INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.
Strategic alliances: An exploration of their incidence, configuration and transformation in Europe, North America and the Pacific Rim from 1985 to 1991

Horton, Veronica Clare, Ph.D.

The Ohio State University, 1992

Copyright ©1992 by Horton, Veronica Clare. All rights reserved.
STRATEGIC ALLIANCES: AN EXPLORATION OF THEIR INCIDENCE, CONFIGURATION AND TRANSFORMATION IN EUROPE, NORTH AMERICA AND THE PACIFIC RIM FROM 1985 TO 1991

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy in the Graduate School of The Ohio State University

By

Veronica Clare Horton, B.S., M.A.

* * * * *

The Ohio State University

1992

Dissertation Committee

Bernard J. La Londe

Riad Ajami

H. Lee Mathews

Approved By

[Signature]

Adviser

[Signature]

Graduate Program in Business Administration
To Jack
ACKNOWLEDGEMENTS

I would like to express my sincere appreciation and gratitude to my dissertation adviser, Dr. Bernard J. La Londe. His guidance, insight, commitment and encouragement throughout this research and the Ph. D. program has been invaluable. I would also like to thank my other committee members, Dr. Riad Ajami and Dr. H. Lee Mathews, for the continual encouragement and counsel they have provided during the last four and a half years. Finally, I thank Jack, my family and Max for their love and support throughout this endeavor.
VITA

February 28, 1963............... Born - Columbus, Ohio

1985.......................... B.S., Business Administration/
International Business, The Ohio
State University, Columbus, Ohio

New York, New York

1987-1992....................... Graduate Teaching Assistant,
The Ohio State University,
Columbus, Ohio

1990........................... M.A., Business Administration,
The Ohio State University,
Columbus, Ohio

PUBLICATIONS

Veronica Horton and James Bassett, Proceedings of the 1991 Academy
of International Business Midwest Regional Meeting.

FIELDS OF STUDY

Major Field: Business Administration
Area: International Business

Minor Field: Marketing

iv
TABLE OF CONTENTS

DEDICATION............................................. ii

ACKNOWLEDGEMENTS....................................... iii

VITA................................................... iv

LIST OF TABLES........................................ ix

LIST OF FIGURES....................................... x

CHAPTER

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. OVERVIEW OF THE RESEARCH</td>
<td></td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Transaction Cost Perspective</td>
<td>3</td>
</tr>
<tr>
<td>Strategic Perspective</td>
<td>3</td>
</tr>
<tr>
<td>Organizational Behavior Perspective</td>
<td>4</td>
</tr>
<tr>
<td>Research Problem</td>
<td>4</td>
</tr>
<tr>
<td>Objectives Of The Research</td>
<td>5</td>
</tr>
<tr>
<td>Stage One: Strategic Alliance Incidence</td>
<td>6</td>
</tr>
<tr>
<td>Stage Two: Strategic Alliance Transformation</td>
<td>7</td>
</tr>
<tr>
<td>Research Scope</td>
<td>8</td>
</tr>
<tr>
<td>Research Hypotheses</td>
<td>8</td>
</tr>
<tr>
<td>Stage One: Strategic Alliance Incidence</td>
<td>9</td>
</tr>
<tr>
<td>Stage Two: Strategic Alliance Transformation</td>
<td>11</td>
</tr>
<tr>
<td>Methodology</td>
<td>11</td>
</tr>
<tr>
<td>Assumptions And Limitations</td>
<td>13</td>
</tr>
<tr>
<td>Research Contributions</td>
<td>15</td>
</tr>
<tr>
<td>Organization Of The Research</td>
<td>18</td>
</tr>
</tbody>
</table>
II. LITERATURE REVIEW

| Section One: Theoretical Perspective | 21 |
| Transaction Cost Perspective | 21 |
| Strategic Behavior Perspective | 38 |
| Organizational Behavior Perspective | 47 |
| Section Two: Strategic Alliance Transformation | 51 |
| Section Three: Strategic Alliance Taxonomy | 59 |

| Taxonomy Of Strategic Alliances Used In This Research | 71 |
| Section Four: Empirical Studies On Strategic Alliances | 75 |
| Section Five: Methodology Of Empirical Research | 88 |
| Summary | 95 |

III. METHODOLOGY

| Research Design | 96 |
| Research Questions | 102 |
| Stage One: Strategic Alliance Incidence | 103 |
| Stage Two: Strategic Alliance Transformation | 118 |
| Summary | 123 |

IV. RESULTS

| Research Results | 124 |
| Stage One: Strategic Alliance Incidence | 124 |
| Stage Two: Strategic Alliance Transformation | 147 |
| Other Research Results | 158 |
| Summary | 178 |
V. DISCUSSION AND CONCLUSIONS

Section One: Research Findings and Conclusions..... 181
Stage One: Strategic Alliance Incidence......... 181
Section Two: Research Findings and Conclusions..... 205
Stage Two: Strategic Alliance Transformation..... 205
Section Three: Summary Findings...................... 216
Section Four: Research Implications and Conclusions 223
Research Implications and Conclusions
for Practitioners............................................. 223
Research Implications and Conclusions
for Academicians............................................. 225
Transaction Cost Perspective................. 225
Strategic Perspective............................................ 228
Organizational Behavior Perspective............. 232
Research Implications and Conclusions
for Public Policy Makers......................... 233
Section Four: Areas For Future Research........... 236
Summary.......................................................... 243
APPENDICES

A Taxonomy Of Strategic Alliances ..................... 245
B Definition Of Strategic Alliance Failure ............. 250
C Technical Note On Data Collection .................... 251
D Tables Of Research Data ............................ 254
E First 25 Firms in Fortune's Global 500 ............. 258
F Country Classification ................................ 259
G Industry Groups .................................... 262

BIBLIOGRAPHY ............................................ 264
LIST OF TABLES

1. Different Classification Schemes
   For Alliance Forms................................. 187

2. Legal Form By Nationality............................. 188

3. Legal Form By Collaboration Location............... 203

4. Failure Ratios.................................... 212

5. Type By Year..................................... 254

6. Alliances By Level Of Economic Development...... 255

7. Alliances By Number................................ 255

8. Data On Transformation............................. 256
LIST OF FIGURES

1. Strategic Alliance Formation 1985 to 1991....... 127
2. Strategic Alliance Formation 1985 to 1991,
Unweighted Data............................. 129
3. Strategic Alliance Formation 1985 to 1991,
Weighted Data............................... 130
4. Strategic Alliance Incidence By Form.............. 132
5. Strategic Alliance Incidence By Nationality.... 136
6. Strategic Alliance Incidence By Level of Economic Development........ 138
7. Strategic Alliance Incidence By Industry......... 140
8. Strategic Alliance Incidence By Motive.......... 143
9. Strategic Alliance Incidence By Number of Participants................. 145
10. Strategic Alliance Failure 1985 to 1991....... 149
11. Strategic Alliance Transformation By Industry... 151
12. Strategic Alliance Transformation By Form....... 153
13. Strategic Alliance Transformation By Type....... 155
14. Strategic Alliance Transformation By Location... 157
15. Strategic Alliance Incidence By Mode............ 161
16. Strategic Alliance Incidence By Type............ 162
17. Strategic Alliance Formation 1985 to 1991
Wall Street Journal Data......................... 164
18. Strategic Alliance Incidence By Location
Wall Street Journal Data......................... 166
19. Strategic Alliance Incidence By Nationality
   Wall Street Journal Data..................  168

20. Strategic Alliance Formation 1985 to 1991
   Financial Times Data......................  170

21. Strategic Alliance Incidence By Location
   Financial Times Data.......................  171

22. Strategic Alliance Incidence By Nationality
   Financial Times Data.......................  173

23. Strategic Alliance Formation 1985 to 1991
   Japan Economic Journal Data.................  175

24. Strategic Alliance Incidence By Location,
   Japan Economic Journal Data................  177

25. Strategic Alliance Incidence By Nationality,
   Japan Economic Journal Data................  179
CHAPTER I

Overview Of The Research

Introduction

The business environment today is one of intense global competition, rapid technological change and demanding consumers. Firms operating in this environment are challenged by consumers to rapidly develop wider product lines that encompass greater technological sophistication and quality, yet are still low priced. At the same time, global competition has forced corporations to seek new markets which in turn has speeded up this cycle of product development and simultaneously created "world" markets. However, firms are finding that the costs of increased research and development and entry into new markets are formidable. Today's corporations are realizing that the days of large, vertically integrated businesses are rapidly decreasing, that one firm can no longer afford, monetarily and/or organizationally, to maintain sophistication in all levels of technology or develop distribution channels in multiple countries and so forth. Rather, as a means of meeting the combined challenges of entering or maintaining markets with new, better products many firms are realizing that they must find outside
partners to share the costs and hence, are forming strategic alliances (Spekman and Sawhney, 1990; Goldhar and Lei, 1991). Yet, all the euphoria over the new way of doing business appears to be masking a critical problem with strategic alliances: that companies are quick to form alliances, but may be reluctant to ensure their continuing success. In fact, a disturbing study by McKinsey & Co. and Coopers and Lybrand found that "some 7 out of 10 joint ventures fall short of expectations or are disbanded" (Business Week, 1986).

It appears that the move toward the formation of strategic alliances will not quickly abate. This suggests that if international business is to be fully understood, one must comprehend all strategic alliances, international and domestic, why they are forming, where, industry-wise, they are forming, who is most likely to enter an alliance, and why. Moreover, and perhaps more important, strategic alliance transformation must be understood; which industries are commonly involved in failure, where alliances are most likely to fail, who is most frequently involved in failed alliances, and what forms typically fail. The terms "strategic alliance" and "strategic alliance failure" are defined in Appendices A and B respectively.

Strategic alliances can be explored from three theoretical perspectives: the transaction cost perspective, the strategic
rationale perspective and the organizational behavior perspective (Kogut, 1988). Each perspective will be briefly outlined below.

Transaction Cost Perspective

Transaction cost theory proposes that transactions can be coordinated in alternative ways. Transactions at one end of a continuum are internalized, thus increasing the size of the firm. At the other end of the continuum is the arms-length or market transaction. Transactions at this end of the continuum are one-time occurrences. Between these two extremes are strategic alliances. According to transaction cost theory, firms will choose the governance mode that minimizes costs.

Strategic Perspective

The strategic perspective of strategic alliances is focused on maximizing profits. Hence, according to this perspective firms will develop their strategies in a profit optimizing manner to best meet the changing business environment surrounding them. Today's business environment is a rapidly changing one, and has become increasingly global in nature. Thus, new competitors are emerging and consumers are becoming more demanding. Many firms are finding that they can no longer afford to act alone, rather, they must collaborate with other companies. In this manner, strategic strengths can be maximized, and weaknesses can be
minimized.

Organizational Behavior Perspective

The third perspective, organizational behavior, views strategic alliances as a practical means of transferring information. Tacit information is knowledge that is embedded in a corporation's employees and organizational routines. Hence, this information is not readily transferable through arms-length transactions. While acquisition of a company is one means of gaining access to tacit information, it may not be the most practical. An alternative means of transfer is the strategic alliance.

Research Problem

This research was descriptive and exploratory and consisted of two stages: 1) strategic alliance incidence and 2) strategic alliance transformation. The first stage involved the creation of a comprehensive data base of strategic alliances. The data base was designed to explore the incidence of strategic alliances across and within North America, Europe and the Pacific Rim.

Data were collected on the number of alliances being formed, the date of formation, the form of the alliance, the mode and motivation of the alliance, the nationality and industry of the alliance participants, the location of collaboration and the
number of partners involved. Data were collected for strategic alliances formed between January 1985 and January 1991. The objective of this stage of the research was to improve upon and expand previous research on strategic alliance incidence.

The second stage of the research involved a study of strategic alliance transformation. Strategic alliances were tracked from 1985 to 1991 and failures were identified. A data base was compiled on strategic alliance failures with the goal of identifying patterns of failure. Questions that were explored include the alliance form, location and industry most likely to result in failure, and issues about the participants involved. The objective of this second stage was to highlight the areas and situations where strategic alliances are most likely to face difficulties.

Objectives Of The Research

This research had two primary objectives: an exploration of strategic alliance incidence and an exploration of strategic alliance transformation. The research was a descriptive effort designed to provide a better understanding of the why, where and who of strategic alliance formation, and explore the why, where and who of strategic alliance failure.
The research questions for this research are divided into two main sections, those involving strategic alliance incidence and those involving strategic alliance transformation. Within these two broad categories are multiple sub-sections identified by the letters of the alphabet.

Stage One: Strategic Alliance Incidence

A. Strategic Alliance Incidence

1. How many strategic alliances have been formed during the time period January 1985 to January 1991?

2. Is there any "weighting" in the pattern by large MNEs that form multiple strategic alliances during the time period 1985 to 1991?

B. Strategic Alliance Incidence By Form

1. What forms are strategic alliances taking during the time period 1985 to 1991?

2. Is there a difference between the forms of strategic alliances based on participant nationality?

3. Is there any pattern of strategic alliance form by year during the period 1985 to 1991?

C. Strategic Alliance Incidence By Nationality

1. What is the geographic distribution in terms of participant nationality of the strategic alliances formed between 1985 and 1991?

2. Are companies from developed countries more likely to be involved in strategic alliances as compared to companies from lesser developed countries?
D. Strategic Alliance Incidence By Industry

1. What type of industry is most likely to enter a strategic alliance?

2. Is there any pattern of industry type by year during the period 1985 to 1991?

E. Strategic Alliance Incidence By Motive

1. What motives are generating the formation of strategic alliances?

F. Strategic Alliance Incidence By Participants

1. Is there a pattern in the number of participants involved in each strategic alliance from 1985 to 1991?

G. Strategic Alliance Incidence By Collaboration Location

1. Is there any pattern between the form of alliance and the geographic location in which the collaboration occurs?

Stage Two: Strategic Alliance Transformation

A. Strategic Alliance Failure

1. How many strategic alliances have failed during the time period January 1985 to January 1991?

B. Strategic Alliance Transformation By Industry

1. Are strategic alliance failures more common in a particular industry?

C. Strategic Alliance Transformation By Form

1. Do strategic alliances that take a particular legal form fail more frequently than other forms of collaboration?
D. Strategic Alliance Transformation By Participants

1. Do strategic alliances between international partners fail more often than strategic alliances between domestic partners?

E. Strategic Alliance Transformation By Location

1. Is there any pattern between strategic alliance failure and the location of collaboration?

Research Scope

The scope of this research was limited to an exploration of publicly announced strategic alliance formation and failure from January 1985 to January 1991. The criteria for identifying a transaction as a strategic alliance are discussed in the methodology chapter. After a transaction was identified as a strategic alliance, it was classified according to the taxonomy summarized in Appendix A. A strategic alliance was classified as a failure if it met the criteria specified in Appendix B. Data for this research was collected from three sources, *The Wall Street Journal*, *The Financial Times* and the *Japan Economic Journal*.

Research Hypotheses

There were two goals of this research. First, it explored the incidence of strategic alliances across and within the Pacific Rim, Europe and North America, then it investigated strategic
alliance transformation in the same regions. Thus, the hypotheses in this section are categorized as either involving stage one of the research, an exploration of strategic alliance incidence, or as stage two of the research, an exploration of strategic alliance transformation. Each stage involves subsets, identified by the letters of the alphabet. The hypotheses presented in this section were derived from the research questions presented previously. Hypotheses are stated in the null form.

Stage One: Strategic Alliance Incidence

A. Strategic Alliance Formation

Hypothesis A1: There has been no change in the number of strategic alliances formed from 1985 to 1991.

Hypothesis A2: There is no "weighting" by large multinational firms in strategic alliances formed from 1985 to 1991.

B. Strategic Alliance Incidence By Form

Hypothesis B1: There is no difference in the incidence of strategic alliances by form from 1985 to 1991.

Hypothesis B2: There is no difference in the incidence of strategic alliances by form and partnership nationality from 1985 to 1991.

Hypothesis B3: There is no difference in the incidence of strategic alliances by form and by year for the period 1985 to 1991.
C. Strategic Alliance Incidence By Nationality

Hypothesis C1: There is no difference in the incidence of strategic alliances by partnership nationality, classified by region of the world, from 1985 to 1991.

Hypothesis C2: There is no difference in the incidence of strategic alliances between parties from developed countries, between parties from lesser developed countries, or developed country-lesser developed country combinations during the time period 1985 to 1991.

D. Strategic Alliance Incidence By Industry

Hypothesis D1: There is no difference in strategic alliance incidence by industry between 1985 and 1991.

Hypothesis D2: There is no difference in strategic alliance incidence by industry and by year between 1985 and 1991.

E. Strategic Alliance Incidence By Motive

Hypothesis E1: There is no difference in strategic alliance incidence by motive from 1985 to 1991.

F. Strategic Alliance Incidence By Participants

Hypothesis F1: There is no difference in strategic alliance incidence by the number of participants involved in each strategic alliance from 1985 to 1991.

G. Strategic Alliance Incidence By Location

Hypothesis G1: There is no difference in strategic alliance incidence by form and location during the years 1985 to 1991.
Stage Two: Strategic Alliance Transformation

A. Strategic Alliance Failure

Hypothesis A1: There has been no change in the level of strategic alliance failures from January 1985 to January 1991.

B. Strategic Alliance Transformation By Industry

Hypothesis B1: There is no difference in strategic alliance transformation by industry from 1985 to 1991.

C. Strategic Alliance Transformation By Form

Hypothesis C1: There is no difference in strategic alliance transformation by form from 1985 to 1991.

D. Strategic Alliance Transformation By Participants

Hypothesis D1: There is no difference in the number of failures between international partners as compared to domestic partners during the years 1985 to 1991.

E. Strategic Alliance Transformation By Location

Hypothesis E1: There is no difference in strategic alliance failure by location during the years 1985 and 1991.

Methodology

This research involved the creation of a comprehensive database containing information on strategic alliance incidence and transformation for the years 1985 to 1991. In particular, strategic alliances were explored within and across three regions, the Pacific Rim, Europe and North America. Data was collected

Transactions that met the definition of a strategic alliance as outlined in Chapter II were included in the data set. Each strategic alliance was then coded according to the taxonomy summarized in Appendix A. Hence, information was gathered on the legal form of each alliance, the motivations behind its formation and the activities that were undertaken as a result of collaboration, termed "mode" in the taxonomy. In addition, information was gathered so that each alliance could be described in terms of the industries involved, the locations of each participants' headquarters, where collaboration took place and the number of participants involved.

Data were collected following the format shown in Appendix C. Data were then entered into the Wylbur data base system and analyzed using the SAS System of data analysis. Various statistical tests and methods were employed in the data analysis stage including linear regression and F tests, the Pearson chi square goodness-of-fit test and the Pearson chi square test of independence. Hypotheses were tested at the .05 level of significance.
It is felt that this data base is an improvement on previous efforts because it drew from a balanced set of sources and thus avoided certain biases present in previous studies. Moreover, it tracked alliances both within and across national borders, and thus provides a more accurate picture of the true situation of strategic alliance incidence. Finally, it developed a comprehensive examination of strategic alliance transformation.

Assumptions And Limitations

This research involved the creation of a data base based on the public announcements of strategic alliance formations and failures. Data were gathered from three sources, The Wall Street Journal, the Financial Times, and the Japan Economic Journal. Thus, it was implicitly assumed by the researcher that the three publications reported most strategic alliance activity. If some strategic alliance activity went unreported, it was assumed that it was missed with the same frequency from year to year (Ellram, 1990).

The choice of the three data sources was made in part to avoid a bias that has been present in previous studies. Authors of earlier studies have suggested that their research may be biased, in terms of strategic alliance incidence data, toward alliances involving firms from particular countries (Ghemewat et al. 1986; Morris and Hergert, 1988; Ellram, 1990). Morris and
Hergert's data were biased toward alliances involving European firms, while Ghemewat et al.'s and Ellram's data were biased toward ventures involving American firms. The author feels that the use of the three sources, each representing a particular region of the world, minimized this type of bias.

A limitation of using widely recognized publications as a source of information is their preference for reporting on the activities of "newsworthy" firms. Hence, there may be some bias in the data toward large, well-known firms at the expense of smaller, lesser-known companies.

It is expected that some strategic alliance failures will go unreported in the publications chosen. Firms are more likely to publicize their successes rather than their failures. Hence, the data collected on strategic alliance failures has probably underrepresented the true situation.

Data collected on strategic alliance incidence and transformation were limited to the information provided by the public announcements of strategic alliance formation and failure.

The objective of this research was to explore the nature of strategic alliance activity across and within Europe, North America and the Pacific Rim. Thus, the study is limited in that it cannot explore interactions that may be occurring within or between these
regions, or within and between other variables such as industries and motivations. Moreover, it is recognized that intercorrelations between the variables under study may impact research results.

Finally, it should be noted that this study reports on the flow of strategic alliances from 1985 to 1991, rather than the stock of strategic alliances (Ghemewat et al., 1986).

**Research Contributions**

The research involved the creation of a comprehensive data base of strategic alliance incidence and transformation across and within three regions of the world: the Pacific Rim, North America and Europe. The implications and benefits of the research impact practitioners, public policy makers and academicians.

For practitioners, the first stage of the study is significant because it enables a greater understanding of the competitive moves of rival corporations. The study not only identifies and highlights those industries that are active in forming strategic alliances, but it also provides detailed information on the companies involved in collaborative relationships: the motivations behind collaboration, the form of collaboration, the number and nationality of the parties involved, the location of the alliance, and patterns of collaborative
relationships over time.

The author believes that practitioners can utilize the information presented in this research to better understand their rivals' competitive maps and postures. Through an examination of strategic alliances from a transaction cost perspective, from a strategic rationale perspective and from an organizational perspective, practitioners should have the faculty to identify why rivals are forming strategic alliances. The knowledge that a strategic alliance has been chosen as the optimal governance mode for minimizing costs, or for maximizing profits or for transferring tacit information should enable practitioners to better plan their own strategic actions and responses.

The second stage of the study is significant for practitioners because it identifies and highlights the areas and situations in which strategic alliances tend to be relatively successful and those situations in which failure rates are high. This will enable practitioners to better define their strategies for alliances. Moreover, it is expected that the identification of failure patterns will promote comprehensive efforts to reduce or eliminate the circumstances which lead to failure.

For public policy makers, the nature of this research has notable implications. The research involved an examination of strategic alliances that were formed both across and within
national borders. Hence, public policy makers can utilize this information as a foundation from which the effects of their past policies on corporations and the competitiveness of nations can be examined. Situations, in terms of policy and corporate competitiveness, in particular industries in one country can be highlighted and compared to situations in other countries. This should enable public policy makers to not only better comprehend the impact of their policies in their own countries, but also the impact of their policies in other countries. Moreover, it should provide a basis from which more effective policy decisions can be generated.

For academicians, the study is important because it increases knowledge of a very common means of operating in the global business environment. The first stage of the research explored patterns in strategic alliance formation. This stage of the research identified, among other things, the most common forms of strategic alliances, the nationalities of the parties most likely to be involved in collaborative relationships, the industries most actively forming strategic partnerships and the motivations behind the formation of strategic alliances. Hence, it contributes to further development of international business theory, from a transaction cost perspective, a strategic perspective and from an organizational behavior perspective.
The second stage of the study, in its exploration of strategic alliance failures, enhances existing research efforts on strategic alliance transformation, an area that has not received much comprehensive attention thus far.

While the research is very broadly based, exploratory research, the researcher has been able to identify situations for future indepth case analysis. Such indepth analysis will be useful not only for theory building, but also in the classroom.

Finally, the research is also significant because of its longitudinal nature. While the study analyzes strategic alliance incidence and transformation over a time period of just six years, it lays the groundwork for further study, both forward and backward in time, presenting a unique opportunity to study a global business phenomenen over periods of low industrialization through periods of high industrialization.

Organization Of The Research

This chapter has provided an overview of the research. Chapter II will review the literature on strategic alliances from both a theoretical perspective and an empirical perspective. Chapter III will provide a detailed discussion on the methodology that was employed and the research hypotheses that were explored. Chapter IV will present the results of the hypothesis testing.
Chapter V will discuss the research results.
CHAPTER II

Literature Review

Strategic alliances in their various forms have been a common means of doing business for years. Traditionally, strategic alliances have often represented a "second best" strategy used to access foreign markets. Today, however, strategic alliances are being seen as a "first best" strategy, and are occurring at all levels of the value added chain (Contractor and Lorange, 1988). Research on the topic of strategic alliances varies considerably in terms of its depth and breath, and in terms of its theoretical and empirical grounding. The literature surveyed for this study is reviewed in five sections. The first section discusses the theoretical basis for the formation of strategic alliances from three perspectives: the transaction cost perspective, the strategic behavior perspective and the organizational behavior perspective. The second section explores the literature on strategic alliance transformation. A taxonomy of strategic alliances is presented in the third section. The fourth section considers the various studies that have provided an empirical perspective to strategic alliances. Finally, the fifth section discusses the methodology used in the empirical studies.
Section One: Theoretical Perspective

The previous chapter argued that the term "strategic alliance" referred to four legal formations: the joint venture, the minority equity agreement, the non-equity agreement and consortia. Kogut (1988) suggests that to explain joint ventures, one must draw on three theoretical perspectives: transaction costs, strategic behavior and organizational behavior. It is proposed that these perspectives can also contribute to explanations of minority equity agreements, non-equity agreements and consortia. Each perspective is considered separately. Kogut's observation also motivated a study on strategic alliances by Terpstra and Simonin (1990).

Transaction Cost Perspective

Transaction cost theory suggests that there are alternative means of coordinating activities. At one end of a continuum is the arms-length transaction, at the other end of the continuum is the vertically or horizontally integrated firm. Between these alternatives are strategic alliances. Strategic alliances, by definition (see taxonomy summarized in Appendix A) fall short of being an acquisition or a merger, but involve more commitment than an arms-length transaction. Initially, transaction cost theory considered only the first two alternatives, the arms-length transaction and the integrated firm. Recently however, attempts
have been made to extend the theory to incorporate the various forms of strategic alliances (Rugman, 1982; Teece, 1981, 1983, 1986; Beamish, 1985; Beamish and Banks, 1987; Hennart, 1988; Buckley and Casson, 1988; and Hill and Kim, 1988). Hence, this section begins with a discussion of transaction cost theory, then it explores the ancillary theory of internalization, and finally discusses some extensions of transaction cost theory to incorporate strategic alliances.

Coase (1937) is credited as being the initiator of transaction cost theory. Coase, in his attempt to explain why one form of organization is chosen over another form, argued that one must consider the costs of using the alternative structures, that the unit of analysis must be the cost of the transaction. He proposed that because of uncertainty and bounded rationality, it is often more efficient, in terms of cost, for firms to create an internal market rather than utilize external markets. The assumption of uncertainty refers to the difficulty in determining prices, while the assumption of bounded rationality is concerned with the costs of negotiating and executing arms-length contracts. Coase proposed that transactions will be organized through the firm until the costs of this alternative exceed the costs of using the market.
Williamson (1975), terming the alternative governance structures "markets" and "hierarchies," expanded Coase's research. Like Coase, Williamson argued that transactions can be accomplished through firms or through markets (arms-length transactions), and that the relative efficiency in terms of cost, will determine which alternative is chosen. Hence, he argued that one could view the firm as being the result of moves to economize on transaction costs. However, Williamson extended the theory proposed by Coase by expanding the ramifications of bounded rationality and by introducing the concept of opportunism. Williamson (1975) also included in his framework the notions of uncertainty and small numbers.

The assumption of bounded rationality suggests that individuals face certain limitations when they formulate and solve complex problems, such as contracting. Individuals cannot perpetually receive, store, retrieve or transmit information. Because of these limitations, and the fact that at the time of negotiation the parties involved are confronted with uncertain future events, it is nearly impossible to write "complete" contracts.

The concept of opportunism refers to the idea that individuals, or firms, will act to further their interests, capitalizing on opportunities with little concern for moral
principles or other consequences. The potential for opportunism is magnified under small numbers circumstances. The condition of small numbers implies that there are only a few buyers and sellers in the marketplace. If the condition of small numbers does not exist, rivalry among bidders would limit potential strategic posturing and promote competitive transactions.

Williamson argued that these conditions are only important if opportunism and bounded rationality exist simultaneously. If bounded rationality is the sole condition in a transaction, the fact that the necessarily incomplete contract is used is of little consequence because the parties involved could simply agree to act in a trustworthy, fair manner as future events unfold. However, if opportunism exists together with bounded rationality, the transaction can become very costly.

Thus, Williamson argued that the firm offers several advantages over the market for organizing transactions. According to Williamson, the firm will be the preferred governance structure:

1. "In circumstances where complex, contingent claims are infeasible and sequential spot markets are hazardous [because] internal organization facilitates adaptive, sequential decision making, [and thus,] economizes on bounded rationality."

2. When "faced with present or prospective small-numbers exchange relations [because] internal organization serves to attenuate opportunism."
3. When "convergent expectations are promoted, which reduce uncertainty."

4. When "conditions of information impactedness are more easily overcome and, when they appear, are less likely to give rise to strategic behavior."

5. Because "a more satisfying trading atmosphere sometimes obtains."


Williamson, in his 1975 writing, did not focus on international transactions, concentrating instead on more generic domestic transactions. However, Buckley and Casson (1976), without knowledge of Williamson's research, used the transaction cost as the unit of analysis as they studied alternative governance structures from an international perspective.

Like Williamson, Buckley and Casson asked the question "why should interdependent activities be coordinated by the management of the firm rather than externally by the market" (page 36). Buckley and Casson proposed that within an environment of imperfect markets, firms will try to maximize profits. Furthermore, if there are imperfections in intermediate product markets there will be an incentive to create internal markets to avoid the costs of organizing markets. When firms, in their pursuit of profits, internalize transactions across national boundaries, the multinational enterprise emerges.
The theory, termed "internalization theory" argues that transactions will only be internalized when the cost of doing so is less than the cost of using the market. Internalization allows a firm to avoid market imperfections such as a lack of futures markets, a seller's discriminatory pricing system, the cost of bilateral bargaining, buyer uncertainty and the cost of government intervention in the market.

Internalization theory is particularly rigorous in the case of intermediate products such as knowledge and information. Following Buckley and Casson, Rugman (1980) argues that because of the lack of external markets for information, multinational enterprises are forced to create their own markets, or internalize, if they are to effectively utilize the information at an international scale. The alternative international entry mode of licensing, a form of strategic alliance, is discounted by Rugman on the grounds that licensing would introduce the risk of a loss of monopoly power. The establishment of a wholly-owned subsidiary allows the multinational firm to transfer and maintain proprietary information and thus, recoup the investment in developing the knowledge.

In a later work, Williamson (1981), recognizing Buckley and Casson's (1976) research, proposed that his original theory could be extended to further explain the multinational enterprise,
however, he noted that a deeper understanding of the phenomenon would only occur as "other specific features of MNE activity... (were) discovered" (Williamson, 1981, page 1563).

Many researchers treat transaction cost theory and internalization theory as being identical, however, as Teece (1986) points out there is a difference between the two theoretical perspectives. At face value, both schools of thought view the firm as a response to market failures and make use of the transaction (and its related costs) as the unit of analysis, however, the internalization theory can be seen as a strategic response by profit seeking firms while the transaction cost theory is more microanalytic in nature.

Internalization theory argues that firms will internalize if the action reduces the costs of organizing and transacting business. Transaction cost theory focuses on identifying which transactions should be organized within the firm, and which transactions should be organized through the market. The key element in this assessment is the degree to which assets must be specialized to the transaction of interest. As the degree of specialization or dedication increases, the parties involved become increasingly committed since neither party can leave the agreement without incurring substantial costs. Moreover, there will be the incentive to behave opportunistically in an effort to
gain the greatest amount of rent possible. Organizing such transactions through the firm rather than through the market provides a possible solution in this type of situation.

When transaction cost theory was initially introduced, it saw the choice of governance modes as a dichotomous one, either transactions were organized through the market or transactions were organized through the firm. However, it has been recognized that the choice of governance mode is in fact much broader, and includes such entry modes as licensing, joint ventures and minority equity arrangements, termed "strategic alliances." In fact, Williamson (1981), in a departure from his earlier work, noted that when considering alternative governance structures, markets, firms and "mixed modes - eg. franchising" must be analyzed (page 1544). Recently, numerous efforts have been made to extend transaction cost theory to these other modes of governance (Rugman, 1982; Teece, 1981, 1983, 1986; Beamish, 1985; Beamish and Banks, 1987; Hennart, 1988; and Hill and Kim, 1988). It is these later efforts which are of particular interest in this research.

Increased global competition and the associated shorter life cycles of technology have forced firms to reconsider their costs (Root, 1984). Firms are becoming more and more aware that internalizing activities often leads to high fixed costs, and that
it is becoming necessary to share costs or externalize activities through long-term agreements with other companies. Firms are recognizing that the benefits that accrue through a strategic alliance can often outweigh the costs of operating a more complex organization (Geringer, 1991).

Rugman (1982), viewed the use of contractual arrangements, defined by him to include licensing and joint ventures, from an internalization perspective. He argued that utilizing contractual arrangements is too risky except in cases in which a transaction involves a standardized product or a product with a difficult resale market. However, Cory (1982), in a study of multinational enterprise activity in Yugoslavia, found numerous cases in which highly sophisticated proprietary technology was successfully being transferred through joint ventures. Moreover, Williamson (1985) in a reversal of his earlier work, noted that transactions falling between the two extremes of markets and hierarchies are "much more common" (page G3).

Teece (1981, 1983, 1986) proposed that within the boundaries of transaction cost theory, three possible governance modes should be considered. Whether a transaction is organized through the market, through the firm or through some "hybrid mixed mode" will depend on the relative efficiency of each. In a horizontal transaction, a firm faces a potential failure in the market for
know-how. Thus, the governance mode utilized will depend on the extent to which the technology can be effectively priced, transferred and protected by contracts. Vertical transactions are plagued by failures in intermediate product markets. Hence, the governance mode chosen will be influenced by the degree of asset specialization required in the transaction.

The use of vertical joint ventures, viewed from a transaction cost perspective, was pursued by Stuckey (1983) in his study of the aluminium industry. The aluminium industry is characterized by high entry barriers in the form of a need for specialized activities, and thus large capital requirements and a need for economies of scale. Joint ventures can provide a means of achieving the necessary integration of the specialized activities while allowing firms to minimize costs.

Beamish (1985) and Beamish and Banks (1987) expanded internalization theory's focus on the transfer of technology to horizontal equity joint ventures. They suggested that in certain cases, equity joint ventures are in fact the best governance structure to deal with opportunism, small numbers situations and the effect of bounded rationality on uncertainty. Beamish and Bank's theory rests on the assumption that firms can work together in "a spirit of mutual trust and commitment" (page 4). Hence, they broke from traditional transaction cost theory and relaxed
the assumption that firms and individuals have the tendency to behave opportunistically. Building upon the new assumption, it is argued that small numbers situations are less likely to pose difficulties to multinational firms in that the incentive for strategic posturing is diminished under mutual trust and commitment. Similarly, Beamish and Banks argue that these conditions will provide a stimulus to share resources and in doing so, effectively reduce uncertainty.

Thus, under the theory proposed by Beamish and Banks, a joint venture between a multinational enterprise and a local firm, formed under the conditions specified above, in which the multinational enterprise provides technological, managerial and capital market know-how while the local firm contributes location-specific knowledge, can be the most efficient mode of governance. It should be noted that the question of the relative efficiency of a joint venture in which activities take place in a third country was not addressed.

Hennart (1988) building on Williamson (1985), took Beamish and Bank's analysis one step further as he proposed a transaction cost theory of why a joint venture might represent a "first-best strategy." Following Stuckey's analysis, Hennart proposed that intermediate markets must be inefficient as a precondition for the emergence of joint ventures. According to the proposed theory,
firms will have an incentive to internalize certain transactions in which markets are failing. However, because of scale and/or scope economies that may be required, or because of significant management costs, internalization may be an inefficient strategy. In these conditions, a joint venture will emerge as a first-best strategy.

The concern by Hennart of the cost of managing an integrated organization echoed the concerns set forth by Williamson (1975, 1985). As firms increase in size, the cost of managing a more complex organization also rise. According to Williamson, at some point, it will become more efficient to organize a transaction through the market rather than through the firm. Hennart expanded this original idea to include organization through joint ventures for transactions that involve public assets. He argued that in the case of public assets, replication can be more costly than acquisition, and acquisition can be more costly than a joint venture if the assets are also firm specific because a firm may, through the acquisition, acquire unwanted businesses that could raise the costs of organization. Thus, a joint venture will allow a firm to gain only those assets specifically desired.

In an effort to extend their earlier internalization theory to explain strategic alliances, and in particular joint ventures, Buckley and Casson (1988) posed three questions. 1) Why would an
equity position in a joint venture be preferred to an arms-length transaction? 2) Why would a firm prefer to own part of an organization rather than the whole entity? and 3) Why do firms, in light of the previous questions, not merge themselves into a single entity?

The answer to the first question evolved directly from Buckley and Casson's earlier theory. Internalization theory argues that firms will internalize certain transactions, particularly those concerning intermediate goods, to achieve some benefit that would not otherwise arise. Similarly, in answer to the first question posed above, Buckley and Casson proposed that firms may be motivated by the potential benefits of internalization to take an equity position via a joint venture rather than transact through the market. However, the use of a joint venture implies certain managerial difficulties that would not be encountered through a wholly owned subsidiary. Thus, the question of why a firm would utilize a joint venture rather than a wholly owned subsidiary arises.

The answer to the second question posed by Buckley and Casson utilizes the concept of indivisibility. According to the argument, some advantage must exist in maintaining a jointly owned facility that would otherwise disappear if the entity was divided into separate parts. This indivisibility could take the
form of economies of scale that could not be achieved if the joint venture were partitioned, it could take the form of economies of scope that could not be attained if the venture ceased to exist in its joint form, or it could take the form of technical complementarity between participant contributions. Thus, the answers to the first two questions indicate that there is an incentive to internalize a transaction, yet because of certain indivisibilities, internalization must take place via a joint venture. Hence, Buckley and Casson asked why firms in this position do not merge themselves and the joint venture into a single entity.

The third question posed by Buckley and Casson can be partially answered using transaction cost theory. Transaction cost theory suggests that firms will internalize transactions up to a certain point, after which, it becomes more costly to manage an enlarged organization than to transact through the market. Buckley and Casson proposed that these same managerial costs may prevent firms from organizing themselves and their joint activities as one entity. Moreover, there may be legal barriers such as antitrust policies that prevent firms from becoming single entities.

Thus, Buckley and Casson argued that when firms are motivated to internalize transactions, yet are constrained by
indivisibilities and barriers to complete ownership, joint ventures will arise. The researchers argued that as the size of the constraints increase relative to the motivation to internalize, there will be a greater potential for a joint venture.

Typically, the transaction cost model is used in a static manner, however, Hill and Kim (1988) have proposed a model of the choice of international governance mode that incorporates the concept of time. Hill and Kim's model is particularly interesting for this research because it explores the choice of a wholly owned subsidiary as compared to licensing or implicitly, a joint venture. Thus, it involves two different forms of strategic alliance. The model focuses on the transfer of know-how, both technological and marketing. Central to the model is the distinction between ex ante transaction costs and ex post transaction costs. Ex ante transaction costs are those that are incurred prior to a transaction and include contracting costs. Ex post transaction costs, or the cost of opportunism, are incurred after the transaction.

According to the model, a firm can minimize the costs of contracting and opportunism, and thus, gain economic benefits, by internalizing a transaction. However, by internalizing the transaction, the firm will increase its costs in four ways. The
firm will incur the costs of establishing a physical presence, of learning a new culture and market, of transferring know-how, and of organizing a more complex firm. The first three costs are short-run costs. Once a firm has established itself and gained familiarity with the new market and culture, it will be able to identify firms that will not behave opportunistically. Moreover, as competitors enter the market, any firm-specific advantages will begin to erode. Thus, the ex ante costs will decrease, leaving only the long-run ex post cost of managing a larger organization.

Hence, for a single project, the costs of internalization and the economic benefits gained from internalization will decrease over time. While a wholly owned subsidiary may be the best initial strategy, over time, licensing, or a joint venture, may become a better mode of governance. The key deciding factor in the choice of governance mode will be the cost of switching.

Hill and Kim also extend the model to incorporate changes in uncertainty and competition. As uncertainty increases, contracting becomes more difficult, raising the likelihood that a wholly owned subsidiary will be the preferred governance mode. At the same time however, the amount of information to be processed as a result of increased uncertainty will raise the costs of internalization. Thus, a comparison of the change in economic benefits and the change in internalization costs under each mode
will be necessary.

As competition increases and an industry matures, more choices will be available to a firm. A mature industry is characterized by having more firms than an immature industry, hence the mature industry should provide a better system of price determination and less market failure. Thus, licensing may become an attractive form of governance.

In summary, transaction cost analysis and the ancillary internalization theory traditionally saw the choice of governance mode as a dichotomous one, either transactions were organized through the market, or they were organized through the firm in the form of horizontal or vertical integration. Recently, efforts have been made to expand the theories to explain new forms of investment. One such effort revolved around the relaxation of the traditional transaction cost assumptions of opportunism. Another effort involved the incorporation of time, and its effect on the choice of governance mode. Other efforts have recognized the difficulties presented by high capital costs and the need for economies of scale and scope.

The transaction cost perspective of strategic alliances is focused on identifying the minimum cost organizational structure. A related perspective on the choice of governance mode is the strategic behavior perspective. This perspective argues that an
organization will choose a particular governance mode, not because it minimizes cost, but rather because it maximizes profits (Kogut, 1988). This perspective is discussed in the next section.

Strategic Behavior Perspective

The strategic behavior perspective of strategic alliances revolves around the idea that a particular organizational structure will result in a maximization of profits (Kogut, 1988). Hence, this section explores the various strategic motivations that encourage firms to utilize strategic alliances rather than arms-length transactions or wholly-owned institutions. The section begins with a brief discussion on the changing global business environment, and then discusses the strategic responses firms are taking to deal with the transformed environment.

Various changes in the global business environment are influencing firms to utilize strategic alliances as a form of organizational governance (Contractor, 1981; Harrigan, 1987; Ohmae, 1989; Teece and Jorde, 1989; Hamel, Doz and Prahalad, 1989; Lorange and Roos, 1991; Goldhar and Lei, 1991). The deregulation of numerous industries has allowed firms to cooperate in ways that were formerly seen as anti-competitive. Technology life cycles are growing increasingly shorter as new sources of technology arise from all corners of the globe. As technology has become more sophisticated, the capital investments required for
innovations and ventures has increased dramatically. New, government aided competitors are emerging from around the world. The Triad markets of America, Japan and Europe are maturing economically and industrially and are reaching points of market saturation. The consumers of this Triad region are developing increasingly similar tastes. Sophisticated computers and communications systems allow for better and quicker exchanges of information and ideas. Protectionist policies by governments have made international marketing, sourcing and manufacturing more difficult. Finally, industries that were previously bounded geographically have become global.

Within this changed environment, the motivation for strategic cooperation has emerged. Seven rationale for forming strategic alliances are identified by Contractor and Lorange (1988). According to the researchers, a primary motivation for strategic alliance formation is risk reduction. By collaborating with another company, firms can share the cost and the risk of investment in a project (Business International Corporation, 1987). Moreover, two companies working together may be able to achieve a faster entry and payback, while allowing the firms to simultaneously diversify their product portfolios. Hamel et al. (1989) note that most companies can no longer afford to "go it alone" in every situation.
A second motivation for collaboration identified by Contractor and Lorange (1988) is that of product rationalization and the achievement of scale economies. Firms can cooperate to produce products in the lowest cost location, and in doing so, can achieve economies of scale as volume increases.

Technology exchange represents a third motivation for cooperation between companies. As technology life cycles become shorter and shorter, it is becoming increasingly difficult for companies to maintain excellence in all product lines (Business International Corporation, 1987; Ohmae, 1989; Teece and Jorde, 1989). By pooling complementary technologies, firms can gain the necessary technologies that will allow them to produce increasingly sophisticated products at a much faster rate than could be achieved by "going it alone." Strategic alliances enable firms to gain the complementary resources needed, while avoiding the costs of direct acquisition (Harrigan, 1984).

However, Teece (1987) cautions firms about sharing technology. He argued that innovating firms should only enter strategic alliances to share technology when the innovator has a tight appropriability regime and when there is a large supply of complementary assets. This latter condition is a move to avoid a small numbers situation.
A traditional rationale behind strategic alliance formation is the overcoming of a country's protectionist measures. This rationale represents the fourth motivation for cooperation identified by Contractor and Lorange (1988). The utilization of strategic alliances is a particularly common means of operating in lesser developed countries where governments often try to increase their gains from foreign investment (Gomes-Casseras, 1987; Hennart, 1989). Davidson and McFetridge (1985) note that a host country's investment policies can significantly affect the choice of entry mode for technology transfers. Business International Corporation (1987) notes that the Japanese are using strategic alliances to avoid protectionist measures in both Europe and the United States.

Small- and medium-sized firms have traditionally ventured into international markets very cautiously. Strategic alliances enable a firm to move toward internationalization without incurring all the risk of foreign investment. Harrigan (1984) argues that through a joint venture, a firm can capitalize on its strengths while at the same time, gain knowledge of unfamiliar business areas. Williard and Savara (1988) note that many Japanese firms gained their initial entrance to the American marketplace through supplier agreements with American companies. Thus, the facilitation of global expansion is the fifth motivational force behind strategic alliance formation identified.
Contractor and Lorange (1988) argued that the accomplishment of quasi vertical integration is the sixth rationale for strategic alliances. Quasi vertical integration may represent the most desirable strategy as opposed to complete integration or complete non-integration. This form of organization can allow firms to have the benefits of internalization, without incurring the cost of integration nor the strategic inflexibility it implies. A firm can reduce its fixed costs by sharing through a strategic alliance (Ohmae, 1989).

Seventh, defensive strategic actions can be accomplished through the use of strategic alliances. According to Contractor and Lorange (1988), a firm can effectively minimize the risk of competition by forming a strategic alliance with a potential competitor. In effect, the result of cooperation may represent a form of monopoly power. Thus, competition can be blocked. Harrigan (1984) notes that joint ventures in particular are frequently used to limit competitors' moves.

Another defensive strategy that entails the use of strategic alliances is that of protecting a domestic market (Business International Corporation, 1987). As a home market becomes saturated, firms may begin to diversify their core business as a means of survival. One way diversification can be achieved
quickly and inexpensively is through the use of strategic alliances.

Saturated domestic markets can also motivate firms to strategically align themselves for another reason. Some manufacturing processes require a particular volume to maximize scale economies. Thus, if a domestic market is saturated, a firm must utilize the global marketplace if it is to sell the necessary volume to achieve economies of scale. Strategic alliances with foreign companies can enable firms to build up the necessary volume (Fortune, 1989).

Ohmae (1989) claimed that converging consumer tastes are providing a rationale for strategic alliances. Ohmae suggested that consumers from America, Japan and Europe have access to the same information and are seeking similar products and lifestyles. Strategic alliances can allow a company to market a full range of products to consumers around the world, without incurring the expense, both monetary and time, of "going-it-alone."

Firms may be motivated to strategically align themselves with large, well-known firms as a means of gaining legitimacy in the marketplace (Teece, 1987). This strategy is particularly common among small, unknown innovating firms. The large partner gains access to new technologies in exchange for sharing its name, marketing power or distribution system. This is also a common
strategy among large firms that want to associate themselves with a world standard name, quality or product (Business International Corporation, 1987).

Business International Corporation identified several additional motivations promoting firms to strategically collaborate. First, strategic alliances can enable firms to become global market leaders without incurring the financial and managerial costs of "going it alone." This rationale is directly related to the transaction cost perspective discussed previously, in that it is concerned, in part, with the cost of managing a more complex organization.

Second, strategic alliances can help a firm shorten the product introduction cycle. Being first to market has become increasingly important as product life cycles have shortened. The company that gets its product on the global market first stands the biggest chance of recouping development costs. Thus, collaboration allows firms to join resources to ensure that a first-to-the-market strategy can be accomplished.

Finally, strategic alliances can be an effective means of achieving insider status around the world (Ohmae, 1989). The delicate balance between the global standardization of an organization versus local adaptation is a common theme in the literature on international business (Prahalad and Doz, 1988,
Barlett and Ghoshal, 1989). A strategic alliance with a local
firm can permit a multinational corporation to act like an insider
locally, while still maintaining a standardized global
organization.

Three technology related rationale for strategic alliance
formation are identified by Teece and Jorde (1989). First,
strategic alliances allow firms to share the costs of
manufacturing and research, and thus, can help them overcome
appropriability problems. Second, research duplication can be
minimized through carefully coordinated cooperative ventures.
Finally, complementary activities can be organized through
strategic alliances to minimize over- and under-capacity
situations.

The events currently occurring in much of Western Europe are
also providing a motivation for strategic alliance formation.
Twelve countries in Western Europe are nearing their goal of
becoming a Common Market. The expected market that will result
from the alliance is exceedingly attractive to companies around
the world because it will entail approximately 320 million
consumers. As 1993, the date of the alliance, draws nearer, many
companies are fearing that a "Fortress Europe" may effectively
keep companies that do not have an established presence within the
European Community out of the market. Thus, many firms are

The use of strategic alliances for defensive motivations could be seen as a less desirable result of strategic cooperation. This darker side of strategic alliances was pursued by Hamel and Prahalad (1989). The two researchers explored the idea that firms may form strategic alliances with the specific intent of ruining (at least partially) a rival firm. One goal of strategic alliance may be to "hijack the development efforts of potential rivals" (page 71). This strategy, which has been successfully accomplished by the Japanese in particular, involves encouraging a partner to reduce development efforts. The firm operating under the strategy volunteers to develop next generation products, and share them with the partner. If the strategy works, the partner firm will reduce development efforts substantially, if not completely, and in doing so, remove itself from future competitive development efforts. Thackray (1986) reports that American firms, unsuspecting of ulterior motives, frequently see strategic alliances as sources of cheap financing. When the alliance ends, American firms find that they have been reduced to the role of low-technology assemblers and distributors.
A second "dark" motivation behind strategic alliance formation is the strategy to form an alliance in order to assess a competitor's strengths and weaknesses. By getting inside a competitor's organization through some form of strategic alliance, a firm can gauge its partner's progress and competitive advantage.

Summarizing, this section examined the strategic rationale behind strategic alliance formation. Firms, in their effort to maximize profits, are being forced to develop new strategies to fit the rapid changes occurring in the global business arena. Strategic alliances offer firms numerous advantages as they operate within the changed environment. Collaboration provides a means of minimizing risk, of overcoming protectionism, of sharing fixed costs, of meeting consumers increasingly sophisticated and similar needs, of accessing new technologies and marketing systems, and of achieving legitimacy.

Thus, this section explored the choice of strategic alliances from a profit maximization viewpoint. The next section considers strategic alliances from an organizational behavior perspective.

Organizational Behavior Perspective

The previous section explored strategic alliance formation from a strategic perspective. This section discusses the choice of strategic alliances from an organizational behavior
perspective. The section begins with a discussion of the difference between the organizational behavior perspective and the strategic rationale and transaction cost perspectives, then it explores relevant research on strategic alliances from the organizational behavior perspective.

The organizational behavior perspective of strategic alliances views collaboration in a distinctly different manner from that of either the transaction cost perspective or the strategic rationale perspective. The transaction cost perspective sees strategic alliances as a cost minimizing governance mode. The strategic behavior perspective views strategic alliances as a means of maximizing profits. Hence, from both perspectives, any change in the structure of the alliance could be recognized as a failure, or an incorrect choice of organization. In contrast, the organizational behavior perspective sees strategic alliances as a means of transferring tacit information. Hence, the termination of a venture could represent the successful transfer of the information (Kogut, 1988).

Thus, the organizational behavior perspective revolves around the transfer of information that is embedded in an organization. To transfer information embedded in the firm involves teaching another organization. Kogut (1988) argues that joint ventures offer the most efficient means of transferring tacit information
when the information being transferred does not make up a large portion of the firm's value. He argues licensing is not an appropriate means of transfer because it does not permit organizational learning through teaching. The transfer of tacit information is easiest when the information is not embedded in a particular cultural context (Hamel et al. 1989).

Gomes-Casseras (1987) found that information receiving firms frequently acquire their partner's shares in a joint venture upon the successful transfer of tacit knowledge. Of the joint ventures in his data base that were eventually acquired by one parent, 27% were acquired after the successful transfer of information.

Hamel et al. (1989) suggest that there should always be an objective of learning whenever a strategic alliance is formed. Moreover, this objective must be a policy of both participants, no matter what other motivations are behind the alliance. According to the researchers, Japanese firms tend to take learning from strategic alliance partners very seriously, while American firms frequently see strategic alliances only as being a cheap source of capital, manufacturing, or distribution.

In an examination of companies operating in today's world of rapid innovation and technological change, Powell (1987) suggests that strategic alliances represent a quick means of acquiring tacit information. He argued that certain kinds of "information
is in the heads of people, not written down in manuals, blueprints or handbooks. Acquiring the rights to a particular technological process outright through takeover does not guarantee that the necessary knowledge is acquired. Indeed, it may hinder the process because the most valuable assets— the minds of the innovators— may choose to walk away" (page 81).

Strategic alliances formed for the purpose of learning a partner's tacit skills can be unstable if this objective is not clearly specified (Lyles, 1987). When the partner with the learning motivation accomplishes its goal, it may be ready to terminate the venture. If the other partner had a different interest in the venture, conflict can result (Lyles, 1988; Westney, 1988). It has been suggested that strategic alliances in which goals and time horizons are concrete are more likely to be successful than alliances in which the two factors are ambiguous. Because of the uncertainty in transferring tacit information, in terms of such factors as how quickly can an organization absorb new information, alliances formed for the purpose of learning often have vague goals and time horizons. Thus, strategic alliances in this area have further potential to be unstable (Westney, 1988).

If a firm enters a strategic alliance with the explicit objective of learning specific skills, it may find that over time,
it must disclose more and more proprietary information to keep its partner interested. Transfer of tacit information related to core businesses must be treated cautiously (Lyles, 1987, Teece, 1987). Once such tacit information has been transferred, a firm specific advantage may be lost. Hamel et al. (1989) note that firms must be careful of unintended transfers of information. Although a strategic alliance may be negotiated to transfer specific ideas, the actual transfer may exceed the agreement.

In summary, this section considered the choice of strategic alliances from an organizational perspective. Strategic alliances provide an effective means of transferring tacit information, and an efficient way to close knowledge gaps. The goal of the strategic alliance as seen from this perspective is to complete the transfer of information or learning. Hence, changes in the structure of a strategic alliance can be seen as a sign of successful transfer, rather than as a sign of instability. The next section explores the issue of strategic alliance transformation in greater depth.

Section Two: Strategic Alliance Transformation

The previous section discussed the rationale behind the choice of a strategic alliance as a governance mode. Clearly, there are many benefits that can be gained through collaboration. However, it is important to recall that a strategic alliance by
definition, involves two or more parties joining together to work
toward some mutually beneficial goal. This added complexity has
the potential to threaten the success of the alliance. Indeed,
McKinsey and Company and Coopers and Lybrand found that "some
seven out of ten joint ventures fall short of expectations or are
disbanded" (Business Week, 1986). Harrigan found that 57% of the
joint ventures she examined fell short of partner expectations.
Berg and Friedman (1987) found that a quarter of the joint
ventures in their sample were ended after three years or less.
The negative implications of strategic alliance failure are
potentially very high. Hamill and Young (1990) pointed out that
"strategic alliance failure will have an adverse effect not only
on short-run financial performance, but may threaten the
participants' international competitive position" (page 9).

The difficulties in operating strategic alliances as compared
to wholly owned subsidiaries can directly influence success rates.
Lorange and Roos (1991) suggested that because strategic alliances
involve more than one firm, decision making is more complex and
slower than in wholly owned subsidiaries. Differing corporate
cultures and strategic goals also complicate the operation of
alliances. The researchers also noted that because some
organizations have multiple ongoing alliances, management may be
overburdened, a factor that may be detrimental to the success of
the alliance. This section considers various measures of
strategic alliance transformation and reviews the relatively sparse research on the subject.

The measurement of strategic alliance transformation has not received much attention from researchers, perhaps because of the difficulty in defining exactly what makes a strategic alliance successful or unsuccessful. Several researchers have chosen the term "instability" to describe strategic alliance transformation (Franko, 1971; Gomes-Casseras, 1987; Harrigan, 1986, 1988).

One of the first individuals to consider strategic alliance transformation was Franko (1971) who explored the survival rates of 1,100 joint ventures. Franko defined a joint venture to be unstable when a) equity control of the venture passes to one party, effectively creating a wholly-owned subsidiary, b) when one partner increases its equity share of the venture to a majority position, but the venture remains in operation, or c) when the venture is liquidated.

The definition of joint venture instability set forth by Franko (1971) was later used by Killing (1982) in his study of joint venture failure. Killing regarded those venture that had been drastically reorganized or that had completely collapsed to be failures. Dymza (1988) qualified this statement arguing that "successful joint ventures are those that survive over a reasonable period of time, generally over eight years, and the
major parties involved...perceive sufficient benefits in relation to cost" (page 403).

However, many researchers suggest that strategic alliance success and failure should not be measured in terms of longevity as proposed by Franko, Killing and Dymza (Harrigan, 1986, 1988; Beamish and Banks, 1987, Schaan and Beamish, 1988; Doz, 1988; Hamel et al., 1989). Rather, it has been proposed that strategic alliance performance be assessed by each participant (Beamish and Banks, 1987; Schaan and Beamish, 1988; Harrigan 1988; Doz, 1988). According to this proposal, strategic alliances in which each partner is satisfied should be considered successful, while alliances in which satisfaction is not mutual among participants should be considered unsuccessful. Killing (1983) employed managerial assessments of joint venture performance in his research, as well as measures of longevity. Interestingly, he found that both measures of failure gave the same result. Hamel et al. (1989) proposed that strategic alliance quality should revolve around the change in competitive strength of each partner.

Geringer and Hebert (1991) attempted to clarify the reliability and comparability of various measures of strategic alliance performance. The researchers empirically tested both objective and subjective measures of performance. Objective measures that were tested included survival rates, duration rates
and instability rates. Subjective measures that were tested included levels of satisfaction with performance and perceptions of partner satisfaction levels. Like Killing (1983), Geringer and Hebert found that the objective and subjective measures of strategic alliance performance were positively correlated, and thus, concluded that "the use of objective measures as reliable performance surrogates may be justifiable" (page 258).

Furthermore, the researchers found a significant correlation between one partner's satisfaction with an alliance and its partner's perception of the first partner's satisfaction, thus implying that one partner's response represents a reliable source for analyzing an alliance.

The idea that a joint venture may in fact be a transitional form of governance, thus implying that survival rates are a poor indication of transformation, has been recognized in the literature in recent years (Harrigan, 1986; Hamel et al., 1989). Gomes-Casseras (1987) argues that while a change in ownership could be an indication that a joint venture is an inappropriate governance mode, it could also indicate that a transaction has been successfully completed. Hence, while the former case implies failure, the latter case implies success. Moreover, he pointed out that ownership changes may be influenced by government policies.
It has been suggested by Berg and Friedman (1987) that in some cases a joint venture may be terminated because of its success. In certain instances, a joint venture may prove to be extremely successful, and thus, make up an increasingly large share of its parents' earnings. According to Berg and Friedman, companies may be uncomfortable with this type of situation and consider the possibility of merger. If merger goes against antitrust regulations, and one company cannot afford to purchase the other firm's equity in the venture, the joint venture may be divided between the participants, and thus is terminated in its original form.

According to a theory proposed by Gomes-Casseras, a determination of joint venture quality depends on how one interprets the role of a joint venture. If one considers it to be a temporary structure, existing in a sequence of events, then the change in ownership will be viewed as an adaptation to changing environmental conditions. However, if one merely associates change in ownership with failure, then the ownership change will be indicative of an error in the choice of governance mode, and will in effect be a corrective strategy.

Killing (1983) found that there is an association between a joint venture's autonomy from its parents and joint venture performance. While it was difficult to determine causality,
Killing reported that joint ventures that were more autonomous tended to be more successful.

Koot (1988) suggested that it may be impossible develop a common definition of strategic alliance success. He argued that each participant will have different expectations of collaboration and thus, will evaluate strategic alliance performance differently. Moreover, Koot proposed that since objectives are typically a result of negotiations, they represent feasible actions, and thus are not illustrative of success.

It has been proposed that the structural design of a joint venture may impact its potential for success (Lorange and Probst, 1987; Berg and Freidman, 1987). This theory argues that many joint ventures fail because they lack the necessary properties to manage a changing environment. Lorange and Probst suggested that a careful analysis of the motivation behind a joint venture from both parents' perspectives take place. Then, appropriate organizational forms and management practices can be chosen, potentially leading to a more successful venture.

It has been argued by Harrigan (1988) that mismatches in partner cultures, collaborative experience and expertise in relation to alliance activities can also contribute to strategic alliance instability. These incompatibilities can affect expected partner contributions, and thus lead to conflict and ultimately,
potential alliance failure.

Finally, Doz (1988) considered the use of strategic alliances to block competitors. In this situation, the strategic alliance itself may not succeed in terms of the proposed activities involved, however, if the alliance effectively slows the moves of competitors, the alliance would be considered valuable.
Section Three: A Strategic Alliance Taxonomy

The term "strategic alliance" has been used to describe various relationships between business entities, however, there is a distinct lack of consensus as to the exact definition of the term. Numerous terms have been used to describe the same activities. Ghemawat et al. (1986), Porter and Fuller (1986) and Ellram (1990) use the term "international coalition" to describe the long-term, formalized agreements between companies that stop short of merger. According to these authors, joint ventures, licensing agreements, supply agreements, marketing agreements and other unspecified agreements are all forms of international coalitions. Killing (1988) refers to the activities as alliances, but differentiates between traditional joint ventures, non-equity alliances and minority equity alliances. Harrigan (1988) also distinguishes between the three types of activities, terming them "joint ventures," "minority investments" and "cooperative agreements" respectively, however, she broadly refers to the activities as "cooperative strategies." Hamel et al. (1989) refer to the activities as "competitive collaboration" and identify four forms, joint ventures, outsourcing agreements, licensing agreements and cooperative research.

Business International Corporation (1987) defines strategic alliances to be "any structure that is more than a standard
customer-supplier relationship or a venture capital investment but that falls short of outright acquisition" (page 21). Thus, joint ventures, equity investments and functional cooperative agreements are all defined to be strategic alliances. Functional cooperative agreements are defined to include research and development ventures, cross-distribution agreements, cross-licensing agreements and joint manufacturing agreements.

Root (1988) describes "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" to be an "international cooperative arrangement" (page 72). Morris and Hergert (1988) term the activities "collaborative agreements" and define the term to be "an intermediate position along a spectrum of interfirm dealings encompassing arms-length transactions at one end and full mergers at the other" (page 100).

Strategic alliances are defined by Jorde and Teece (1989) as "bilateral relationships characterized by the commitment of two or more partner firms to reach a common goal, and which entails the pooling of specialized assets and capabilities" (page 29). According to Jorde and Teece, licensing agreements that involve one side receiving only cash do not constitute strategic alliances. They note however, that strategic alliances do not have to be equity
based, although they frequently are. A distinction between joint ventures and strategic alliances is made by Anderson (1990), who defines strategic alliances to include long-term supply contracts and joint research and development arrangements.

Spekman and Sawhney (1990) argue that a strategic alliance can be defined as "a particular mode of interorganizational relations in which the partners make substantial investments in developing a long-term collaborative effort and common orientation toward their individual and mutual goals" (page 5). Included in their definition of strategic alliance are long-term purchasing agreements, joint marketing programs, shared research and development and equity based relationships. However, the researchers propose that the particular form of the relationship is not as important as its antecedents and underlying dimensions.

Ring (1990) defines a strategic alliance to be "an interorganizational collaboration that spans technologically separable boundaries to create, exchange, or protect organization specific assets that is not based on arm's length market transactions" (page 2). Hamill (1991) argues that "alliances are like joint ventures in that their aim is to maximize the net present value of the capital invested by partners. They are like contractual agreements in that they are formed for a very specific purpose...the obligations of the partners are clearly defined and
the alliance may be for a specific time period" (page 10).

Achrol et al. (1990) distinguish between strategic alliances and transorganizational strategic alliances. The former is defined as "an agreement for economic collaboration between firms at more or less the same level of distribution, involving an exchange of critical skills aimed at extending or buffering the core business strategy, technology or markets of the partners" while the latter is defined as "a strategic alliance involving reciprocal functional interfaces between the partners, organized as a direct boundary spanning network of interfirm linkages" (page 3).

The lack of consensus for a definition and common term has led to some confusion among researchers as they explore the various patterns of strategic alliances. Several taxonomies/typologies of strategic alliances can be found in the literature. Ellram (1990), following Ghemewat et al.'s (1986) classification scheme, grouped strategic alliances according to their form: joint ventures, licensing agreements, supply agreements and contract agreements (the final form of agreement was termed "other" by Ghemewat et al.), and their purpose: technology development, operations, logistics, (Ghemewat et al. used the category "operations and logistics"), marketing, sales and service and purchasing (this final category was not considered
by Ghemewat et al.).

Morris and Hergert (1988) in a similar study also classified strategic alliances by their purpose, however, a broader grouping was used. Their classification scheme included production and/or marketing, joint product development, development and production, marketing, development and marketing, and production.

Root (1988) proposed several taxonomies categorizing strategic alliances by their nationality, their location on the value added chain, their ownership, their dominant mission, their geographic scope, their fiduciary risk, their environmental risk exposure and the relative bargaining power of the parties involved and control. Taken together, Root's taxonomies provide a detailed classification scheme for strategic alliances. However, this classification scheme will not be used for this research because of the nature of the research's data collection method. Data for this research will be compiled from public announcements of strategic alliance formation and termination. While such public announcements typically contain information such as the nationality of the firms involved and the ownership structure of the alliance, it is unlikely that the announcements contain information on variables such as relative bargaining power and environmental risk exposure. Hence, it was felt that Root's taxonomies were inappropriate for this research.
Ring (1990) proposed a taxonomy that classifies strategic alliances in terms of whether they operate within the same industry or not (termed "commensulistic" and "symbiotic" respectively), in terms of their motive: opportunistic, service or regulatory, in terms of the assets employed and according to the activity's position in the value added chain. However, Ring's taxonomy is based on anecdotal evidence, and leaves some question as to its usefulness in an operational sense because it does not allow for classification in terms of legal structure.

Terpstra and Simonin (1990) proposed a taxonomy of strategic alliances based on their form, mode, market coverage and motive. This taxonomy allows for a comprehensive classification of the multiple dimensions of strategic alliances, and with some modification, it will be used to classify strategic alliances in this research.

Terpstra and Simonin (1990) propose that in terms of form, strategic alliances be categorized as a) contractual agreements, b) equity positions, c) joint ventures or d) consortia. They suggest that eight different modes are used in relationships. The modes are categorized as being joint activities or complementary activities. Joint activities include joint research and development, joint production and joint product development, while licensing, cross licensing, manufacturing arrangements,
piggybacking and cross distribution make up the complementary activity category. Their variable "market coverage" refers to the initial target market for the alliance's output. Finally, Terpstra and Simonin recognize six motives for strategic alliance formation: product, technology, marketing, protectionism (overcoming of), production cost and direct payment.

Terpstra and Simonin's taxonomy was modified for this research. The modifications are discussed first and then a detailed description of the taxonomy that was used in this research is presented. First, the terminology used to describe the various forms or legal structures of strategic alliances was changed to reflect the terminology suggested by Killing (1988). Hence, contractual agreements became non-equity agreements and equity participation became minority equity agreements. The rationale behind the first change involved an assumption by the researcher that many individuals believe that the term "contractual arrangement" refers to a traditional one time, arms-length arrangement between a buyer and a seller. Hence, the change was designed to avoid potential confusion. The change from "equity participation" to "minority equity arrangement" was also an attempt to avoid potential confusion by clarifying the size of the equity participation. The other forms proposed by Terpstra and Simonin, joint ventures and consortia, remained the same. An additional category "unclassifiable" was also added.
The "mode" component of Terpstra and Simonin's taxonomy refers to the function of the strategic alliance, or the activities that will be involved in the venture. Terpstra and Simonin propose that eight modes or activities across two dimensions be recognized. Hence, the variable "modes" is comprised of the dimension "joint activities" that consists of joint research and development, joint product development and joint production, and the dimension "complementary activities" that includes licensing, cross-licensing, manufacturing arrangements, piggybacking and cross-distribution.

The variable "modes" was modified to more clearly define the various activities that may take place in a strategic alliance. There were several modifications to Terpstra's and Simonin's classification. First, the mode "cross-distribution" was eliminated from the taxonomy. Replacing this category were three categories: "logistics" consisting of transportation, warehousing and distribution activities and "marketing/sales/service," and "purchasing." The addition of these three categories reflected the more detailed classification scheme used by Ellram (1990). A category "research" was added to the complementary activities dimension to allow for a classification of those agreements in which one firm provides research or other related activities while another firm performs a different complementary activity (Achrol et al., 1990).
The joint activities dimension was expanded to include several additional categories. The modes "joint marketing," "joint oil exploration and related activities," joint offering of services," joint construction," joint mining and related activities," joint firm establishment," and joint property development and related activities" were all added. These addition of these categories is a result of a study by Ellram (1990) who found that they were frequently cited purposes for collaboration. Finally, a dimension "unclassifiable/unidentifiable" was added to accommodate those strategic alliance announcements that do not clearly specify a mode.

The variable "market coverage," proposed by Terpstra and Simonin to indicate the initial target market for the alliance's output, was eliminated from the taxonomy. The rationale behind this elimination is the assumption that some alliances are formed with a) more than one initial target market and b) no initial target market. The latter case refers to those alliances which are designed to learn new technology or other knowhow, and as such do not have a tangible outcome. Consequently, the idea of an initial target market is not applicable.

The variable "motive" or expected benefits of the strategic alliance was modified to allow for the inclusion of "mixed motives," "unclassifiable motives" and "legitimacy motives." The
addition of the category "mixed motives" reflects the broad motive categorization of Morris and Hergert (1988) which indicated that some strategic alliances are formed with more than one purpose, and Ellram's (1990) research findings that 34% of the strategic alliances in her data base were formed with multiple purposes. The category "unclassifiable motives" was made to accommodate the data collection method used in this research. The data used in this research was compiled from public announcements of strategic alliance formations. It is possible that these announcements do not clearly specify the motives of the alliance participants. The category "legitimacy motives" was included. Ring (1990) noted in his strategic alliance typology that firms may collaborate to gain legitimacy assets such as consumer trust, brand loyalty and name recognition. Teece (1987) has also recognized the use of strategic alliances as a means of gaining legitimacy.

Several other motives have also been added to the taxonomy. The inclusion of these other motives represents an effort to provide a more detailed description of the nature of strategic alliance activity. The additional category of "to expand a market, gain access to a market or increase sales" was recognized by Achrol et al. (1990) and Spekman and Sawhney (1990) as being a motivator of strategic alliances. The motivation "to develop natural resources" was added as a result of Ellram's (1990) study
that found energy and mineral exploration to be a purpose for collaboration. Several researchers (Schillaci, 1987; Contractor and Lorange, 1988; Harrigan, 1988; Spekman and Sawhney, 1990) have suggested that strategic alliances may be formed for diversification purposes, hence the category "diversification" was added to the taxonomy.

The use of strategic alliances in technology related activities has been recognized as motivating the formation of strategic alliances by numerous researchers including Teece (1988), Spekman and Sawhney (1990) and Achrol et al. (1990). While the taxonomy presented by Terpstra and Simonin included the motivation "to learn technology" it was felt by the researcher that "to learn or exploit technology" combined with an additional category, "to establish an industry standard" would allow for a more detailed classification of technology related motivations.

The categories "to strengthen a business operation," "to increase competitiveness," "to share or reduce risk," "to gain capital," "to secure or establish a marketing or production base," "to acquire special government status," "to improve customer service" and "to stem losses" were added to the taxonomy to reflect the motivations for strategic alliance formation suggested by Achrol et al. (1990).
Business International Corporation (1987) and Contractor and Lorange (1988) have suggested that firms may collaborate in effort to bring their products to market more quickly. Hence, the category "to get to market more quickly" was added to the taxonomy that was used in this research. It has been proposed that strategic alliances may be utilized to avoid research and development duplication (Teece and Jorde, 1989). Thus, "to reduce research and development duplication" was added to the motivations listed in this taxonomy.

The motivations "to increase or acquire capacity" and "to secure a long-term contract for supply" reflect the research of Schillici (1987) who found that firms may form joint ventures as a means of achieving growth and vertical integration strategies. Harrigan (1988) has suggested that lower levels of protectionism may prompt the use of joint ventures. Hence, the category "to capitalize on industry deregulation" was added to the taxonomy.

Finally, the categories "to win contracts," "to develop new uses for products," "to respond to an increase in demand," "to develop a service," and "to cope with exchange rates" were added to the taxonomy to allow for a more detailed classification of strategic alliance motivations.

An additional dimension, "corporate demographics," was added to the taxonomy. Six elements make up this category: the country
of origin of the participants, termed "nationality," their
industry (defined according to SIC codes), termed "industry," the
location (country) where the collaboration takes place, termed
"location," the number of participants involved, termed "number,"
the date of the collaboration, termed "year," and the names of the
participants, termed "name." Thus, this category allowed for the
collection of detailed information about alliance participants.

Taxonomy Of Strategic Alliances Used In This Research

This section presents the taxonomy of strategic alliances that
was be used in this research. The taxonomy is a result of the
modifications presented in the previous section. The taxonomy is
comprised of four dimensions: the strategic alliance form, mode,
motive and corporate demographics. Each dimension is discussed
individually.

The form of the strategic alliance can be defined to be the
legal structure that the alliance will take. The taxonomy
proposes that there are four forms of strategic alliances. A
joint venture is defined to be the creation of a newly
incorporated company, in which each participant has an equity
stake and representation on the board of directors. A minority
equity agreement involves an agreement between participants to
undertake shared activities, and involves at least one participant
taking a minority (less than 50%) equity position in the other. A
non-equity agreement, like a minority equity arrangement involves an agreement to undertake joint activities, however neither participant takes an equity position in the other. Finally, a consortia is defined to be an agreement involving multiple partners collaborating on large-sized projects that require large financial and managerial capabilities. A category "unclassifiable" is also recognized.

The second dimension of the taxonomy, mode, is defined to be the activities undertaken as a result of the agreement to collaborate. Two broad categories make up this dimension: joint activities and complementary activities. Joint activities are those activities that involve cooperation at the same stage in the value added chain by the participants. The broad category joint activities is comprised of joint research and development, joint production, joint product development, joint marketing, joint oil exploration and related activities, joint offering of services, joint construction, joint mining and related activities, joint firm establishment and joint property development and related activities.

Complementary activities are those in which each participant contributes assets at different stages in the value added chain. Eight complementary activities are recognized: licensing, cross-licensing or other technology sharing, manufacturing arrangements,
piggybacking, logistics (transportation, warehousing and
distribution), marketing/sales/service, purchasing and research.
Finally, a category "unclassifiable" is acknowledged.

The dimension motive is defined to be the purpose or intent
behind the collaboration. It implies the benefits the
participants expect to receive from collaboration. There are
thirty-three motives for collaboration: to acquire or develop a
new product, to learn or exploit technology or other expertise
(either directly or indirectly), to gain access to a marketing
system (defined to include distribution, promotional and/or
service activities), to overcome protectionism or ease trade
friction, to lower costs or increase efficiency, to receive direct
payment in the form of royalties, licensing fees, and/or monetary
compensation for services, products or technology acquired, to
gain legitimacy such as access to a brand name or consumer
loyalty, for mixed motives, unclassifiable/unidentifiable, to
expand a market, gain access to a market or increase sales, to
develop natural resources, to diversify, to establish an industry
standard, to strengthen a business operation, to develop a
service, to cope with exchange rates, to increase competitiveness,
to respond to an increase in demand, to secure a long-term
contract for supply, to increase production, to ensure a long-term
supply, to share or reduce risk, to gain capital, to secure or
establish a marketing or production base, to acquire special
government status, to improve customer service, to capitalize on industry deregulation, to reduce research and development duplication, to stem losses, to increase or acquire capacity, to get to market more quickly, to win contracts and to develop new uses for products. For convenience, this dimension of the taxonomy can be collapsed into eight categories. The collapsed version of this dimension is shown in Appendix A.

The fourth dimension of the taxonomy is corporate demographics. This dimension is defined to include detailed information about alliance participants. Six elements comprise this dimension: nationality, number, location, industry, name and year. Nationality is defined to be the country of origin of each participant. The element number involves the number of participants collaborating. Location is the country where the collaboration takes place. The variable industry is the industry class, defined by SIC codes, of each participant. Name is defined to be the corporate names of the companies involved. Finally, year indicates the date of the collaboration.

The strategic alliance taxonomy used in the research is summarized in Appendix A.
Section Four: Empirical Studies On Strategic Alliances

As strategic alliances have become a legitimate and often necessary means of surviving in the global business world, numerous empirical studies have been done to explore the various relationships surrounding collaborations. Many empirical studies on strategic alliances are limited in their breadth. Several researchers have explored only one or two forms of strategic alliance and have confined their studies to relatively small geographic regions. Other studies have taken a much broader, temporal perspective. This section details the findings of the empirical work on strategic alliances.

Cory (1982) explored industrial cooperation in Yugoslavia. He focused on joint ventures, licensing agreements and industrial cooperation agreements during the period 1967 to mid-1976. Cory found that the incidence of the three forms of strategic alliance rose during the latter parts of the 1960s, however while licensing agreements continued to increase in number during the early 1970s, the incidence of industrial cooperation agreements and joint ventures declined. Strategic alliance agreements were particularly common in the chemicals, electrical and non-electrical machinery, transport equipment and electronic industries. Countries from the European Free Trade area were most likely to form a licensing agreement with a Yugoslavian partner,
while American firms preferred the form of joint venture.

Strategic alliances between American and Japanese firms from 1984 to 1986 were the topic of a study by Osborn and Baughn (1987). Of the 189 strategic alliances studied, 39% took the form of joint ventures, the majority of which were between two partners. Moreover, strategic alliance participants were found to be very similar in terms of assets, sales, net earnings and research and development sales. A wide variety of industries were represented in the data, with chemicals, computers and metals/metal products ranking highest in terms of frequency. Research and development was found to be a very common motivation behind strategic alliance formation, inducing the formation of approximately one of every five ventures.

Hamel et al. (1989) explored fifteen strategic alliances using the case study method. The alliances studied included ventures between American and Japanese firms, ventures between European and Japanese firms and ventures between American and European firms. The researchers studied the role of the strategic alliance in the overall company strategy, the change in competitive balance that resulted from the agreement, what each partner viewed as a successful outcome and what variables play a role in determining who wins and who loses from collaboration. Strategic alliances were studied at various levels in the
A broad approach to the empirical study of strategic alliances was taken by Morris and Hergert (1987). Their study covered the years 1975 to 1986, and examined 839 alliances. Morris and Hergert reported that the incidence of strategic alliances between the United States, Japan and Europe increased rapidly from 1979 to 1985. In particular, the rate of strategic alliance formation between the United States and countries of Western Europe grew. In terms of nationality, European companies were found to be the most active involving themselves in 74% of all agreements.

Morris and Hergert found that agreements between two partners were most common, only nine percent of the agreements involved three partners, and an even smaller five percent involved four participants. A relatively small number of industries were found to be actively collaborating within the Triad countries. Those industries involved include aerospace, 19%, telecommunications, 17.2%, computers, 14%, motor vehicles, 23.7%, and other electrical, 13%. The remaining 13% of the agreements were not classified by industry. Joint product development was the most popular mode of collaboration, involving 37.7% of the 839 agreements formed between 1975 and 1986. Other collaborative
modes included development and production, 16.8%, marketing, 7.9%,
development and marketing, 2.9%, production, 23.3%, and production
and marketing, 5%. Finally, Morris and Hergert found that only
five percent of the alliances studied had been discontinued by
1987.

Ghemewat et al. (1986) explored the incidence of strategic
alliance formation across a wide range of industries, countries
and collaborative forms during the years 1970 to 1982. Ghemewat
et al. reported a weak downward trend of strategic alliance
formation during the period studied. The forms of collaboration
included joint ventures, representing 41% of the alliances,
licensing agreements, 16%, supply agreements 12% and other,
unclassified agreements 31%. The preferred location for
collaboration was found to be developed countries, however a
larger number of strategic alliances were found in lesser
developed countries.

The nationality of the participants involved in strategic
alliances was reported to include primarily developed country
companies. A wide range of industries were represented in the
1,144 alliances studied. The crude petroleum and natural gas
industry was particularly well represented, followed by motor
vehicles and passenger car bodies and electronic computing
equipment. The primary motivation behind entering a strategic
alliance was found to be technology development. Other motivations included operations and logistics related activities and marketing, sales and service. Finally, Ghemewat et al. found that strategic alliances are more common between firms making similar contributions than between firms making dissimilar contributions.

Ellram (1990) extended Ghemewat et al.'s research to 1988. Ellram supported Ghemewat et al.'s finding regarding the number of strategic alliances. Ellram found no change in the level of strategic alliance incidence from 1970 to 1988. Moreover, she found that strategic alliance frequency did not significantly change from 1983 to 1988. The research revealed that the most common reason for strategic alliance formation was operations related and that more alliances are formed for single purposes, 66%, than for multiple purposes, 34%. Ellram also examined strategic alliance formation by country and concluded that market economy companies are more likely to be involved in strategic alliances than non-market economy companies.

Like Ghemewat et al., Ellram found that many industries were involved in strategic alliances. In particular, energy, chemical, pharmaceutical, other machinery, auto, aerospace, computers, telecommunications and other electrical industries were involved. Joint ventures were found to be the most common form of strategic
alliance. Ellram also studied strategic alliances involving the purchasing industry in detail.

A comprehensive effort to study strategic alliances was also made by Terpstra and Simonin (1990), who explored strategic alliance incidence from 1983 to 1987. As in previous studies, Terpstra and Simonin collected information on the form, mode, year and industry of the alliance. Data was also gathered on the participants involved, their nationality, and their motivations for forming a strategic alliance. The results of the study by Terpstra and Simonin indicate that the computing equipment industry was most commonly represented in the data set, followed by the automotive industry and the telecommunications industry. In the aggregate, thirteen distinct industries were identified, comprising approximately 87% of the alliances studied.

The majority of the strategic alliance participants, 75.4%, originated in the United States, 42.3% came from Europe and 29.9% from Japan. However, a computation of international aggressiveness, indicated that the Japanese were most aggressive, 74%, followed by the Europeans, 58%, and the Americans, 51%. In the aggregate, Terpstra and Simonin found that equity partnerships were the most common form of collaboration, 38%, followed by contractual arrangements, 33%, joint ventures, 20% and consortia, 9%. In terms of nationality, it was reported that American and
European firms are most likely to become involved in equity partnerships, while Japanese firms prefer contractual arrangements.

The preferred form of a strategic alliance varied according to the mode, or function of the venture. Strategic alliances involving complementary activities, those activities at different stages of the value added chain were most likely to take the legal form of consortia or joint ventures. The form of strategic alliance at the same stage in the value added chain varied with the particular joint activity. Joint research and development typically took the form of consortia, while joint production and joint product development alliances were more likely to take the form of joint ventures.

Finally, Terpstra and Simonin explored the motivations behind collaboration. A common motivation for European firms to collaborate with American firms is a desire, on the part of the European firm, to learn new technology. A shared motivation stimulating the formation of strategic alliances between American companies and European companies is the desire to lower production costs. American and European firms were also found to form strategic alliances with Japanese companies in an effort to reduce production costs. The avoidance of protectionist policies was found to motivate American firms to form strategic alliances with
European companies. This motivation was also reported to be the impetus behind numerous alliances formed between American and Japanese companies. American firms were also found to strategically align themselves with Japanese firms in an effort to gain access to new products. Terpstra and Simonin report that the most frequent motivation inciting Japanese companies to collaborate is the desire to receive direct payments in the form of royalties and other fees.

A study of joint venture survival in multinational companies was done by Franko (1971). The study involved 1,100 joint ventures that were tracked as part of the Harvard Business School Project. Each joint venture studied involved an American partner and a foreign partner. The research explored joint ventures during the years 1961 to 1968. Franko reports that 182 of the 1,100 joint ventures became wholly owned subsidiaries, 84 joint ventures were terminated either "because the American partner sold its equity stake to the foreign partner or because the venture was liquidated by mutual consent" (page 4). Finally, in 46 of 1,100 joint ventures studied, the joint venture remained in operation however, control passed from the foreign partner to the American partner. Franko termed these changes on ownership structure "joint venture instability" and subsequently addressed the topic of joint venture longevity. Hence, Franko measured strategic alliance transformation in terms of ownership transformations, and
thus, survival of the original structure.

Research on joint ventures formed between 1924 and 1969 in American industry was done by Berg and Friedman (1978). Their research focused primarily on collaboration between American partners and in particular ventures in the chemical industry. Berg and Friedman examined not only broad trends in joint venture incidence, but also joint venture failures.

Of the 123 joint ventures in the domestic chemical industry formed between 1950 and 1969, fifty were categorized as failures. Of the fifty, twenty-two were sold to one partner, four were sold to an outside firm and two were merged into another joint venture operated by the same parent companies.

Berg and Friedman reported that joint ventures involving three participants were relatively unstable as compared to ventures involving more than three participants. Moreover, Berg and Friedman reported that joint ventures are unlikely to remain in their original form for more than a few years. Of a sample of forty of the fifty joint ventures categorized as being failures, twelve lasted only three years or less, and all but six had a duration of ten years or less.

Berg and Friedman (1978) also broadly examined joint ventures across multiple industries. They found for the years 1964 to
1975, joint ventures were formed in twenty industries. Over 85% of the joint ventures were formed in manufacturing, petroleum, base chemicals, metal mining and electronics.

Gomes-Casseras (1987) examined joint ventures transformation in terms of their instability from 1900 to 1975. Each joint venture studied involved a local partner and a multinational company. Of the 884 joint ventures involving less than 50% multinational company equity at their outset, 10.1% later became wholly-owned subsidiaries, 1.8% were liquidated and 13% were sold. Hence, 24.9% of the joint ventures involving less than 50% equity participation by the multinational firm were considered to be unstable.

As multinational company equity participation increased to 50%, joint venture instability rose. Six hundred seventy two joint ventures involved equal equity participation between partners. Of these joint ventures, 1.6% were liquidated, 12.1% were sold and 16.2% became wholly owned subsidiaries. Thus, total instability was found to be 29.9%. Similarly, as the multinational firm became the majority owner in the venture, instability continued to increase. The multinational firm had majority ownership in 822 joint ventures. Of these joint ventures, 2.1% were liquidated, 8.3% were sold and 26.9% became wholly owned. Hence, joint venture instability was found to be
highest, at 37.3%, when the multinational firm was a majority owner.

Gomes-Casseras suggests that caution be used in interpreting these results, pointing out that in many cases, although ownership changed, control did not. Moreover, he proposes that while joint venture success can be associated with joint venture survival, there are instances when the termination of a venture indicates success. Further discussion of this point can be found in the previous section on strategic alliance transformation.

Joint venture performance in lesser developed countries was empirically tested by Beamish and Banks (1987). Each of the twelve joint ventures studied involved a local company from a lesser developed country and a multinational firm from a developed country. Joint venture quality was associated with the long-term viability of the venture. Following Schaan (1983), a joint venture was considered successful only if both partners were satisfied with its performance. Beamish and Banks found that under this classification scheme, seven of the twelve ventures studied could be considered successful, five could be considered unsuccessful. It was reported that in each successful venture both partners were earning at least a fifteen percent return on their equity investment.

Local partner contributions such as knowledge of the local environment, human resources needs and government policies, were considered important by their multinational partners in the joint ventures that were classified as being successful by Beamish and Banks. Thus, Beamish and Banks found support for their suggestion that firms may choose joint ventures as a first-best strategy as means of minimizing the cost of acquiring local information and reducing uncertainty.

Joint venture transformation in the United States was explored by Kogut (1988). He found that joint venture instability is at its highest in the fifth and sixth years of collaboration. Joint venture failures were found to be less common in ventures formed for manufacturing, financial services and/or the development of new products, and more common in ventures motivated by marketing and after-sales service. The legal form of joint venture termination differed according to the motivation behind collaboration. Joint ventures formed to develop new products were
more likely to dissolve, while ventures to develop existing products were more likely to be terminated through acquisition. Finally, Kogut found that international joint ventures, defined to be ventures located in the United States involving a foreign partner, were more likely to fail than ventures involving only American partners.

Harrigan (1988) explored the relationships and similarities of strategic alliance participants, and the effect of these two elements on strategic alliance performance. Harrigan focused on one form of strategic alliance in particular, the joint venture. The data set used by Harrigan consisted of 895 strategic alliances, formed across twenty-three industries from 1974 to 1985.

Harrigan found that 59.6% of the joint ventures in the data set represented a related diversification for the parent firms. Of these ventures, only 51.4% were considered to be successful from both parents' perspectives. Hence, it was concluded that related diversification does not necessarily imply joint venture success. However, Harrigan did find that horizontally related diversification is more likely to imply success than other types of ventures. Finally, Harrigan found that ventures that represented unrelated diversification for both parent companies were more likely to be considered unsuccessful from the parents'
perspectives than other ventures.

Harrgian also studied the impact of the relationship between joint venture parents on joint venture performance. The results indicated that ventures are considered to be more successful by both parents when partners are similar to each other. Hence, partners with similar cultural backgrounds, size and experience are more likely to be successful working together than firms that are dissimilar in these areas. Finally, Harrign found that the mode of the alliance impacts venture survival rates. Joint ventures involving activities related to the parents' activities were found to have a longer life than ventures in which activities are unrelated to participant activities.

Section Five: Methodology Of Empirical Research

The previous section discussed several broad, comprehensive studies of strategic alliances. A common method of gathering data for such studies is identifying strategic alliances through public announcements of their formation. Various business publications are utilized in this type of study. These broad studies tend to be highly descriptive and have been criticized for their lack of depth (Doz, Hamel and Prahalad, 1986). Research that focuses on in-depth studies of a particular form of alliance often makes use of surveys and interviews. It is common, in the in-depth studies, to develop hypotheses. This section begins with a discussion of
the first type of methodology, and then considers the second type of research design.

Ghemewat et al. (1986) created a data set based on public announcements of strategic alliances in the Wall Street Journal from 1970 to 1982. All forms of collaboration were included in the data set with the exception of routine industry practices. Thus, Ghemewat et al. studied the flow, rather than the stock of strategic alliances during the relevant time period.

Various data were collected, including the date of collaboration, the names and nationalities of the participants, the industry and strategic alliance SIC codes, the motivation behind the collaboration, and the form of cooperation. Other business publications were consulted as necessary to complete the data set.

The authors of the study admit that it may be limited in that its sole source of data is the Wall Street Journal. Thus, it is biased toward strategic alliances involving large, "newsworthy" American firms. The authors also suggest that the study may be limited because it explores the number of strategic alliances rather than their economic value.

A comprehensive data base on strategic alliances was also created by Morris and Hergert (1987) for the years 1975 to 1986.
Like Ghemewat et al., Morris and Hergert collected data on the incidence of strategic alliances by studying the business press. Two sources were used, The Economist and The Financial Times. Thus, the data base created by Morris and Hergert is biased toward strategic alliances involving large "newsworthy" European firms. Morris and Hergert collected information similar to that of Ghemewat et al., including the form of cooperation, its current status, its motivation and ownership structure, the participants, the announced purpose and the industry setting.

Ellram (1990) extended Ghemewat et al.'s research to 1988. Hence, her data collection was patterned after that of Ghemewat et al. Ellram used The Wall Street Journal as a source of information, and thus incurred the same limitations as Ghemewat et al. Ellram collected information on the year the alliance was formed, its legal structure, its participants and their industries and its purpose. In addition, Ellram focused on alliances formed for purchasing. She utilized the data set to identify candidates for in depth interviews on the role of strategic alliances in the purchasing function.

Using a similar research design, Terpstra and Simonin (1990) studied strategic alliance formation from 1983 to 1987. Six sources were used in their research, including The Economist, The Wall Street Journal, Business International, Forbes, BusinessWeek,
and Fortune. Thus, while the study suffers from the limitation of being biased toward alliances involving "newsworthy" firms, it better represents nationality than previous studies. For each public announcement of strategic alliance formation, data was collected on its form, its mode, its year of formation, its industry, the products involved, the market coverage and the participants, their nationality and their motivations. A logit model was used in the analysis of the data.

Osborn and Baughn (1987) performed a study similar to those previously discussed, however, on a lesser scale. The researchers examined strategic alliances between American and Japanese companies during the years 1984 to 1986. In a manner similar to Ghemewat et al. (1986), Morris and Hergert (1987) and Ellram (1990), Osborn and Baughn complied public announcements of strategic alliance incidence from the business press. Osborn and Baughn used two sources in their data collection, the Asian Wall Street Journal and the Japan Economic Journal. For completeness, each publication was screened twice, each time by a different individual. Moreover, Osborn and Baughn supplemented the information gleaned from the public announcements by consulting other sources of information and in some cases, by contacting the alliance participants.
Osborn and Baughn made an important contribution with respect to the validity of this type of data collection method by consulting an alternative source of information. After data on strategic alliance incidence had been collected from the two publications, the list was cross-checked with information gathered by state development agencies. The cross-check did not reveal any strategic alliances not previously identified.

Data collected in the Osborn and Baughn study included information on the participants and their motivations for collaborating, their firm sales, assets and profitability, the industries involved and the form of the alliance.

In his 1982 study, Cory identified joint ventures involving Yugoslavian partners and their characteristics by scrutinizing the business press. Cory used four main sources of information, Ekonomsk Politika, Business Eastern Europe, Yugolsavia Export, and Economic Review. Thus, Cory's study was limited to those joint ventures that were announced in the four sources of information.

Research by Berg and Friedman (1978) on joint ventures in American industry utilized multiple sources of data. Berg and Friedman used data gathered by Thompson (1970) for their assessment of joint ventures in the American chemical industry. For their broader examination of joint ventures across multiple
industries, Berg and Friedman employed data collected by the Federal Trade Commission. Berg and Friedman supplemented this data with questionnaires, interviews and information collected from other public and private sources.

Beamish and Banks (1987) using data collected by Beamish (1984) empirically tested joint venture performance in lesser developed countries. Beamish gathered information on 66 joint ventures located in 27 different lesser developed countries. Each joint venture studied involved a multinational company from a developed country and a local company from a lesser developed country. In each case, joint venture activities took place in the local partner's country. Data for the empirical test of joint venture performance in lesser developed countries were based on twelve core cases and primarily utilized the multinational firm's perspective. Interviews and questionnaires were used to collect data. Beamish and Bank's methodology may be limited because it involves only manufacturing firms and because ten of the twelve core ventures examined were located in the Caribbean, thus minimizing the generalizability of the research.

Harrigan's (1988) exploration of the impact of the relationship between joint venture partners and their relationship with the joint venture itself involved a three stage data collection. Data were collected initially from archival sources.
The data were then supplemented with field interviews and questionnaires. Finally, a three-round delphi method questionnaire provided further information on the joint ventures studied. A total of 895 joint ventures across twenty-three industries were explored. The time period studied was 1975 to 1985. Data collected included parent firms' nationalities, industries, asset sizes, venturing experience and activities.

The study on joint venture instability by Franko (1971) involved data collected by the Harvard Multinational Enterprise Project. Data were gathered on 159 of the 170 1967 Fortune 500 firms. The 159 firms chosen were identified as having manufacturing operations in at least six foreign countries in 1964. Data were collected through the use of interviews, questionnaires and consultation with published sources of information. Information assembled included the ownership positions of parents, the date and percentage change in ownership shares, the industries involved, the output and location of the venture, and the names and nationality of the participants.

In Kogut's (1988) study of the life cycle of joint ventures, data were collected on joint ventures located in the United States. Kogut differentiated between international joint ventures, those that involved a foreign partner, and domestic joint ventures, those involving only American partners. Data were
initially gathered from *Mergers and Aquisitions*, and supplemented through questionnaires to one parent firm. Four hundred seventy-five joint ventures were surveyed. However, while the questionnaire had a 55.5% response rate, only 148 responses were usable. Thus, Kogut's research may be limited in its generalizability because of the its small sample.

**Summary**

This chapter reviewed the literature on strategic alliances. The chapter began with an assessment of strategic alliances from a theoretical perspective. Three theoretical approaches were considered; the transaction cost perspective, the strategic behavior perspective and the organizational behavior perspective. Next, the topic of strategic alliance transformation was considered. This was followed by a detailed taxonomy of strategic alliances. Finally, empirical research and their related methodologies were discussed. The next chapter will present the methodology that will be used in this research and a detailed discussion of the research hypotheses.
CHAPTER III

Methodology

The purpose of this research was to explore the incidence and transformation of strategic alliances across and within Europe, North America and the Pacific Rim. This involved the creation of a data base that consists of information about strategic alliances within and across the three regions. This chapter begins with a discussion of the research design that was used in this study, then it considers the research questions and relevant findings.

Research Design

Previous efforts to develop comprehensive data bases on strategic alliances suffered from several basic limitations. These limitations include over-representation of particular regions of the world, dissimilar sources of data, and a neglect of strategic alliances formed within a single country (Ghemawat et al., 1986; Morris and Hergert, 1988; and Ellram, 1990). Further discussion of these points can be found in previous chapters. This research was designed to improve on such limitations. Data for this research were drawn from three sources. The sources were chosen because they met three objectives. Each is recognized
around the world as a source of information on business
transactions, each source represents a particular region of the
world, and each of the three sources is positioned in the
marketplace of its representative country in a similar manner.
Hence, data were complied from the (London) Financial Times,
representing Europe, the Wall Street Journal, representing North
America and the Japan Economic Journal, representing the Pacific
Rim. It should be noted that the Japan Economic Journal is a
weekly summary of news reported in the Nihon Keizai Shinbun. The
former is reported in the English language while the latter is
reported in Japanese. This data base is unique in the sense that
it contains data on strategic alliance transformation, a topic
that has heretofore not been studied in a comprehensive manner.

Data for this research were collected on all strategic
alliances reported in the Wall Street Journal, the Financial
Times, and the Japan Economic Journal from January 1, 1985 to
January 1, 1991. Strategic alliances are defined to include joint
ventures, minority equity agreements, non-equity agreements and
consortia. Further discussion on the definition of a strategic
alliance can be found in Appendix A and Chapter II.

Various data were collected for each strategic alliance
reported in the Wall Street Journal, the Financial Times and the
Japan Economic Journal. The data that were collected allow each
strategic alliance to be classified within the taxonomy presented previously. The taxonomy is summarized in Appendix A. The legal structure of the strategic alliance comprises the first dimension of the taxonomy. The second dimension includes data on the activities that will be undertaken as a result of the agreement to collaborate. Information on the motives for collaboration make up the third dimension in the taxonomy. Finally, corporate demographics were collected for the fourth dimension. Corporate demographics include the names of the companies involved in the strategic alliance, and their nationality, defined to be the country in which each party's headquarters is located, the location where collaboration will occur, the date of the collaboration, and the names and industry class of the participants. The last variable was defined by four digit SIC codes.

Like Achrol et al. (1990), this research considers relationships between two or more firms to be strategic alliances if the relationship "involves an exchange of critical skills, reciprocal responsibilities and obligations, and impacts the core business strategy, technology or markets of the partners" (page 3). Ellram's (1990) definition of a coalition relationship was used to initially identify a transaction as being a strategic alliance. The similarity between Ellram's definition and that of Achrol et al., which was presented in the previous chapter, should
be noted. Thus, for a transaction to have been classified as a strategic alliance, it must be a long-term agreement to mutually share assets for a specific purpose where:

Long-term - is defined to be a period of more than one year, or as long as a typical investment cycle for the resources involved,

Agreement - is defined to be a formal, written understanding between participants,

Mutual Sharing - is defined as a division of both the risks and benefits that are created as a result of the agreement and

Specific Purpose - is defined to be the particular objectives of the relationship.


Other rules governing whether a particular transaction was included or not can be found in Appendix C.

The difficulty in defining exactly what constitutes a failed strategic alliance was detailed in the previous chapter in "Stage Two: Strategic Alliance Transformation." For the purposes of this research, a strategic alliance was identified as a failure if the alliance had been liquidated or taken over by one partner or an alliance in which control has passed from one partner to the other (Killing, 1982, page 120). In addition, there must be some indication in the public announcement of a strategic alliance break-up that the objectives of the strategic alliance have not been fulfilled, that at least one participant is not satisfied
with the alliance (Beamish and Banks, 1987; Schaan and Beamish, 1988; Harrigan, 1988; Doz, 1988, Geringer and Hebert, 1991). The definition of strategic alliance failure is summarized in Appendix B.

Data on strategic alliance incidence and transformations were compiled by physically examining each issue of the Wall Street Journal, the Financial Times, and the Japan Economic Journal for the period January 1, 1985 to January 1, 1991. This method was felt by the researcher to be superior to a computerized data search because it ensured that every incidence of strategic alliance formation and/or transformation meeting the definitions specified above was identified. A computerized data search would involve searching for various terms or phrases that might suggest strategic alliance formation or transformation. Hence, the accuracy of a computerized search depends on the researcher's ability to determine the appropriate phrases or terms to be researched. However, as was discussed in the previous chapter, it appears that numerous terms are currently used to describe strategic alliances. Thus, it was felt that a computerized search would be less accurate than a physical search simply because some terms used in the announcements have not been identified by the researcher as being appropriate for the study.
Data was initially organized and coded by hand using the format shown in Appendix C. Each incidence of strategic alliance formation or transformation was given an identification number, and then was coded according to the taxonomy summarized in Appendix A. Letters of the alphabet were used to identify corporate nationality and the location of collaboration. Dummy coding was used to identify strategic alliance motives and modes. Motives or modes that were identified as being important to the strategic alliance were given a value of one, while those motives or modes that were not recognized as being applicable were given a value of zero, indicating that the category was not important to the alliance. The coding of the motives and modes followed a method similar to that of Geringer and Hebert (1991).

Data were then be organized into two files using the Wylbur data base system. The first file contained fields for the identification number, the year of the alliance formation or transformation, the form of the alliance, the nationalities of the parent companies and their economic level of development, the industry codes, the location of collaboration and the motives and modes involved in the collaboration.

The second file contained fields for the identification number and the names of the parent companies and relevant subsidiaries involved in the collaboration. Data were then
accessed using the SAS System of data analysis. The statistical
tests that were used to test each hypothesis are discussed in the
following section on a per question basis.

Research Questions

The purpose of this research was twofold. First, it was an
effort to explore patterns in strategic alliance incidence across
and within three regions of the world, North America, Europe and
the Pacific Rim. Second, it was an effort to explore strategic
alliance transformation across and within the same regions. Thus,
hypotheses on the incidence and transformation of strategic
alliances are discussed in two stages. Stage one involves
hypotheses on strategic alliance incidence while stage two
involves hypotheses on strategic alliance transformation. Each
section consists of multiple parts, labeled by A, B, C, and so
forth. Hypotheses in both stages are stated in the null case.
Stage One: Strategic Alliance Incidence

A. Strategic Alliance Formation

Hypothesis A1: There has been no change in the number of strategic alliances formed from 1985 to 1991.

Alternative: There has been an increase in strategic alliance incidence from 1985 to 1991.

There is wide disagreement in the literature surveyed for this research as to whether or not there has been an increase in strategic alliance incidence in recent years. Jorde and Teece (1989) stated that strategic alliances, particularly those in technology related fields, have increased in frequency in the last few years. Anderson (1990) stated that "more joint ventures and other collaborative ventures have been announced since 1981 than in all prior years combined" (page 19). In studies similar to this one, results have been mixed. Ghemewat et al. (1986) studied strategic alliance formation from 1970 to 1982 and found that there was no indication of an increase in strategic alliance incidence, and in fact, that a weak downward trend in their incidence could be identified. However, Morris and Hergert (1988), who studied the trend in strategic alliance incidence from 1979 to 1985, found contradicting results, reporting that there was a clear increase in strategic alliance formation during the period studied. Yet, Ellram (1990), who extended Ghemewat et al.'s research to 1988, substantiated Ghemewat et al.'s work,
finding that there was no clear increase in strategic alliance formation from 1970 to 1988, nor from 1982 to 1988.

At least two possible explanations exist for the results discussed above. First, each study was concerned with a slightly different time period, Ghemewat et al. studied the years 1970 to 1982, Morris and Hergert the years 1979 to 1985 and Ellram, 1970 to 1988. Thus, it could be argued that this fundamental difference influenced the results of the studies. However, a second and perhaps more important potential explanation for the contradictory results lies in the sources of data used in the various studies. Ghemewat et al. and Ellram used only the Wall Street Journal as a source of data. As was stated previously, this presented a bias in the results toward strategic alliances in which at least one partner was a large "newsworthy" American firm. In contrast, Morris and Hergert drew their data from the Economist and the Financial Times. The results of this study were thus biased toward strategic alliances involving European firms.

It was expected that Hypothesis A1 would be rejected for several reasons. First, it was expected that the impact of the European Community's move toward a Common Market would affect the results of this research. As 1993, the date of the commencement of the Common Market, draws nearer, companies from around the world are establishing themselves within the European Community in
an effort to avoid the repercussions of a potential "Fortress Europe." Many companies are using strategic alliances as a vehicle to accomplish this goal (Magee, 1989; Delachaux, 1990; Lynch, 1990; Lei, 1990). Morris and Hergert (1988) found that between 1979 and 1985, the number of strategic alliances between the European Community and American and between the European Community and Japan increased more than the number of alliances between Japan and America. Moreover, from 1983 to 1985, the number of strategic alliances between the European Community and America more than doubled. Thus, it was expected that the results of this research would support those of Morris and Hergert (1988).

Second, the data base that was created for this study included not only international strategic alliances, but also domestic strategic alliances. Thus, in terms of sheer frequencies, the level of strategic alliance incidence was expected to increase. Finally, the deliberate inclusion of a data source representing the Pacific Rim was expected to impact the results of this research. The Japanese in particular, have a history of cooperation in the business environment.

Linear regression was utilized to analyze the relationship between strategic alliance incidence and year. A one-tailed F statistic was used to test Hypothesis A1 at the .05 level of significance.
Hypothesis A2: There is no "weighting" by large multinational firms in strategic alliances formed during the time 1985 to 1991.

Alternative: Large multinational firms with multiple strategic alliances "weight" the incidence data on strategic alliances from 1985 to 1991.

There is evidence to indicate that some large multinational firms form numerous strategic alliances to accomplish their goals and objectives. For example, General Electric has 100 strategic alliances (Business Week, 1986). Cory (1982) found that Dow Chemical's joint ventures represented some 50% of the capital invested in joint ventures in the petrochemical industry in Yugoslavia at the end of 1979. It was expected that multinational firms operating under such strategies would "weight" the results of this study, that if such multinational firms and their strategic alliances were eliminated from the data, the level of strategic alliance formation would differ considerably. Thus, it was expected that Hypothesis A2 would be rejected.

Linear regression was utilized to analyze the relationship between the "weighted" strategic alliance incidence and year. A one-tailed F test was used to test Hypothesis A2 at the .05 level of significance.
B. Strategic Alliance Incidence By Form

Hypothesis B1: There is no difference in the incidence of strategic alliances by form from 1985 to 1991.

Alternative: Strategic alliances formed between 1985 and 1991 took various legal forms.

Terpstra and Simonin (1990), covering the period 1983 to 1987, found that of the 586 strategic alliances in their data base 33% were contractual arrangements, termed "non-equity agreements" in this study, 38% were equity participations, termed "minority equity agreements," 20% were joint ventures and 9% were consortia. In contrast, Ghemewat et al. (1986) found that 41% of the strategic alliances in their data base were joint ventures. Ellram's (1990) extension of Ghemewat et al.'s study, supported the 1986 findings. Ellram reported that of the 728 strategic alliance studied, 65% were joint ventures, 28% contracts, 4% supply agreements and 3% licensing agreements. Thus, it was expected that Hypothesis B1 would be rejected, and that results of this research would be similar to those of Terpstra and Simonin. Terpstra and Simonin's data base is more similar to the data base created for this study than that of either Morris and Hergert or Ghemewat et al.

The distribution of strategic alliance incidence of the years 1985 to 1991 by form was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level
of significance.

Hypothesis B2: There is no difference in the incidence of strategic alliances by form and partnership nationality from 1985 to 1991.

Alternative: Strategic alliances involving American or European partners usually take the form of a minority equity agreement.

The results of a study by Terpstra and Simonin (1990) indicate that American and European companies prefer to operate within minority equity agreements as compared to either non-equity agreements or joint ventures. Japanese firms, however, prefer the use of non-equity agreements over minority equity agreements or joint ventures. In terms of aggregate data across the three regions, minority equity agreements were found to be slightly more popular than non-equity agreements. In contrast, both Ellram (1990) and Ghemewat et al. (1986) reported that joint ventures were the most common form of strategic alliance. The two studies did not make the distinction between nationality and preferred legal form, and were biased toward large American companies. However, it appears that the contribution of equity is very important to American firms, less important to European firms and and still less important to Japanese firms.

Terpstra and Simonin (1990) found that 75.4% of the alliances in their data set involved an American partner, while 42.3% involved a European partner. Of the strategic alliances studied
by Morris and Hergert (1988), 74% involved a European partner. Thus, it would appear that the majority of strategic alliances involve either an American or a European partner. Since American and European companies appear to prefer arrangements involving some equity, it was expected that Hypothesis B2 would be rejected.

The distribution of strategic alliance incidence over the years 1985 to 1991 by form and by partnership nationality was tested using the Pearson chi square test of independence with r-1 c-1 degrees of freedom at the .05 level of significance. Contingency table analysis involved strategic alliance form on the X axis and partnership nationality on the Y axis.

Hypothesis B3: There is no difference in the incidence of strategic alliances by form and by year for the period 1985 to 1991.

Alternative: There will be a trend toward minority equity agreements and joint ventures by year from 1985 to 1991.

As the countries of the European Community approach their goal of becoming aligned as a Common Market, American and Japanese firms are rapidly establishing their presence within Europe. One common means of entry is through a strategic alliance with a European partner (Magee, 1989; Delachaux, 1990; Lynch, 1990; Lei, 1990). Terpstra and Simonin (1990) found that European firms tend to utilize minority equity agreements more often than either joint ventures or non-equity agreements. Ellram (1990) and Ghemewat et
al. (1986), in contrast, found that joint ventures were the most common form of strategic alliance. Thus, it was expected that arrangements involving some equity would be most common from 1985 to 1991. Hence, it was expected that Hypothesis B3 would be rejected.

The distribution of strategic alliance incidence by form and by year was analyzed using the Pearson chi square test of independence with (r-1) (c-1) degrees of freedom at the .05 level of significance. Contingency table analysis involved strategic alliance form on the X axis and year on the Y axis.

C. Strategic Alliance Incidence By Nationality

Hypothesis Cl: There is no difference in the incidence of strategic alliances by partnership nationality, classified by region of the world, from 1985 to 1991.

Alternative: Strategic alliances involving a European partner will be most common.

Terpstra and Simonin (1990) found that of 586 strategic alliances formed between 1983 and 1987, 75.4% had an American partner, 42.3% had a European partner and 29.9% had a Japanese partner. Morris and Hergert (1988) reported that 74% of the 839 strategic alliances in their data base involved a European partner. It was expected that this research would show a shift in partnership nationality from an American dominance to a European
dominance. The rationale behind this argument involves the effect of the potential formation of a "Fortress Europe" as a result of the European Community's move toward a Common Market in 1993. Researchers argue that a common strategy by American and Japanese firms to avoid "Fortress Europe" involves the establishment of a European presence (Magee, 1989; Delachaux, 1990; Lynch, 1990; Lei, 1990). A common vehicle to achieve this objective is to form a strategic alliance with a European firm. Thus, the level of strategic alliance incidence between European firms and non-European firms should rise. Hence, it was expected that Hypothesis C1 would be rejected.

The distribution of strategic alliance incidence over the years 1985 to 1991 by partnership nationality, classified by region of the world, was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance.

Hypothesis C2: There is no difference in the incidence of strategic alliances between parties from developed countries, between parties from lesser developed countries, or developed country-lesser developed country combinations during the time period 1985 to 1991.

Alternative: Strategic alliances between developed country partners will be most common.

Innovations in technology, marketing know-how and products are commonly recognized to occur in developed countries more
frequently than in lesser developed countries. Terpstra and Simonin (1990) found that the most common motivations behind strategic alliance formation within the Triad countries are to learn new technology, to gain access to a marketing system and to acquire or develop a new product. These findings are particularly interesting in view of the fact that Morris and Hergert (1988) found that the majority of the strategic alliances in their data base were between firms from the Triad countries. In fact, Ghemewat et al. reported that developed country companies accounted for 87% of the parents for the strategic alliances in their data base. Furthermore, Ellram (1990) found that industrialized countries were most likely to be chosen as the location for collaborative activities. One would expect that lesser developed country companies would be less likely to establish operations in the relatively unknown environment of an industrialized country. However, developed country firms would be expected to operate in other developed countries with little or no difficulty. Moreover, it has been suggested that because developed countries have a greater proportion of sophisticated firms as compared to a lesser developed country, there is a greater number of potential strategic alliance partners available (Hill and Kim, 1988). Hence, it was expected that Hypothesis C2 would be rejected in favor of the alternative.
The distribution of strategic alliance incidence over the years 1985 to 1991 by the level of economic development of the parties involved was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance.

D. Strategic Alliance Incidence By Industry

Hypothesis D1: There is no difference in strategic alliance incidence by industry between 1985 and 1991.

Alternative: There is no dominant industry involved in strategic alliances formed between 1985 and 1991, rather a variety of industries are actively collaborating.

Of the 586 strategic alliances studied by Terpstra and Simonin, 13 distinct industries were recognized. Representation by industries ranged from 2.3% for the drug industry to 21.3% for the computing equipment industry. Ellram (1990) categorized strategic alliances into 19 manufacturing industries and five service industries. Eighty-four percent of the strategic alliances examined by Morris and Hergert (1988) could be classified into five industrial sectors, aerospace (19%), telecommunications (17.2%), computers (14%), motor vehicles (23.7%) and other electrical (13%). Ghemewat et al. (1986) found that a large number of industries were represented in their data. The crude petroleum and natural gas industry was most likely to
become involved in strategic alliances, followed by the motor industry, the passenger car bodies industry and electronic computing equipment. It was thus expected that Hypothesis D1 would be rejected.

The distribution of strategic alliance incidence over the years 1985 to 1991 by industry was analyzed using the Pearson chi-square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance.

Hypothesis D2: There is no difference in strategic alliance incidence by industry and by year between 1985 and 1991.

Alternative: Energy and chemical industries will be the most actively involved in strategic alliance formation on an annualized basis between 1985 and 1991.

Ghemewat et al. (1986) found that the energy industry and the chemical industry were most likely to become involved in strategic alliances during the years 1970 to 1982. However, from 1970 to 1973, the metals and minerals industry and the machine industry for machinery other than that used in agribusiness, construction, automobiles or aerospace, were more active in collaborating. Yet, from 1974 to 1976, the industries most active in strategic alliance formation were the energy industry and chemical industry. This same pattern of domination was found in the years 1977 to 1979 and in the years 1980 to 1982. Thus, it was expected that Hypothesis D2 would be rejected.
The distribution of strategic alliance incidence by industry and by year was analyzed using the Pearson chi square test of independence with \((r-1) (c-1)\) degrees of freedom at the .05 level of significance. Contingency table analysis involved strategic alliance industry on the X axis and year on the Y axis.

E. Strategic Alliance Incidence By Motive

Hypothesis E1: There is no difference in strategic alliance incidence by motive from 1985 to 1991.

Alternative: Some motives provide a greater incentive for strategic alliance formation.

Six distinct motives were identified by Terpstra and Simonin (1990) in their study of 586 strategic alliances formed between 1983 to 1987. The six motives included the opportunity to acquire or develop a new product, the opportunity to learn new technology, the opportunity to gain access to a marketing system, the opportunity to overcome a country's protectionist measures and the opportunity to gain direct payment in the form of royalties. While the first three motives were found to be the most frequent incentives for strategic alliance formation, all six motives common.

The rational behind collaboration was also explored by Morris and Hergert (1988). They found that joint product development was the most common motivation for strategic alliance formation. Other motivations recognized by Morris and Hergert were marketing
and production opportunities. Their study also revealed that over 31% of strategic alliances were formed with multiple motivations. Thus, it was expected that Hypothesis E1 would be rejected.

F. Strategic Alliance Incidence By Participants

Hypothesis F1: There is no difference in strategic alliance incidence by the number of participants involved in each strategic alliance from 1985 to 1991.

Alternative: Strategic alliances involving only two partners are most common.

Eighty-one percent of the strategic alliances in Morris and Hergert's data base involved just two partners. Only 9% of their strategic alliances involved 3 partners and 5% had 4 participants. Thus, it was expected that Hypothesis F1 would be rejected.

The distribution of strategic alliance over the years 1985 to 1991 by the number of participants involved was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance.
G. Strategic Alliance Incidence By Collaboration Location

Hypothesis G1: There is no difference in strategic alliance incidence by form and location during the years 1985 to 1991.

Alternative: Minority equity agreements and joint ventures in the European Community will be most common during the period 1985 to 1991.

The goal of the European Community to become a Common Market by 1993 has motivated many firms to establish a presence within the European Community (Magee, 1989; Delachaux, 1990; Lei, 1990; Lynch, 1990). Companies outside the alliance fear that a "Fortress Europe" could emerge, leaving them with no means of serving the member countries. One common means of entering the market has been through strategic alliances with European partners. It has been found that European firms prefer to collaborate through minority equity agreements as compared to either joint ventures or non-equity agreements (Terpstra and Simonin, 1990). However, Ghemewat et al. (1986) and Ellram (1990) found that joint ventures were the most common type of collaborative agreement. Thus, it is expected that the European Community will be a dominant location for strategic alliances, and that alliances will be primarily in the form of joint ventures or minority equity agreements. Hence, it was expected that Hypothesis G1 would be rejected.

The distribution of strategic alliance incidence over the years 1985 to 1991 by form and by location was analyzed using the
Pearson chi square test of independence with \( (r-1)(c-1) \) degrees of freedom at the .05 level of significance. Contingency table analysis involved strategic alliance form on the X axis and location on the Y axis.

Stage Two: Strategic Alliance Transformation

A. Strategic Alliance Failure

Hypothesis A1: There has been no change in the number of strategic alliance failures from 1985 to 1991.

Alternative: There has been an increase in strategic alliance failure from 1985 to 1991.

Research on the rate of strategic alliance failure is inconclusive. A study by McKinsey and Company and Coopers and Lybrand found a high rate of strategic alliance failure, reporting that seven of ten joint ventures do not meet participant expectations or are terminated (Business Week, 1986). This finding was supported by Harrigan who found that 57% of the joint ventures in her sample did not meet participant expectations.

Similarly, Berg and Friedman (1987; 1980) found that of 123 joint ventures studied, 50 were dissolved or sold. In contrast, Morris and Hergert’s (1988) comprehensive study of strategic alliances reported that 90% of the 839 strategic alliances in their data set were still in operation. However, as it was expected that the rate of strategic alliance formation is increasing, it was expected that the potential for strategic alliance failure would
likewise increase. Thus, it was expected that Hypothesis A1 would be rejected in favor of the alternative.

Linear regression was utilized to analyze the relationship between strategic alliance failure and year. A one-tailed F test was used to test Hypothesis A1 at the .05 level of significance.

B. Strategic Alliance Transformation By Industry

Hypothesis B1: There is no difference in strategic alliance transformation by industry from 1985 to 1991.

Alternative: Strategic alliances in service industries fail more frequently than do alliances in other industries.

Research on the issue of strategic alliance transformation by industry is sparse and inconclusive. The mortality rates for joint ventures were studied by Kogut (1988), who found that joint ventures in service related industries had a significantly higher rate of failure than did other industries. Harrigan (1988) supported Kogut's results, in that while not examining joint venture mortality, but rather joint venture success rates, she found that joint ventures in the metals fabrication, petrochemicals, pharmaceuticals and film programming industries were judged to be most successful by participants. Thus, some support for Kogut's findings is evident in that none of the industries judged to be successful in Harrigan's data set are service industries. Hence, it was expected that Hypothesis B1
would be rejected.

The distribution of strategic alliance failure over the years 1985 to 1991 by industry was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance.

C. Strategic Alliance Transformation By Form

Hypothesis C1: There is no difference in strategic alliance transformation by form from 1985 to 1991.

Alternative: Strategic alliances are most likely to fail when they take the form of a joint venture.

Research on strategic alliance failure is relatively sparse, and is concentrated on joint ventures. Harrigan found that more than half of the joint ventures she examined over a ten year time period were unsuccessful. Even more convincing was a study by McKinsey and Company and Coopers and Lybrand that found that seven out of ten joint ventures do not meet partners' expectations. Berg and Friedman (1980) found that of 123 joint ventures, 50 were terminated in their original form. Ellram (1990) and Ghemewat et al. (1986) found that the most common form of strategic alliance is the joint venture. Hence, it could be argued that joint ventures have a greater probability of failure. Hence, it was expected that Hypothesis C1 would be rejected.
The distribution of strategic alliance failure over the years 1985 to 1991 by form was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance.

D. Strategic Alliance Transformation By Participants

Hypothesis D3: There is no difference in the number of failures between international partners as compared to domestic partners during the years 1985 to 1991.

Alternative: Strategic alliances formed across national borders fail more frequently than strategic alliances formed within national borders.

Kogut (1988) found that of the joint ventures in his study, ventures between international partners had a greater probability of failure than ventures between domestic partners. Moreover, researchers have argued that distance, both psychic and physical, can present difficulties in business situations (Doz and Prahalad and 1987; Doz, 1988; Harrigan, 1988). Hence, it would be expected that strategic alliances formed across national borders rather than within a single country could encounter problems of cultural and physical distance. In fact, Harrigan (1988) found that joint ventures between culturally similar partners are likely to have a greater duration than ventures between culturally dissimilar partners. Hence, it was expected that Hypothesis B3 would be rejected.
The distribution of strategic alliance failures over the years 1985 to 1991 by the type of alliance, domestic or international, was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance.

E. Strategic Alliance Transformation By Location

Hypothesis E1: There is no difference in strategic alliance failure by location during the years 1985 to 1991.

Alternative: Strategic alliance failures are most common in third country locations.

Beamish and Banks (1987) propose that collaboration involving a multinational partner contributing technological and managerial expertise and a local partner contributing knowledge of the local environment can be a highly effective mode of governance. Thus, one could argue that if collaboration takes place in a third country, a critical element, knowledge of the local environment, will be absent from the venture. Moreover, researchers have suggested that psychic and physical distance can present difficulties in business situations (Doz and Prahalad, 1987; Doz, 1988; Harrigan, 1988). Certainly, one could surmise that firms operating in a third country could encounter physical distance problems, and ultimately lead to a termination of the venture. Thus, it was expected that Hypothesis E1 would be rejected.
The distribution of strategic alliance failure over the years 1985 to 1991 by location was analyzed using the Pearson chi-square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance.

Summary

This chapter presented the methodology that was used in this research. In addition, it presented the hypotheses that were explored, proposed their alternatives, discussed the rationale behind the alternative hypotheses and indicated the appropriate statistical tests for each hypothesis. Chapter IV will present the results of the research.
Chapter IV

Results

This research involved the creation of a comprehensive database containing information on strategic alliance incidence and strategic alliance transformation. Various hypotheses and alternative hypotheses designed to provide an understanding of the nature of strategic alliance activity across and within the Pacific Rim, Europe and North America were presented in previous chapters. This chapter will provide the results of this study. The chapter will begin by presenting the results of stage one of the research, strategic alliance incidence. The second part of the chapter will provide results of the hypotheses relating to stage two of the research, strategic alliance transformation. Finally, a third section will present other findings relevant to the research.

Research Results

Stage One: Strategic Alliance Incidence

This section will report the results of stage one of the research. This stage involved the creation of a comprehensive
data set on strategic alliances. After a transaction had been identified as a strategic alliance, it was classified according to the taxonomy in Appendix A.

A. Strategic Alliance Formation

Two hypotheses were concerned with the number of strategic alliances formed during the time period 1985 to 1991. The first hypothesis, A1, utilized the entire data set collected in stage one of the research, the second hypothesis, A2, utilized the entire data set collected in stage one of the research less the strategic alliance activity for the first 25 firms listed in Fortune’s 1991 Global 500.

Hypothesis A1: There has been no change in the number of strategic alliances formed from 1985 to 1991.

Alternative: There has been an increase in strategic alliance incidence from 1985 to 1991.

The null hypothesis A1, which predicted no linear relationship between the dependent variable, incidence of strategic alliances and the independent variable, the time period 1985 to 1991, was tested using linear regression. The alternative hypothesis proposed that there would be an upward trend in the incidence of strategic alliances over the time period 1985 to 1991. Hypothesis A1 was tested on the entire data set of 4407 observations collected in stage one of the research.
A one-tailed F statistic was used to test Hypothesis A1 at the .05 level of significance. The one-tailed test was used because the alternative hypothesis predicted an increase in strategic alliance activity over the time period 1985 to 1991. The results of the test revealed an F value of 2.460 and a p value of .1919. Hence, statistically, the data supports the null hypothesis of no linear relationship between the dependent variable, incidence of strategic alliances and the independent variable, the time period 1985 to 1991. However, a visual observation of the results of this test indicates a weak upward trend in alliance formation for the time period studied. Figure 1 illustrates the results of this test.

Hypothesis A2: There is no weighting by large multinational firms in strategic alliances formed from 1985 to 1991.

Alternative: Large multinational firms with multiple strategic alliances weight the incidence data on strategic alliances from 1985 to 1991.

Hypothesis A2 predicted that there would be no weighting by large multinational firms in the incidence of strategic alliances formed between 1985 and 1991. The term weighting refers to the idea, discussed in Chapter III, that the activities of large multinational firms may skew the findings on strategic alliance formation, that if such companies, and their collaborative activities were removed from the data, the level of alliance formation would differ considerably. The null hypothesis A2 of no
Strategic Alliance Formation
1985 to 1991

n=4407

Figure 1
weighting was tested using linear regression against the
alternative hypothesis that large multinationals would weight the
data.

This hypothesis involved the creation of a subset of data
that included the entire data set collected in stage one of the
research less the strategic alliance activity of the first 25
firms listed in Fortune's 1991 Global 500. Appendix E provides a
list of the firms whose alliance activity was excluded from the
complete data set for the testing of hypothesis A2. Thus, the
hypothesis A2 was tested using a data set of 3768 observations.

A one-tailed F statistic was used to test hypothesis A2 at
the .05 level of significance. The null hypothesis of no
weighting by large multinational firms was supported by the data
with an F value of 1.262 and a p value of .3242. An F test of the
excluded 638 observations revealed an F value of 6.862 and a p
value of .0588. The results of these tests are shown in Figures 2
and 3.

B. Strategic Alliance Incidence By Form

The legal form of each strategic alliance was the subject of
the next three hypotheses. The complete data set collected in
stage one of the research was used to address the hypotheses
relating to legal form.
Strategic Alliance Incidence
"Unweighted Data"

![Graph showing strategic alliance incidence from 1985 to 1990](image)

Figure 2

n=3768
Strategic Alliance Incidence
"Weighted Data"

Figure 3
Hypothesis B1: There is no difference in the incidence of strategic alliances by form from 1985 to 1991.

Alternative: Strategic alliances formed between 1985 and 1991 took various legal forms.

The distribution of strategic alliances over the years 1985 to 1991 by form was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance. The null hypothesis B1 of no difference in the incidence of strategic alliances by form was rejected at a p value of less than .001. The alternative hypothesis that alliances formed between 1985 and 1991 took various legal forms was supported by the data. Figure 4 indicates that forms 1 and 3 were the most common legal forms for alliances, together accounting for approximately 88.2% of all of the alliances formed during the time period studied.

Hypothesis B2: There is no difference in the incidence of strategic alliances by form and partnership nationality from 1985 to 1991.

Alternative: Strategic alliances involving American or European partners usually take the form of a minority equity agreement.

The null hypothesis that there is no difference in the incidence of strategic alliances by form and by partnership nationality from 1985 to 1991 was analyzed using the Pearson chi square test of independence with (r-) (c-1) degrees of freedom at the .05 level of significance.
Strategic Alliance Incidence
By Form

Joint Ventures
47%

Minority Equity
9%

Consortia
2%

Non-Equity
42%

Figure 4
The nationality of each participant was classified following the format used by Dun and Bradstreet International into one of four regions: North America; the Pacific Rim; Europe; or Other. This grouping is summarized in Appendix F. The null hypothesis B2 of no difference in strategic alliance incidence by form and by partnership nationality was rejected with a p value less than .001. The results of the analysis revealed that alliances involving European partners took equity based forms more often than would be expected, while Americans firms were involved in more non-equity arrangements than expected.

Hypothesis B3: There is no difference in the incidence of strategic alliances by form and by year for the period 1985 to 1991.

Alternative: There will be a trend toward minority equity agreements and joint ventures by year from 1985 to 1991.

The distribution of strategic alliance incidence by form and by year over the time period 1985 to 1991 was tested using the Pearson chi square test of independence with \((r-1) (c-1)\) degrees of freedom at the .05 level of significance. Hypothesis B3 of no difference in the incidence of strategic alliances by form and by year was rejected with a p value less than .001. Results supported the alternative hypothesis of a trend toward minority equity agreements and joint ventures over time.
C. Strategic Alliance Incidence By Participant Nationality

Two hypotheses were designed to explore the patterns of strategic alliance activity based on participant nationality. The complete data set collected in stage one of the research was used to test these hypotheses.

Hypothesis C1: There is no difference in the incidence of strategic alliances by partnership nationality, classified by region of the world, from 1985 to 1991.

Alternative: Strategic alliances involving a European partner will be most common.

The distribution of strategic alliance incidence over the years 1985 to 1991 by partnership nationality, classified by region of the world, was analyzed using the chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance.

The participants of each alliance were classified by their nationalities according to the scheme used by Dun and Bradstreet International into four world regions, North America, Europe, the Pacific Rim and Other. Thus, the total number of participants from Europe involved in collaboration were identified, as were the total number of participants from North America, the total number from the Pacific Rim and the total number from other countries. A detailed list of this classification scheme is shown in Appendix
F. The null hypothesis C1 of no difference in the incidence of strategic alliances by partnership nationality over the years 1985 to 1991 was rejected at a p value of less than .001. The alternative hypothesis that alliances involving European partners would be most common was also rejected. The results of the test revealed that alliances involving a participant from the Pacific Rim were most common, followed by alliances involving a partner from North America. The results of this test are shown in Figure 5.

Hypothesis C2: There is no difference in the incidence of strategic alliances between firms from developed countries, between firms from lesser developed countries, or developed country-lesser developed country combinations during the time period 1985 to 1991.

Alternative: Strategic alliances between developed country partners will be most common.

The distribution of strategic alliance incidence over the time period 1985 to 1991 by the level of economic development of the parties involved was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance. Each participant was identified as being a developed country partner or a lesser developed country partner, then alliances were classified as being between participants from developed countries, as being between participants from lesser developed countries or as being between parties from both
Strategic Alliance Incidence
By Nationality

North America 32%
Europe 23%
Other 7%
Pacific Rim 37%

n=9800

Figure 5
developed countries and lesser developed countries. The null hypothesis C2 of no difference in the incidence of alliances between parties from developed countries, between parties from lesser developed countries or developed country-lesser developed country combinations was rejected at a p value less than .001. The data supported the Alternative hypothesis that alliances between developed country participants are most common. Figure 6 illustrates the results of this test.

D. Strategic Alliance Incidence By Industry

Hypotheses D1 and D2 are concerned with the industry of strategic alliance participants. The data set used to test the hypotheses included the entire set of data collected in stage one of the study. Following the method used in similar studies on the nature of strategic alliance activity (Ellram, 1990; Tersptra and Simonin, 1990; Morris and Herget, 1988; and Ghemewat et al., 1986), industries were grouped into seventeen categories. The industry codes of 7624 of the 9800 strategic alliance participants were identified. Industry codes were not determined in 379 cases involving countries or otherwise unidentifiable participants. The classification scheme is listed in Appendix G.
Strategic Alliance Incidence
By Level Of Economic Development

Figure 6
Hypothesis D1: There is no difference in strategic alliance incidence by industry between 1985 and 1991.

Alternative: There is no dominant industry involved in strategic alliances formed between 1985 and 1991, rather a variety of industries are actively collaborating.

The distribution of strategic alliances by industry over the years 1985 to 1991 was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance. The null hypothesis D1 of no difference in the incidence of strategic alliances by industry was rejected at a p value of less than .001. Thus, the alternative hypothesis that a variety of industries were involved in collaboration during the time period 1985 to 1991 was statistically supported by the data, however, while no dominant industry was identified, it was found that the computers/semiconductors/electronics industry and the finance industry were more active than others. The results of this test are shown in Figure 7.

Hypothesis D2: There is no difference in strategic alliance incidence by industry and by year between 1985 and 1991.

Alternative: Energy and chemical industries will be the most actively involved in strategic alliance formation on an annualized basis between 1985 and 1991.

The distribution of strategic alliances over the years 1985 to 1991 by industry and by year was analyzed using the Pearson chi
Strategic Alliance Incidence
By Industry

Figure 7

See Appendix A For Key
square test of independence with \((r-1)(c-1)\) degrees of freedom at the .05 level of significance. The null hypothesis D2 of no difference in strategic alliance incidence by industry and by year was rejected by the data at a p value of less than .001. The data failed to support the alternative hypothesis that the energy industry would be active in strategic alliance formation, however it was found that the chemical industry was more active than would be expected under the assumption of independence.

E. Strategic Alliance Incidence By Motive

Hypothesis E1 was addressed the question of the purpose or intention behind strategic alliance formation. It was concerned with revealing the benefits that participants expected to receive from collaboration. The hypothesis utilized the complete data set collected in stage one of the research.

Hypothesis E1: There is no difference in strategic alliance incidence by motive from 1985 to 1991.

Alternative: Some motives provide greater incentive for strategic alliance formation.

Strategic alliance motivations were classified according to the taxonomy in Appendix A. Thirty-three different motivations were recognized, including a category for nonclassifiable or unidentifiable motivations and a category for mixed motivations. When an alliance was classified as having mixed motives each
individual motive was also recorded. An analysis of the frequencies of the remaining thirty-one motivations revealed that motive 10, to expand a market, gain access to a market or increase sales, was the most common motivation behind collaboration, occurring in 11.8% of the alliances collected in stage one of the study. This was followed by motive 2, to learn or exploit technology or other expertise, occurring in 11.3% of alliance activity and motive 1, to acquire or develop a new product, which occurred in 6.4% of all collaboration.

Strategic alliance motivations were also classified according to the collapsed motive taxonomy presented in Appendix A. This collapses the thirty-one motives into eight categories, product/service, technology, marketing, protectionism, operations, monetary, natural resources and competitiveness. An analysis of the frequencies of the collapsed motives revealed that marketing was the motivation occurring in 18.3% of the collaboration from 1985 to 1991, followed by technology which occurred in 11.7% of alliance activity and competitiveness which occurred in 8.5% of the identifiable motivations. The configuration of the collapsed motivations is shown in Figure 8.
Strategic Alliance Incidence
By Motive

n=6136
See Appendix A For Key
Figure 8
F. Strategic Alliance Industry By Participants

Hypothesis F1, was concerned with the number of participants involved in each strategic alliance. The complete stage one dataset was used to test the hypothesis.

Hypothesis F1: There is no difference in strategic alliance incidence by the number of participants involved in each alliance from 1985 to 1991.

Alternative: Strategic alliances involving only two partners are most common.

The distribution of strategic alliances over the time period 1985 to 1991 by the number of participants involved was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of analysis. The null hypothesis F1 of no difference in strategic alliance incidence by participant number was rejected at a p value of less than .001. The alternative hypothesis that alliances involving two partners would be most common was supported by the data. The results of this test are shown in Figure 9.

G. Strategic Alliance Industry By Collaboration Location

Hypothesis G1 was concerned with the location in which collaboration took place. Collaboration locations were initially classified according to the scheme presented by Dun and Bradstreet International that is summarized in Appendix F. Then, the category
Strategic Alliance Incidence
By Number of Participants

Figure 9

n=4407
"Europe" was divided into "European Community" and "Other Europe."
The first category consists of the twelve countries of the
European Community; Italy, Belgium, Germany, France, the
Netherlands, Luxembourg, Great Britain, Ireland, Denmark, Greece,
Portugal and Spain. The second category contains the remaining
countries listed in the original category "Europe."

Hypothesis G1: There is no difference in strategic alliance
incidence by form and collaboration location during
the years 1985 to 1991.

Alternative: Minority equity agreements and joint ventures in
the European Community will be most common
during the period 1985 to 1991.

The distribution of strategic alliance incidence over the time
1985 to 1991 by form and by collaboration location was analyzed
using the Pearson chi square test of independence with \((r-1) (c-1)\)
degrees of freedom at the .05 level of significance. The null
hypothesis G1 of no difference in strategic alliance incidence by
form and location during the time 1985 to 1991 was rejected with a
p value less than .001. The data supported the alternative that
the forms minority equity agreements and joint ventures would be
most common in the European Community.
Stage Two: Strategic Alliance Transformation

This section will provide results of five hypotheses related to stage two of the research. Stage two of the study was concerned with the nature of strategic alliance failure. Strategic alliances were recognized as failures if they met the definition of failure summarized in Appendix B.

A. Strategic Alliance Failure

Hypothesis A1 addressed the question of the number of strategic alliance failures over the time period 1985 to 1991. The hypothesis was tested using the complete set of data collected in stage two of the research.

Hypothesis A1: There has been no change in the number of strategic alliance failures from 1985 to 1991.

Alternative: There has been an increase in strategic alliance failure from 1985 to 1991.

The null hypothesis, A1, which predicted no linear relationship between the dependent variable, the number of strategic alliances, and the independent variable, the time period 1985 to 1991, was tested using linear regression. The alternative hypothesis predicted an upward trend in strategic alliance failure during the years 1985 to 1991. The hypothesis was tested using the data set of 228 failures collected in stage two of the research.
A one-tailed F statistic at the .05 level of significance was used to test the null hypothesis of no change in the number of failures. The one-tailed test was appropriate because the alternative hypothesis predicted an increase in strategic alliance failures during the time period 1985 to 1991. The results of the test revealed an F value of 10.0 at a p value of .0341. Hence, the data rejected the null hypothesis of no change. The data failed to support the alternative hypothesis of an increase in strategic alliance failure, instead it revealed a downward trend in alliance failure. The results of this hypothesis are shown in Figure 10.

B. Strategic Alliance Transformation By Industry

Hypothesis B1 examined strategic alliance transformation in terms of industry. The complete set of data collected in stage two of the research was used to test hypothesis B1. Industries were categorized according to the scheme shown in Appendix G. The industry code of 414 of the 492 strategic alliance participants could be identified. Industry codes were not determined in 8 cases involving countries or otherwise unidentifiable participants.
Strategic Alliance Failure
1985 to 1991

Figure 10
Hypothesis B1: There is no difference in strategic alliance transformation by industry from 1985 to 1991.

Alternative: Strategic alliances in service industries fail more frequently than do alliances in other industries.

The distribution of strategic alliance transformation over the years 1985 to 1991 by industry was analyzed using the Pearson chi square goodness-of-fit with n-1 degrees of freedom at the .05 level of significance. The null hypothesis B1 of no difference in strategic alliance transformation by industry from 1985 to 1991 was rejected with a p value of less than .001. The alternative hypothesis that alliances involving service industries fail more frequently than alliances involving other industries was rejected by the data. Instead, it was found that the failure rate was highest in the computers/semiconductors/electronics and finance industries. Figure 11 illustrates the results of this test.

C. Strategic Alliance Transformation By Form

Hypothesis C1 was concerned with which legal form of strategic alliance was most likely to fail. Four legal forms of collaboration were recognized including joint venture, minority equity agreement, non-equity agreement and consortia. This hypothesis was tested using the data that was collected in stage two of the research.
Strategic Alliance Transformation
By Industry

See Appendix A For Key

Figure 11
Hypothesis C1: There is no difference in strategic alliance transformation by form from 1985 to 1991.

Alternative: Strategic alliances are most likely to fail when they take the form of a joint venture.

The distribution of strategic alliance transformation by form over the years 1985 to 1991 was tested using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance. The null hypothesis C1 of no difference strategic alliances transformation by form was rejected at a p value of less than .001. The alternative hypothesis that strategic alliances are most likely to fail when they take the form of a joint venture was supported by the data. Figure 12 illustrates the results of this test.

D. Strategic Alliance Transformation By Participants

Failure rates in strategic alliances between partners from different countries as compared to failure rates between partners from the same country were the subject of hypothesis D1. The data collected in stage two of the research was used to test this hypothesis.
Strategic Alliance Transformation
By Form

- Joint Ventures: 64%
- Minority Equity: 10%
- Non-Equity: 20%
- Consortia: 2%
- Other: 4%

n=228

Figure 12
Hypothesis D1: There is no difference in the number of failures between international partners as compared to domestic partners during the years 1985 to 1991.

Alternative: Strategic alliances formed across national borders fail more frequently than strategic alliances formed within national borders.

The distribution of strategic alliance transformation over the years 1895 to 1991 by the type of the alliance, domestic or international was tested using the Pearson chi square goodness-of-fit test at the .05 level of significance. The null hypothesis D1 of no difference in the number of failures between international partners as compared to domestic partners was rejected at a p value less than .001. The data collected for this research supported the alternative hypothesis that alliances formed across national borders fail more frequently than alliances formed within borders. The results of this test are shown in Figure 13.

E. Strategic Alliance Transformation By Location

Hypothesis E1 addressed the question of failure rates in terms of the location of collaboration. This hypothesis was tested using the data collected in stage two of the research.
Strategic Alliance Transformation
By Type

International 61%

Domestic 39%

Figure 13
Hypothesis E1: There is no difference in strategic alliance failure by location during the years 1985 to 1991.

Alternative: Strategic alliance failures are most common in "third country" locations.

The distribution of strategic alliance transformation during the years 1985 to 1991 by collaboration location was tested using the Pearson chi square goodness-of-fit test at the .05 level of significance. A "third country" was defined as a country other than the countries in which each participant's headquarters was located. Thus, an alliance was classified as having taken place in a "third country" if the location of collaboration was not the same as the headquarter's location of at least one participant.

The null hypothesis, E1, of no difference in strategic alliance transformation by location was rejected with a p value of less than .001. The data failed to support the alternative hypothesis that failures are most common in "third country" locations, rather it was revealed that failures occur most frequently when collaboration takes place in the headquarters country of at least one participant. Figure 14 shows the results of this test.
Strategic Alliance Transformation
By Location

Figure 14
Other Research Results

A primary objective of this research was to explore the nature of strategic alliance incidence across and within North America, Europe and the Pacific Rim. Accordingly, the hypotheses discussed in the previous two sections of this chapter provide a description of the configuration of collaborative activity across and within the three regions from 1985 to 1991. However, it was felt that the inclusion of several additional results would complement the research effort by revealing a more detailed picture of strategic alliance activity.

This section will provide results addressing the mode, or activities undertaken as a result of collaboration, and the type, international or domestic, of collaboration. In addition, it will explore various patterns of activity using data collected from the three sources of information individually. These latter results will address the question of bias that may have occurred in earlier studies (Ellram, 1990; Morris and Herget, 1988; and Ghemewat et al., 1986). Discussion on this bias can be found in previous chapters. The supplementary results will be discussed in the form of propositions about the data.
Proposition 1: A variety of modes were undertaken as a result of collaboration taking place from 1985 to 1991.

Strategic alliance modes, the activities that were undertaken as a result of collaboration, were classified according to the taxonomy presented in Appendix A. Modes were either classified as being joint activities which took place at the same stage of the value added chain or as complementary activities which took place at different stages in the value added chain. Twenty different modes were recognized including a category for unclassifiable/unidentifiable modes. If an alliance announcement indicated multiple modes, each mode was recorded. There was no attempt to distinguish primary modes. This proposition was analyzed using the complete set of data collected in stage one of the research.

An analysis of the nineteen modes revealed that joint activities were most common. Mode 2, joint production, was the most common activity undertaken as a result of collaboration, occurring in 17.5% of all of the alliances collected in stage one of the research. This was followed by mode 4, joint marketing, occurring in 14.3% of alliance activity and mode 3, joint product development, which occurred in 7.8% of all collaborative activity. The next three most frequent modes were all complementary activities, mode 17, marketing/sales/service, occurred in 7.4% of the agreements, mode 18, purchasing, occurred in 7.3% of the collaborative arrangements and mode 14,
manufacturing arrangements, occurred in 6.8% of the alliances collected in stage one of the research. The distribution of modes is shown in Figure 15.

Proposition 2: Alliances between partners from different countries occurred more frequently than alliances between partners from the same country from 1985 to 1991.

The distribution of strategic alliances by their type, international or domestic, was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance. The data tested included the complete set of data collected in stage one of the research. The test rejected a hypothesis of no difference in strategic alliance incidence by type at a p value of less than .001. The results revealed that collaboration took place across borders in 75.7% of the alliances collected in stage one of the research. The results of the test are shown in Figure 16.

The next nine propositions were designed to provide a measure of the bias that may have occurred in previous studies (Ellram, 1990;, Morris and Herget, 1988; and Ghemewat et al., 1986). It was hypothesized by the authors of the earlier studies that their data may have been biased according to the source of data used. Further discussion of this point can be found in previous chapters. An attempt was made in this research to
Strategic Alliance Incidence
By Mode

See Appendix A For Key

Figure 15
Strategic Alliance Incidence
By Type

International
76%

Domestic
24%

n=4407

Figure 16
minimize the bias by using multiple sources during the data collection process. The following propositions will examine the trend in alliance activity, the location of collaboration and the nationality of alliance participants using each source of information individually.

Proposition 3: An analysis of the data collected from The Wall Street Journal will reveal a upward trend in alliance activity over the years 1985 to 1991.

The analysis of this proposition required the creation of a subset of data that included only the alliance activity collected from the Wall Street Journal during the first stage of the research. Thus, proposition 3 was tested using a data set of 1390 observations. Linear regression was used to analyze the relationship between the dependent variable, incidence of strategic alliances, and the independent variable, year. A one-tailed F test resulted in an F value of 18.513 at a p value of .0126. The results of the test indicated an increase in strategic alliance activity from 1985 to 1991. Figure 17 illustrates the results of this test.

Proposition 4: An analysis of the data collected from The Wall Street Journal will reveal that the most common location for collaboration was North America.

The analysis of this proposition required the creation of a subset of data that included only the alliance activity collected
Strategic Alliance Formation
Wall Street Journal Data

Figure 17
from the Wall Street Journal during the first stage of the research. Collaboration locations were classified according to the scheme used by Dun and Bradstreet International into four world regions, North America, Europe, the Pacific Rim and Other. This classification scheme is summarized in Appendix F.

The distribution of strategic alliance activity during the years 1985 to 1991 by collaboration location was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance. The test rejected a hypothesis of no difference in strategic alliance incidence by collaboration location at a p value of less than .001. The results of the test revealed that North America was the most common collaboration location, accounting for 53.5% of alliance activity. The results of this test are shown in Figure 18.

Proposition 5: An analysis of the data collected from The Wall Street Journal will reveal that alliances involving an North American partner will be most common.

The analysis of proposition 5 involved the creation of a subset of data including only the alliances collected from the Wall Street Journal during stage one of the research. Using the format followed by Dun and Bradstreet International, participant nationalities were classified into four regions, North America, the Pacific Rim, Europe and Other. Appendix F summarizes the
Strategic Alliance Incidence
By Location (Wall Street Journal Data)

North America 54%
Europe 9%
Pacific Rim 13%
Other 25%

Figure 18
The distribution of strategic alliances by participant nationality was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance. The test rejected a hypothesis of no difference in strategic alliance incidence by participant nationality. The results indicated that strategic alliances formed between 1985 and 1991 were most likely to involve a North American partner. More than 60% of alliance participants collaborating during this time period were North American. The results of this test are shown in Figure 19.

Proposition 6: An analysis of the data collected from the Financial Times will reveal a upward trend in alliance activity over the years 1985 to 1991.

The analysis of this proposition required the creation of a subset of data that included only the alliance activity collected from the Financial Times during the first stage of the research. Thus, proposition 6 was tested using a data set of 1201 observations. Linear regression was used to analyze the relationship between the dependent variable, incidence of strategic alliances, and the independent variable, year. A one-tailed F test resulted in an F value of 12.919 at a p value of .0229. The results of the test indicated an increase in strategic alliance activity from 1985 to 1991. Figure 20 illustrates the
Strategic Alliance Incidence
By Nationality (Wall Street Journal)

North America 61%
Europe 15%
Pacific Rim 17%
Other 7%

n=3023

Figure 19
results of this test.

Proposition 7: An analysis of the data collected from the Financial Times will reveal that the most common location for collaboration was Europe.

The analysis of this proposition required the creation of a subset of data that included only the alliance activity collected from the Financial Times during the first stage of the research. Collaboration locations were classified according to the scheme used by Dun and Bradstreet International into four world regions, North America, Europe, the Pacific Rim and Other. This classification scheme is summarized in Appendix F.

The distribution of strategic alliance activity during the years 1985 to 1991 by collaboration location was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance. The test rejected a hypothesis of no difference in strategic alliance incidence by collaboration location at a p value of less than .001. The results of the test revealed that Europe was the most common collaboration location, accounting for 37.6% of alliance activity. The results of this test are shown in Figure 21.
Strategic Alliance Formation
Financial Times Data

Figure 20

n=1201
Strategic Alliance Incidence
By Location (Financial Times Data)

Figure 21
Proposition 8: An analysis of the data collected from the Financial Times will reveal that alliances involving an European partner will be most common.

The analysis of this proposition involved the creation of a subset of data including only the alliances collected from the Financial Times during stage one of the research. Using the format followed by Dun and Bradstreet International, participant nationalities were classified into four regions, North America, the Pacific Rim, Europe and Other. The classification scheme is summarized in Appendix F.

The distribution of strategic alliances by participant nationality was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance. The test rejected a hypothesis of no difference in strategic alliance incidence by participant nationality. The results indicated that strategic alliances formed between 1985 and 1991 were most likely to involve a European partner. More than 53% of alliance participants involved in collaborating during this time period were European. The results of this test are shown in Figure 22.
Strategic Alliance Incidence
By Nationality (Financial Times Data)

Europe 54%
North America 20%
Pacific Rim 15%
Other 11%

Figure 22
Proposition 9: An analysis of the data collected from the Japan Economic Journal will reveal an upward trend in alliance activity over the years 1985 to 1991.

The analysis of this proposition required the creation of a subset of data that included only the alliance activity collected from the Japan Economic Journal during the first stage of the research. Thus, proposition 9 was tested using a data set of 1816 observations. Linear regression was used to analyze the relationship between the dependent variable, incidence of strategic alliances, and the independent variable, year. A one-tailed F test resulted in an F value of 3.025 at a p value of .1570. The results of the test indicated a decrease in strategic alliance activity from 1985 to 1991. Figure 23 illustrates the results of this test.

Proposition 10: An analysis of the data collected from the Japan Economic Journal will reveal that the most common location for collaboration was the Pacific Rim.

The analysis of this proposition required the creation of a subset of data that included only the alliance activity collected from the Japan Economic Journal during the first stage of the research. Collaboration locations were classified according to the scheme used by Dun and Bradstreet International into four world regions, North America, Europe, the Pacific Rim and Other. This classification scheme is summarized in Appendix F.
Strategic Alliance Formation
Japan Economic Journal Data

Figure 23
The distribution of strategic alliance activity during the years 1985 to 1991 by collaboration location was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance. The test rejected a hypothesis of no difference in strategic alliance incidence by collaboration location at a p value of less than .001. The results of the test revealed that the Pacific Rim was the most common collaboration location, accounting for 48.8% of alliance activity. The results of this test are shown in Figure 24.

Proposition 11: An analysis of the data collected from the Japan Economic Journal will reveal that alliances involving an Pacific Rim partner will be most common.

The analysis of this proposition involved the creation of a subset of data including only the alliances collected from the Japan Economic Journal in stage one of the research. Using the format followed by Dun and Bradstreet International, participant nationalities were classified into four regions, North America, the Pacific Rim, Europe and Other. The classification scheme is summarized in Appendix F.

The distribution of strategic alliances by participant nationality was analyzed using the Pearson chi square goodness-of-fit test with n-1 degrees of freedom at the .05 level of significance. The test rejected a hypothesis of no difference in
Strategic Alliance Incidence
By Location (Japan Economic Journal)

n=1816

Figure 24
strategic alliance incidence by participant nationality. The results indicated that strategic alliances formed between 1985 and 1991 were most likely to involve a partner from the Pacific Rim. More than 66% of alliance participants involved in collaborating during this time period were from the Pacific Rim. Figure 25 shows the results of this test.

Summary

This chapter has presented the results of the hypotheses that were explored in this research. In addition, it presented eleven supplementary propositions about the data that were designed to provide a more complete picture of the nature of strategic alliance activity during the years 1985 to 1991. Chapter V will discuss the research findings and present conclusions based on this analysis.
Strategic Alliance Incidence
By Nationality (Japan Economic Journal)

Figure 25
Chapter V

Discussion and Conclusions

This research was an effort to explore the incidence, configuration and transformation of strategic alliances across and within North America, Europe and the Pacific Rim. Chapter I provided an overview of the study, chapter II explored the relevant literature on collaboration and proposed a taxonomy of strategic alliances. Chapter III discussed the methodology that was used in the study, and presented the research hypotheses. The results of the hypothesis testing were provided in Chapter IV. This chapter discusses the research findings, the resulting conclusions, the implications of the study and areas for future research. The chapter is divided into five sections. It begins with a discussion of the results and conclusions of stage one of the study, strategic alliance incidence. Research findings and conclusions related to stage two, strategic alliance transformation, are presented in part two of the chapter. Section three presents summary findings. Section four discusses the implications of the research for practitioners, academicians and public policy makers. Finally, areas for future research are be outlined in section five.
Section One: Research Findings and Conclusions

Stage One: Strategic Alliance Incidence

This section will summarize the results of the hypothesis testing of stage one of the research, strategic alliance incidence. In addition, it will present discussion and conclusions related to the hypothesis testing.

A. Strategic Alliance Formation

Hypothesis A1: There has been no change in the number of strategic alliances formed from 1985 to 1991.

Results: This hypothesis was tested using linear regression at the .05 level of significance. The results of the test revealed that there was no trend in strategic alliance formation during the years 1985 to 1991.

Conclusions:

The data failed to reject the null hypothesis A1 of no change in the number of strategic alliances formed from 1985 to 1991 (Figure 1). This finding supported studies by Ghemewat et al. (1986) and Ellram (1990). Ghemewat et al. studied strategic alliance formation from 1970 to 1982 and found no indication of an increase in collaboration. Ellram extended Ghemewat et al.'s research to 1988. Her examination of the complete time period, 1970 to 1988, revealed that there was insufficient evidence to support a trend in alliance activity. Ellram found similar
results when analyzing the additional time period, 1983 to 1988. The results of this study failed to support the findings of Morris and Hergert (1988). Morris and Hergert studied alliance formation during the time period 1979 to 1985 and found evidence of an increase in strategic alliance activity.

It was proposed in Chapter III that two possible explanations exist for the conflicting results among the Ghemewat et al. study (1986), the Ellram (1990) study and the Morris and Hergert (1988) study. One explanation dealt with the fact that each study explored strategic alliance incidence during different time periods. The second explanation argued that the sources of data used in the studies impacted research results. Further testing of the data collected for this research found strong support for the second argument and suggests that the first may also be a factor in explaining the differing results. The supplementary testing of the data and its implications are discussed below.

This research used three sources of data, The Wall Street Journal, the Financial Times and the Japan Economic Journal. Hypothesis A1 was tested using the combined data from the three sources (Figure 1). Propositions 3, 6 and 9 of the Supplementary Results section in Chapter IV tested for trends in strategic alliance incidence using each source of data separately (Figures 17, 20 and 23). An examination of the data collected from The
Street Journal revealed an upward trend in strategic alliance formation over the years 1985 to 1991. Similar results were found when analyzing the data collected from the Financial Times. Data collected from the Japan Economic Journal revealed a downward trend in collaboration over the same time period. Hence, when the three data sources were tested together, no trend in strategic alliance formation existed. Yet, when each source was tested separately, a different pattern emerged.

An examination of a data set containing only the alliances collected from the Financial Times revealed results that were consistent with the findings of Morris and Hergert (1988), who used the Financial Times and the Economist as data sources, in that an upward trend in collaborative arrangements was found (Figure 20). The results of this study also supported Ellram (1990) when the data set tested contained only those alliances collected from The Wall Street Journal. Ellram, who used The Wall Street Journal as a source of data, found no trend throughout the period 1983 to 1988. However, a closer examination of her results indicated that alliance formation was increasing from 1986 to 1988. This research found similar results from 1986 to 1988 and found that the upward trend continued to 1991 (Figure 17). Thus, the findings of this study support the arguments that data sources used and the time period studied impact research results on strategic alliance incidence.
Hypothesis A2: There is no "weighting" by large multinational firms in strategic alliances formed from 1985 to 1991.

Results: Hypothesis A2 was tested using linear regression at the .05 level of significance. The results of the test revealed no "weighting" by large multinational companies over the years 1985 to 1991.

Conclusions:

The null hypothesis A2 of no "weighting" by large multinational companies in strategic alliances formed between 1985 to 1991 could not be rejected at the .05 level of significance (Figure 2). It was anticipated that the activities of large multinational firms, defined as the first 25 firms in Fortune's 1991 Global 500 (Appendix E), would in fact "weight" the data, that if the alliances involving these firms were removed from the total data set, the pattern of alliance formation would differ.

A subset of the total data base including only the alliances involving the large multinational firms was also tested (Figure 3). A hypothesis of no trend was not rejected at the .05 level of significance, however it was rejected at the .10 level of significance with a p value of .0588. Moreover, the alliances included in this subset of the data accounted for nearly 15% of the total data set. Thus, it appears that the activities of large multinationals may in fact, be quite different from the activities of smaller firms, in that smaller firms appear to be forming fewer
alliances than their multinational counterparts.

B. Strategic Alliance Incidence By Form

Hypothesis Bl: There is no difference in the incidence of strategic alliances by form from 1985 to 1991.

Results: The Pearson chi square goodness-of-fit test at the .05 level of significance was used to analyze the distribution of strategic alliance incidence by form. The results of the test revealed that alliances formed between 1985 to 1991 took various legal forms.

Conclusions:

The data failed to support the null hypothesis that there is no difference in the incidence of strategic alliances by form over the years 1985 to 1991 (Figure 4). Four legal forms of collaboration were recognized including joint ventures, minority equity investments, non-equity agreements and consortia. The results of this study revealed that joint ventures were most common from 1985 to 1991, accounting for more than 46% of alliances formed. Non-equity agreements were nearly as popular, accounting for nearly 42% of collaborative arrangements during the time period. Minority equity investments and consortia were considerably less common, accounting together for just over 10% of alliance activity.

The research results on joint ventures were consistent with earlier studies. Ghemewat et al. (1986) found that 41% of the
agreements in their data base took the form of joint venture. Ellram's (1990) extension of Ghemewat et al.'s study found similar results, reporting that 65% of collaborative activity took the form of joint venture.

The data also supported, although to a lesser degree, a study by Terpstra and Simonin (1990). Terpstra and Simonin found that of the 586 alliances they studied, 33% were non-equity agreements, 38% were minority investments, 20% were joint ventures and 9% were consortia. Hence, the results of this study are consistent with Terpstra and Simonin's in that non-equity agreements were found to be relatively common and consortia relatively uncommon, but fails to support Terpstra and Simonin's findings on joint ventures and minority equity arrangements.

These results imply that strategic alliances take various legal forms. However, one must use caution when comparing the various studies because each study recognized different categories of legal forms. Table 1 summarizes the categories used in previous studies.
### Table 1

**Different Classification Schemes For Alliance Forms**

<table>
<thead>
<tr>
<th>Legal Form</th>
<th>Study</th>
<th>Ghemawat et al. 1986</th>
<th>Terpstra and Simonin 1990</th>
<th>Ellram 1990</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint Venture</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Licensing</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Supply Agreement</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contractual Arrangement</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Equity Positions</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Consortia</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Hypothesis B2:** There is no difference in the incidence of strategic alliances by form and partnership nationality from 1985 to 1991.

**Results:** An analysis of the distribution of strategic alliances by form and partnership nationality using the Pearson chi square test of independence rejected, at the .05 level of significance, the hypothesis of no difference.

**Conclusions:**

The null hypothesis B2 of no difference in strategic alliance incidence by form and partnership nationality was rejected by the data at the .05 level of significance. The results of the Pearson
chi square test of independence revealed that European firms operated within joint ventures and minority equity agreements more often than expected, while North American companies and firms from the Pacific Rim formed more non-equity agreements than expected (Table 2). Pacific Rim companies and European firms were also active in forming consortia. In terms of aggregate data across the three regions, joint ventures were most common, followed by non-equity arrangements, minority equity agreements and consortia.

Table 2
Legal Form By Nationality
Results Of Test Of Independence

<table>
<thead>
<tr>
<th>Preferred Form</th>
<th>Europe</th>
<th>North America</th>
<th>Pacific Rim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint Venture</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minority Equity</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Equity</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Consortia</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

These results support earlier findings by Terpstra and Simonin (1990) who found that firms from the Pacific Rim preferred to operate using non-equity agreements. However, the data failed to support Terpstra and Simonin's findings that European and American firms utilize minority equity arrangements over other forms of collaboration. The finding that European firms tend
to collaborate through the use of joint ventures or minority equity arrangements may be a reflection the need, from firms outside the Common Market, for an equity based partnership with a European firm to secure "insider" status before 1993.

Hypothesis B3: There is no difference in the incidence of strategic alliances by form and by year for the period 1985 to 1991.

Results: The distribution of strategic alliances by form and by year was tested using the Pearson chi square test of independence at the .05 level of significance. The test rejected the hypothesis of no difference.

Conclusions:

An analysis of the distribution of strategic alliances by form and by year rejected the null hypothesis of no difference at the .05 level of significance with a p value of less than .001. The analysis revealed that the number of joint ventures increased by year from 273 occurring in 1986 to 431 occurring in 1990. Following a similiar pattern, minority equity agreements increased from 25 in 1986 to 80 in 1990. There was no clear pattern in the number of non-equity agreements or consotria during the time period studied, however non-equity agreements did occur more often, in the years 1985 to 1989, than would be expected under the assumption of independence.
These findings support the anticipated result that there would be a trend toward minority equity agreements and joint ventures by year from 1985 to 1991. Many researchers (Magee, 1989; Delachaux, 1990; Lynch, 1990; Lei, 1990) have suggested that firms are using strategic alliances to gain a presence within the European Community prior to the 1993 formation of the Common Market. It would follow that an equity based arrangement would be preferable to a non-equity agreement because of the "insider" status that is gained through equity. However, because the hypothesis did not test for a difference in strategic alliance incidence by form, by year, by participant nationality and by collaboration location, one must be cautious when interpreting these results.

C. Strategic Alliance Incidence By Nationality

Hypothesis C1: There is no difference in the incidence of strategic alliances by partnership nationality, classified by region of the world, from 1985 to 1991.

Results: The distribution of strategic alliances by partnership nationality was tested using the Pearson chi square goodness-of-fit test. The hypothesis of no difference was rejected with a p value of less than .001.

Conclusions:

The null hypothesis of no difference in the incidence of strategic alliances by partnership nationality was rejected by the
data at the .05 level of significance (Figure 5). It was expected that strategic alliances involving a European partner would be most common. Numerous researchers (Magee, 1989; Delachaux, 1990; Lynch, 1990; and Lei, 1990), have argued that a common strategy by American and Japanese companies to avoid a potential "Fortress Europe" is to form an alliance with a European partner. However, it was found that firms from the Pacific Rim were most active in forming alliances, followed by firms from North America and finally companies from Europe.

Hence, the alternative hypothesis that alliances involving a European partner would be most common was also rejected. These findings suggest that the fear of a "Fortress Europe" among companies outside the European Community may not be as strong as commonly thought. It is important to note that Hypothesis C1 was tested using all of the alliances, domestic and international, collected in stage one of the research. A test of a subset of the data containing only those alliances that crossed borders revealed that while firms from the Pacific Rim were still most active in alliance formation, international alliances were more likely to involve European participants than participants from North America.

Moreover, it is important to note that hypothesis C1 was tested using the complete set of data collected in stage one of
the research. When each source of data was tested separately, very different results emerged. An analysis of the data collected only from Financial Times found that alliances formed between 1985 and 1991 were most likely to involve a European partner (Figure 22). In fact, the analysis revealed the European firms accounted for more than 53% of all participants in strategic alliances during this time period. However, when The Wall Street Journal data were tested, it was found that North American firms were most likely to be involved in strategic alliances, accounting for more than 60% of all alliance partners (Figure 19). Similarly, when the data collected from the Japan Economic Journal were tested, Pacific Rim participants were found to be most common, accounting for nearly two-thirds of all alliance partners (Figure 25).

These additional findings suggest that the results of the testing of hypothesis C1 are stronger than the results of previous studies because the complete data set including data collected from The Wall Street Journal, the Financial Times and the Japan Economic Journal was used. The possibility that a bias, arising from the choice of data sources, was skewing the results of previous studies was discussed in Chapter I. The additional testing of hypothesis C1 using each source separately implies that the bias does indeed exist, and that it has been minimized by selecting a data source to represent each area of the triad.
Hypothesis C2: There is no difference in the incidence of strategic alliances between parties from developed countries, between parties from lesser developed countries, or developed country-lesser developed country combinations during the time period 1985 to 1991.

Results: Strategic alliance incidence over the time period 1985 to 1991 by level of economic development was analyzed using the Pearson chi square goodness-of-fit test. The hypothesis of no difference was rejected at the .05 level of significance.

Conclusions:

The data did not support the null hypothesis of no difference in the incidence of strategic alliances between participants from developed countries, between participants from lesser developed countries, or between lesser developed-developed country combinations during the time period 1985 to 1991 (Figure 6). It was found that approximately 83% of the alliances collected in stage one of the research were between parties from developed countries.

The results support research by Morris and Hergert (1988), Ghemewat et al. (1986) and Hill and Kim (1988). Ghemewat et al. found that 87% of the alliances in their data set involved developed country participants. Hill and Kim have proposed that developed countries have a greater pool of potential strategic alliance partners than do lesser developed countries. Similarly, Morris and Hergert found that the majority of the participants in
their data base were between companies from the triad countries.

D. Strategic Alliances By Industry

Hypothesis D1: There is no difference in strategic alliance incidence by industry between 1985 and 1991.

Results: An analysis, using the Pearson chi square goodness-of-fit test, of the distribution of strategic alliances by industry rejected the null hypothesis of no difference at the .05 level of significance.

Conclusions:

Hypothesis D1 was rejected by the data at a p value of less than .001 (Figure 7). The hypothesis was tested using the Pearson chi square goodness-of-fit test at the .05 level of significance. The data supported the alternative hypothesis that a variety of industries are actively collaborating. The results of the hypothesis testing revealed that representation across the 17 industry groups ranged from .5% of all alliance activity to 16.7%. Further analysis found that alliances in the computers/semiconductors/electronics industry group were most common, accounting for nearly 17% of all alliances formed during the time period studied. This was followed by finance, automobiles, chemicals, services and communication/publishing/recreation (Figure 7).

These results are consistent with earlier studies (Ellram, 1990; Terpstra and Simonin, 1990; Morris and Hergert, 1988; and
Ghemewat et al., 1986) in that a wide range of industries were found to be involved in alliance activity. However, the results of this research, like previous studies found that in terms of which industries were more active, there was disagreement between the studies.

Ellram (1990) noted that while both Ghemewat et al. (1986) and Morris and Hergert (1988) found a wide variety of industries involved in alliances there was very little overlap between the two studies. Morris and Hergert found that the motor vehicle industry was most common, followed by aerospace, telecommunications, computers and other electrical. In contrast, Ghemewat et al. found that energy, chemicals/pharmaceuticals, other machinery and computers and semiconductors were most frequently involved in collaboration. Ellram's research revealed that industries from both the Morris and Hergert study and the Ghemewat et al. study were common. She found that energy, chemical/pharmaceutical, computers, other machinery, auto, aerospace, telecommunications and other electric were most dominant. Conversely, Terpstra and Simonin (1990) found that computing equipment was most common, followed by automotive, telecommunications, semiconductors and food and beverages.

Hence, this research supports previous studies in that it found that the computers/semiconductors/electronics industry, the
automobile industry and chemical industry are all active in collaboration. These industries have been found to be dominant ones in each of the previous studies discussed above. However, it should be noted that because the industry groupings differed across the five studies, it is difficult to make further conclusions about these findings.

Hypothesis D2: There is no difference in strategic alliance incidence by industry and by year between 1985 and 1991.

Results: The null hypothesis of no difference in strategic alliance incidence by industry and by year was rejected using the Pearson chi square test of independence at the .05 level of significance.

Conclusions:

The analysis of strategic alliance incidence by industry and by year rejected a hypothesis of no difference with a p value of less than .001. The results of the Pearson chi square test of independence revealed that the chemical industry was more active in forming alliances in four of the six years studied than would be expected under the hypothesis of no difference. This result supported Ghemewat et al.'s (1986) finding that the chemical industry was very likely to become involved in strategic alliances in several of the years they studied. However, the data failed to support Ghemewat et al.'s finding that the energy industry was also very active in forming alliances.
The results of the test of hypothesis D2 also revealed that agribusiness, computers/semiconductors/electronics, aerospace and other machinery all formed more alliances in three of the six years studied than would have been expected under the assumption of independence. Interestingly, alliance activity in other machinery was concentrated in the earlier years of the study suggesting that a saturation point may have been reached in that industry. The finding that the computers/semiconductors/electronics industry formed more alliances than would be expected may be related to the high research and development costs associated with the industry. It has been suggested that firms may try to minimize these costs by forming alliances for the purpose of joint research and development (Business International Corporation, 1987; Ohmae, 1989; Teece and Jorde, 1989). Similarly, the high costs in the aerospace industry may be prompting the formation of more alliances than would be expected.
E. Strategic Alliance Incidence By Motive

Hypothesis E1: There is no difference in strategic alliance incidence by motive from 1985 to 1991.

Results: An analysis of the motivations behind strategic alliance formation revealed that some motivations are more frequent than others.

Conclusions:

Strategic alliance motivations were analyzed in two ways. The initial analysis involved an examination of the frequencies of the motivations when they were categorized according to the detailed classification scheme presented in Appendix A. The analysis revealed that the most common motivation behind collaboration, occurring in nearly 12% of all agreements, was to expand a market, gain access to a market or increase sales. The motivation to learn or exploit technology or other expertise was found to be nearly as common, occurring in more than 11% of the alliances collected in stage one of the research. The third most frequent motivation, occurring in more than 6% of alliance activity, was found to be to acquire or develop a new product.

These results are consistent with Terpstra and Simonin's (1990) research. Terpstra and Simonin found that the most common motivations for strategic alliance formation were to acquire or develop a new product, to learn new technology and to gain
access to a marketing system. The findings also support, though to a lesser degree, Morris and Hergert (1988) who found that joint product development was the most common motivation for collaboration.

The second analysis of strategic alliance motivations involved an examination of the frequencies of the motivations when they were collapsed into eight categories as shown in Appendix A. This analysis revealed that the most common motivation for collaboration between 1985 and 1991, occurring in more than 18% of alliance activity, was marketing (Figure 8). This was followed by technology which occurred in nearly 12% of all collaborative ventures and competitiveness which occurred in 8.5% of the agreements studied.

The first two results of this second analysis are consistent with the findings of the initial analysis. The finding that competitiveness is a frequent motive may be a result of the fact that some agreements were formed for multiple reasons. More than 12% of all alliances had multiple motivations behind their formation. Hence, it would follow that an agreement might have been formed to gain access to a marketing system and to get to market more quickly. The first motivation falls into the collapsed motive marketing while the second motivation falls into the collapsed motive competitiveness. This suggests that
the motives falling into the collapsed category competitiveness may be secondary motivations while those falling into the collapsed categories that show similar frequency patterns as the uncollapsed categories are primary motivations.

The motivation behind collaboration was defined to be the benefits the participants expect to receive from collaboration. It is interesting to compare the motivation for forming an alliance with the alliance mode, or activities that were undertaken as a result of the agreement to cooperate. Proposition 1 tested the distribution of strategic alliance modes. The results of the analysis revealed that joint production was the most frequent activity undertaken in a cooperative agreement, followed by joint marketing and joint product development (Figure 15).

These results failed to support findings by Terpstra and Simonin (1990). Terpstra and Simonin found that joint product development was the most frequent mode of collaboration. This was followed by complementary manufacturing, piggybacking or and joint research and development. Firms involved in piggyback activities sell their own products and other companies' products in foreign markets.
F. Strategic Alliance Incidence By Participants

Hypothesis F1: There is no difference in strategic alliance incidence by the number of participants involved in each strategic alliance from 1985 to 1991.

Results: An analysis of the distribution of strategic alliance incidence by number using the Pearson chi square goodness-of-fit test rejected the null hypothesis of no difference at a p value of less than .001.

Conclusions:

The null hypothesis F1 of no difference in strategic alliance incidence by the number of participants involved in each alliance was rejected using the Pearson chi square goodness-of-fit test at the .05 level of significance (Figure 9). The results of the test indicated that alliances involving two partners were most common, accounting for more than 85% of the alliances studied. In fact, firms appear to strongly prefer alliances involving a small number of partners. Nearly 98% of the alliances collected in stage one of the research had five or fewer participants. These results were anticipated and support previous research by Morris and Hergert (1988) who found that 81% of the alliances in their data set involved just two partners.
G. Strategic Alliance Incidence By Collaboration Location

Hypothesis G1: There is no difference in strategic alliance incidence by form and location during the years 1985 to 1991.

Results: Hypothesis G1 was tested using the Pearson chi square test of independence. The null hypothesis of no difference was rejected at the .05 level of significance.

Conclusions:

The distribution of strategic alliances formed over the years 1985 to 1991 by legal form and collaboration location was tested using the Pearson chi square test of independence. The data rejected the null hypothesis of no difference at a p value of less than .001. Results of the test revealed that when alliances were located in the European Community countries, they tended to take the legal form of joint venture or minority equity agreement more often than would be expected. When North America was the location of collaboration, alliances took the form of non-equity agreements or minority equity agreements more frequently than was expected. When collaboration took place in the Pacific Rim countries, more joint ventures, non-equity agreements and consortia were formed than expected (Table 3).
Table 3

Legal Form By Collaboration Location

Results Of Test Of Independence

<table>
<thead>
<tr>
<th>Preferred Form</th>
<th>Europe</th>
<th>North America</th>
<th>Pacific Rim</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint Venture</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Minority Equity</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Non-Equity</td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Consortia</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

It was anticipated that the European Community would be a dominant location for collaboration and that agreements would be equity based rather than non-equity based. It was expected that firms, in response to the economic integration of the European Community countries, would establish themselves in Europe through equity relationships in an effort to avoid a potential Fortress Europe. This alternative hypothesis was supported in that alliances located in the European Community countries accounted for approximately 15% of the total alliances collected in stage one of the research, and both joint venture agreements and minority equity agreements occurred more frequently than would be expected under the assumption of independence. However, in terms of sheer frequencies, non-equity agreements in the European Community countries outnumbered minority equity agreements.
Hence, it is not clear how important Europe 1992 is to firms outside the Community.

An interesting additional finding related to collaboration location was that when the entire data set collected in stage one of the research was examined, the most common location for collaboration was found to be the Pacific Rim, followed closely by North America. However, very different results were revealed when each source of data was analyzed separately (Propositions 4, 7 and 10). An analysis of the data collected only from The Wall Street Journal revealed that the most common location of collaboration was North America (Figure 18). In fact more than 53% of the alliances collected from this source of information took place in either Canada or the United States. An examination of the data collected from the Financial Times indicated that Europe was the most common location for collaboration, accounting for nearly 38% of alliance activity (Figure 21). Yet, the Pacific Rim was found to be the most common location for collaboration when the data collected from the Japan Economic Journal was examined (Figure 24). In fact nearly 49% of all collaboration was found to take place in the Pacific Rim.

These results indicate that previous studies similar to this one that used only one source of data or data sources that tend to over represent a particular region of the world may have very
misleading conclusions. For example, Ellram (1990), using only the Wall Street Journal as a source of data, found that North America was the most common location for collaboration. This research would have found supported her work had the Wall Street Journal been the sole source of data. The findings of this research imply that the bias that was discussed in Chapter I relating to over-representation of particular regions of the world as a result of the choice of a data source has indeed been minimized in this study.

This section has summarized the results of the hypothesis testing of stage one of the research, strategic alliance incidence. It has also provided a discussion of the research findings and conclusions based on the results. The next section will review and discuss the hypothesis results of stage two of the research, strategic alliance transformation.

Section Two: Research Findings and Conclusions

Stage Two: Strategic Alliance Transformation

The previous section examined and discussed the results of the hypothesis testing addressing strategic alliance formation. This section discusses the research findings related to strategic alliance transformation. In addition, it sets forth conclusions based on the discussion.
A. Strategic Alliance Failure

Hypothesis A1: There has been no change in the number of strategic alliance failures from 1985 to 1991.

Results: The null hypothesis A1 was tested using linear regression at the .05 level of significance. The results of the test revealed that there was a decrease in the number of failures from 1985 to 1991.

Conclusions:

The distribution of strategic alliance failures was tested using linear regression. The data failed to support the hypothesis of no change in the number of strategic alliance failures during the years 1985 to 1991 (Figure 10). Rather, it was revealed that a decrease in strategic alliance failure had occurred. These results fail to support earlier studies by McKinsey and Company, Coopers and Lybrand (1988), Harrigan (1988) or Berg and Friedman (1987; 1980). These researchers, while not testing for a trend in alliance failure, all found much higher rates of failure than this study. It is important to recognize however, that the earlier studies only examined one legal form of strategic alliance, the joint venture, and that the earlier studies used very different methods of data collection from this research.

Harrigan's study of joint ventures from 1975 to 1985 utilized archival sources of information, field interviews and
questionnaires. Berg and Friedman studied 123 joint ventures in the chemical industry formed between 1950 and 1969. In addition to data collected by the Federal Trade Commission, Berg and Friedman also used questionnaires, interviews and other information collected from both public and private sources. However, this study used The Wall Street Journal, the Financial Times and the Japan Economic Journal as sources of information. The number of failures reported by the newspapers may be considerably lower than the actual number of failures because firms may try to disguise their failures. The definition of failure used in this research requires that there be some dissatisfaction, because alliance objectives were not met, on the part of at least one partner, hence this research would not collect information on "disguised failures" (Appendix B). In addition, firms are not required to report changes in ownership structure to the newspapers as they are to government offices. Thus, again the failure rate reported by newspapers probably underestimate the true rate of failure.

The results of this study are more consistent with the study by Morris and Hergert (1988) who found that 90% of the alliances in their data set were still in existence. It is important to recognize that Morris and Hergert were not testing for strategic alliance failure, rather they were simply analyzing the number of alliances that no longer existed. However, they did use a data
collection method that was similar to the one used in this research. This study on the other hand, specifically examined strategic alliance failure. An alliance was only classified as a failure if it met the definition in Appendix B. Hence, the research did not consider alliances that had simply ceased to exist for other reasons. Thus, the results of this study could be affected by the very restrictive definition of failure that was used.

B. Strategic Alliance Transformation By Industry

Hypothesis B1: There is no difference in strategic alliance transformation by industry from 1985 to 1991.

Results: The Pearson chi square goodness-of-fit test was used to analyze the distribution of strategic alliance transformation by industry. Results of the test rejected the hypothesis of no difference at the .05 level of significance.

Conclusions:

The data failed to support the null hypothesis B1 of no difference in strategic alliance transformation by industry. The analysis revealed that a variety of industries were involved in strategic alliance failure. Industry representation ranged from .7% of all failures to 12.3% of all failures. Failure was found to be most common in computers/semiconductors/electronics and finance, followed by automobiles, services and communication/
publishing/recreation (Figure 11) Failure was least common in paper and wood products, textiles/clothing/leather, metals and minerals, and construction.

There is little conclusive research on strategic alliance failure by industry, however it was anticipated that, based on Kogut's (1988) research, alliances in service industries would fail most frequently. Thus, the data support, to a certain extent, this expectation in that the industry group services was found to be a dominant industry in strategic alliance transformation. In addition, alliances in the finance industry were found to fail often. Since the finance industry is service related, this too supports the anticipated result.

It is interesting to note that the other dominant industries in strategic alliance failure, computers/semiconductors/electronics, automobiles and communication/publishing/recreation, were also found to be dominant in strategic alliance formation. While the industries that were least likely to fail, paper and wood products, textiles/clothing/leather, metals and minerals, and construction, also tended to form alliances less frequently. This suggests that probability of failure occurring within a particular industry is directly linked to that industry's propensity to form alliances.
C. Strategic Alliance Transformation By Form

Hypothesis C1: There is no difference in strategic alliance transformation by form from 1985 to 1991.

Results: The distribution of strategic alliance transformation by form was analyzed using the Pearson chi square goodness-of-fit test. The test rejected the null hypothesis of no difference with a p value of less than .001.

Conclusions:

The data failed to support the null hypothesis that there was no difference in strategic alliance transformation by form. The results of the test revealed that alliances are most likely to fail when they take the legal form of a joint venture (Figure 12). In fact, it was found that nearly two-thirds of all failures collected in stage two of the research took the legal form of joint venture. Non-equity agreements were the next most frequent form of alliance to fail, accounting for approximately one-fifth of all alliance failures.

It was anticipated that joint ventures would have the highest probability of failure. Previous studies (Ghemewat et al., 1986 and Ellram, 1990) found that strategic alliances were most likely to take the legal form of joint venture. Hence, it would follow that the chances of failure would be highest in alliances taking the form of joint venture. The results of this research support this argument. Moreover, a test of hypothesis B1 in
stage one of this study found that joint ventures were the most common form of alliance, followed by non-equity agreements. Thus, the finding that alliances taking the form of joint venture were most likely to fail followed by non-equity arrangements is also consistent with this argument.

An examination of the number of failed joint ventures against the number of joint ventures formed from 1985 to 1991, the number of minority equity agreements that failed as compared to the number of minority equity agreements formed and so forth, reveals that while the failure percentage is highest for joint ventures, it is second highest for minority equity agreements. In fact, the failure percentage is lowest for non-equity agreements. This concept is summarized in Table 4. However, one must be cautious when comparing the number of "attempts" to the number of failures in this manner because this study explored the flow of alliances from 1985 to 1991, rather than the stock of alliances. This type of comparison would be more meaningful if particular alliances were tracked over time to determine failure patterns.
Table 4

Failure Ratios

<table>
<thead>
<tr>
<th>Legal Form</th>
<th>Alliances Formed</th>
<th>Alliances Failed</th>
<th>Failure Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint Venture</td>
<td>2046</td>
<td>146</td>
<td>7.13%</td>
</tr>
<tr>
<td>Minority Equity</td>
<td>368</td>
<td>22</td>
<td>5.98%</td>
</tr>
<tr>
<td>Non-Equity</td>
<td>1844</td>
<td>46</td>
<td>2.49%</td>
</tr>
<tr>
<td>Consortia</td>
<td>86</td>
<td>4</td>
<td>4.65%</td>
</tr>
</tbody>
</table>

D. Strategic Alliance Transformation By Participants

Hypothesis D3: There is no difference in the number of failures between international partners as compared to domestic partners during the years 1985 to 1991.

Results: The data failed to support the null hypothesis of no difference in the number of failures between international partners as compared to domestic partners during the time 1985 to 1991.

Conclusions:

The distribution of strategic alliance transformation by participants was tested using the Pearson chi square goodness-of-fit test at the .05 level of significance. The results of the
test revealed that international alliances fail more frequently than domestic alliances (Figure 13). These results were anticipated based on previous research.

Harrigan (1988) found that joint ventures between culturally dissimilar partners are likely to have a shorter duration than joint ventures between partners who share the same culture. Kogut (1988) found a higher failure rate for alliances that crossed borders as compared to alliances within borders. Hence, the findings of this study lend support to the argument set forth by Doz and Prahalad, 1987, Doz, 1988 and Harrigan, 1988, that physical and psychic distance can lead to difficulties in business situations.

E. Strategic Alliance Transformation By Location

Hypothesis E1: There is no difference in strategic alliance failure by location during the years 1985 to 1991.

Results: The distribution of strategic alliance transformation by collaboration location was tested using the Pearson chi square goodness-of-fit test. The data failed to support the hypothesis of no difference.

Conclusions:

The null hypothesis that there is no difference in strategic alliance failure by location was rejected by the data at the .05 level of significance. It was anticipated that strategic
alliances located in third country locations would fail more frequently than alliances located in the headquarters country of at least one participant. It was felt that an alliance taking place in a third country location would face difficulties arising from a lack of knowledge of the environment. However, the results of the Pearson chi square goodness-of-fit test revealed that alliances were more likely to fail when they took place in one of the participants' countries.

Transaction cost theory argues that an ex ante costs of operating in another country include the costs of establishing a physical presence and of learning a new culture and market (Hill and Kim, 1988). Hence, it would be expected that these costs would lead to greater difficulties for firms operating in third countries, and thus, potentially lead to failure. In fact, Beamish and Banks (1987) argued that a joint venture between a multinational firm and a local firm in which the local firm supplies knowledge of the environment while the multinational firm contributes managerial and technical know-how can be the most efficient mode of governance.

The finding that strategic alliance failures are more common when collaboration takes place in the headquarter's country of one the participants suggests that knowledge of the environment may not be as critical as has been previously thought, or it may imply that that firms are recognizing the difficulties of operating in
third country locations and are thus, making a greater commitment to third country ventures.

However, these findings should be interpreted with caution since this research analyzed the flow rather than the stock of alliances. Hence, it did not identify the number of alliances taking place in third country locations versus headquarters' locations, rather it only identified the number of alliances that failed in third country locations as compared to headquarters' locations over the time period 1985 to 1991.

This section examined and discussed the results of the hypothesis testing that addressed strategic alliance failure. The conclusions relating to strategic alliance failure should be taken with caution because of the relatively small data set. The next section discusses the summary findings of this research.
Section Three: Summary Findings

This research was an effort to explore the broad trends and patterns of strategic alliance incidence and transformation over a period of six years. The previous section discussed the hypotheses that were tested, and the conclusions that could be drawn from the statistical testing. This section summarizes important findings related to firm size, equity, levels of economic development, industry participation, patterns of collaboration in the triad, alliance type, alliance failure, alliance transformation by industry and research bias.

Findings Related to Firm Size

This research explored the impact of firm size on the tendency of a firm to be involved in forming strategic alliances. In particular, it was felt that the large multinationals firms would be more likely to be involved in collaboration as a means of achieving strategic goals and objectives than smaller companies. The results of this research supported this hypothesis, finding a significantly stronger upward trend for alliances involving large multinational companies than for alliances involving smaller firms.

Moreover, in terms of aggregate frequencies, this research found that large multinational companies, defined to include the
firms listed in Appendix E, were responsible for approximately 15% of all collaborative activity from 1985 to 1991. Thus, it appears that there is a relationship between firm size and the tendency to form strategic alliances, specifically that larger firms are more likely to be involved in collaborative activities than smaller firms.

Findings Related To Equity

This study found that more equity based alliances were formed over the period 1985 to 1991 than would have been expected under an assumption of independence. The research also revealed a weak upward trend in the formation of alliances over the same time period. Hence, it appears that there is a link between the incidence of equity based alliances and the incidence of alliances in general. In particular, this research implies that as alliances become more common, more minority equity agreements and joint ventures will be formed than would be expected under a hypothesis of no difference.

Findings Related To Level Of Economic Development

This research examined the incidence of alliances formed between participants from developed countries, between participants from lesser developed countries and between developed-lesser developed country combinations during the time
The findings that very few alliances take place between companies from under-industrialized nations and that firms from these countries are more likely to collaborate with a developed country partner suggests that firms from lesser developed countries are seeking the assets that are more available in the industrialized world as a means of reaching higher levels of economic development.

Findings Related to Industry

The relationship between industry participation in alliances and year was explored in this research. Two industry groups that formed more alliances than would have been expected over the time period 1985 to 1991 were the computers/semiconductors/electronics group and the aerospace group. Both of these industry groups are characterized by high costs such as large research and development expenditures and rapid technological obsolescence. Thus, it appears that firms in these industries see collaboration as a means of minimizing costs and thus, are incorporating alliances into their strategies relatively more frequently than firms in
other industries.

Findings Related To Collaboration Across The Triad

The patterns of collaboration across and within Europe, North America and the Pacific Rim were examined in this research using hypotheses of no difference. The results of the tests of independence revealed that European firms were more involved in equity based relationships and consortia than would have been expected and that when collaboration took place in Europe it was more likely to equity based than expected. In contrast, when collaboration took place in North America or involved firms from North America it involved more non-equity agreements than expected. In addition, the test of independence revealed that minority equity agreements were also more common than expected in North America. While firms from the Pacific Rim were more likely to be involved in non-equity agreements and consortia than expected, alliances located in the region took the form of joint ventures, non-equity agreements and consortia.

The findings that both European firms and companies from the Pacific Rim were more active than expected in consortia, while firms from North America were relatively uninvolved in this type of collaboration suggests that the use of consortia in North America may violate anti-trust policies or that there some cultural bias may discourage their use. The findings that
alliances located in Europe or involving European firms tended to take an equity form implies that firms outside the European Community may be trying to gain "insider" status to avoid a potential Fortress Europe.

Findings Related To Alliance Type

This research explored alliances formed across borders and alliances formed within borders. International alliances were found to be much more common than domestic alliances, accounting for approximately three-quarters of all alliances formed during the time period 1985 to 1991. A test of the total data set including both international and domestic alliances revealed that firms from the Pacific Rim were most active in collaboration, followed by firms from North America and finally firms from Europe. However, European firms were found to be more active in forming alliances across borders than North American companies. Thus, it appears that although firms from North America are more active in forming alliances than European companies, North American firms are finding suitable partners at home.

Findings Related To The Pattern Of Failure

This study tracked strategic alliance failure over time. While it was concerned with the flow rather than the stock of alliance failure, it found that there was a downward trend in
alliance failure from 1985 to 1991, that the legal form most likely to fail was the joint venture and that international alliances failed more often than domestic alliances.

Previous studies have not studied strategic alliance failure in a comprehensive manner, instead they have tended to concentrate on particular countries or industries or other narrow areas. Moreover, much of the previous research deals with failure in an anecdotal manner. This research developed a broad data set on strategic alliance failure, which was then statistically tested. Hence, this study has added to the literature on strategic alliances by providing a statistically tested exploration of failure from a macro perspective.

Findings Related To Alliance Failure By Industry

The flow of alliance failure was explored in the second stage of this research. Interestingly, the analysis revealed that the industry groups found to be most active in forming alliances were also most likely to be involved in failed alliances. Moreover, at least one industry group, computers/semiconductors/electronics, that was very active in forming alliances, and that was frequently involved in failed alliances also formed more alliances over time than would have been expected under a test of independence. This implies that there is a relationship between the tendency to form alliances and the tendency for an agreement to fail.
Findings Related To Research Bias

This research utilized three sources of data, the Financial Times, the Japan Economic Journal, and The Wall Street Journal. Each source was specifically chosen to represent each area of the world under examination in an effort to minimize a bias that was present in earlier studies. Previous studies similar to this one, (Ghewat et al, 1986; Morris and Hergert, 1988; Terpstra and Simonin, 1990 and Ellram, 1990), appear to have suffered from an over-representation of particular regions of the world as a result of the data sources utilized. The effect of this bias on the overall trend of strategic alliance activity, the location of collaboration and the nationality of participants was clearly shown in Chapter IV of the research. Further, it implies that when examining global phenomena, the use of global sources of information is critical.

However, it is important to recognize that the objective of this research was to explore and describe the nature of strategic alliance activity across and within Europe, North America and the Pacific Rim. Thus, the use of information sources representing each region of the world was appropriate. Conversely, if the objective had been to explore the nature of strategic alliance activity involving only firms from the United States, the use of only The Wall Street Journal as a source of information might have
been appropriate.

Section Four: Research Implications and Conclusions

This research has been an effort to explore, in a comprehensive manner, a common business activity, the strategic alliance. The primary objective of the research was to provide a better understanding of strategic alliance activity. This section discusses the implications and conclusions resulting from the study. The section begins with a discussion of the research conclusions and implications affecting practitioners. This is followed by a discussion of conclusions and implications specific to academicians and public policy makers.

Research Implications and Conclusions for Practitioners

This research has notable implications for practitioners as they develop their business strategies and objectives. This research found that nearly every industry is involved to some extent in collaborative activity. In addition, the study explored the pattern of industry participation by year. This knowledge can be used by practitioners to gain a sense of the importance of collaboration within particular industries, and thus an indication of future competitive patterns on a global scale.

The identification of the reasons why firms are forming alliances and what activities are being undertaken is useful to
practitioners as they seek strategic opportunities. Managers can utilize the information that certain motivations are more common than others, and that some collaborative activities are undertaken more frequently as compared to others to identify potential areas in which to gain competitive advantages over rival firms.

The findings of this research related to participant nationality and collaboration location can aid practitioners in identifying not only new regions of competition, but also where competition may be weakening. This type of knowledge can be used by practitioners to pinpoint new threats and areas where strategic opportunities may exist. In addition, the research findings on patterns of collaboration between partners may allow practitioners to better plan their approaches to collaboration.

Finally, the findings of this research that relate to strategic alliance failure can be critical to practitioners as they form alliances or maintain existing ones. The knowledge that collaboration may result in failure can alert practitioners to the downside of strategic alliance formation. The findings that joint ventures are the legal form most likely to result in failure, that alliances between international partners fail more often than alliances between domestic partners, that a wide range of industries are involved in strategic alliance failure and that alliances fail more often when they are located in the country of
one of the partners' headquarters than in a third country location
can alert firms to evaluate alliances involving these situations
carefully. While the research relating to strategic alliance
failure is still in its infancy, this study should at the minimum,
act as a signal to firms to act cautiously when forming alliances.

In summary, this research provides practitioners with a
broad, macro oriented understanding of the trends and patterns of
strategic alliance activity in the triad. This knowledge can help
practitioners to better assess the opportunities and threats in the
global marketplace, and thus to better formulate competitive
strategies.

Research Conclusions and Implications for Academicians

The literature relating to this research was reviewed from
three perspectives: the transaction cost perspective, the
strategic behavior perspective and the organizational behavior
perspective. Thus, this section will discuss the implications and
conclusions of this research for academicians from the three
perspectives.

Transaction Cost Perspective

Transaction cost analysis has traditionally recognized only
two choices for organizing transactions, through the market or
through the firm. Recently, however, efforts have been made to
incorporate other types of governance modes. Williamson (1981), in a discussion of alternative governance structures based on transaction cost analysis, proposed that "mixed modes" be explored (page 1544). This research has shown that strategic alliances are indeed a common means of doing business. Activities that have traditionally been undertaken through wholly owned subsidiaries such as product development are taking place via strategic alliances. Moreover, the more common motivations behind collaboration include ones such as to learn or exploit technology. This is typical of the type of motivation that would have traditionally suggested that the wholly owned subsidiary was the optimal governance structure. Further, the analysis of strategic alliance transformation has indicated that there may be very high costs associated with this governance structure.

This study supports Beamish and Bank's (1987) research on the costs of transferring technology through alternative governance structures. Beamish and Banks argued that in certain cases joint ventures can be the best governance structure. This research found that one of the most common motivations behind strategic alliances was to learn or exploit technology. Hence, it appears that firms are capable of working together in "a spirit of trust and commitment" (page 4).
The analysis of strategic alliance transformation, and in particular the examination of strategic alliance transformation by collaboration location raises some interesting questions relating to ex ante transaction costs. Hill and Kim (1988) suggested that when choosing the optimal governance structure, ex ante costs as well as ex post costs must be considered. Ex ante costs are defined to include the costs of learning a new culture and market.

Thus, it would be expected that strategic alliances operating in third country locations would face more difficulties than alliances operating in one of the alliance participants' countries. However, this research found that strategic alliance failure was more common when alliances were located in a participant's country than when the collaboration took place in a third country. These results suggest that the ex ante costs of doing business in another country may not be as high as previously thought. However, it is difficult to make precise conclusions regarding this matter because of potential intervening factors such as a firm's international experience, a firm's commitment to the venture and the method of data collection.

Finally, it is interesting to note that the research revealed that the second most common legal form of strategic alliance was the non-equity arrangement. Thus far, transaction cost analysis has largely ignored the existence of this structure as being a
means of carrying out various transactions. This analysis suggests that if transaction cost analysis is to fully explain alternative governance structures, it must be expanded to incorporate the non-equity arrangement. This research, through its broad exploration of the modes and motivations behind collaboration, has laid a foundation from which transaction cost theory may be extended to include non-equity relationships between firms.

Thus, this research has contributed to the transaction cost perspective of collaboration by clearly demonstrating that alliances are indeed a common means of doing business, and that activities that were traditionally carried out through the firm are now being undertaken in alliances. Further, this research has provided support to the proposition that opportunism may not always exist between firms, yet it has raised questions about the ex ante costs of doing business in another country. Lastly, this research has suggested a need for the extension of the transaction cost framework to include non-equity forms of collaboration.

**Strategic Perspective**

The strategic behavior perspective of alliances argues that firms will be motivated to collaborate in their pursuit of maximum profits. The topic of what objectives might motivate a firm to form an alliance from this perspective has been a common
theme in the literature on both collaboration and overall firm strategy.

This research contributes to the literature on collaboration from the strategic behavior perspective by empirically supporting several propositions related to alliance formation. Numerous researchers have proposed that technology exchange is motivating firms to strategic align themselves (Business International Corporation, 1987; Ohmae, 1989; Teece and Jorde, 1989). This type of exchange can allow firms to gain the technology necessary to produce products at a faster rate than could be achieved by "going it alone." This research found strong support for this proposition in that it found that to learn or exploit technology or other expertise was one of the most common motivations behind the formation of alliances.

Strategic alliances have been proposed to be a means of increasing competitiveness. Contractor and Lorange (1988) argued that firms can minimize the threat of a competitor by aligning themselves with their rivals. Business International Corporation (1987) proposed that firms may try to diversify their businesses via strategic alliances as a means of survival, and that collaboration may allow firms to get their products to market more quickly. Strategic alliances with well-known firms can also provide lesser-known firms with legitimacy (Teece, 1987). This
research found that each of these propositions is indeed motivating the formation of alliances, and when taken together as the collapsed motive competitiveness they represent the third most common motivation for strategic alliance formation.

This research found support for Ohmae's (1989) proposition that converging consumers tastes are providing a motivation for collaboration. According to Ohmae, as consumers become more informed about the lifestyles and products of other consumers, they are becoming more discriminating. Strategic alliances provide firms with a means of offering a wide range of products without incurring the monetary and time costs of "going it alone." The motivation to acquire or develop a new product was found to be the third most common motivation behind strategic alliance formation.

Lastly, support was found for Contractor and Lorange's (1988) notion that firms may align themselves with other firms as a means of achieving quasi vertical integration without the costs of traditional internalization. The most common activity undertaken in a strategic alliances was found to be joint production.

The findings of this study have also contributed to the body of knowledge on alliances from the strategic perspective by failing to support previous research on the use of alliances as a
means to avoid protectionism. It has traditionally been argued that a country's protectionist measures will influence the way in which a firm chooses to operate in a particular country (Davidson and McFetridge, 1985; Gomes-Casseras, 1987; Contractor and Lorange, 1988; and Hennart, 1989). However, this research found that relatively few alliances were motivated by pressures to avoid protectionism. Furthermore, there was inconclusive evidence on the importance of forming alliances within the European Community prior to its move to become a Common Market. It had been expected that equity based alliances located in the European Community with European partners would be very common as outside firms attempted to avoid a potential "Fortress Europe."

Finally, this research has increased knowledge of the use of alliances from a strategic perspective by examining broad trends related to their formation. This study found that alliances are a very common means of operating in today's business environment, and that a wide range of industries are involved. Further, evidence of the importance of strategic alliances in a multinational firm's overall strategy was found in an examination of hypothesis A2 in the first stage of the research. The testing of hypothesis A2 revealed that the first 25 firms in Fortune's 1991 Global 500 were responsible for approximately 15% of all alliance activity from 1985 to 1991. Thus, if the alliance activity of the 25 firms in question were averaged, it would imply
that each of the 25 firms formed approximately four strategic alliances per year during the time period 1985 to 1991.

Thus, from the strategic behavior perspective, this research has contributed to existing knowledge of collaboration by providing empirical support for previous research efforts and also by failing to support traditional beliefs related to firm strategy. In addition, the results of the study allow for a further understanding of the trend of alliance formation, and the differences in alliance formation between large multinational firms as compared to smaller firms.

Organizational Behavior Perspective

The organizational behavior perspective views strategic alliances as being an optimal means of transferring tacit information. This stream of thought proposes that because tacit information is embedded in an organization, strategic alliances represent an optimal means for its transfer. Hence, from this perspective, the objective of learning from one or more participants is an integral factor in forming a strategic alliance.

This findings of this research have contributed to the literature on the organizational perspective of collaboration by finding support for the notion that strategic alliances are a
quick means of gaining tacit information (Powell, 1987). It was found that the second most common motivation behind collaboration was to learn or exploit technology or other expertise. Moreover, it was found that alliances formed to undertake joint research and development or complementary research accounted for more than 11% of all collaborative activity. Thus, it appears that firms are responding to the rapid changes in technology that are taking place today by utilizing outside sources of learning to complement inhouse efforts.

This research has also contributed to the literature related to the instability that may arise in alliances formed for the purpose of learning. This study found that alliances involving the computers/semiconductors/electronics industry group were most likely to fail. While the motivations behind the formation of the alliances that failed were not tested, it is reasonable to expect that the computer/semiconductor/electronics industry would commonly form alliances for the purpose of learning and/or sharing technology. Thus, there may be some indication that alliances formed for the purpose of learning may be unstable.

Research Conclusions and Implications for Public Policy Makers

Public policy makers around the world have, in the last decade or so, been faced with increasing pressure by their constituents to develop policies to promote corporate competitiveness. Lewis
(1990) notes that "the United States changed its antitrust laws to encourage shared R&D" and that "demands for more technological cooperation and a larger scale in the world market brought the European Community close to economic integration. Canada and the United States created their historic free trade agreement for the same reasons" (page 13).

This research, because of its broad based, macro, triadic orientation is useful to public policy makers because it is a foundation from which the effects of global policies can be studied. The information addressing the trend of collaboration in particular industries by year can be mapped against national policies to provide insight as to the effect of current policies and past policies on domestic firms as well as foreign firms.

This study examined strategic alliances occurring across and within national borders. It was found that approximately one fourth of the alliances collected in stage one of the research took place within borders. Thus, with further manipulation of the data, public policy makers can determine which industries were involved in domestic versus international cooperation and why. Thus, the results of this research may provide public policy makers with insight as to where in the triad countries, unfair policies exist.
Finally, this research can provide a basis from which to explore economic development. Third World countries may be using collaboration as a means of gaining the technology, knowhow and capital necessary for further economic development. This research found that very few alliances took place between participants from lesser developed countries. Rather, it was found that when companies from lesser developed countries were involved in collaboration, they usually had a partner from a developed country. This suggests that lesser developed countries may be forming policies to encourage collaboration linking firms from developed countries and firms from lesser developed countries, in an effort to acquire developed country knowledge.

Thus, while this research did not specifically examine the effects of national policies on the competitiveness of firms, it laid the groundwork from which this type of study can be done. Since the research was done from a triad perspective, it should provide a basis from which more effective policy decisions affecting the major trading partners of the world can be generated.

This section discussed the implications and conclusions of this research for practitioners, academicians and public policy makers. In addition, it presented overall contributions affecting the body of knowledge on strategic alliances. Areas for future
research are outlined in the next section.

Section Five: Areas for Future Research

This chapter began with a discussion of the results of the hypothesis testing of stage one of the research, strategic alliance incidence, and the conclusions that were made based on the analysis. Section two examined the results of stage two of the research, strategic alliance transformation, and the related conclusions. Summary findings of the research were discussed in section three. The fourth section of the chapter presented the implications and conclusions specifically relating to practitioners, academicians and public policy makers. While this research has increased our knowledge of strategic alliance incidence and strategic alliance transformation, it is clear that there is much to learn. This section will outline future areas of research that could follow this study.

The Relationship Between Alliance Formation and Alliance Failure

This research found that the industries most likely to be involved in strategic alliance formation were also most likely to be involved in strategic alliance failure. Similarly, the study revealed that the industries that were least likely to participate in collaborative activities were also least likely to be involved in failed alliances. This suggests that the industries that are
likely to be involved in cooperative agreements are being motivated by some factor or factors that do not affect the industries that are not likely to be involved in collaboration. Furthermore, it suggests that there may be a link between the factor or factors motivating collaboration and the stability of alliances once they are formed. A study to isolate such factors would be beneficial in at least three ways. First, it would increase knowledge of what motivates alliances and the differences in motivation across industry groups. Second, it would further an understanding of the factors leading to alliance failure and whether there is a relationship between alliance formation and alliance failure. Finally, it would increase knowledge of how the environment surrounding an industry impacts firm strategy.

This type of study could be accomplished in several stages and would involve research at both the macro level and at the micro level. Initially, the industry groups likely to be involved in alliance formation and alliance failure should be identified and cross-tabbed with the factors motivating the alliances. The study should then be extended to industries that are unlikely to be involved in collaboration and alliance failure. This analysis would then allow for the identification of common factors affecting firms likely to be involved in alliances and common factors affecting firms that are not likely to collaborate.
The study could then approach the questions at a micro level, using a subset of firms from the macro analysis. At this stage of the research, primary data collection methods could be used to gain information that would allow for a more precise identification of factors motivating alliances and how the factors differ across industry groups, and for an identification of the factors leading to alliance failure. Finally, the relationship between factors motivating alliances and factors leading to failure could be identified.

The Relationship Between Alliance Activity And Levels Of Economic Development

The focus of this research was on strategic alliance activity across and within Europe, North America and the Pacific Rim. Future research efforts should examine the nature of strategic alliances in other areas of the world, and in particular in lesser developed countries. This research indicated that approximately 17% of the alliances collected involved a participant from a lesser developed country. A study that focused on exploring the nature of alliance activity involving firms from lesser developed countries would be advantageous for several reasons. First, this type of research could provide information for policy makers in lesser developed nations that could facilitate their efforts to utilize strategic alliances as a means of moving to higher levels of economic development. Second, practitioners in both
under-industrialized countries and industrialized nations could utilize the knowledge gained from this type of research to increase their understanding of the differences that levels of economic development may have on the manner in which alliances are formed and why they are formed. Finally, such a study could be used by academicians not only to further understand the process of industrialization but also to gauge progress toward higher levels of economic development.

Future studies could gather information, using a methodology similar to the one used in this study, from sources representing regions such as Latin America or the Middle East, to explore alliance activity in the Third World. Thus, the first stage of the research could provide an understanding of the broad patterns and trends of alliance formation. From the initial analysis, a subset of alliances, involving both alliances between industrialized partners and alliances between developed country participants and lesser developed country participants could be identified for further indepth research. In the second stage of the analysis, information could be gained using primary data collection on what each participant hoped to accomplish through the alliance, what effect national policies had on the decision to form the alliance and so forth. This information could then be examined to determine how alliances can be used to aid a country in moving to higher levels of industrialization.
The Probability Of Third Country Failure Versus International Failure

This research found that alliances that crossed borders failed more often than alliances that took place between firms from the same country. Yet, the study also found that alliances that were located in the home country of one of the participants were more likely to fail than alliances that were located in third countries. One factor that may have impacted these results was the fact that this research explored the flow of alliances rather than the stock of alliances. It would be interesting to further explore the two questions using stock data. Such a study would provide researchers with a better understanding of the impact of psychic and physical distance on firms. Practitioners could also benefit from this type of research by gaining knowledge of the factors that could lead to difficulties when operating in other countries through alliances or through other methods of investment.

This type of future study would be longitudinal and would require the identification of two subsets of data from the total set of alliances formed between 1985 and 1991: one, a subset of alliances including those that have been located in third countries and those located in home countries, and two, a subset of alliances that take place between firms from different countries as well as alliances taking place between domestic
partners. The two data sets could then be tracked over time and a
determination of whether an alliance was successful or
unsuccessful could be made. In this manner, the stock of
alliances could be explored and their relationship to the results
found when analyzing the flow of alliances could be examined.

The Difference In Alliance Activity By Participant Nationality

This research focused on understanding the nature of
strategic alliance activity across and within regions, and thus
differences between nations within a particular region were not
measured. In addition, issues related to participant nationality
were analyzed in terms of participant region, and thus the
research did not uncover variations that may exist between
participant combinations. For example, alliances between Japanese
firms and American firms may be very different from alliances
between German firms and American firms. A study to explore the
nature of alliance activity in particular countries and between
various partner groupings would be useful in several ways. First,
this type of proposed research could be used by public policy
makers to precisely identify the effect of national policies on
firm behavior. In addition, the research focusing on participant
combinations would allow policy makers to determine whether there
is a potential for foreign investors to use alliances as a means
of dominating a domestic industry. Finally, this type of research
would enable researchers to explore patterns of firm behavior in a cultural context.

Future research of this type would require the identification of particular countries or groups of partners to be studied. An initial analysis could then make use of the data collected in this research to explore differences between countries rather than between regions. This type of macro analysis would allow for the identification of variations across the numerous variables summarized in the taxonomy used in this research (Appendix A). The relationship between the use of alliances, participant nationality and industry groups could then be explored to determine whether a domestic industry is under the threat of foreign domination.

In a second stage of the research, candidates for further in-depth research could be selected from the macro analysis. Primary data collection methods could then be used to collect information on why certain partner groupings occurred, what effect national policies had on the decision to collaborate and so forth. This would allow researchers to explore the link between the use of alliances and national policies. In addition, it could provide insight into the impact of culture on manner in which alliances are formed.
Section Five: Summary

This research had two primary objectives: an exploration of strategic alliance incidence and an exploration of strategic alliance transformation. The research was a descriptive effort to provide a better understanding of the nature of strategic alliance activity across and within three regions of the world, North America, the Pacific Rim and Europe.

The first chapter of the research provided an overview of the study, and presented the research questions and the assumptions and limitations involved. Chapter II first reviewed the theoretical literature on strategic alliances from three perspectives, the transaction cost perspective, the strategic behavior perspective and the organizational behavior perspective, and then the empirical research related to this type of study. In addition, the second chapter developed the taxonomy of strategic alliances that was used in this study. The third chapter discussed the research methodology that was used, and the hypotheses that were tested. The results of the hypothesis testing was presented in Chapter IV. This chapter provided a discussion of the research results and the conclusions that were drawn based upon this discussion. This was followed by a discussion of summary findings. In addition, it presented research implications and conclusions for practitioners, academicians and
public policy makers. Finally, it outlined areas for future research.
APPENDIX A

A Taxonomy Of Strategic Alliances

Strategic Alliance Form

The legal structure of the strategic alliance.

1) Joint Venture-- defined to be the creation of a newly incorporated company, in which each participant has an equity stake and representation on the board of directors.
   n=2046

2) Minority Equity Agreement-- involves an agreement between participants to undertake shared activities, and involves at least one participant taking a minority (less than 50%) equity position in the other.
   n=368

3) Non-Equity Agreement-- involves an agreement to undertake joint activities, however neither participant takes an equity position in the other.
   n=1844

4) Consortium-- an agreement involving multiple partners collaborating on large-sized projects that require large financial and managerial capabilities.
   n=1844

5) Unclassifiable n=63
Strategic Alliance Mode

Activities undertaken as a result of the agreement to collaborate.

A. Joint Activities: involve cooperation at the same stage in the value added chain by the participants.

1) Joint Research And Development n=240
2) Joint Production n=832
3) Joint Product Development n=373
4) Joint Marketing n=679
5) Joint Oil Exploration And Related Activities n=52
6) Joint Offering Of Services n=268
7) Joint Construction n=155
8) Joint Mining And Related Activities n=18
9) Joint Firm Establishment n=187
10) Joint Property Development And Related Activities n=39
11) Joint Publishing n=20

B. Complementary Activities: each participant contributes assets at different stages in the value added chain.

1) Licensing n=252
2) Cross-Licensing Or Other Technology Sharing n=107
3) Manufacturing Arrangements n=324
4) Piggybacking n=131
5) Logistics (transportation, warehousing and distribution) n=85
6) Marketing/Sales/Service n=353
7) Purchasing n=345
8) Research n=295

C. Unclassifiable/Unidentifiable
Strategic Alliance Motive

The purpose or intention behind the collaboration. The benefits the participants expect to receive from collaboration.

1) To Acquire Or Develop A New Product
2) To Learn Or Exploit Technology Or Other Expertise (either directly or indirectly)
3) To Gain Access To A Marketing System (distribution, promotional and/or service activities)
4) To Overcome Protectionism Or Ease Trade Friction
5) To Lower Costs Or Increase Efficiency
6) To Receive Direct Payment (royalties, licensing fees, monetary compensation for services, products or technology acquired)
7) To Gain Legitimacy
8) Mixed Motives
9) Unclassifiable/Unidentifiable
10) To Expand A Market, Gain Access To A Market Or Increase Sales
11) To Develop Natural Resources
12) To Diversify
13) To Establish An Industry Standard
14) To Strengthen A Business Operation
15) To Develop A Service
16) To Cope With Exchange Rates
17) To Increase Competitiveness
18) To Respond To An Increase In Demand
19) To Secure A Long-term Contract For Supply
20) To Increase Production
21) To Ensure a Long-term Supply
22) To Share Or Reduce Risk
23) To Gain Capital
24) To Secure or Establish A Marketing or Production Base
25) To Acquire Special Government Status
26) To Improve Customer Service
27) To Capitalize on Industry Deregulation
28) To Reduce Research and Development Duplication
29) To Stem Losses
30) To Increase or Acquire Capacity
31) To Get To Market More Quickly
32) To Win Contracts
33) To Develop New Uses For Products
Strategic Alliance Motives Collapsed

1) Product/Service  
   -to acquire or develop a new product  
   -to develop a service  
   -to develop new uses for products

2) Technology  
   -to learn or exploit technology or other expertise  
   -to establish an industry standard  
   -to reduce research and development duplication

3) Marketing  
   -to gain access to a marketing system  
   -to expand a market, gain access to a market or increase sales  
   -to improve customer service  
   -to win contracts

4) Protectionism  
   -to overcome protectionism or ease trade friction  
   -to capitalize on industry deregulation

5) Operations  
   -to lower costs or increase efficiency  
   -to secure a long-term contract for supply  
   -to increase production  
   -to ensure a long-term supply  
   -to secure or establish a production or marketing base  
   -to increase or acquire capacity  
   -to respond to an increase in demand

6) Monetary  
   -to receive direct payment  
   -to gain capital

7) Natural Resources  
   -to develop natural resources
8) Competitiveness  
n=1275
- to diversify
- to gain legitimacy
- to strengthen a business operation
- to increase competitiveness
- to cope with exchange rates
- to share or reduce risk
- to stem losses
- to get to market more quickly

9) Unclassifiable/Unidentifiable  
n=1752

Strategic Alliance Corporate Demographics

Detailed information about strategic alliance participants.

1) Nationality— country of origin of each participant
2) Number— the number of participants collaborating
3) Location— the country where the collaboration takes place
4) Industry— the industry class defined by SIC codes
5) Year— the date of collaboration
6) Name— the corporate label of each participant
APPENDIX B

Definition Of Strategic Alliance Failure

A strategic alliance will be identified as a failure if:

1) the alliance has been liquidated
2) the alliance has been taken over by one partner
3) control has passed from one partner to the other
(Killing, 1982, page 120).

In addition, there must be some indication in the public
announcement of a strategic alliance break-up that the objectives
of the strategic alliance have not been fulfilled, that at least
one participant is not satisfied with the current state of
affairs.
APPENDIX C

Technical Note On Data Collection

Data Sources and Examination Process

1. Three data sources were used in this research:

   a. The Wall Street Journal  
   b. the Financial Times  
   c. the Japan Economic Journal  

2. Each source was physically examined by the researcher to identify long-term agreements to mutually share assets for a specific purpose where:

   Long-term – is defined to be a period of more than one year, or as long as a typical investment cycle for the resources involved,

   Agreement – is defined to be a formal, written understanding between participants,

   Mutual Sharing – is defined as a division of both the risks and benefits that are created as a result of the agreement and

   Specific Purpose – is defined to be the particular objectives of the relationship.


3. Each transaction that met the above definition was then classified according to the data collection form shown below. The data collection form allows for the classification of the information according the taxonomy of strategic alliances presented in Appendix A.

251
Data Collection Form

<table>
<thead>
<tr>
<th>ID #</th>
<th>Year</th>
<th>Number</th>
<th>Form</th>
<th>S ALoc</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1name</td>
<td>P2name</td>
<td>P3name</td>
<td>P4name</td>
<td>P5name</td>
<td></td>
</tr>
<tr>
<td>S1name</td>
<td>S2name</td>
<td>S3name</td>
<td>S4name</td>
<td>S5name</td>
<td></td>
</tr>
<tr>
<td>HQnat1</td>
<td>HQnat2</td>
<td>HQnat3</td>
<td>HQnat4</td>
<td>HQnat5</td>
<td></td>
</tr>
<tr>
<td>SIC1</td>
<td>SIC2</td>
<td>SIC3</td>
<td>SIC4</td>
<td>SIC5</td>
<td></td>
</tr>
<tr>
<td>Levdev1</td>
<td>Levdev2</td>
<td>Levdev3</td>
<td>Levdev4</td>
<td>Levdev5</td>
<td></td>
</tr>
<tr>
<td>Mot1</td>
<td>Mot2</td>
<td>Mot3</td>
<td>Mot4</td>
<td>Mot5</td>
<td>Mot6</td>
</tr>
<tr>
<td>Mot10</td>
<td>Mot12</td>
<td>Mot13</td>
<td>Mot14</td>
<td>Mot15</td>
<td>Mot16</td>
</tr>
<tr>
<td>Mot19</td>
<td>Mot20</td>
<td>Mot21</td>
<td>Mot22</td>
<td>Mot23</td>
<td>Mot24</td>
</tr>
<tr>
<td>Mot27</td>
<td>Mot28</td>
<td>Mot29</td>
<td>Mot30</td>
<td>Mot31</td>
<td>Mot32</td>
</tr>
<tr>
<td>MoA1</td>
<td>MoA2</td>
<td>MoA3</td>
<td>MoA4</td>
<td>MoA5</td>
<td>MoA6</td>
</tr>
<tr>
<td>MoB1</td>
<td>MoB2</td>
<td>MoB3</td>
<td>MoB4</td>
<td>MoB5</td>
<td>MoB6</td>
</tr>
</tbody>
</table>

4. A strategic alliance was identified as a failure if it met the definition of strategic alliance failure shown in Appendix B.

5. Once an alliance was identified as a failure, information was collected on the alliance participants and their industries, the year and location of the failure and the legal form of collaboration. This information was classified according to the taxonomy shown in Appendix A.
6. Transactions falling under the following decision rules were treated as stated.

**Decision Rules Used In The Data Collection Process**

a. Excludes transactions involving universities, individuals, government-government activities, museums, or retirement boards.

b. Excludes preliminary agreements, memorandums of understanding, planning ventures, and agreements where there is no evidence of sharing.

c. Excludes ventures to launch equity investment funds, capital development funds, consortia formed to bid on projects, agreements to exchange telephone traffic and joint investment banks.

d. All joint ventures other than those falling into decision rules 1, 2 or 3 are considered to be strategic alliances.

e. Excludes non-significant changes to existing strategic alliances.

7. This study involved judgement on the part of the researcher in steps 2-6 above.

8. Alliances that were reported in more than one data source were only entered into the data set once.
APPENDIX D

Tables of Research Data

Table 5

Type By Year

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>541</td>
<td>419</td>
<td>555</td>
<td>608</td>
<td>586</td>
<td>625</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>172</td>
<td>164</td>
<td>193</td>
<td>204</td>
<td>197</td>
<td>143</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 6

**Alliances By Level Of Economic Development**

<table>
<thead>
<tr>
<th>Partner Combination</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC-DC</td>
<td>3649</td>
</tr>
<tr>
<td>DC-LDC</td>
<td>733</td>
</tr>
<tr>
<td>LDC-LDC</td>
<td>25</td>
</tr>
</tbody>
</table>

### Table 7

**Alliances By Number**

<table>
<thead>
<tr>
<th>Number of Partners</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two</td>
<td>3779</td>
</tr>
<tr>
<td>Three</td>
<td>387</td>
</tr>
<tr>
<td>Four</td>
<td>101</td>
</tr>
<tr>
<td>Five or more</td>
<td>140</td>
</tr>
</tbody>
</table>
### Table 8

**Data On Transformation**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strategic Alliance Form</strong></td>
<td></td>
</tr>
<tr>
<td>Joint Venture</td>
<td>146</td>
</tr>
<tr>
<td>Minority Equity Agreement</td>
<td>22</td>
</tr>
<tr>
<td>Non-Equity Agreement</td>
<td>46</td>
</tr>
<tr>
<td>Consortia</td>
<td>4</td>
</tr>
<tr>
<td>Unclassifiable</td>
<td>10</td>
</tr>
<tr>
<td><strong>Number of Participants</strong></td>
<td></td>
</tr>
<tr>
<td>Two</td>
<td>204</td>
</tr>
<tr>
<td>Three</td>
<td>15</td>
</tr>
<tr>
<td>Four</td>
<td>5</td>
</tr>
<tr>
<td>Five Or More</td>
<td>4</td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td></td>
</tr>
<tr>
<td>International</td>
<td>140</td>
</tr>
<tr>
<td>Domestic</td>
<td>88</td>
</tr>
<tr>
<td><strong>Year Of Failure</strong></td>
<td></td>
</tr>
<tr>
<td>1985</td>
<td>41</td>
</tr>
<tr>
<td>1986</td>
<td>48</td>
</tr>
<tr>
<td>1987</td>
<td>42</td>
</tr>
<tr>
<td>1988</td>
<td>36</td>
</tr>
<tr>
<td>1989</td>
<td>30</td>
</tr>
<tr>
<td>1990</td>
<td>31</td>
</tr>
</tbody>
</table>
Table 8 continued

Industry Group

<table>
<thead>
<tr>
<th>Industry Group</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Agribusiness</td>
<td>13</td>
</tr>
<tr>
<td>Metals and Minerals</td>
<td>7</td>
</tr>
<tr>
<td>Energy</td>
<td>25</td>
</tr>
<tr>
<td>Construction</td>
<td>7</td>
</tr>
<tr>
<td>Textiles/Clothing/Leather</td>
<td>5</td>
</tr>
<tr>
<td>Paper and Wood products</td>
<td>3</td>
</tr>
<tr>
<td>Chemicals</td>
<td>34</td>
</tr>
<tr>
<td>Computers/Semiconductors/Electronics</td>
<td>51</td>
</tr>
<tr>
<td>Automobiles</td>
<td>42</td>
</tr>
<tr>
<td>Aerospace</td>
<td>11</td>
</tr>
<tr>
<td>Other Machinery</td>
<td>26</td>
</tr>
<tr>
<td>Other Manufacturing</td>
<td>20</td>
</tr>
<tr>
<td>Transportation</td>
<td>14</td>
</tr>
<tr>
<td>Communication/Publishing/Recreation</td>
<td>38</td>
</tr>
<tr>
<td>Distribution</td>
<td>26</td>
</tr>
<tr>
<td>Finance</td>
<td>51</td>
</tr>
<tr>
<td>Services</td>
<td>41</td>
</tr>
</tbody>
</table>
### APPENDIX E

**First 25 Firms in Fortune's 1991 Global 500**

<table>
<thead>
<tr>
<th>Company</th>
<th>Sales ($ Millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. General Motors</td>
<td>125,126.0</td>
</tr>
<tr>
<td>2. Royal Dutch/Shell Group</td>
<td>107,203.5</td>
</tr>
<tr>
<td>3. Exxon</td>
<td>105,885.0</td>
</tr>
<tr>
<td>4. Ford Motor</td>
<td>98,274.7</td>
</tr>
<tr>
<td>5. IBM</td>
<td>60,018.0</td>
</tr>
<tr>
<td>6. Toyota Motor</td>
<td>64,516.1</td>
</tr>
<tr>
<td>7. IRI</td>
<td>61,433.0</td>
</tr>
<tr>
<td>8. British Petroleum</td>
<td>59,540.5</td>
</tr>
<tr>
<td>9. Mobil</td>
<td>58,770.0</td>
</tr>
<tr>
<td>10. General Electric</td>
<td>58,414.0</td>
</tr>
<tr>
<td>11. Daimler-Benz</td>
<td>54,259.2</td>
</tr>
<tr>
<td>12. Hitachi</td>
<td>50,685.8</td>
</tr>
<tr>
<td>13. Fiat</td>
<td>47,751.6</td>
</tr>
<tr>
<td>14. Samsung</td>
<td>45,042.0</td>
</tr>
<tr>
<td>15. Philip Morris</td>
<td>44,323.0</td>
</tr>
<tr>
<td>16. Volkswagen</td>
<td>43,710.2</td>
</tr>
<tr>
<td>17. Matsushita Electric</td>
<td>43,516.1</td>
</tr>
<tr>
<td>Industrial</td>
<td></td>
</tr>
<tr>
<td>18. ENI</td>
<td>41,761.9</td>
</tr>
<tr>
<td>19. Texaco</td>
<td>41,235.0</td>
</tr>
<tr>
<td>20. Nissan Motor</td>
<td>40,217.1</td>
</tr>
<tr>
<td>21. Unilever</td>
<td>39,971.5</td>
</tr>
<tr>
<td>22. E.I. Du Pont de Nemours</td>
<td>39,839.0</td>
</tr>
<tr>
<td>23. Chevron</td>
<td>39,262.0</td>
</tr>
<tr>
<td>24. Siemans</td>
<td>39,227.6</td>
</tr>
<tr>
<td>25. Nestle</td>
<td>33,359.0</td>
</tr>
</tbody>
</table>
APPENDIX F

Country Classification

<table>
<thead>
<tr>
<th>World Regions</th>
<th>Level of Economic Development</th>
<th>Participants By Region</th>
<th>Alliances By Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td></td>
<td>3132</td>
<td>1206</td>
</tr>
<tr>
<td>United States</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Europe</td>
<td></td>
<td>2277</td>
<td>713</td>
</tr>
<tr>
<td>Austria</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium*</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denmark*</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>France*</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany*</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greece*</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland*</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy*</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Luxembourg*</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monaco</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Netherlands*</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Norway</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portugal*</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain*</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switzerland</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom*</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Indicates membership in the European Community, 663 alliances were located in the European Community.
<table>
<thead>
<tr>
<th>World Regions</th>
<th>Level of Economic Development</th>
<th>Participants By Region</th>
<th>Alliances By Region</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pacific Rim</strong></td>
<td></td>
<td>3661</td>
<td>1218</td>
</tr>
<tr>
<td>Australia</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phillipines</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Singapore</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Korea</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thailand</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td></td>
<td>730</td>
<td>1270</td>
</tr>
<tr>
<td>Algeria</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bahamas</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burma</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cambodia</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carribean</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Columbia</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czechoslovokia</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Germany</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Egypt</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiji</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gibraltar</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hungary</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Israel</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korea</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kuwait</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mexico</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morroco</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>World Regions</td>
<td>Level of Economic Development</td>
<td>Participants By Region</td>
<td>Alliances By Region</td>
</tr>
<tr>
<td>---------------------</td>
<td>-------------------------------</td>
<td>------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>North Korea</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pakistan</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poland</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Romania</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Africa</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>South America</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soviet Union</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turkey</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unknown</td>
<td>Not Applicable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Venezuela</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VietNam</td>
<td>Lesser Developed</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yugoslavia</td>
<td>Developed</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: *The Encyclopedia of the First World*, 1990,  
*The Encyclopedia of the Second World*, 1990  
*The Encyclopedia of the Third World*, 1987
APPENDIX G

**Industry Groups**

<table>
<thead>
<tr>
<th>Name</th>
<th>Alliances</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Agribusiness</td>
<td>275</td>
</tr>
<tr>
<td>01, 05, 20, 21</td>
<td></td>
</tr>
<tr>
<td>2. Metals and Minerals</td>
<td>38</td>
</tr>
<tr>
<td>10, 11, 14</td>
<td></td>
</tr>
<tr>
<td>3. Energy</td>
<td>211</td>
</tr>
<tr>
<td>12, 13, 29, 46</td>
<td></td>
</tr>
<tr>
<td>4. Construction</td>
<td>152</td>
</tr>
<tr>
<td>15, 16, 17</td>
<td></td>
</tr>
<tr>
<td>5. Textiles/Clothing/Leather</td>
<td>109</td>
</tr>
<tr>
<td>22, 23, 31</td>
<td></td>
</tr>
<tr>
<td>6. Paper and Wood Products</td>
<td>95</td>
</tr>
<tr>
<td>24, 25, 26</td>
<td></td>
</tr>
<tr>
<td>7. Chemicals</td>
<td>632</td>
</tr>
<tr>
<td>28</td>
<td></td>
</tr>
<tr>
<td>8. Computers/Semiconductors/Electronics</td>
<td>1270</td>
</tr>
<tr>
<td>3571-3573, 3575, 3577, 36</td>
<td></td>
</tr>
<tr>
<td>9. Automobiles</td>
<td>651</td>
</tr>
<tr>
<td>2396, 3465, 3710, 3711, 3713, 3714</td>
<td></td>
</tr>
<tr>
<td>10. Aerospace</td>
<td>195</td>
</tr>
<tr>
<td>3700-3710, 3715-3799</td>
<td></td>
</tr>
<tr>
<td>11. Other Machinery</td>
<td>465</td>
</tr>
<tr>
<td>3500-3571, 3574, 3576, 3578-3599, 38</td>
<td></td>
</tr>
<tr>
<td>12. Other Manufacturing</td>
<td>552</td>
</tr>
<tr>
<td>30, 3200-3465, 3466-35, 39</td>
<td></td>
</tr>
<tr>
<td>Name</td>
<td>Alliances</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>13. Transportation</td>
<td>250</td>
</tr>
<tr>
<td>40, 41, 42, 43, 44, 45, 47</td>
<td></td>
</tr>
<tr>
<td>14. Communication/Publishing/Recreation</td>
<td>562</td>
</tr>
<tr>
<td>27, 48, 78, 79, 84</td>
<td></td>
</tr>
<tr>
<td>15. Distribution</td>
<td>509</td>
</tr>
<tr>
<td>50, 51</td>
<td></td>
</tr>
<tr>
<td>16. Finance</td>
<td>1045</td>
</tr>
<tr>
<td>60, 61, 62, 63, 64, 65, 66, 67</td>
<td></td>
</tr>
<tr>
<td>17. Services</td>
<td>565</td>
</tr>
<tr>
<td>49, 57, 58, 70, 72, 73, 75, 76, 80, 82, 85, 87</td>
<td></td>
</tr>
<tr>
<td>18. Miscellaneous</td>
<td>40</td>
</tr>
<tr>
<td>86, 88-99</td>
<td></td>
</tr>
</tbody>
</table>
Bibliography


Ary, Donald, Lucy Cheser Jacobs and Asghar Razavieh (1972), Introduction To Research In Education, Holt, Rinehart and Wilson, Inc.


Berg, Sanford V. and Philip Friedman (1978), "Joint Ventures In American Industry," Mergers And Aquisitions, Summer.

Berg, Sanford V. and Philip Friedman (1978), "Joint Ventures In American Industry Part II: Case Studies Of Managerial Policy," Mergers And Aquisitions, Fall.


Hamill, Jim and Stephen Young (1990), "Strategic Alliances In Perspective--When to Go For The Strategic Alliance," presented at The IBC Legal Studies And Services Ltd. Conference On Making Strategic Alliances Work For Pharmaceutical And Healthcare Companies.


Kurian, George Thomas (1990), The Encyclopedia Of The First World, Facts On File, Inc.

Kurian, George Thomas (1990), The Encyclopedia Of The Second World, Facts On File, Inc.

Kurian, George Thomas (1990), The Encyclopedia Of The Third World, Facts On File, Inc.


