distributor of company A's products. Companies A and C formed a 50/50 venture for the production of plastics. Saudi Arabian government required a local partner. Company A received royalties for technology and trademarks. The geographic market was limited to Saudi Arabia and neighboring countries.

Company E
(Equity joint venture -- 50/50 -- with company E)
Large company manufacturer of chemicals in Japan. Initially, this joint venture was with a different party. Company A bought the business part of this party. After restructuring the venture, the partners agreed to initiate the production and commercialization of synthetic resins for the Japanese market.

Company F
(Patent license agreement with company F)
Large steel manufacturer from Japan. Company A had patent(s) for the manufacturing of MPL (Metal Plastic Laminates). Japanese firm had its own technology. License agreement included rights to manufacture product in Japan and sell it worldwide. Company F paid royalties and front-end payment.

Company G
(Cross-license agreement with company G)
Large Japanese manufacturer of chemicals. Company A and company G decided to exchange know-how and patents in specific area of the production of thermoplastic resins. Both companies granted each other worldwide, royalty-free license.

Company H
(Equity joint venture -- 50/50 -- with company H)
Large American chemical company. Company A and company H formed a 50/50 independent company for the production and commercialization of elastomers. Company H provided marketing infrastructure and manufacturing facilities. Company A provided the technology and patents. Each partner supplied complementary components for manufacturing the final product. Joint venture and global markets.

Company I
(Equity joint venture -- 50/50 -- with company I)
Small Italian company. Company I and company A were initially engaged in joint research for developing systems for the production of gases. Company I provided the manufacturing and marketing infrastructure for commercializing the systems. Company A provided the technology and rights to make, use, and sell the systems worldwide. The initial arrangement evolved into a 50/50 joint venture.

Company J
(Patents and technology license agreement with company J)
Large Korean manufacturer of chemical products. Company J was partner of company A in a previous arrangement manufacturing inorganic compounds. The new arrangement included the supply of improved technology. Company A provided the patent rights and know-how for using certain systems for the manufacturing of the product in Korea. Technical service was provided. In return, company J paid initial fee plus royalties based on the tonnage of product manufactured.

Company K
(Equity joint venture -- 50/50 -- with company K)
Large Hungarian chemical company. The Hungarian government required the participation of a trading company. This company was involved with minor equity investment (5%) and a nominal role in the joint venture. Company K was very instrumental in the joint venture by bringing its knowledge of the market and relationships with the government. Company A provided technology and trade-marks for the manufacturing and marketing of plastics in the Hungarian market. Running royalties were negotiated for both technology and trade-marks.

Company L
(Patent license with company L)
Large machine and tool manufacturer in Germany. Company L was interested in showing machinery developed for plastic extrusion in the largest plastics trade show in the world. Company A had patents and know-how for the process. In addition, company A wanted a demonstration of a chemical product to be used in the manufacturing of certain plastics. Company A granted company L patent rights in return for a showcase demonstration in the trade show.

Company M
(Patent and technology license agreement with company M)
Leading manufacturer and supplier of plastic containers for household products in Germany. Company A developed a device for containers. It had patents and know-how. Company A granted company M exclusive license to manufacture, use, and sell this device in Europe, Africa and the Middle East. In return, an initial fee and royalties were negotiated.

Company N
(Technology license agreement with company N)
Large Chinese company. Firm N wanted up-to-date, sophisticated technology in the area of plastics. Chinese government permitted only license agreements for this technology. Company A had the know-how and expertise. The non-exclusive license agreement included the right to manufacture, use, and sell the product in the Chinese market. An up-front payment was negotiated, royalties were not included. Technical services were provided.

Company O
(Equity joint venture -- 50/50 -- with company O)
Small Canadian firm. Companies O and A, prior to forming the joint venture, worked together in a research agreement for developing systems and equipment to produce an inorganic compound. In the joint venture, both firms provided patents and know-how. The joint venture had exclusive rights to use the technology and improvements in the North American market. The joint research evolved into a 50/50 joint venture.

Company P
(Option for a patent and technology license agreement with company P)
Large chemical manufacturer in Japan. Company P was interested in the technology and the patent(s) for manufacturing an organic compound. Company A had already decided to exit this business. The agreement included an exclusive option in several Asian countries. Fees were negotiated.

Company Q
(Patent license agreement with company Q)
Manufacturer of plastics from the Netherlands (subsidiary of a large Japanese company). Company Q was infringing a valid patent of company A. Company A granted company Q a non-exclusive license to manufacture in Holland and use and sell the product in Europe. Company Q paid royalties and an initial fee to avoid litigation.

Company R
(Patent and technology license agreement with company R)
Small and emerging American firm in the field of instrumentation. Company A had patents and know-how regarding methods, materials and design of equipment in this field. Company A granted company R an exclusive license in the US and non-exclusive license worldwide. In return, company R paid an initial fee and royalties with shares of stock (small equity investments).

Company S
(Patent and technology license agreement with company S)
Leading Japanese manufacturer of chemicals. Company S and company A were engaged in an early arrangement involving the same technology on elastomers. Company S was interested in the technology and patent rights regarding this product. Company A granted company S an exclusive license to make, use, and sell product in Japan. Initial fee and royalties were included in the agreement.

Company T
(Patent and technology license agreement with company T)
Leading manufacturer of chemicals in France. Company T was expanding its main business -- the manufacturing of plastics -- into several markets and products. It needed technology and patents rights. Company A was exiting this business. Company A granted company T the rights for manufacturing product in the U.S. The agreement included supply of raw material from company A. Royalties were negotiated.

Company U
(Patent license agreement with company U)
Small Austrian company. Company U had the technology for manufacturing an organic compound. It was expanding its business into other markets. It needed patent rights. Company A granted company U an exclusive license to make, use, and sell product in Europe. The agreement included royalties as a percentage of sales of product.

Company V
(Patent license agreement with company V)
Large Japanese company. Company V had technology for manufacturing plastic products. It needed patent rights for producing certain designs in its final product. Company A granted company V a non-exclusive license to manufacture, use, and sell the product in Japan. The agreement included an initial fee and royalties.

Company W
(Patent cross-license agreement with company W)
Leading manufacturers of paper in France. Company W and company A had patent rights, in the U.S. and Canada, regarding the manufacture of certain paper. Both companies agreed to exchange patent rights. A fee, paid by company A, was negotiated.

Company X
(Patent license agreement with company X)
Small British company. Company X wanted to become representative for a computer program, developed by company A, in Europe. Company A granted company X a non-exclusive license (with the right to sub-license) for certain countries of Europe. The agreement included commissions and license fees.

Company Y
(Equity joint venture -- 50/50 -- with company Y)
Large Japanese company. Company Y and company A formed a 50/50 independent company for the production and commercialization of an organic compound. Technology was licensed to the joint venture. The geographic market was limited to Japan.

Company Z
(Know-how license agreement with company Z)
Large Japanese company. Company Z had specific know-how regarding the manufacture of plastics that was of interest for company A. Company Z granted company A an exclusive license for the North American market ("licensing in" agreement). The agreement included royalties.

Company AA
(Know-how license agreement with company AA)
Large German company. Company AA had patents and technology regarding a process which included the use of an inorganic compound. Company A needed the rights to practice this technology. Company AA granted company A a non-exclusive license for the U.S. ("licensing in" agreement).

Company BB
(Know-how license agreement with company BB)
Large Italian company. Company BB had technology regarding the production of certain elastomers. Company A wanted to participate in that product and market. Company A bought a certain percentage of equity of company BB. The agreement included access to the technology and the rights to practice it in other markets ("licensing in" agreement).

APPENDIX C
Kendall Tau-B Correlations

Tau-B Correlations: Effectiveness and Commitment

	Composite One			Composite Two			Composite Three		
Items Commitment	EACSFY	EBENTY	EPBEN	ESATWA	EPSATWA	EACHOBJ	ESATWP	EDISTRW	EPSATWY
CSMGR	.27**	.26**	.15	-.05	-.13	.08	.09	-.01	-.10
CCOMM	.41***	.15	.21*	-.02	-.03	.00	.03	-.01	.07
CADAPT	.12	.31**	.20*	-.20*	.12	-.09	.03	-.01	-.07
CINVEST	.03	.08	.08	-.10	-.10	-.03	.10	-.09	.05
CINFO	.29**	.25**	.29**	-.05	.00	.00	-.05	-.15	.00

*** significant at p < .01
** significant at p < .05
* significant at p < .10

Tau-B Correlations: Effectiveness and Trust

	Composite One			Composite Two			Composite Three		
Items Trust	EACSFY	EBENTY	EPBEN	ESATWA	EPSATWA	EACHOBJ	ESATWP	EDISTRW	EPSATWY
TCOMPP	.06	.06	-.10	.02	.01	-.08	.30**	.11	.05
TCOMPO	.19*	.29**	.27**	.05	.43***	.14	.40***	.18	.25**
TCOMPE	.13	.00	-.11	-.22*	.01	.00	.33**	.15	.11
TCOMPT	-.15	-.16	-.21*	-.05	-.14	.01	.18	.17	-.07
TPDEALSF	.15	.10	-.00	-.03	.03	.11	.41***	.22*	.19*
TRELIAB	.00	-.15	-.06	.03	.46***	.05	.45***	.13	.29**
TTECHSK	-.19*	.04	.00	.21*	-.03	.13	.03	.02	-.05
TMGRSK	.24**	.38***	.28**	.29**	.27**	.17	.27**	.14	.18

*** significant at p < .01
** significant at p < .05
* significant at p < .10

Tau-B Correlations: Effectiveness and Risk

	Composite One			Composite Two			Composite Three		
Items Risk	EACSFY	EBENTY	EPBEN	ESATWA	EPSATWA	EACHOBJ	ESATWP	EDISTRW	EPSATWY
RSCOUNT	.05	.05	-.02	.03	-.02	-.01	.30**	.24**	.15
ROPROTEC	-.03	.04	-.02	.12	.12	.02	.31**	.14	.07
RRPRIGH	.02	.09	.07	.13	.27**	.23**	.43***	.31**	.26**
RRHOAG	.11	.03	.09	.10	.14	.07	.32**	.12	.19*
RPMISUS	-.07	.09	.04	.19*	.14	.07	.28**	.07	.10
RDAMAGR	-.10	.03	.17	.13	.28**	.03	.29**	-.01	.19*
RPNOTLIV	.12	.23**	.26**	.06	.12	-.04	.30**	.21*	.12

*** significant at p < .01
** significant at p < .05
* significant at p < .10

NOTE: The labels of each item are at the end of this appendix.

Tau-B Correlations: Effectiveness and Power

	Composite One			Composite Two			Composite Three		
Items Power	EACSFY	EBENTY	EPBEN	ESATWA	EPSATWA	EACHOBJ	ESATWP	EDISTRW	EPSATWY
PANOTIMP	-.45***	-.44***	-.21*	-.22**	-.02	-.11	-.07	.08	-.07
PITSELF	-.07	-.13	-.11	-.08	-.02	-.10	-.12	.06	-.10
PPOTENP	.20*	.16	.27**	.08	.24**	-.00	.06	.02	-.02
PTECHP	.19*	-.06	.17	.03	-.13	-.11	-.09	-.14	-.08
PTECHKH	.16	-.17	.04	.06	-.27**	-.21*	-.24*	-.09	-.13
PMGRSK	.05	.15	.13	.08	.17	.11	.21*	.11	.21*
PMTASK	.18	-.02	-.07	.03	.04	.08	.09	-.04	.21*
PEXPIB	.23*	.05	.15	.10	.09	-.10	.02	-.33**	-.02
PREPUTAT	-.16	-.24*	.21	.00	.00	-.14	-.21	-.30**	.13
PBRANDN	-.08	-.47**	-.38**	-.23	-.36**	-.25	-.43**	.25	-.39**
PSUPPL	-.19	-.01	.06	-.03	-.03	-.03	-.08	.16	-.05
PFINANC	.00	.11	-.09	-.19	-.04	-.04	-.36**	-.20	-.35**
PRAWMAT	.15	.36**	.23	-.01	.00	.18	-.11	.29*	-.14
PPRODCAP	.27*	.29**	.03	.06	.17	-.17	-.08	-.15	-.17
PDISTRIB	-.04	-.11	-.04	-.03	.17	-.10	.23*	.04	.28**
PCONTACT	-.16	.27*	.22	.19	.16	.36**	.11	.21	.24
PACCESMK	-.14	-.32*	-.10	-.02	-.15	-.08	-.08	-.23	-.00
PLOWLAB	-.51**	-.07	-.31	.19	.60**	.14	.12	.08	-.16

*** significant at p < .01
** significant at p < .05
* significant at p < .10

Tau-B Correlations: Effectiveness and Motivation

	Composite One			Composite Two			Composite Three		
Items Commitment	EACSFY	EBENTY	EPBEN	ESATWA	EPSATWA	EACHOBJ	ESATWP	EDISTRW	EPSATWY
MEARNING	.21*	.16	.26**	.40***	.03	.24*	.16	.08	.31**
MCOMPLEP	.05	.37***	.20*	-.01	.13	.15	.22*	-.07	.16
MUCAPAC	.18*	.25**	.30**	.05	.06	.21*	.01	.09	-.02
MACCESP	.03	.16	-.12	-.11	-.04	.10	-.08	.14	-.11
MSHCAPIT	.20*	.21*	.23**	.00	.05	.02	.20*	.25**	.20*
MENTMK	.22*	.42**	.16	.00	.14	.02	.20*	-.18*	-.03
MENKP	.11	.08	.20*	-.10	-.12	-.12	-.03	-.16	-.03
MECONS	.00	.09	.19*	.11	-.05	.12	-.12	-.27**	.05
MPLOWCOS	-.18*	-.21*	.04	-.18	-.09	.09	-.13	-.05	.00
MMKSH	.16	.38***	.34***	.04	.20*	.23*	.32**	-.08	.06
MOVERTB	.00	.04	.07	.04	-.08	.02	-.05	-.25**	-.13
MKNOWLMK	.19*	.20*	.25**	-.03	.04	.06	-.11	-.04	-.07
MLTIME	.10	.26**	.26**	-.03	.08	.02	.16	.02	-.02
MGSKK	.00	.22**	.00	-.18*	.20*	.03	.16	.18	-.04
MACCESRM	.16	.03	.12	-.05	.05	.06	.12	.13	.15
MLOWRD	.01	.05	-.12	-.05	.17	-.05	.06	.27**	.04
MPQUALI	.09	-.06	-.02	-.21*	.08	-.03	-.06	.06	-.21*
MLCOMPET	.17	.28**	.34**	-.05	.18	.07	.08	-.05	-.09
MLRISK	-.25**	-.13	.13	-.11	.05	.05	-.05	-.04	.13

*** significant at p < .01
** significant at p < .05
* significant at p < .10

NOTE: The labels of each item are at the end of this appendix.

Effectiveness

Variable Label	Description
ESATWA	Overall, your company was very satisfied with the terms of the agreement
ESATWP	Your company was very satisfied with this partner
EPSATWA	The other party was also very satisfied with the terms of the agreement
EPSATWY	The other party was also very satisfied with your company
EDISTRW	The distribution of rewards, as stated in the agreement, was equitable for both companies
EACSFY	Forming this cooperative arrangement was a great accomplishment for your company
EBENTY	Overall, forming this arrangement brought a lot of benefits to your company
EPBEN	Overall, forming this arrangement brought a lot of benefits to your partner
EACHOBJ	Overall, your firm achieved a great deal of its expected objectives through negotiations

Commitment

Variable Label	Description
CSMGR	Senior managers from your company (CEO, president, vice-president) were active participants
CCOMM	There was a great deal of communication between companies (visits to each other's companies, meetings, written and telephone communications)
CADAPT	Your company made several major adaptations in technology and/or products to better satisfy the needs of the other party
CINVEST	Your company made several investments in fixed assets (e.g., buildings) to be assigned to this arrangement
CINFO	Your firm made considerable efforts to acquire a great deal of information about the other firm

Trust

Variable Label	Description
TCOMPP	Both firms had compatible philosophies/approaches to business dealings
TCOMPO	Both firms had compatible objectives regarding this arrangement
TCOMPE	Executives from both firms, involved in the negotiations, had compatible ethics about business dealings
TCOMPT	Executives from both firms, involved in the negotiations, had compatible time horizons
TPDEALSF	Your partner was very interested in dealing fairly
TRELIAB	Your partner was perceived as reliable
TTECHSK	Your partner had technical skills and infrastructure for fulfilling its role in the arrangement
TMGRSK	Your partner had the managerial skills and organizational resources capable of accomplishing what was promised in the contractual agreement

Risk

Variable Label	Description
RSCOUNT	The country of origin of your partner (the arrangement was located there) offered very few environmental risks (the economic and political system were very stable)
RSPROTECT	Your partner had an excellent organization and procedures for protecting trade secrets and technology
RRPRIGH	Your partner had a great deal of respect for proprietary rights
RRHOAG	Your partner had a strong reputation of honoring agreements
RPMISUS	The risk of partner misuse and/or leakage of essential technology/trade secrets was very low
RDAMAGR	The risk of damaging your company's reputation (e.g., a licensee may manufacture low quality product using your technology and trade-mark) by entering in this arrangement was very low
RPNOTLIV	The risk of the partner not living up to the terms of the agreement was very low

Power

Variable Label	Description
PANOTIMP	This arrangement was not seen as an important potential contributor to the overall profitability of your company
PITSELF	Your company could have undertaken this arrangement by itself
PPOTENP	There were several well-qualified potential partners interested in forming this cooperative arrangement with your firm
PTECHP	Technology: proprietary rights and/or patents
PTECHKH	Technology: blueprints/manuals and know-how
PMGRSK	Managerial skills
PMTASK	Marketing skills
PEXPIB	Experience in international business and/or cooperative arrangements
PREPUTAT	Reputation/image
PBRANDN	Brand-name
PSUPPL	Network of suppliers
PFINANC	Financial resources
PRAWMAT	Raw materials
PPRODCAP	Productive capacity
PDISTRIB	Distribution/sales force
PCONTACT	Contacts with government officials
PACCESMK	Access to foreign markets
PLOWLAB	Access to low labor costs

Motivation

Variable Label	Description
MEARNING	Obtaining earnings/royalties
MCOMPLEP	Developing/obtaining a new product which complemented your product line
MUCAPAC	Using excess capacity of your plants
MACCESP	Gaining access to proprietary rights/patents
MSHCAPIT	Sharing total capital investment needed for the arrangement
MENTMK	Entering into a market quickly
MENKP	Linking your firm with strong local political ties
MECONS	Achieving economies of scale
MPLOWCOS	Obtaining products at lower cost
MMKSK	Increasing market share
MOVERTB	Overcoming trade barriers/government mandates
MKNOWLMK	Gaining knowledge of foreign markets
MLTIME	Reducing the time for building your company's own distribution/sales force network
MGSKK	Gaining new skills/knowledge/technology
MACCESRM	Gaining access to raw materials/components
MLOWRD	Reducing research and development costs
MPQUALI	Achieving higher product quality
MLCOMPET	Reducing competition (one less competitor) in the specific area of the arrangement
MLRISK	Reducing risk of expropriation

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