

International Strategic Alliances

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Large numbers of international strategic alliances (ISAs) among multinational enterprises (MNEs) emerged during the 1980s in response to the pressures of rapid technological change and the increased internationalization of capital, production, and knowledge. ISAs constitute a significant tool for MNEs to meet the challenges of increased competition and globalization. They enable MNEs to spread the costs and risks of research and new product development, while providing greater flexibility and speed for commercialization.

ISAs are introducing a range of new factors into the relationships among nations and multinational enterprises. Because they have increased dramatically in number and scale in recent years, they are likely to *further* obscure the nationality of MNEs. In the future, international competitiveness may be defined less in terms of competing firms based in different nations, and more in terms of shifting, competing coalitions of MNEs engaged in international strategic alliances. At the same time, ISAs are causing profound shifts in the long-term competitiveness of U.S. industry; their full impact has yet to be understood.

International strategic alliances have created both competition and interdependence between rival states and multinational firms, rendering corporate planning and U.S. policymaking more difficult and uncertain. National economic sovereignty may become increasingly illusive as the United States grapples with increased dependence on key economic and technological assets controlled by MNEs involved in ISAs. International strategic alliances are also blurring the national identity of U.S.-based MNEs, further weakening the link between their activities and the competitiveness of the U.S. economy as a whole.

This chapter analyzes the recent growth of international strategic alliances. It discusses the complex motivations, patterns, and varying impact of ISAs across U.S. manufacturing industries. The chapter also assesses the policy implications stemming from the involvement of U.S. companies in such international alliances.

CHAPTER FINDINGS

1. The causes underlying the recent growth and extensive development of strategic alliances between MNEs are primarily economic and technological. The rise of ISAs can be attributed to various factors, including increased foreign competition in key manufacturing industries, rapidly escalating costs of R&D, and growing technological convergence among some industries. Nevertheless, governments play a critical role in influencing the formation, structure, and content of ISAs.
2. Asymmetries between different foreign governments' trade, investment, industrial, and technology policies, particularly those that affect market access, may impede the ability of U.S.-based MNEs to use strategic alliances competitively. For instance, some foreign governments will restrict market access unless U.S.-based MNEs supply critical technologies, manufacturing capabilities, and distribution rights to their foreign alliance partners. At issue for U.S. policymakers is how to address such asymmetries in foreign governments' policies. Should the U.S. Government provide support for its domestically based MNEs via industrial technology and other policies? Should the United States pressure multilateral institutions to secure the harmonization of policies across borders?
3. The impact of ISAs has distinct and perhaps conflicting implications for U.S. firms and for policymakers. On the one hand, international strategic alliances are a response by MNEs to the competitive pressures associated with the transition to a more global economy. On the other hand, ISAs raise tough new issues for U.S. policymakers concerned about preserving the competitiveness of U.S. manufacturing industry, and its high-wage, highly skilled employment base.
4. On the domestic front, ISAs challenge directly the presumption that the competitiveness of U.S.-owned MNEs is the same as U.S. competitiveness. Since ISAs involve coalitions of U.S. and foreign MNEs, defining an American company and devising national treatment policies becomes extraordinarily complex. At the international level, U.S. policymakers must anticipate the antitrust implications in industries where ISAs are likely to lead to further global concentration. While U.S. antitrust concerns have remained largely a domestic affair, pressure may build for the United States to collaborate with foreign authorities and to impose conditions on ISAs that are likely to harm consumers.
5. These concerns arise because ISAs may present the potential for cartelization and even collusion among alliance partners, particularly in industries characterized by high barriers to entry and oligopolistic competition. There is concern that combining technology, manufacturing, marketing networks, and other assets of competing firms into ISAs may concentrate too much market power in the hands of too few firms.
6. In a number of industries, ISAs have enhanced the international competitiveness and productivity of U.S. firms, workers, and the economy as a whole. ISAs have pressured U.S. firms to change and to learn by requiring them to develop, adopt, and disseminate new technologies, while encouraging them to become more open and flexible to new managerial and manufacturing methods. International strategic alliances have also increased U.S. companies' awareness of and access to new international

markets. In effect, U.S.-based MNEs are becoming better at learning from and thus mastering ISAs.

WHAT ARE INTERNATIONAL STRATEGIC ALLIANCES?

No single definition exists for international strategic alliances. In general, strategic alliances involve long-term arrangements that focus on several issues of mutual concern to different corporations. This chapter focuses on ISAs that involve the collaborative development and sharing of R&D, manufacturing, marketing, and distribution.

Strategic alliances move beyond simple arms-length transactions. Rather, they seek to improve the competitive position of the partners and reflect the long-term objectives of each corporate partner. They usually involve substantial commitments of capital, technology, and/or other assets.¹ Alliances designed to pursue short-term market opportunities are called “tactical,” and do not necessarily reflect the broader strategies of the firms involved. ISAs have become so important that some firms consider them to be intrinsically desirable; as a position statement issued by one large corporation suggested, “the alliance itself is a goal.”

The institutional forms that international strategic alliances take are both numerous and complex. They include precompetitive R&D consortia, a variety of technological cooperation and production agreements, and exchanges of marketing and distribution networks.³ In fact,

international strategic alliances usually encompass several of these interrelated activities. ISAs may involve equity sharing, or the formation of a new company managed jointly by participating firms, or they may be based on looser, less institutionalized forms of cooperation.

Compared to internal development, mergers, or acquisitions, strategic alliances enable MNEs to reconfigure rapidly to meet new market conditions and technological challenges. As one authority notes, “the time required to build expertise or gain market share internally is likely to exceed the time required with a coalition.” Additionally, ISAs offer greater flexibility because they are easier to dissolve than either mergers or acquisitions; their sunk costs are lower and commitments less irreversible.⁵

RECENT TRENDS IN INTERNATIONAL STRATEGIC ALLIANCES

In the 1980s, internationalization brought on by advances in telecommunications and transportation, coupled with increasingly open markets, effectively heightened competition among multinational firms. Companies must now view their markets from a regional and/or global, rather than national perspective. For these reasons, among others, corporate managers have recognized the benefits of ISAs, and as a consequence, the number of such alliances has increased dramatically.

This section provides an overview of the recent trends in international strategic alliances. Based on a number of statistical studies conducted in the

¹ David C. Mowery (ed.), *International Collaborative Ventures in U.S. Manufacturing* (Cambridge, MA: Ballinger Press, 1988); and Lynn K. Mytelka (ed.), *Strategic Partnerships and the World Economy* (London: Fairleigh Dickinson University Press for Frances Pinter Ltd., 1991) provide extensive treatment on the definitional aspects of international strategic alliances.

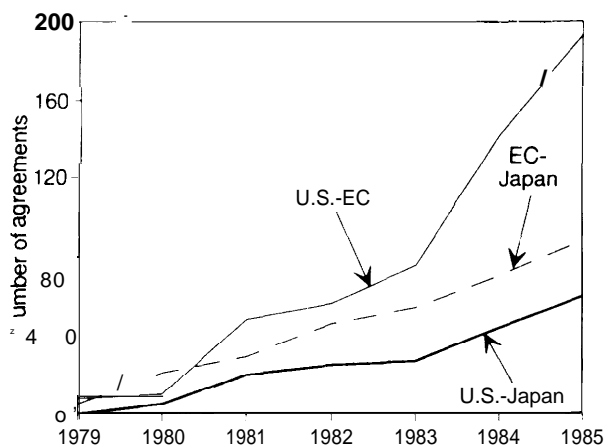
² Toyota White Paper presented to the Office of Technology Assessment, Feb. 24, 1993.

³ Licensing agreements are not considered to be strategic alliances for the purposes of this report.

⁴ Michael E. Porter and Mark B. Fuller, “Coalitions and Global Strategy,” Michael E. Porter (ed.), *Competition in Global Industries* (Boston, MA: Harvard Business School Press, 1986), p. 328.

⁵ Claudio Ciborra makes this important point. See his chapter, “Alliances as Learning Experiments: Competition and Change in High-Tech Industries,” in Mytelka (ed.), op. cit., footnote 1.

Figure 5-1—Trends in International Strategic Alliances by Regional Partnerships, 1979-1985



SOURCE: Adapted from Michael Hergert and Deigan Morris, "Trends in International Collaborative Agreements," Farok J. Contractor and Peter Lorange (eds.), *Cooperative Strategies in International Business* (Lexington, MA: Lexington Books, 1988), p. 101.

United States, Europe, and Japan, it assesses the rate of growth in ISAs in the 1980s and 1990s, and analyzes the patterns as well as the modes of international collaboration by country, industry, and motivation.⁶

I The Increase in ISAs

Various studies demonstrate that the number of ISAs has increased significantly since 1980.⁷ Figure 5-1 indicates a steady increase in the number of ISAs from 1979 to 1985, particularly between U.S. and European firms. Examination

of international strategic alliances from 1980 to 1989 in three major core technologies—biotechnology, information technology, and new materials—confirms the sharp, upward trend in ISA formation throughout the decade. As shown in figure 5-2, in all three core technologies about 90 percent of the agreements were established during the 1980s: "In new materials over 62 percent of the alliances were made since 1985; in biotechnology and information technologies these shares reach about 60 percent and 54.5 percent respectively.

According to *Pharmaceutical Strategic Alliances*, a database directory that tracks alliances in the pharmaceutical and biotechnology industries, there has been a tremendous surge in strategic alliances, especially between U.S. firms and European corporations. During the first half of 1992, 90 strategic alliances involving biotechnology were signed, up sharply from 58 in the same period of 1991.⁹ According to a U.S. medical industry publication, "there are more alliances going on now than there have ever been. It's the hottest period of deal-making in biotech that has ever been seen."¹⁰

| Distribution of International Strategic Alliances

The critical role that strategic alliances play in the global strategies of companies is reflected in the distribution of ISAs over the past decade. Due

⁶ For empirical studies of international strategic alliances see John Hagedoorn and Jos Schakenraad, "Inter-firm Partnerships and Co-operative Strategies in Core Technologies," C. Freeman & L. Soete (eds.), *New Explorations in the Economics of Technical Change* (London: Pinter Publishers, 1990); and their more recent study, "Strategic Technology Partnering and International Corporate Strategies," K. Hughes (ed.), *European Competitiveness* (Cambridge, MA: Cambridge University Press, (forthcoming)). Refer also to a chapter by Michael Hergert and Deigan Morris, "Trends in International Collaborative Agreements," Farok J. Contractor and Peter Lorange (eds.) *Cooperative Strategies in International Business* (Lexington, MA: Lexington Books, 1988); P. Mariti and R. H. Smiley, "Co-operation Agreements and the Organization of Industry," *The Journal of Industrial Economics* vol. 31, No. 4, 1983, pp. 437-451; KJ. Hladik, *International Joint Ventures: An Economic Analysis of U.S. Foreign Business Partnerships* (Lexington, MA: Lexington Books, 1985).

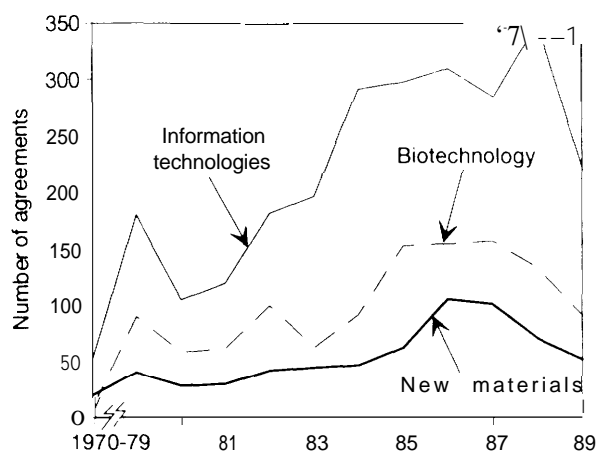
⁷ Hergert et al., *Ibid.*

⁸ Hagedoorn et al., "Inter-firm Partnerships and Cooperative Strategies in Core Technologies," *op. cit.*, footnote 6, p. 5.

⁹ This information was attributed to Roger Longman, editor of *In Vivo*, cited in Sandra Sugawara, "Biotech Firms Forming More Strategic Links," *The Washington Post*, Oct. 19, 1992, pp. H1, H14. *Pharmaceutical Strategic Alliances* is published by Windhover Information Inc.

¹⁰ *Ibid.*

Figure 5-2—Trends in International Strategic Alliances by Selected Industries, 1970-1989



SOURCE: John Hagedoorn and Jos Schramm, "inter-firm Partnerships and Cooperative Strategies in Core Technologies," C. Freeman and L. Poete (eds.), *New Explorations in the Economics of Technical Change* (London: Pinter Publishers, 1990), p. 5.

to differences in research methodologies, a lack of uniform definitions, and inconsistent data collection methods, various studies reach differing conclusions as to the predominant international pattern of strategic alliance partnerships. Nevertheless, all studies emphasize the dominance of the so-called Triad—Europe, Japan, and the United States.

For example, one study published in 1988 found that the majority of strategic alliances are formed between companies within the European Community (EC) (31 percent) or between U.S. and EC firms (26 percent), followed at some distance by EC-Japan (10 percent), and U. S.-Japan (8 percent).¹¹ However, a more recent study

indicates that during the same time period (1980s), intra-U.S. cooperation consisted of the largest share of strategic alliance partnering (25 percent), followed closely by U.S.-EC alliances (22 percent), intra-EC (20 percent), and U.S.-Japan (14 percent).¹² Technology alliances between Europe and Japan, intra-Japanese cooperation, and non-Triad partnering take an average share of between 5 and 10 percent.¹³

Most studies conclude that over 90 percent of all agreements are made between companies from the United States, Western Europe, and Japan. Intra-bloc partnering, e.g., intra-U.S., intra-European Community, intra-Japanese alliances, has continued to increase its portion of alliance formation since the second half of the 1980s.¹⁴

I ISA Formation by Industry and Industry/Country

Although international strategic alliances have been employed with increasing frequency, they are concentrated in relatively few industries.¹⁵ As figure 5-3 illustrates, international strategic alliances involving U.S. firms occur in a range of manufacturing industries—from mature industries such as automobiles, to embryonic ones such as biotechnology, and include technology-intensive sectors in aerospace, information technology, and new materials.

A number of other trends can be deciphered from this figure. First, in terms of absolute numbers and percentages, international strategic alliance formation leads by a vast margin in the information technology field (41 percent of ISAs), followed by biotechnology (19 percent), chemi-

¹¹ Hergert et al., op. cit., footnote 6, p. 102.

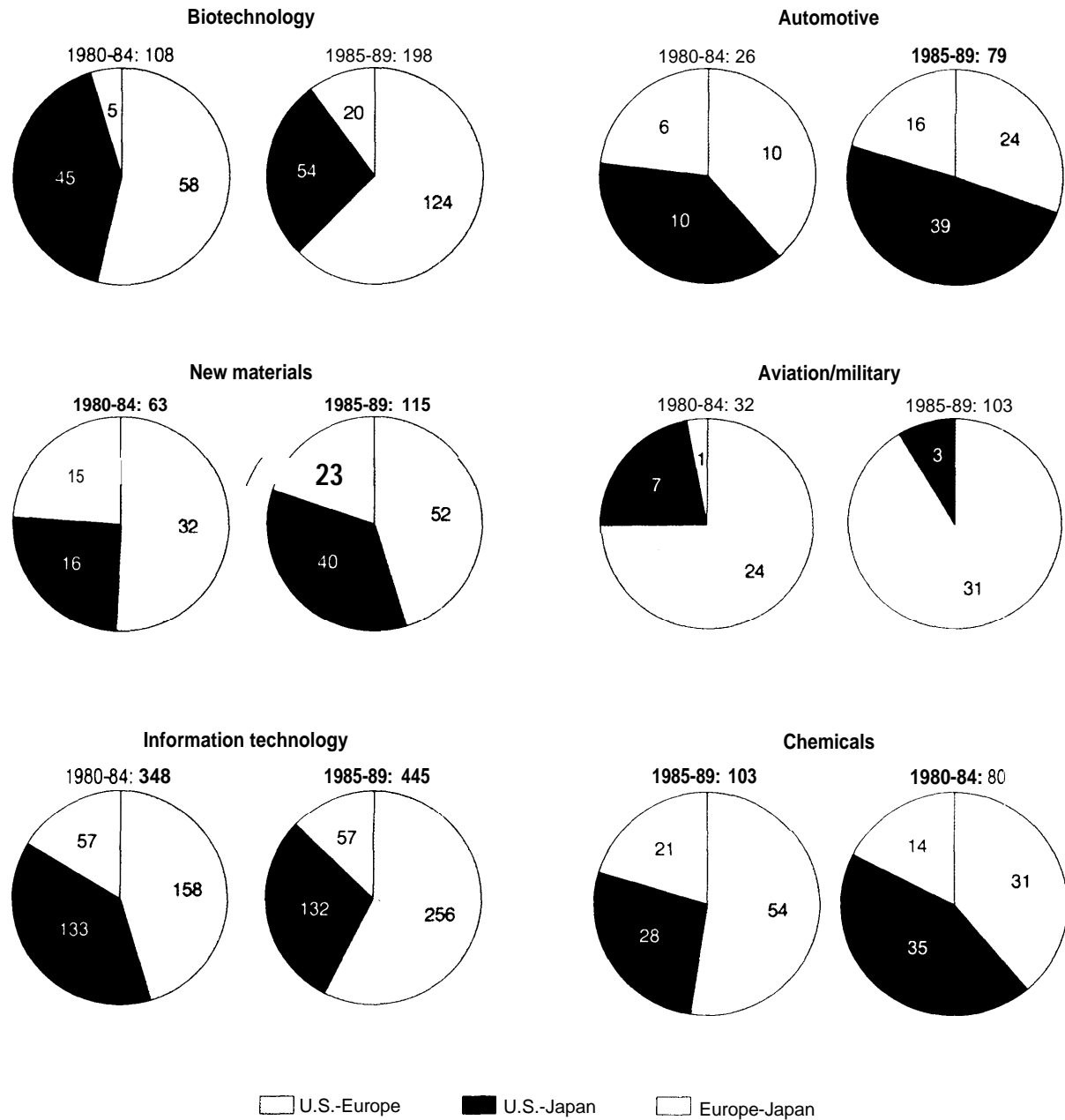
¹² Hagedoorn et al., "Strategic Technology Partnering and International Corporate Strategies," op. cit., footnote 6, p. 13.

¹³ Ibid.

¹⁴ Hagedoorn and Schramm in their chapter "Inter-firm partnerships," op. cit., footnote 6, p. 9, find that in all three core technologies, intra-U.S. collaboration takes the largest share of agreements, in particular in biotechnology, where over 35 percent of the agreements refer to intra-U.S. alliances.

¹⁵ Hergert et al., op. cit., footnote 6, p. 105; and Andrew Pollack, "Technology Transcends Borders Raising Tough Questions," *The New York Times*, Jan. 1, 1992, pp. 1, 20-21; as taken from the Maastricht Economic Research Institute on Innovation and Technology.

Figure 5-3-New International strategic Alliances Among U.S., European, and Japanese Firms by Selected Industries (1980-1989)



NOTE: The total number of new alliances in an industry within the specific period is listed after the range of years,

SOURCE: Adapted from Andrew Pollack, "Technology Transcends Borders Raising Tough Questions in the U.S.," *The New York Times*, Jan. 1, 1992, pp. A1, A20-21; as taken from the Maastricht Economic Research institute on innovation and Technology.

cals (11 percent), new materials (11 percent), automotive (6 percent), and military aerospace (4 percent). Second, with respect to U.S.-European multinational corporate technology alliances, the areas of growing collaboration are in the biotechnology, information technology, and chemical sectors. U.S.-Japan strategic alliances have expanded rapidly in recent years in the information technology, automotive, and new materials industries. Far fewer are the number of alliances formed between European and Japanese multinationals. They are concentrated largely in the information technology industries, followed at some distance in new materials, chemicals, and biotechnology.

TYPE OF COLLABORATION BY REGION

Table 5-1 indicates by region the most frequently cited reasons firms give for entering into strategic alliances. As can be seen, the purposes for international collaboration vary across international trading blocs.

Clearly an important determinant in both U.S. and European international strategic alliances is access to Japanese manufacturing technology, rather than straightforward market access. In terms of EC-U.S. international collaborative agreements, shared research and product development are notable reasons for alliance behavior.

WHY INTERNATIONAL STRATEGIC ALLIANCES ARE ON THE RISE

A number of overlapping economic and technological developments are shaping the environment of MNEs, encouraging and conditioning the formation of international strategic alliances. These developments include: technological leveling across countries; converging product markets; slow economic growth; excess capacity; shorter

product life cycles; escalating R&D costs; and increasingly complex product and production process technologies.

U.S.-based MNEs dominated the international economy of the 1950s and 1960s. Since then, their market share in many industries has declined as foreign MNEs have achieved technological parity. The ability of foreign MNEs to absorb, exploit, and develop advanced technologies makes them attractive partners in ISAs. In some industries, such as automobiles, foreign MNEs “are either the technological equals of U.S. firms, and therefore able to contribute managerial or technological expertise . . . or are more advanced.”¹⁶

Demand for many products is becoming more homogeneous throughout the global market. Firms that can exploit this convergence may achieve economies of scale and scope, which frequently enhance profitability. As a consequence, securing access to the United States as well as to foreign markets has become crucial to MNEs’ development, production, and marketing strategies. While in many manufacturing industries market access is becoming increasingly open, in a number of defense and other high-technology industries, market access still remains restricted by U.S. and foreign government nontariff trade barriers and industrial policies.

A final economic factor is the combined impact of slow growth associated with the recession in the late 1980s and global surplus capacity in many manufacturing industries. Key strategic industries, such as automobiles, semiconductors, and aerospace, face enormous pressures for consolidation and rationalization. International strategic alliances enable companies to achieve and exploit greater product specialization with the necessary economies of scale. In mature and

¹⁶ David C. Mowery, “Collaborative Ventures Between U.S. and Foreign Manufacturing Firms,” *Research Policy*, vol. 18, No. 1, February 1989, p. 24.

Table 5-I-Reasons Firms Give for Establishing international Strategic Alliances, by Regional Partnership

Region	Development (percent)	Marketing (percent)	Production (percent)	Number of agreements
ECJapan	40	26	72	50
EC-U. S.	57	12	31	117
U. S. Japan	24	30	46	33

SOURCE: Adapted from Michael Hergert and Deigan Morris, "Trends in International Collaboration Agreements," Farok J. Contractor and Peter Lorange (eds.), *Cooperative Strategies in International Business* (Lexington, MA: Lexington Books, 1988), p. 108.

consolidating industries, ISAs can reduce excess capacity, and thus enhance market discipline.¹⁷

Across a wide array of technology-intensive manufacturing industries, product life cycles have shortened considerably; indeed, in some cases they barely exceed the length of time required to secure U.S. patent protection. Shrinking product cycles have made it more difficult for companies to justify the high fixed capital costs required for each new product generation. In the telecommunications sector, for example, industry analysts report:

The pace of technical change in microelectronics and computer technology has shortened life cycles of switching products while increasing their costs of development. Electronic switches for public carrier central offices can cost from \$500 million to \$1 billion to develop and become obsolete within five years of introduction.¹⁸

Skyrocketing fixed development costs, together with reduced recoupment cycles, have increased the pressure on firms to market on a global scale and to achieve product development and market access at lower costs.

Second, as product cycles shorten, many companies must increase R&D spending to remain at the frontier of technology. Referring again to the

telecommunications industry, one industry expert cites that in 1986 the top 10 firms spent \$753 million (7.5 percent of turnover) on R&D, which represented an increase of 9.3 percent over the previous year.¹⁹ With margins under pressure from excess capacity and slow economic growth, firms are under pressure to deploy R&D spending more effectively, reduce capital expenditures and operating costs, and seek additional cost savings through economies of scale and scope. As the president of Texas Instrument's Japanese subsidiary acknowledged, "technology advances require a huge cost, both in human resources and equipment to develop semiconductors, so it is becoming necessary to share as much as possible."²⁰

While soaring R&D costs have motivated MNEs to form international strategic alliances, other technological factors play an equally influential role. Many broad-based manufacturing sectors, such as the aerospace and automotive industries, must rely on a diverse array of emerging technologies—new materials, optoelectronics, robotics—that are outside their core competencies. For example, microprocessors are now a key component in automobiles, household durables, and computers; manufacturing and designing them requires advanced manufacturing capabilities and access to the latest developments

¹⁷ The same point has been made with regard to joint ventures. See Kathryn Rudie Harrigan, *Managing for Joint Venture Success* (Lexington, MA: Lexington Books, 1986), p. 19.

¹⁸ Gary p. Pisano, Michael V. Russo, and David J. Teece, "Joint Ventures and Collaborative Arrangements in the Telecommunications Equipment Industry," in Mowery (ed.), op. cit., footnote 1, p. 38.

¹⁹ Data provided by Mytelka (ed.), "Crisis, Technological Change and the Strategic Alliance," op. cit., footnote 1, p. 19.

²⁰ The Cement was made by Sachiaki Nagae, cited by Jacob Schlesinger, "Texas Instruments and Hitachi: Enter Pact to Expand Alliance in Chip Making," *The Wall Street Journal*, Nov. 21, 1991, p. B3.

in a variety of scientific disciplines.²¹ To many firms, ISAs represent a cost-effective way to acquire these competencies.

In addition, industries such as telecommunications, computers, pharmaceuticals, and biotechnology are being transformed by the convergence of overlapping and underlying technologies. Computer and telecommunications firms, for example, often form strategic alliances to ensure compatibility between various network systems, such as private branch exchanges (PBXs) and local area networks (LANs). The merging of technologies from these two industries has also spurred innovation in the telecommunications equipment, software, and integrated circuits industries.²²

The impact of this technological revolution, particularly at the component level, has made it more difficult and inefficient for many companies to track all the relevant technological fronts themselves. Unable to develop new technologies on their own, many MNEs seek ISAs to augment and complement their existing technological portfolios. In essence, MNEs are harnessing ISAs to reduce the gap between the corporations' technological competence and the technological complexity of their environment caused by continuous and rapid technological change. ISAs enable firms to reduce costs, risks, and uncertainty in their environment, and enhance simultaneously their internal technological and manufacturing capabilities.

WHY MNEs ENTER INTO STRATEGIC ALLIANCES

The previous section outlined the broad economic and technological developments that condition the formation of international strategic

alliances. This section analyzes specific, firm-level factors that motivate MNEs to pursue international strategic alliances. MNEs seek strategic alliances for at least six principal reasons:

1. cost and risk sharing,
2. generation of economies of scale and scope,
3. asset pooling,
4. market access,
5. speed, and
6. competitive positioning.

I Cost and Risk Sharing

One frequently offered motivation behind ISAs is the ability of firms to spread the costs and risks associated with R&D activities as well as new product development and commercialization. As discussed earlier, technology-related factors have exerted a broad, compelling influence on the external environment of MNEs. In the aerospace industry, for example, the costs of developing a new commercial passenger aircraft are estimated to be well over \$4 billion. Such costs, in conjunction with the risks of an uncertain market, are difficult, if not impossible, for one corporation to finance alone. International strategic alliances, such as Airbus and the one recently contemplated by McDonnell-Douglas and Taiwan Aerospace, are notable examples. In the fall of 1991, McDonnell-Douglas sought \$2 billion from Taiwan Aerospace in return for a 40-percent equity stake for the development and commercialization of the MD-12 passenger aircraft—a key product if McDonnell-Douglas is to survive against Boeing and Airbus. The company chairman asserted that “without this alliance and international risk-sharing partners, we will be unable to grow as a commercial aircraft company.”²³

²¹ Michael Delapierre and Jean-Benoit Zimmerman develop this argument in their chapter, “Towards a New Europeanism: French Firms and Strategic Partnerships,” *Mytelka* (ed.), op. cit., footnote 1, p. 102.

²² Pisano et al., op. cit., footnote 18.

²³ Cited in Richard W. Stevenson, “Gain for McDonnell-Douglas Raises Fear of U.S. Loss,” *The New York Times*, Nov. 20, 1991, pp. D1 and D4.

The U.S. computer industry has been similarly motivated to enter into strategic alliances because of the need to reduce and spread costs and risks associated with a company's strategy of product diversification. Apple has formed strategic alliances with two Japanese MNEs. It has teamed with Toshiba to manufacture a CD-ROM player, and with Sharp to manufacture personal digital assistants (PDAs). According to Apple's CEO, "We cannot afford to fund these projects by ourselves. These alliances give us a chance to be players in an important growth area."²⁴ Apparently Apple is contributing software know-how and product design in exchange for Japanese manufacturing expertise and key components such as flat panel displays.

I Economies of Scale and Scope

Steadily increasing minimum economies of scale and scope often raise investment costs and limit the number of firms that can independently underwrite the costs of efficient-sized facilities. Many MNEs are negotiating alliances to mobilize additional financial resources. For example, in July 1992, U.S.-based Advanced Micro Devices (AMD) and Japan's Fujitsu began collaborating on flash memory chip development. To generate the economies of scale necessary to price the chips competitively, a plant costing an estimated \$700 million would be required. AMD had annual sales of \$1 billion at the time. As AMD's chief financial officer admitted, ". . . it was an enormous nut for us to swallow alone."²⁵ International strategic alliances have long occurred in the aircraft industry, where enormous costs of new

product development, combined with low volumes, require a company to sell anywhere from 350 to 400 commercial aircraft within the first 10 years and at least 600 overall in order to achieve profitability. Approximately 30 basic types of aircraft have been introduced during the jet age; about 8 have sold at least 600 units, although several more may yet do so.²⁶ To date, the industry as a whole has lost significant amounts of money, which has further intensified interest in strategic alliances to share costs, control risk, and enhance market access.

| Asset Pooling

International strategic alliances are a means of pooling other, nonfinancial, firm-specific assets that are not easily licensed, such as proprietary technology, manufacturing know-how, marketing, and distribution channels. For instance, several alliances in the pharmaceutical and biotechnology industries have been formed in order to pool the complimentary technologies of the partners. In April 1992, 15 U.S. and European multinational pharmaceutical companies announced collaboration in AIDS drug research.²⁷

The emphasis on asset complementarity and pooling is also evident in the telecommunications industry. In the AT&T-Philips alliance, AT&T provided most of the underlying technology and technical know-how used in developing the next generation of digital switching equipment. Philips contributed its superior production technology, European identity, and familiarity with the tightly controlled and regulated European telecommunications markets.²⁸

²⁴ Edward w. Desmond, "Byting Japan," *Time*, Oct. 5, 1992, p. 69.

²⁵ John Burgess, "Ventures Share Cutting Edge with Japan," *The Washington Post*, Sept. 6, 1992, p. F1.

²⁶ See U.S. Congress, Office of Technology Assessment, *Competing Economies: America, Europe, and the Pacific Rim*, OTA-ITE-498 (Washington DC: U.S. Government Printing Office, October 1991). Personal communication with Wolfgang Demisch, Managing Director, UBS Securities, July 26, 1993.

²⁷ Peter Coy, "Two Cheers for Corporate Collaboration," *Business Week*, May 3, 1993, p. 34.

²⁸ Karen J. Hladik, "R&D and International Joint VentWeS," Contractor et al., (eds.), op. cit., footnote 6, pp. 190-191,

| Market Access

As indicated, market access is a critical motivation for firms to establish ISAs. Access to some markets, most notably Japan, remains restricted by government trade and industrial policies as well as informal barriers to entry and FDI (see Chapter 3). Strategic partnerships with foreign companies are central to overcoming this key barrier to entry. Coalitions based on international market access can “achieve access to local know-how, local legitimacy, government blessing, and strong local market positions gained through first-mover effects.”²⁹

| Speed

As competition in international markets has intensified, product life cycles have been reduced. If profitability is to be maintained, MNEs must reduce the time necessary for R&D, product development, commercialization, production, and marketing. ISAs can offer MNEs opportunities to accelerate all these activities. This is especially important, for example, in the biotechnology industry, where the recent wave of U.S. strategic alliances with foreign companies is aimed at shortening the time required for commercialization. Indeed, pressure on biotechnology firms to get their products into global markets faster is one reason why small U.S. biotechnology firms are forming strategic alliances with both domestic and foreign pharmaceutical giants.

| Competitive Positioning

As indicated earlier, MNEs may establish international strategic alliances to strengthen their current and future competitive positions.

There are three important competitive uses of ISAs for multinational enterprises.³⁰

First, ISAs enable companies to monitor (and in some cases acquire) the technological developments of competitors and potential future rivals. This strategic rationale is especially apparent in a number of automotive industry ISAs involving U.S. and Japanese MNEs—example, NUMMI (General Motors and Toyota) and Ford-Mazda.

Second, ISAs can influence the evolution and the structure of an industry by creating new entry barriers, such as affecting the industry’s cost structure or ensuring that competitors employ a certain technology. In this respect, ISAs are frequently initiated at the precompetitive R&D stages, when enterprises can develop common technical standards. While forming a barrier to entry, technological standardization can also ensure a greater degree of product line compatibility.

The role of ISAs to secure common technical standards is critical to the computer and telecommunications industries. For example, one of the motivating factors for the now dissolved AT&T-Olivetti alliance was to sell AT&T’s UNIX operating system in Europe. The adoption of UNIX in 1986 by five of Europe’s major computer producers, including Philips and Siemens, was perceived as a successful move and a challenge to IBM’s position in Europe.³¹ More recently, Sun, DEC, and Hewlett-Packard have formed alliances to increase the likelihood that their particular RISC-chip standard will dominate that segment of the semiconductor market.

Third, international strategic alliances can shape the competition in an industry by attempting to deter and/or preempt rival firms. In the

²⁹Porter et al., op. cit., footnote 4, p. 334.

³⁰On the competitive uses of international strategic alliances, see Porter et al. (eds.), op. cit., footnote 4; Harrigan, op. cit., footnote 17; Gary Hamel, Yves L. Doz, and C.K. Prahalad, “Collaborate with Your Competitors—and Win,” *Harvard Business Review*, January-February 1989, pp. 133-139. For a critique of this approach refer to Claudio Ciborra, “Alliances as Learning Experiments,” Mytelka (ed.), op. cit., footnote 1.

³¹Pisano et al., op. cit., footnote 18, p. 48.

computer industry, ISAs are often used by an aggressive partner to fight proxy battles against a dominant competitor, “as in the use of Amdhal, ICL, Bull, and Siemens as frontline troops by Fujitsu and NEC in their assault on IBM.”³² ISAs can also serve as defensive or preemptive measures. Boeing, for instance, has formed deeper alliances with its Japanese suppliers in part because it hopes to prevent these firms from developing links with its European rival, Airbus.³³

As ISAs solidify into long-term partnerships, they may be used by allied MNEs in anticompetitive ways. New oligopolies could be formed by MNE alliances through the very process of sharing technology and controlling market distribution. For example, the recently proposed alliance between Boeing and members of the Airbus consortium to develop jointly a super jumbo aircraft could preclude meaningful competition in this market segment. If fully realized, the alliance could also lead to greater market discipline in other market segments.³⁴

HOW GOVERNMENTS SHAPE THE FORMATION AND CONTENT OF ISAs

Previous sections have delineated the firm-level, internal, and competitive motivating factors for MNE strategic partnering. However, the government plays a critical role in constructing policy environments and in influencing the market forces that inform MNEs’ decisions and choices regarding ISA activity. In particular, trade, industrial, and regulatory policies help

shape the formation, structure, and content of international strategic alliances.

| Trade and Investment Policies

Government control over market access, via trade and investment policies, has tremendously encouraged international strategic alliances among multinational enterprises.

First, governmental moves to nontariff barriers have created strong incentives for international corporate alliances. One scholar argues that tariffs tend to encourage foreign direct investment and joint production arrangements as a means of market penetration, “nontariff barriers favor the use of collaborative ventures that incorporate product research, development and marketing as well as manufacture.”³⁵ Nontariff import and export restrictions, such as those permeating the automotive and semiconductor industries, have led to increased collaboration between U.S. and foreign firms for reciprocal market access. One prominent analyst links the escalation in strategic alliances in the 1980s between U.S. and Japanese automakers to Japanese concern over future U.S. trade barriers.³⁶

Second, continued Japanese and, to a lesser extent, European government restrictions on foreign direct investment—especially in high technology and defense-related industries—have encouraged firms to enter into ISAs. (As discussed in chapter 3, U.S. restrictions on FDI primarily apply to defense-related activities.) I.J.S.-European and U.S.-Japanese alliance activity in

³² Ciborra, “Alliances as Learning Experiments,” op. cit., footnote 5, p. 53.

³³ Airbus has expressed interest in including Japanese companies allied with Boeing (like Mitsubishi Heavy Industries, Fuji Heavy Industries, and Kawasaki Heavy Industries) in a proposed consortium to develop and produce a 600-seat passenger aircraft. See Jacob M. Schlesinger, “Airbus Industries Said to be Seeking Japanese Alliance,” *The Wall Street Journal*, Nov. 19, 1991, p. A16; and John Holusha, “The Global Lab: Aerospace; International Flights, Indeed,” *The New York Times*, Jan. 1, 1992, p. A49.

³⁴ “Boeing and Airbus Work on Super Jumbo,” *Financial Times*, June 11, 1993, p. 3.

³⁵ Mowery, op. cit., footnote 16, p. 24.

³⁶ Robert B. Reich and Eric D. Mankin, “Joint Ventures with Japan Give Away Our Future,” *Harvard Business Review*, vol. 86, No. 2, March-April 1986, p. 83.

key strategic sectors, such as aircraft and telecommunications, are obvious cases.

Finally, because government procurement practices often restrict domestic market access, they encourage ISAs. In Europe and Japan, especially, the prominent and continued role of government ministries as both purchasers and regulators of their telecommunications industries means that U.S. firms must establish alliances with foreign partners, who can then provide them with a national “cloak” in order to gain market access.

| Industrial Policies

Though intended to stimulate the international competitiveness of national industry, European and Japanese governments’ provisions of R&D funding, risk capital, and state purchasing have spurred U.S. MNE alliance activity abroad.

In Japan, for example, the government through its various ministries—Ministry of International Trade and Industry, Ministry of Finance, and the Ministry of Post and Telecommunications—has played a central role in the successful development of the country’s computer-related industries. Through measures such as the promotion of interfirm collaboration, R&D funding, procurement, and leasing programs, Japanese computer and semiconductor MNEs have challenged IBM global position.³⁷ In Europe **as well**, various governments have pursued national champion strategies in high-technology industries to combat the growing competition and market penetration by U.S. and Japanese MNEs. However, rising R&D costs, shorter product cycles, and econo-

mies of scale are making national champion strategies anachronistic. Accordingly, some Triad governments have begun to support ISA formation. For example, the EC has established a number of strategic alliance programs in the information technology-related industries. These include the European Strategic Program for R&D in Information Technologies (ESPRIT), and the Joint European Submicron Silicon Initiative (JESSI). The U.S. semiconductor industry, in conjunction with the U.S. Government, has formed the pre-competitive R&D consortia, SEMATECH.

For U.S.-based MNEs, the combination of industrial policies (particularly those that provide access to risk capital) with the high cost of new product development has enhanced the appeal of strategic alliances with European and Japanese firms. For example, IBM and NEC both have equity stakes in Bull, and IBM has participated in EC-sponsored programs such as JESSI.³⁸

| Regulatory Policies

The regulatory policies of governments have an underlying though pronounced effect on international strategic alliance formation. Three areas for review include antitrust policies, deregulation, and technical standards.

With regard to antitrust issues, many analysts argue that because U.S. antitrust laws are far tougher than those in Europe or Japan, U.S. MNEs are at a comparative disadvantage domestically, and are thus more likely to form strategic alliances with foreign companies. The debate

³⁷ For an excellent discussion of the role of the Japanese Government in promoting its computer industry see **Kenneth Flamm** *Targeting the Computer* (Washington, DC: The Brookings Institution, 1987); *Competing Economies*, op. cit., footnote 26, chapter 7, pp. 237-291; and Jonah D. Levy and Richard J. Samuels, “Institutions and Innovation: Research Collaboration as Technology Strategy in Japan,” in Mytelka (ed.), op. cit., footnote 1. For Japanese policies towards high-technology industries in general, refer to Daniel Okimoto, *Between MITI and the Market: Japanese Industrial Policy for High Technology* (Stanford, CA: Stanford University Press, 1990).

³⁸ *Competing Economies*, op. cit., footnote 26, p. 222; and Richard L. Hudson, “BuLi Weighs Expanding Ties to Other Firms,” *the Wall Street Journal*, May 28, 1993, p. A5.

surrounding the impact of U.S. antitrust laws on ISAs, however, is especially contentious.³⁹

In 1984, in response to pressures from the U.S. semiconductor industry, the U.S. Congress passed the National Cooperative Research Act (NCRA) on the basis that domestic alliances in precompetitive research would improve U.S. international competitiveness in high-technology industries. The Japanese, by contrast, tend to view R&D and commercialization as less distinct, and thus have long permitted domestic strategic alliances involving joint product development and manufacturing.

Despite the NCRA's passage, various U.S. corporations have maintained that the threat of U.S. antitrust action still poses a chilling effect on domestic alliance formation. Citing the antitrust suit filed against Microsoft, Intel, and Open Software Foundation, many U.S. computer firm managers say it is simpler and less risky to team with foreign partners.⁴⁰

One area where U.S. antitrust and regulatory policies have played an indisputable role in ISA formation is the dramatic restructuring of the U.S. telecommunications industry during the late 1970s and early 1980s. Deregulation of the U.S. telecommunications equipment and services markets—the world's largest—and the 1984 divestiture of AT&T, arising from U.S. antitrust litigation, stimulated numerous international strategic alliances.

Another consequence of U.S. regulatory changes in the telecommunications industry was that AT&T was freed to compete in new domestic

markets, such as computers, and in previously prohibited foreign equipment and services markets.⁴¹ This regulatory change led to the proliferation of strategic alliances initiated by AT&T to diversify and expand its product lines (AT&T-Olivetti) and to gain market access, especially in Europe (AT&T-Philips).

A third area where government regulatory policies influence international corporate alliance formation is in the setting and adoption of technical standards. Standards can both open and close domestic markets to foreign firms. On the one hand, by adopting a different standard for its domestic market, a government can create a barrier to entry for foreign competitors. On the other hand, as in the case of Europe, where national markets are too small and fragmented, the lack of a common standard hurts domestic companies because they cannot develop sufficient economies of scale. Recognizing the importance of EC-wide standards for global competitiveness in high-technology industries, intra-EC alliances have emerged, such as RACE (Research for Advanced Communications in Europe), which was established to define standards for integrated broadband communication (voice, text, data, and visual).

Another example of the importance of standard setting for ISAs is the international race to develop and commercialize high-definition television technology (HDTV). The U.S. Federal Communications Commission's 1991 decision to adopt a digital standard shifted various member-

39 Thomas M. Jorde and David J. Teece, "Innovation and Cooperation: Implications for Competition and Antitrust," *Journal of Economic Perspectives*, vol. 4, No. 3, summer 1990, pp. 75-96; Joseph Brodley, "Antitrust Law & Innovation Cooperation," *Journal of Economic Perspectives*, vol. 4, No. 3, summer 1990, pp. 97-112; Carl Shapiro and Robert D. Willig, "On the Antitrust Treatment of Production Joint Ventures," *Journal of Economic Perspectives*, vol. 4, No. 3, summer 1990, pp. 113-30; and Gene M. Grossman and Carl Shapiro, "Research Joint Ventures: An Antitrust Analysis," *Journal of Law, Economics and Organization*, vol. 2, fall 1986, pp. 315-337.

40 Andrew Pollack, "Technology; Antitrust Actions on the Rise Again," *The New York Times*, Nov. 10, 1991, section 3, p. 12.

41 For examples of strategic alliances between U.S. and overseas service providers, see Martin Dickson, "MCI Gains More Firepower in Telecoms War," *Financial Times*, June 17, 1993, p. 13; Bart Ziegler, Mark Lewyn, and Paula Dwyer, "Who's Afraid of AT&T?," *Business Week*, June 14, 1993, pp. 32-33; and "Company News: AT&T in International Services Alliance," *The New York Times*, May 26, 1993, p. D3.

ships in rival strategic alliances.⁴² initially involved in European-supported, analog-based 95 HDTV project, both Philips and Thompson have now joined with NBC, the Sarnoff Research Center, and Comparison Labs, Inc. to win the U.S. digital competition.⁴³ Advances in digital technology provide U.S. partners with an important competitive advantage, while France Thompson and the Netherlands' Philips contribute their expertise in analog and camera development. In May 1993, all three consortia agreed to develop a single digital standard for HDTV.

To summarize, governments shape international strategic alliances in a number of ways. First, differences in trade, industrial, and regulatory policies have created a market for the exchange of strategic assets among multinational firms. To compete internationally, U. S., European, and Japanese MNEs are using international strategic alliances to transform and alter their portfolios of strategic competencies and assets.

Second, governments can also alter the parameters of ISAs by influencing firms' partnering decisions. For example, one consequence of the pervasive involvement by governments in various EC collaborative programs-RACE, ESPRIT, JESSI-has been to transform European firms from competitors to attractive alliance partners. In interviews with European high-technology MNEs involved in ISAs, one analyst reports that European company executives "repeatedly stressed that they could not hope for balanced corporate alliances unless they were perceived as techno-

logically and industrially attractive partners."⁴⁴ Indeed, European MNEs point to IBM's participation in JESSI as a noteworthy demonstration of their argument.

In general, such asymmetries between government policies, particularly in terms of market access, can significantly influence the ability of U.S.-based firms to initiate and control the terms of ISAs.

HOW SUCCESSFUL ARE INTERNATIONAL STRATEGIC ALLIANCES?

The conditions that motivate the creation of these ISAs often contribute to their termination. Indeed, despite the frequency with which they are employed by MNEs, many ISAs are very short-lived, averaging perhaps only 5 or 6 years.⁴⁵ All MNEs have experienced various difficulties in forming as well as continuing their strategic alliances. In many cases, problems arise because firm fail to realize and/or anticipate the many cultural, managerial and other obstacles they are likely to confront. Furthermore, simultaneous competition and cooperation between companies engaged in an international strategic alliance requires a balancing act that some MNEs are unable to manage. Some analysts are concerned that ISAs pose considerable risk to U.S.-based MNEs, because U.S. firm appear less able to absorb new technologies and skills rather than many of their strategic partners.⁴⁶

This section examines some of the common obstacles confronting ISAs, drawing on case

⁴² By 1991, the HDTV Competition involved three alliances: General Instrument Corp. and MIT; Zenith and AT&T; and Philips Electronics, Thomson Consumer Electronics, NBC, and the David Sarnoff Research Center.

⁴³ Elizabeth Milj, "The HDTV Alliance: U.S. and European Industrial Policy Approaches," Masters research paper submitted for a class in "International Strategic Alliances," the School of Foreign Service, Georgetown University, Washington DC, May 1993.

⁴⁴ Wayne Sandholtz, *High-Tech Europe: The Politics of International Cooperation* (Berkeley, CA: University Of California Press, 1992), p. 314.

⁴⁵ Bruce Kogut, "Joint Ventures: Theoretical and Imperial Perspectives," *Strategic Management Journal*, vol. 9, 1988, pp. 319-332; and "A Study of the Life Cycle of Joint Ventures," Contractor et al., op. cit., footnote 6.

⁴⁶ David Lei and John W. Slocum, Jr., "Global Strategy, Competence-Building and Strategic Alliances," *California Management Review*, Fall 1992, pp. 81-82.

studies primarily from the experiences of U. S.-based companies. In some of the cases, MNEs failed either to establish the strategic alliance in the first place, or intercorporate differences led to the eventual termination of the alliance. In other examples, U.S.-based MNEs successfully resolved differences with their foreign partners.

| Overeagerness

As AT&T learned, overeagerness is a mistake when seeking foreign partners. With the break-up of AT&T in the mid- 1980s and the lifting of restrictions on international equipment sales, AT&T needed to rapidly establish itself overseas. Within a 5-year period AT&T had secured 28 international strategic alliances, primarily with European partners. AT&T's strategic alliances with Olivetti and Philips proved especially disappointing for each company. The European MNEs were reluctant to inject capital and research effort into the alliances as rapidly as AT&T expected. At the same time, AT&T was overconfident, taking for granted that its technology would sell its products in Europe.⁴⁷ AT&T did not recognize the need to establish a European identity first.

| Underfinancing

ISAs have failed due to underfinancing of projects. In some cases, MNEs have been reluctant to supply the necessary capital, as demonstrated by the cases of Philips and Olivetti mentioned above. In other instances, firms may be overextended financially and may also have underestimated the costs entailed in achieving the goals of the alliance. For example, both McDowell-Douglas' alliances with Europe's Fokker for the

manufacture of the MDF 100 and with Aerospatiale/Dassault-Breuet for the Mercure 2000 during the late 1970s and early 1980s were terminated. Neither plane was commercialized, in large part because McDonnell-Douglas was unwilling to commit the necessary funds.⁴⁸

| Management Differences

Among the several managerial-related problems that can afflict the formation and longevity of ISAs is the desire by one or both partners to dominate the direction of the alliance as it evolves. While successful ISAs require firms to reach decisions jointly, the tensions inherent in sharing authority can lead to managerial disputes, and eventually to the termination of the alliance. This factor is especially important in cases where there are broad differences in size and corporate culture.

One study of ISAs involving U.S. companies found that "American NINEs believe that power, not parity should govern international collaborative ventures."⁴⁹ In contrast, the study found that European and Japanese firms often consider partners as equals and subscribe to management by consensus. One U.S. company involved in highly acclaimed alliances with various Asian partners is Coming. In its partnership with Korea's Samsung, Corning has not insisted on top name billing. As one Coming executive explained, "There's no need for dominance if it's a successful, growing enterprise." ⁵⁰

Differences in management cultures, poor interfirm communication and cooperation, unclear or competing lines of authority, and slow decisionmaking can impair ISAs.⁵¹ For example,

⁴⁷ See Louis Kraar, "Your Rivals Can Be Your Allies," *Fortune*, Mar. 27, 1989, p. 76.

⁴⁸ For an excellent overview of ISAs in the aircraft industry, see Keith Hayward, *International Collaboration in Civil Aerospace* (New York, NY: St. Martin's Press, 1986); Mowery (ed.), "Joint Ventures in the U.S. Commercial Aircraft Industry," op. cit., footnote 1.

⁴⁹ Howard V. Perlmutter and David A. H& "Cooperate to Compete Globally," *Harvard Business Review*, March-April 1986, p. 146.

⁵⁰ Kraar, op. cit., footnote 47, p. 76.

⁵¹ See Harrigan, op. cit., footnote 17.

when Motorola tried to transfer semiconductor technology to Texas from its joint venture plant in Sendai, Japan, the transfer was at best a partial success. According to a Motorola executive, “In Texas, we just could not convince our managers to step aside and let people named Seki or Nishihara run their operations for a year.”⁵²

Another illustrative example is the failed alliance between TRW and Japan’s Fujitsu because of the creation of a “double management system.”⁵³ This system, which required dual managerial approval, so encumbered operational decisionmaking that both companies terminated the alliance in frustration.

| Alliance Goals Change

Differing goals between MNEs have caused major conflicts regarding the future direction of an international strategic alliance. Demand changes, competitive pressures, or other factors may necessitate a shift in the alliance’s original objectives, which can change the relevance of the alliance to its members. This may create dissatisfaction and conflict among the partners, undermining the viability of the original arrangements. According to one observer:

As an owner’s dependence on its venture’s activity rises or declines, the balance of relative bargaining power between partners shifts, especially if resources one partner contributes to the joint venture become more or less valuable than the resources contributed by other partners.⁵⁴

A recent Japanese survey found, for example, that one of the reasons for the slowdown in alliance formation as well as increased rates of termination between Japanese and foreign MNEs was that the foreign partners had gained sufficient knowledge of the Japanese market to go it alone.⁵⁵

| Erosion of Competitive Position

Pooling strategic assets is a driving motivation of ISAs. However, such exchanges may have unintended, detrimental consequences on a partner’s long-term competitiveness.⁵⁶ Cooperation between MNEs involved in pre-competitive R&D alliances tends to be both simpler and more frequent because the gains from eventual sales are distant. However, when collaborative ventures near the marketing stage, “the incentive to cheat on a partner or to benefit at each other’s expense may become strong.”⁵⁷ Lack of trust and fear that the continued participation in an alliance will lead to the erosion of an MNE’s global competitive position is a critical reason for the short lifespan of some ISAs.

In some cases, while the partners’ overall strategic goals converge, their competitive positions in an industry do not. In its broad strategic alliance with Japan’s Mitsubishi Kasei, the U. S.-based Monsanto found that the joint venture company had diversified into a number of product lines that were in direct competition with those of its U.S. parent.⁵⁸ Another example where product collisions may produce an untenable balance between cooperation and competition is AT&T’s

⁵² David E. Sanger, “Costs May Be Too High for All-American Chips,” *The New York Times*, Jan. 1, 1992, sec. 1, p. 48.

⁵³ Perlmuter et al., op. cit., footnote 49, p. 150.

⁵⁴ Harrigan, op. cit., footnote 17, p. 41.

⁵⁵ For C-pie, the German pharmaceutical company, Bayer, recently took over the distribution channels that Takeda Chemical Industries had previously provided. See Gregory H. Feldberg, “Joint Ventures in Japan Suffering Wedding Blues,” *The Japan Economic Journal*, Aug. 25, 1990, pp. 1 and 7.

⁵⁶ For example, see David Lei and John W. Slocum, Jr., “Global Strategic Alliances: Payoffs and Pitfalls,” *Organizational Dynamics*, Winter 1991, pp. 44-62.

⁵⁷ Hergert et al., op. cit., footnote 6, p. 106.

⁵⁸ Feldberg, op. cit., footnote 55, p. 7.

alliance with Philips to market AT&T's digital telephone switching system in Europe. Philip's commitment to the alliance was clearly strained when AT&T teamed up with Italy's Olivetti, a major Philips competitor in the office machinery sector.

One example of an international strategic alliance that recognized early on the need to develop trust and to limit opportunistic behavior while strengthening the competitive position of both partners is Motorola's partnership with Toshiba. At the center of the alliance is an agreement that calls for Motorola to release its microprocessor technology incrementally as Toshiba increases Motorola's penetration in the Japanese semiconductor market.

Thus far, this chapter has examined the trends in and motivations for the growth in the number and scope of ISAs. It has also delineated how trade, investment, industrial, and regulatory policies of governments shape and condition both the formation and the content of these MNE alliances. Nevertheless, the discussion above highlights the inherent fragility of ISAs due to the various problems associated with underfinancing, managerial failures, and shifting and competing goals, among others. The final section addresses the implications that international strategic alliances may have for U.S.-based MNEs as well as for U.S. Government policy.

| Implications of ISAs for U.S. Firms and Government Policy

International strategic alliances are a relatively new and multifaceted phenomenon. The rapid expansion of ISAs since the early 1980s, as well as their high failure rate, makes any assessment of their implications for U.S.-based MNEs and policymaking difficult and tentative. To date, studies of ISAs have concentrated on the motivational factors influencing alliance formation.

There are few detailed, comparative industry case studies that focus on the vital question of how ISAs affect the competitiveness of U.S. firms in particular and the economy in general. In the final report of this assessment, OTA will address this question.

The following discussion raises some important issues. While there are no clear answers or prescriptions, ISAs have different and perhaps competing implications for U.S. firms and policymaking. On the one hand, ISAs are part of the transformation to a global economy. For MNEs, international strategic alliances have led to the further integration of the world economy and to the growing interdependence of nations. The consequences, as one MNE manager observed, are that 'national borders and corporate nationality are less significant in the increasingly globalized economy.'⁵⁹

On the other hand, ISAs raise many tough issues for U.S. policymakers intent on preserving high-wage jobs for Americans and keeping the nation competitive in many high-technology industries. This tension between the interests and needs of MNEs and national governments is inevitable, but ought not to be irreconcilable.

In some cases ISAs enable formerly U.S. domestic companies to become multinational enterprises. Particularly for small U.S. biotechnology and computer start-up companies, alliances with foreign MNEs can provide access to international financing, manufacturing technology, and distribution networks.

International strategic alliances permit MNEs to unbundle their portfolios of various assets and to transfer them to partners. Hence, in deciding what their core competencies are, U.S. MNEs are becoming less vertically integrated. They are allowing portions of their R&D, manufacturing, marketing, and other capabilities to be managed outside the firm through foreign alliances.

⁵⁹ Toyota White Paper, *op. cit.*, footnote 2, p. 4.

Alliances constitute a new MNE tool for mobilizing in response to high product development costs, reduced time between product generations, and the technological convergence occurring in many industries. As a result, ISAs create shifting, competing coalitions of MNEs, as opposed to competing firms. They allow MNEs to join together in specific products or markets, while retaining autonomy in others. One analyst observes that dominant U.S. MNEs, such as AT&T and IBM, “engage in a network of partnerships, playing a central role that allows them to enter/exit alliances according to their comparative advantages at the moment.”⁶⁰ Indeed, it is not unusual for MNEs to be partners in one consortia or alliance and competitors in others. IBM and Siemens, for example, have formed their own alliance and cooperate in JESSI in semiconductor development, but compete in mainframe sales. For survival, most MNEs can no longer afford not to be involved in international strategic alliances. Thus, ISAs may encourage, in some cases even necessitate, a follow-the-leader strategy.

The complex network of allied firms and competing coalitions of MNEs, engendered by ISAs, is restructuring the world economy. International strategic alliances are leading to further market concentration in high-technology industries, and, in some cases, to mergers and acquisitions, raising the potential of global oligopolistic markets and the creation of international cartels. Referring to the ability of MNEs involved in strategic alliances to set technical standards and thereby reshape existing industries globally, one observer suggests, “In the future, new frontiers

between industries will thus be the result of rules of the game defined within the framework of alliances between dominant firms of technology-based oligopolies.”⁶¹

Finally, there is a concern that ISAs may prove to be a one-way street leading to the transfer of key U.S. technologies to overseas competitors. Some analysts argue that multinational joint ventures are disproportionately transferring technology and other key assets from the United States to Japan.⁶² Although there has been little concrete evidence to support or disprove this view, the question nevertheless remains: Can U.S. firms learn to consistently create and manage international alliances in ways that guard against transferring key assets to ambitious partners, while enhancing their competitive advantage?

In reviewing U.S.-Japanese strategic alliances, various studies conclude that Japanese MNEs use strategic alliances more effectively because they make greater efforts to learn from their U.S. partners.⁶³ In part, this willingness and ability to absorb technology and other resources from alliances may stem from the greater experience Japanese firms have accumulated via their alliances with other companies in their own country. Indeed, some analysts believe that ‘collaborative research has become the defining feature of Japanese research practice and the *sine qua non* for competitiveness in many technology-intensive sectors.’⁶⁴

By contrast, some U.S. firms take a short-term perspective as a way of avoiding investments and regaining competitiveness with minimum effort. One study found that U.S. companies involved in ISAs with Japanese partners were more interested

⁶⁰ Ciborra, “Alliances as Learning Experiments,” op. cit., footnote 5, p. 53.

⁶¹ Charles-Albert Michalet, “Strategic Partnerships and the Changing Internationalization Process,” Mytelka (cd.), op. cit., footnote 1, p. 47.

⁶² Reich et al. op. cit., footnote 36, p. 79.

⁶³ Refer to, for example, Levy et al., op. cit., footnote 37; Hamel et al., op. cit., footnote 30, pp. 133-139; Lei and Slocum, Op. cit., footnote 46.

⁶⁴ Levy et al., op. cit., footnote 37, p. 120.

in reducing the costs and risks of entering new product lines or markets than in acquiring new skills.⁶⁵

While the view that international strategic alliances are weakening U.S. companies and thereby eroding national economic competitiveness has garnered much media attention, the reality may be different. There is evidence to suggest that more U.S. MNEs are effectively mastering ISAs, through the internalization and competitive deployment of assets transferred by foreign companies. An illustrative example of the benefits to be gained from a two-way street approach is the General Motors-Toyota NUMMI automotive alliance in the United States.

This collaborative venture between two leading industry rivals gave General Motors the

opportunity to learn first-hand about the Toyota Production System—a key manufacturing technology that is among Toyota’s foremost competitive assets. In exchange, Toyota, via NUMMI, had the opportunity to learn whether its manufacturing system, using unionized American workers and U.S. auto parts suppliers, could be transplanted successfully to the United States. This ISA is an undisputed success. The acclaim GM has received with its new Saturn series is a result, in part, of the company’s experience with Toyota’s labor, supplier, and just-in-time production practices. The confidence Toyota gained through NUMMI was a deciding factor in encouraging greater localization and the establishment of a manufacturing plant in Kentucky.

⁶⁵ Hamel et al., *op. cit.*, footnote 30, p. 134.