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Lines of Fracture, Webs of Cohesion: Economic Interconnection and Security Politics in Asia

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Lines of Fracture, Webs of Cohesion:  
Economic Interconnection and Security Politics in Asia

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This paper considers whether the expanding web of economic ties in Asia will mute national conflicts in the region, creating a more stable security environment, or whether those ties will define new lines of conflict, reinforcing or exacerbating security problems in the region. It is part of a broader story in which a steady redistribution of economic capabilities has been defining new arrangements of power and interest since well before the collapse of the Soviet Union.<sup>1</sup> The system of relations most hope will emerge is managed multilateralism, an adjusted version of what we are in now. In this case the security problem dwindles or vanishes. But the emerging distribution of economic capabilities also suggests regional rivalry, a twenty-first century form of mercantilism, where the drive for autarky would be fueled not by welfare concerns but by aggressive beggar-thy-neighbor economic strategies focused on accumulating state power at the expense of others. Security in that world would be a very different game from what we have become accustomed to over the past forty-five years. We fear such an era in which military threats to territory and society recede, only to be replaced by new more sophisticated ones; an era in which "security threat" no longer refers just to tanks and missiles but also to the control of markets, investment, and technology, an era that recycles old security vocabulary to fit new issues; market share, protectionism, relative gains from trade.<sup>2</sup>

East Asia, which stands out in today's world as the only region with a consistently high trade surplus and strong growth, encapsulates the same story of alternate security futures. A remarkable growth in trade and an extraordinary expansion of direct foreign investment within Asia are together restructuring and expanding interconnection among the region's companies and countries.<sup>3</sup> Will this astonishingly rapid development of economic interconnection lead to increased regional political stability by increasing the stakes that each country has in the continuation of peaceful relations? <sup>1</sup> Certainly, these expanding economic connections can weave webs of political cohesion. More pessimistically, they can also define new lines of confrontation and conflict. Economic rivalry can beget political confrontation. Those confrontations may be within Asia as, for example, mid-tech countries attempt to upgrade their position. Or political and economic coherence within Asia could drive or create rivalries and confrontations with the United States and Europe. Our objective in this paper is to show that the emerging structure of trade competition within the Asian region does in fact contain economic rivalries that can create or exacerbate lines of conflict .

There are two vantages from which to view expanded economic

interconnection and more rapid growth. One face looks on the mutual absolute gains from trade. This is the world in which each country will be a winner if only it has the nerve to make the adjustment that competition will compel. The possibilities of these gains will induce governments and the private firms who reap the profits to support expanded trade and avert wasteful, unprofitable, and inconvenient political conflicts. The second vantage looks on the relative gains that trade produce. Here the shift in position of different countries motivates action. Governments concerned by the growing economic and technological resources of a rival, the risks of dependency -- whether real or perceived -- may fixate on the possibility of a loss of position and power. Private sector actors seeking government support in their market rivalries against other national firms may highlight the national risks of technological dependency or relative loss of position. Since these two vantages look on the same economic process, the interpretation, the explanation of the significance of expanding trade and investment, is a political act. Neither government interests nor private interests, let alone the more amorphous national interests, are intrinsically defined. Rather they are created. It is that story which concerns us.

#### I. A Global Economy With A Regional Geography

There may be a global economy but it has a regional geography. Asia is one of three distinct, though interconnected regional economies, each with its own economic and technology base. The significance of the Asian regional story turns on its particular internal economic structure and distinct relation to the other regions.<sup>4</sup>

The economic world consists of three powerful trading groups: Asia, North America, and Europe.<sup>5</sup> These three groups together constitute close to 70 percent of the global GDP, with the U.S. and European Shares each at about a quarter of global GDP and Asia's share growing very rapidly.<sup>6</sup> Contrary to the common perception that trade is widely spread among the nations of these regions, a large part of trade takes place only within the regions. For example, inter-regional trade makes up only a small part of the GDP of the Asian and European regions. For America, foreign trade as a part of the GDP has grown in the last quarter century, but Canada and Mexico still are its first and third largest trade partners respectively.<sup>7</sup> Moreover, the percent of intra-regional trade grew in each of these three groups in the decade since 1980.<sup>8</sup>

Of course, trade is certainly not the only activity that connects the regions. Consider the often talked-about multinational corporations and financial institutions. Though these firms roam the globe, each has a home-- a country that necessarily shapes its character and both constrains and directs its choices. Multinational corporations may someday be able to act without national constraint, but not yet. Firm strategies and tactics are formed within particular institutional arrangements

and supply bases that at once constrain and direct their choices.<sup>9</sup> The regional base of multinational corporations is suggested by patterns of foreign direct investment (FDI). FDI grew much faster than world trade between 1983 and 1989, expanding at a rate of almost 30 percent compared to under 10 percent for world exports.<sup>10</sup> Roughly 80 percent of the flows during this period took place among the advanced industrialized countries, suggesting simple integration. But if we look closer, a regional pattern reemerges. As Sylvia Ostry notes, "a significant aspect of the 1980s FDI wave is what appears to be the emergence of regional strategies by the triad's MNCs, leading to the likely formation of investment blocs and thereby also hastening intra-regional trade integration. The clustering pattern which is emerging among the countries shows each region dominated by investment from a single triad member: the Americas by the United States; Asia by Japan; and Eastern Europe as well as selected African countries by the EC."<sup>11</sup> That is, the transnational corporate investment flows are themselves shaping three global regions.<sup>12</sup> In sum, though the three major regions are interconnected, each also commands an independent industrial and technological base, vast financial resources, and a developed "domestic" regional market capable of sustaining growth. This provides each region with the economic foundations for independent action. There may be a more global international economy, but that does not end the importance of place -- community, district, nation, or region. Economic strategies and responses to new competition are generated within particular places, rather than by world corporations that stand outside a home base.

That these groupings exist is not in dispute. What is in question is how they have been formed and how they will connect in the future. These groups have not been formed by politics, that is they are not the product of political decisions or restrictions. Rather they reflect the attraction, the gravity, of proximity.<sup>13</sup> The issue is whether these economic groupings, now that they exist, will become the base of regional politics. Again, the question is whether these trade groups which have been naturally emerging will become the basis of political blocs in which policy rivalries amplify and accentuate the natural economic tendencies. To avoid inappropriate argument, we must distinguish between economically driven trade groups, economic facts, and politically driven trade blocs, political facts.<sup>14</sup>

In Asia, the significance of regional trade is ever more important. Moreover, the foundations for its steady increase are firmly in place. Trade within Asia, the fastest growing of the three regions has since the second half of the 1980s likewise grown faster than trade with other regions. The major source of imports for each Asian economy is usually another Asian economy, most often Japan.<sup>15</sup> In the late 1980s for example Japan supplied on average about 25 percent of the NICS imports versus Americas 16-17 percent.<sup>16</sup> Indeed Japan supplied well over 50 percent of Korea's and Taiwan's total imports of technology products in the late 1980s, more than double the U.S. share of technology imports

to either. Conversely, these NICs have increased their share of Japan's imports of manufactured products, from 14 percent to 19 percent between 1985 and 1989. Over that time frame, increased intra-Asian trade has permitted the NICs to reduce their dependence on the U.S. market, with U.S.-bound exports falling from one-half to one-third of total exports.

Particular sector stories make even clearer the meaning of these general statistics. In textiles the share of exports from the five leading textile producers (China, Hong Kong, Japan, Korea, Taiwan) to themselves increased from 34 percent to 51 percent of total exports.<sup>17</sup> Note that part of this is accounted for by reexport out of the region, but to North America and Western Europe as a percentage exports stayed roughly stable. In electronics -- the expanding sector -- the story is even more dramatic. Based on a recalculation of trade figures by Paolo Guerrieri as part of his work on trade integration in Asia, it is clear that for Asia as a whole, the share of Asian trade that was intraregional increased substantially for both exports and imports from 1970 to 1991. In fact, the data suggests that there is a substantial reorganization of production within Asia while it maintains its classic position of exporting product out of the region. Imports in electronics within Asia rose from 26.4 percent to 57.7 percent in this period. The United States and Europe absorbed about 60 percent of exports, down from 70 percent in the early 1970s.<sup>18</sup> When we look at particular countries we find the same pattern. Consider Korea. In 1985 three quarters of Korea's exports went to North America and Europe but in 1992 the figure had dropped to 35 percent. Exports to Asia exclusive of Japan had risen from 12 percent to 27 percent. If as some anticipate, the populous country markets in Asia grow dramatically, Asia may become an even more important final market.<sup>19</sup>

Note that even as intra-Asian trade grows, Asia remains an export factory shipping to Europe and the United States. By contrast European American trade relations have been quite balanced in terms of exports, imports, and direct investment. The trade balance between the U.S. and Europe is very different from the trade relation between Asia and each of them. Both American and European trade with Asia is growing very rapidly, with Asian exceeding for each total trade with the other. This reflects the increase in the Asian regions share of world merchandise trade from 20-24 percent in the last decade.<sup>20</sup> But the Asian trade for both Europe and the United States is quite imbalanced. Each has a massive deficits with Asia, both massively import from Asia.

The same imbalance that exists in trade also exists in FDI. That is, Japan and the Asian market more generally is not as open to FDI as Europe and the U.S. The result of the imbalance in FDI will likely be an enduring imbalance in trade.<sup>21</sup> Let us consider why. FDI influences much more than simple ownership or corporate position in several markets. FDI powerfully drives trade as well. FDI is not just a substitute for trade in which cars or VCRs that were once produced in Japanese factories or American factories are now produced in European factories.

Rather, FDI opens up a wedge which often expands trade as subsystems and production equipment are shipped from the home country of investing corporations to the host country where production subsequently takes place. Equally, additional products not produced by the investing corporation in the host country are then still be imported from elsewhere. It is essential to note, as Dennis Encarnation has made clear, that majority controlled FDI is an impetus to exports from the home country of the investor.<sup>22</sup> However, certainly in Japan minority investment in a firm often involves a foreign firm buying into a source of product. Consider Ford's investment in Mazda as a means of obtaining models to fill out its product range in the United States.<sup>23</sup>

In sum, patterns of trade, finance, and FDI indicate that there are three significant regional economic groups, not a homogeneous global economy. Several questions concern us here. First, will the Asian region remain dependent on access to markets in Europe and the United States. Export dependence is declining for Japan, but growth in the region as a whole still seems linked to exports. It is not simply a question of whether there would be disruptions, for assuredly there would be. Rather it is crucially a question of whether a substitute for the demand for consumer durable products that is driving Asian industrialization could be found. And indeed how quickly and on what terms that market could be found. Clearly the rapid growth of the more populous countries provide those markets could make Asia ever more autonomous?

However, it is the character of the production reorganization in Asia that occurred while the region maintained for now its critical European/American export markets and the Asian security consequences of the reorganization that will concern us in the remainder of this paper. Let us look more closely for a moment. With the rise of the Japanese yen in the last half of the decade of the 1980s, Asian exports have been associated with an internal production reorganization. In the decade from 1979 to 1989, the deficit of Europe and the U.S. with Asia expanded.<sup>24</sup> This occurred despite a substantial increase in North America's exports to the region. "It seems that the exchange rate changes since late 1985 had a significant impact on the geographical distribution of trade surplus within Pacific Asian economies (i.e., from Japan to NIEs and NNIEs), but not necessarily the size of trade imbalances between the two regions."<sup>25</sup> Asian exports to Europe and America powerfully shaped the character of the region's industrial reorganization. The large outside market helped generate a pattern of internal regional specialization and trade.<sup>26</sup> Then of course all of Asia has a deficit with Japan, as Japanese components and subsystems are assembled throughout Asia into final product for export out of the region.<sup>27</sup> Japan then ends up with a surplus with virtually everyone, a global structural imbalance that expresses itself as a series of bilateral quarrels. The trade imbalances, both those directly between Japan and Europe/America, and indirectly through other Asian exporters, generate a more fundamental structural

problem that in our view makes the international trading system unstable and risks the objectives of multilateralism. In any case, the reorganization of production and trade within Asia is dramatic and significant.

In sum, patterns of trade, finance, and FDI indicate that three regional groups are emerging. The extensive trade between Asia and Europe and the United States suggests to some that Asia is well inserted into the global system or that its long term interests lie in a Pacific oriented North America. But such speculation is at best premature. There is, importantly, an asymmetry, an imbalance, between Asia and its counterparts, North America and Europe. That asymmetry is expressed both in a trade imbalance and an imbalance in FDI. That imbalance risks shaping the politics of economic relations and pressing the groups to define their interests in rival terms. Whether or not the three economic groups come to constitute rival political blocs will depend on the character of economic ties within each group and the politics of their economic relations. But even if the regions do not evolve into regional blocs, the emerging economic geography will powerfully influence each region's strategies to maintain competitive industries and develop the technologies necessary to support their growth.

## II. The Political Evolution of the Three Global Regions

The political and economic structure of each of the three regions is very different. Characterizing the arrangements in North America and Europe will help clarify some of the distinct features of the Asian dynamic.

In Europe, an economic community was created as much to accomplish a political purpose as to generate economic development: to integrate more closely Europe's rival communities and contain the then West Germany within an alliance of its neighbors. The bargain among European nations responded to the emergence of a bipolar world that left the once great, and now middle-sized, powers caught between two superpowers and dependent on one, the United States, for military security. Once created, the European Economic Community encouraged the radical expansion of trade among the member countries. De-colonization would certainly have led them to focus on their trade with each other in any case, but the clear reorientation that followed Britain's belated membership demonstrated clearly the economic consequences of the political bargain.

The fundamental bargains of the community were recast in the late 1980s. The recasting came in response to the shifting positions of the United States and Japan which sharply altered European choices as well as the severe political problems of slow growth and high unemployment that forced political leaders of the left and right to seek new strategies for economic development.<sup>28</sup> Europe's Single Market Act re-launched the European project. In the last several years, another redefinition of the political character of the Community has been forced by the collapse of the

Soviet Union, the need to economically and politically re-attach Central Europe to the West, and the reunification of Germany. The stories of creating the Single Market and the Maastricht Treaty have become intertwined, but they have separate logics and origins.

For now, the EC remains a bargain among nations, not a single political community. For our purposes it matters that the European Community was in part established as a solution to a security problem. That in turn has channeled the character of Europe's economic integration. Certainly, now the deep economic integration that resulted has itself come to frame political debates. In any case, Europe's preoccupation with its own internal reconstruction including the expensive preoccupation of re-integrating the East will leave its economic relations with its trading partners in an unsettling limbo for the foreseeable future.

North America, as a political and economic region, is largely defined by the United States. Neither Canada nor Mexico is large enough to directly alter the central economic or political choices of the United States. The North American Free Trade Agreement (NAFTA) was launched by the re-orientation of Mexican economic policy which has made possible a new economic relation to its northern neighbor. For America, the benefit of NAFTA lies not in economic opportunity (both the potential costs and gains are unclear) but in the stability it may bring to Mexico and therefore the region. For America, accommodating the shift in Mexican policy direction, the increased focus on regenerating the foundations of economic growth, and the redefinition of the domestic as well as objectives of international economic policy likewise makes the future of U.S. relations to its trade partners in Europe and Asia unclear and unsettling. But in the end, it is evident that the decisions about the political direction of North America will be American.

Asia's political and economic structure is not as easily characterized. There are no institutions of security that unite the region. Traditional national rivalries expressed through the conventional mechanisms of force and arms remain important. The dissolution of the Soviet Union will produce a new balance -- hopefully a stable one, but the cold war has not ended in Asia. Tensions may at times seem to be softening, but in fact the protagonists and lines of conflict are simply changing. Many of the major Asian players are redefining their security stance. The explosion of arms sales and the debate about North Korean nuclear position and, more muted, about Japanese nuclear position reflect these efforts at repositioning and redefinition. So, at a minimum Asia seems unlikely to produce a regime of regulated arms and institutionally negotiated economic conflicts.

Along with traditional security issues, the second Asian dynamic that vies to shape relations within the region is the web of connections created by expanding market ties, rapid growth, and a move toward more market-oriented economies. There are no institutions of economic cooperation that embed and institutionally entrench the expanding regional trade.<sup>29</sup> That is,

as noted in North America, NAFTA institutionally embeds the relations of three countries with the intent of expanding their economic connections. In Europe, the European Union emerged from a political objective and has in several steps structured and encouraged the expansion of trade. In Asia, by contrast, the underlying lines of economic and political competition and conflict are in flux.

### III. Economic Competition and Conflict in Asia

As noted earlier, one way of posing the issue is to ask whether the region will be woven so tightly together by ever-expanding common economic interests and stakes in that traditional conflicts will be contained. The economic interconnections are not just a set of cold trade and FDI numbers. Rather, as Dieter Ernst has shown, they are a vibrant set of networks for supply, production, distribution, and indeed innovation. Those expanding ties, as Miles Kahler notes, can create new national objectives (transform of state goals), open governments to influence by social groups whose interests are defined by peaceful trade and growing economic ties (political process), and link together economic and security issues (issue linkage).<sup>30</sup> But as much as the fact of this expanding web of economic ties, it is their character which matters.

And it is the character of that web of connections and networks in Asia that is in question. There are at least three ways to characterize an overall pattern of those webs, that is to provide a story to the connections. The several stories are not simply matters of different interpretation of facts but rather alternate speculations on the future trajectories of development in the region. Elements of each story are present in the others; the question is one of emphasis. Let us note the three stories. One story would emphasize that major multinational companies from Japan, the United States and Europe are creating an integrated region by weaving a web of networks and connections. Certainly U.S. and European electronics firms appear to treat Asia as a large assembly point in a global production network. Japanese MNCs appear to be creating a regional production node tailored for shipment to Japan under Japanese control and one way trade out of the region. In this initial story the principal markets are outside the region in the United States and Europe and secondarily in Japan.

A second story would emphasize the growth of China and the boom throughout the region that has created new endogenous sources of demand. It would point to the cross border investments and relationships of the firms from the NIEs, not just the major industrial countries, and highlight the part of small and middle sized firms in these investments and networks. It would underline that the Chinese linkages that span from the Mainland to the West Coast of North America appear to be a wholly new form of industrial organization in advanced country competition. Thus in this second story the markets are more

centered in Asia, the players more diverse, and the relationships within the region more balanced. Or put differently, the next years will be characterized by an enduring rivalry between high tech Japan on the one hand and the populous developing regions and mid tech countries.

The third story would focus on Japan and a Japan centered industrial hierarchy. It would differ from the first by arguing that for Asia the central strategic and dynamic fact has been the strategies of Japan. It would note that in the 1980s, in response to a rising yen, Japanese companies spread production across Asia to constrain costs. That generated a Japanese dominated export oriented production structure that runs major trade surpluses with Europe and the United States. Within the region, Japan runs trade surpluses with everyone else. It is too soon to judge how the 1980s model of Japanese domination will evolve. Some, such as... would contend that current troubles will mark the end of a brief era of Japanese influence. Others would argue that the present financial and political troubles will be resolved followed by a reemergence of Japanese industry as the dominant industrial powerhouse. In any case, in this essay we begin with and focus on the one line of possible development that is clearly articulated, that of a Japan centered Asia.

#### Asia's Japan-Centered Industrial Economy

Expanding investment and trade in the 1990s seemed to create a Japan-dominated market hierarchy. The American economic presence was certainly diminished if not marginalized, which reduces the choices for Japan's Asian rivals. Japanese pre-eminence in basic technologies, its investment throughout Asia in markets and production, and the importance of the Japanese domestic market all give Japan increasing economic influence within the region. One now conventional metaphor for Asia is a squad of flying geese, each positioned behind Japan in a form of sequential development as industrial learning spreads, technology spreads, and wages rise. The expanding trade and investment ties that this relationship implies are, in the view of many, also "likely to promote greater interdependence among the Asian economies and make the region a more cohesive entity in the world economy."<sup>31</sup> This cohesion would be one of dominance in which the other geese are held in position as suppliers to Japanese firms and final product assemblers for export using high value-added Japanese components, sub-systems and equipment.

Japanese domination could, alternatively, define national rivalries. Economic dependence on Japan could set the lines of conflict as its rivals in the region seek to build autonomous industrial and technological positions from which they could challenge Japan and break loose from their positions in that formation of flying geese. Efforts to break out of position in the squadron could pit country against country. That struggle for position in Asia might, then, define how the region as a whole interacts with the other principal regions, the United States and Europe.

Japan is for now the industrial center of the Asia region. Direct foreign investment over the last decade in Asia has constructed a Japan-centered industrial economy and pushed the United States out of its position of pre-eminence. By almost any significant measure, Japan, rather than the United States, is now the dominant economic player in Asia. Japan is the region's technology leader, its primary supplier of capital goods, its dominant exporter, its largest annual foreign direct investor and foreign aid supplier, and, increasingly, a vital market for imports (though the United States remains the largest single import market for Asian manufactures). Japan's own economy is decreasingly dependent on other world markets for growth. Japan's export dependency dropped from a high of 13.5 percent of GNP to just 9.5 percent in 1989, signaling the economy's reversion to its historical level of domestic demand-led growth. Despite this, Japan's trade with the rest of Asia in 1989 surpassed her trade with the United States, more than doubling since 1982 to over \$126 billion. By 1990, Japanese industry was investing about twice as much in Asia as was American industry. From 1984 to 1989, there was as much direct Japanese investment in Asia as in the previous thirty-three years, thus doubling the cumulative total. Japanese investment in the Asian NICs grew by about 50 percent per year, and by about 100 percent per year in the Association of Southeast Asian Nations (ASEAN) nations. Perhaps even more indicative, in several emerging Asian economies cumulative NIC direct investment in the second half of the 1980s surpassed the cumulative U.S. total (by as much as five times greater in Malaysia). Moreover, the use in Asia of the yen as a reserve currency is expanding sharply.

The result of such trade and investment trends is a network of component and production companies that make Asia an enormously attractive production location. This regional production network appears to be a hierarchy dominated by Japan, with its technology at the heart of an increasingly complementary relationship between Japan and its major Asian trading partners, but a complementary resting on the maintenance of Japanese dominance of the relationships. Japanese companies supply technology-intensive components, subsystems, parts, materials, and capital equipment to their affiliates, subcontractors, and independent producers in other Asian countries for assembly into products that are sold via export in third-country markets (primarily in the United States and other Asian countries). Conversely, non-affiliated, labor-intensive manufactures and affiliated low-tech parts and components flow back into Japan from other Asian producers. Summarizing these trends, MITI noted in 1987 the "growing tendency for Japanese industry, especially the electrical machinery industry, to view the Pacific region as a single market from which to pursue a global corporate strategy."

Patterns of Japanese investment in the region reflect this strategy. In auto-making and electronics, there appear to be two key elements. One is to spread subsystem assembly throughout Asia, while persuading each government to treat subsystems

originating in other Asian countries as being of "domestic origin." The second element is to keep tight control over the underlying component, machinery, and materials technologies by regulating their availability to independent Asian producers and keep advanced production at home. The two elements together would tend to deter too rapid a catch-up by independent producers to the competitive level of leading Japanese producers, while simultaneously developing Asia as a production base for Japanese exports to the United States and Europe to avoid bilateral trade frictions.

In sum, advanced products and most of the underlying technologies are thus dominated by Japan, with labor-intensive and standard technology production in the periphery of the region and often under the control of Japanese industry. As a result, there is resistance to these patterns by other Asian countries. In a sense, there is a competition of corporate and national development strategies. The Koreans seek to break their technological dependence with national technology programs implemented by the large chaebol firms. The Taiwanese, Thais, and Malaysians, among many others, tailor policy to their local circumstances in an attempt to reshape the existing regional division of labor. To some extent, all of the region's economies seek to emulate some of the developmental policies and business strategies responsible for Japan's success. Our instinct is that this developmental competition is likely to reinforce Asian autonomy even if it relaxes Japan's control over the division of labor.

#### Can Other Asian Economies Challenge the Japanese Industrial Position?

Efforts to wrench free from Japan's economic domination of the region will certainly generate political and industrial rivalries. But the Japanese position is deeply entrenched and will be hard to loosen. As we shall see here, no single one of the mid tech countries are on their own likely to be able to break loose. The lines of autonomous development require alliances, within Asia or with Europe and the U.S., or a broad development of income and demand across the region that generates technology markets.

Asian firms outside Japan find themselves in difficult market positions; they often play the role of a second tier supplier of standard product or the role of a low value-added final assembler. Even cases of apparent success, such as the entry by Samsung into the semiconductor memory business are suspect. The Japanese seem to have transferred technology to Korean partners simply in order to move away from profitless or low value-added market segments of the industry. They have retained the core technologies and the development position in next generation product that would prevent their partners from catching up and establishing position in more attractive market segments. Mastery of DRAM technology has won the Korean firms only the "bleeding edge" position of the semiconductor business and the opportunity to suffer huge losses. And both Korean firms

are still dependent on Japanese (and, for now, American) firms for equipment. The leading edge of the business is shifting to arenas such as systems level /chip level design and applications expertise where American firms and Japanese firms are strong.

To break loose from the Japanese production network, Asian firms outside Japan need to enter market high value-added segments of the industry that demand innovative technological content. They must do so without depending on Japanese competitors for core technologies, or at least assure that they can secure those elements from Japanese suppliers on a competitive basis. The access to sophisticated components on a timely and cost competitive basis is in fact a serious problem for many mid-tech Asian firms.<sup>32</sup> Many complain of being denied critical components in the volumes they require, or that their supply is unreasonably delayed. These firms must internalize vital technology critical to the value they would add, which means they certainly cannot give up value-added to their suppliers, or remain dependent on their competitors. It will not be easy for these firms to establish independent positions that would allow them to compete with the Japanese in high value-added segments. Let us consider why by reviewing two possible strategies for achieving this.

First, these firms might try to define dramatically new market segments. This has been the distinct strength of American firms in the past decade, keeping them in markets where they had seemingly lost position. In consumer electronics, for example, American firms are redefining the character of the industry and creating entire new markets with innovative products. The Apple Macintosh and, more recently, the Apple Newton are good examples. Control of product design, definition and marketing has often allowed American firms to force component and sub-system technology, no matter how sophisticated, to be sold as commodity products. Similarly, other American firms such as Motorola or Intel have created proprietary standards in a supposedly open system world that has allowed them to capture monopoly or semi-monopoly rents. Korean and Taiwanese firms do not have the technological or market skills and power to define and create such break-out products. Significantly, their home markets are neither large enough nor sophisticated enough to generate demand for such products. Their position in the American and Japanese market might suggest such products, but more likely their efforts to survive in low-margin, intensely competitive segments will distract them. The emerging Chinese market, with its blossoming demand for low price, standard products will likely further deflect their attention from breakthrough strategies. Dedicating themselves to the tempting Chinese market could simply entrench countries such as Korea and Taiwan in a mid-tech position.<sup>33</sup>

Alternatively, firms might produce differentiated, high quality products that permit them to capture a piece of new markets or a share of the high value end of established ones. The trouble is that Japanese firms control the production systems with components and subsystems that allow a sophisticated differentiation of products. They may not make these available

to other Asian firms. In fact, the new high-volume, high-technology development trajectory has been created and defined entirely by Japanese firms. Japanese firms intelligently and carefully manage their technology position to maximize what they control and minimize their potential dependence on outside sources. The vertically integrated character of major Japanese firms means that firms selling components and equipment are often competing with their clients in the final product markets. Given this industrial structure, Japanese firms behave as we might expect and as firms such as IBM or Boeing behave. They attempt to limit the transfer of critical technology to potential competitors or possible suppliers to competitors.

Any non-Japanese firm in the region will find it difficult to develop internally the technological resources either to define new markets or to differentiate products within an existing market. The home countries simply do not support the sheer range of technologies and the scale of investment that in fact differentiates the truly advanced from the mid-range countries. These firms must seek out alliances and partnerships. Japanese partnerships are not likely to cumulate into an independent position. Partnerships among mid-technology rivals such as Taiwan and Korea would be difficult to organize and would not, at least directly, permit a technology jump. Governmental and corporate alliances with America are a possibility; indeed America has long been the first or second largest investor in the region. But such alliances are difficult, for the moment, because of trade conflicts and the growing concern among American firms over transferring technology to competitors. Investments in American firms by mid-tech players is an option, of course, but in itself it will unlikely break these countries out of their trap.

#### Lines of Fracture: Confrontation of Development Strategies and the Case of Korea

The Korean case points to a possible confrontation of development strategies that can emerge within Asia as a response to Japanese technological and industrial prowess. Japan is not alone in Asia to give priority to industrial development and domestic technology development as a means to achieve national goals of security as well as wealth. But what happens when developmental strategies collide?

To sustain its industrial development, Korea must now break out of a well-understood trap. That effort may generate lines of regional fracture. Over the past couple of decades Korea has become a major industrial producer (it now has the 15th largest GNP in the world). The position has been built with heavy investment in basic industries such as steel (Korea has the two largest steel companies in the world) and scale production in consumer durables (Korea is the sixth largest producer of electronics--\$32.75 billion).<sup>34</sup> Korean firms have borrowed technology, effectively applying and improving what has been developed by more experienced companies in the advanced world.<sup>35</sup> The limits they confront now are: (1) risks of market closure in the advanced world; (2) rising wages that push up production

costs and compel them to compete by product and technology differentiation; and (3) limited sources of technology caused, first, by advanced firms restricting access as Korea closes the technology gap, and second, by turning to more guarded Japan firms as the American supply base weakens. Arguably, the Korean ability to sustain its development is influenced more and more directly by Japanese choices; its pursuit of stronger position in the economic world will more and more confront Japanese ambitions.

There are certainly strategies out of these traps, but the problems are real and the confrontation between developmental strategies not simply a stretch of the rhetorical imagination. The bulk of Korea's exports now go to the Asia-Pacific region. Exports to China have grown to nearly \$9 billion, but that market could, as Dennis Simon argues, produce a degree of technological complacency. The Japanese market is difficult, in part because in sectors such as steel, autos, and electronics the Koreans face world class competitors from Japan, and in part, as some argue, because Japanese trade restraints are now aimed more at the NICS than at the U.S. Indeed, Korea imports components and subsystems from Japan (26 percent of Korean imports) and exports final product assembled from them. The American market remains the critical outlet for manufactured goods. It is important not only in quantitative terms, but as one of the leading-edge markets that forces Korean to succeed at product differentiation and production quality. Firms such as Samsung and Goldstar have invested in America to assure market access, but there are strains, even tears, in the trading relation as a result of charges of dumping and intellectual piracy.

Korean wage costs have risen above Hong Kong and Mexico, though they certainly remain far below those of the advanced countries. Korean firms may seek some production capacity elsewhere in Asia.<sup>36</sup> But this further pressures Korea to seek ever-higher technology to create distinct capabilities. In that effort, Korea must struggle to keep ahead of its rivals in the push for higher value-added products, although there is some specialization within the region.<sup>37</sup> Korea may expand its investment in domestic technology development but for the moment such strategies will really serve to expand the capacity to absorb technology, not create fundamental product innovation. The Koreans face, as Dieter Ernst argues, a "successful technology catching up trap." The closer a country comes to the technology frontier, the more reluctant foreign companies will be to share their technology.<sup>38</sup> There are, of course, multiple forms of obtaining technology running from contract manufacturing through licensing, with the host country's capacity to absorb being the key to its success.<sup>39</sup> However, Korean firms must increasingly obtain their technology from the advanced countries, particularly from firms that are their rivals.

The increasing dependence on Japan is perhaps clearest in semiconductors, where ten years ago the United States supplied nearly all production equipment for Korea. Today, Japan supplies 75 percent of that equipment.<sup>40</sup> More generally, Japan is the

primary source of technology; that is, Japan is Korea's primary supply base. Korea has for nearly a decade sought to upgrade its relationship with the United States, to forge a technology alliance to decrease its dependence on Japan. American firms have been reluctant to support such initiatives, however; partly because of the attraction of Japanese technology and markets and, partly, because of the technology and dumping charges that loom over all American-Korean conversations. The Koreans complain that Japan only transfers technology that is well-established or that only partial technology is provided. That is hardly surprising since Japanese firms are competitors, and in turn Japanese firms express reluctance to do ventures with Korea because of the intensifying pressure for technology transfer. Simon argues the point very clearly:

"The valve of technology movement from Japan to Korea will, in all likelihood, open no faster than the specific needs of the Japanese economy -- which basically still leaves Korea caught up in a pattern of articulation with Japan that promises little in terms of supporting the high technology thrust of the government and local industry."<sup>41</sup>

Korea may well be able to extract itself from its dependence on Japan for markets and technology.

A combination of corporate technology alliances, domestic technology investments, government technology partnerships, and investment in foreign markets may suffice. But years of uneasy partnership and dependence almost certainly lie ahead. We may witness a confrontation of development strategies.

China and The Overseas Chinese Economy: Webs of Cohesion or Counterweight to Japan?

Someday, China may become the economic counterweight to Japan that generating a confrontation between the regions richest and highest tech power and its most populous and soon largest economy. But for now China's entry into international trade and the overseas Chinese community contributes to the web of economic interconnection in the region and the general expansion of markets that permits a focus on absolute gains from trade.

China's expanded participation in international trade since 1979 has augmented intra-regional trade, since its trade has been predominantly with neighbors such as Japan, Hong Kong and Singapore.<sup>42</sup> The special economic zones such as Guangdong have become major producers of manufactured goods. As a direct result, Hong Kong has taken on the role of entrepot for this production. In the decade from 1979 to 1988 the share of Chinese exports to Hong Kong being re-exported had jumped from roughly 1/3 to 3/4.<sup>43</sup> Such figures do not include goods that are simply transshipped, which means that the Hong Kong traders are adding value in a variety of forms. The Chinese demand for such Hong Kong services reflects both the increase in trade and the increase in manufactured trade. Manufactured goods require more extensive commercial services. Yet China's hard positions over

Hong Kong's future certainly suggest that politics of power and control rather than narrowly defined economic gains will set the lines of policy. Economics will remain a servant of the sword.

At the same time the overseas Chinese community is certainly a symbol of the economic interconnection that weaves webs of cohesion in the region. The overseas Chinese, some argue, have begun to rival the Japanese as traders and investors in Asia.<sup>44</sup> Difficult to quantify though it is, one estimate suggests that taken as a whole, this community that spreads across Asia would constitute a GNP of \$200 billion. What is significant here is that communities of small- and mid-sized firms, complemented by some intra-regional business groups, create a web throughout the region. The implication is that such a community, embedded as it is across Asia, is more tied to trade and profit within the region than to the development or power of any particular national component.

#### IV. How The Fate of American Technology Defines Many of the Possibilities of Japan's Rivals

The question of rivalries within Asia and between Asia and the U.S./Europe turns on access. First of course is the question of access to Asian markets, particularly Japanese, markets for American and European companies. The imbalance of trade between Asia and Europe/North America will incite conflicts as long as it continues. And those conflicts will be all the more intense as long as they are perceived to be the result of policy and not competitive advantage.

The second issue of access is technology. The Asian competitors of Japan must find an independent source of technology. They require a supply base of the parts, components, subsystems, materials, and equipment technologies that is not tied to their regional competitor. The supply base can be thought of as an infrastructure to any given firm, in the sense that it is external to the firm but broadly supports the firm's competitive position by helping to delimit the range of its possibilities in global markets. The supply base affects producers by enabling or deterring access to appropriate technologies in a timely fashion at a reasonable price. Any relative decline in the American technological position, and any subsequent weakness of its supply base (particularly in autos and electronics), makes the mid-tech Asian firms more dependent on their Japanese competitors.

##### The Erosion of the American Technology Supply Base

Without entering into the broad debate about the troubled American adjustment to international competition in the late 1970s or the real comeback in parts of electronics, we note simply that far more has been lost during the past decade than market position in specific sectors. The risk is that the supply base of the economy is unraveling: The components and parts technologies, materials and machinery sectors, and related

industrial skills necessary to sustain competitive manufacturing and development are eroding, or in some cases, are already gone. For example, competition in the past decade has devastated domestic producers of manufacturing machinery, including advanced industry segments such as computer-numerically controlled machine tools, robotics, and semiconductor photolithographic equipment. U.S. dependence on foreign supply of such machinery has increased dramatically since 1988, with imports rising from 14 to 40 percent of domestic consumption. The equipment dependence reflects a broad change in the manufacturing position of Japanese industry. Paolo Guerrieri has shown that in the broad category of the capital goods that embody production know-how across a wide range of industries that American industry has lost position in the past decades relative to their German and Japanese competitors.

Let us consider the case of electronics in more detail. U.S. producers are broadly dependent on foreign supply of a huge and growing list of essential component, materials, and machinery technologies.<sup>45</sup> Indeed, most U.S. computer firms can no longer produce consumer-like products (e.g., laptop and smaller PCs) without an alliance with Japanese firms to provide the necessary components, micro-design know-how, and relevant manufacturing skills--Compaq with Citizen Watch, Apple with Sony, Sun with Fujitsu and Toshiba, and Texas Instruments with Sharp. Even IBM is not immune from this trend. The U.S. General Services Administration recently noted that IBM's RISC System 6000 model 7013-540 computer has a foreign content in excess of 88 percent.

In electronics, existing dependencies appear slowly to be creating a cumulative knowledge gap that is profoundly disturbing : Even when they can procure technology inputs from abroad, U.S. firms no longer retain many of the design and manufacturing skills necessary to use them in a competitive fashion. For example, Japanese producers have painstakingly acquired, iteratively over several product generations, the precision mechanical design expertise embedded in products such as VCRs, or the precision machining know-how in auto-focus camcorders. A leading U.S. industrial laboratory recently reverse-engineered such products and concluded that the embedded precision mechanical skills probably no longer existed anywhere in the U.S.

Perhaps the most troubling development is the emergence of the new, high-volume high-technology development trajectory in Japan. In this case, the development and application of a broad range of sub-system, component, machinery and materials technologies are increasingly driven by high-volume commercial applications that boast leading-edge sophistication and extremely high quality at remarkably low costs.<sup>46</sup> The significance of this development for our story is two fold. First, America is further diminished as an alternative to Japanese component and production technology is further reduced. Second, the dependence of the NIEs on Japanese technology for the export of consumer durable products is augmented.

As Borrus argues, if we look across traditional market categories we find that the fast growing products share specific

characteristics.<sup>47</sup> Consider the following product set: lap-top, note-book and hand-held computers, optical disk mass storage systems, smartcards, portable faxes, copiers printers and electronic datebooks, portable and cellular telephones and pagers, camcorders, electronic still cameras, compact disc players, hand-held televisions, controllers for machine tools, robots and other industrial machinery, and embedded automotive systems like those for anti-skid braking, engine, transmission and suspension control, and navigation.

These fastest growing products are miniaturized systems built around embedded, often dedicated microprocessors (or microcontrollers) with embedded software for control and applications. They are multi-functional, combining computing functionality with communications, consumer with office, etc. By virtue of their size, such products are increasingly portable. They are also networkable, that is, their capabilities are significantly enhanced by being networked together into larger information systems.

The most distinguishing characteristic of these products, however, is that they comprise sophisticated, industrially significant technologies, that are manufactured in volumes and at costs traditionally associated with consumer demand. Taken together, these products define a new electronics industry segment, being generated in Japan with only limited participation by firms outside Japanese industry -- high volume digital electronics. Because of the push to produce high performance at the lowest possible price points, this high-volume electronics industry is beginning to drive the development, costs, quality and manufacture of technological inputs critical to all electronics, and to industries like automotive being transformed by the application of electronics. At stake is a breathtaking range of essential technologies from semiconductors and storage devices to packaging, optics, interfaces, machinery and materials.

The new product set contains, for example, a wealth of silicon chip technology, ranging from memory and microprocessors to charge-coupled devices (CCDs). These products have been a principal factor behind the drive for Japanese semiconductor dominance. Over the past decade, emerging high volume digital products have grown from 5 percent to over 45 percent of Japanese electronics production, accounting for virtually all of the growth in domestic Japanese consumption of ICs.<sup>48</sup> With this segment continuing to expand at 22-24 percent per year, more than twice as fast as the approximate 10 percent per year average growth rate of the electronics industry as a whole, high-volume electronics will constitute an ever-larger part of the electronics industry of the next century. Its impact on the component technologies that all electronics systems share is just beginning to be felt.

Aside from silicon-integrated circuits, optoelectronic components like laser diodes and detectors, LCD shutters, scanners, and filters, are also present in the new high-volume products. For example, the semiconductor lasers that, at

different wavelengths, will become the heart of optical communications systems, are currently produced in volumes of millions per month, largely for compact disk applications. Displays and other computer interface technologies provide yet another significant overlap between high-volume and other electronics markets.<sup>49</sup> Miniature televisions from Japan are the leading edge users of the flat-panel, active matrix, liquid crystal display technology that is vital to the future of the computer industry. Similarly, map navigation systems already appearing in domestic Japanese automobiles are the functional equivalent of military digital map generators.

Optical storage was refined for consumer compact and laser discs, but is beginning to spread into industrial data applications, as are the latest miniature commercial power technologies like re-chargeable battery packs for portable phones and computers. High-volume requirements are also driving a wealth of imaginative packaging technologies that range from tape automated bonding and chip-on-board to multi-chip modules. Producers of hand-held LCD televisions already use packaging technology as sophisticated as that being used in advanced U.S. defense systems. The new electronics products are driving similar innovations in precision mechanical and ferromagnetic components like motors, gears and switch assemblies, and recording heads, transformers and magnets. Ball bearings used in video cameras, for example, are now of equal precision to those required for missile guidance systems.

Successful production for high-volume markets also requires mastery of several different kinds of highly responsive product development, materials and manufacturing skills. For example, Japanese consumer producers like Matsushita now supply the most advanced manufacturing equipment for IC board-insertion, a capability essential for most electronic systems production. Japanese materials suppliers like Kyocera have become virtually the sole suppliers of ceramics and other advanced materials for mass market applications. Similarly, because elaborate repair and maintenance is not cost-effective in consumer markets, high-volume producers deliver product reliability levels that usually surpass industrial products at far less cost. Indeed, the most advanced high-volume electronics suppliers do their market research by introducing products and fine-tuning product configurations and volumes to actual demand.<sup>50</sup> They are masters of the new manufacturing -- utilizing an extremely short and efficient development cycle, and flexible, low-inventory manufacturing.

This American decline poses very difficult problems for Asian firms outside Japan. It radically increases their dependence on Japan because an alternate source of technology is often eliminated. As a result of America's weak supply base, these Asian firms lose bargaining position with Japan.

Access: The Architecture of Supply and Japanese Markets  
The declining competitive position of American firms is all the more important because of the difference in the architecture

(or structure) of the American and Japanese supply bases. The architecture of the supply base powerfully influences technology access, timeliness, and cost. The architecture of the American supply base is much more open than that of Japan, by almost any definition. Easier technology access for the companies in Asia makes it all the easier to build domestic technology competencies and challenge Japan.

An industry that is significantly dependent on a foreign supply base (i.e., on imports of key inputs) will not be overly constrained wherever markets are open and competitive, and foreign suppliers are numerous, geographically dispersed, and not in the same lines of business as their customers. This was essentially the case for European electronics systems producers from the 1950s to the 1980s. They relied primarily on U.S. components suppliers, who were themselves competitive, numerous, located in both Europe and the United States, usually not in competition with their customers, and accessible through relatively open markets for trade and investment. Indeed, it was not until the competitive problems of U.S. chip producers threatened a much more constraining architecture of supply for Europe in the 1980s that European companies moved at great cost to re-create a locally controlled supply base.

By contrast, producers should be concerned where the architecture of supply is characterized by closed markets, oligopolistic and geographic concentration, and, especially, wherever such concentrated suppliers compete directly with their customers. When suppliers have the ability to exercise market power or to act in concert to control technology flows, or when markets and technologies are not accessible because of trade protection, then the architecture of supply can significantly constrain competitive adjustment to the disadvantage of domestic industry. Such an architecture is emerging today in Asia, and this is creating problems for American producers. A small number of foreign suppliers, principally Japanese, are more and more driving the development, costs, quality, and manufacture of the technological inputs critical to all manufacturers. Most of these suppliers of electronic components, manufacturing equipment, and subsystems are also competitors in a range of electronics systems from TVs and portable phones to computers. These firms are then increasingly in a position to dictate the degree of access U.S. and certainly Asian mid-tech producers have to essential technologies, the speed at which they can bring new products incorporating them to market, and the price they pay for the privilege.

Perhaps, some may argue, this is an interesting theoretical concern. But is it in fact a serious problem? For our purposes there are two answers. First, Asian governments and companies believe there is a problem of access to Japanese technology, and, whether they are correct or not, may act on that belief. Second, there may in fact be a problem. The evidence of a number of studies suggests that access to Japanese components and sub-system products as well as underlying technology is in fact difficult. Given the industrial structure of Japan, this is not

surprising.<sup>51</sup>

Along with competitive technologies, Asian firms outside Japan require access to sophisticated markets. For mid-tech rivals to become high technology players they need not just markets, but markets that will pay for cutting-edge products. There are three such markets: Europe, the United States and Japan. Expansion of demand in China, no matter how great, is not an alternative in the short run. For at least a while, China's market will largely demand only mid-tech, standard products. Recall that a notebook computer (of whatever sophistication) that is two years behind the leader is a mid-tech product; an automobile that uses imported components for transmission, active suspension, anti-lock brakes and the like is similarly a mid-tech assembly product. The exception may be in military goods, but as we have argued elsewhere, military demand no longer drives technology innovation. Rather, increasingly high-volume civilian technologies are pushing the technological frontier.<sup>52</sup>

The European and American markets will be essential to these Asian firms trying to establish independent position. Each region, however, is increasingly restricting access. As is widely observed, the mid-tech NICs cannot count on rapidly expanding markets or steadily increasing market shares in either region. In any case, the Japanese market, the most proximate, is in many domains the most sophisticated. Access to that market will prove crucial to higher tech ambitions. But that market has been difficult to access, particularly in cutting edge segments where the Japanese compete. Efforts to access to Japanese technology will likely generate one set of tensions. Efforts to enter the Japanese market will generate another.

The Japanese market will become increasingly central to the region's pattern growth and dependence. The issue is not strictly whether the level of manufactured imports will rise. It will. The question is not, then, whether Korean or Taiwanese products will be sold, but how rapidly demand will expand. Even more important is the question of whether the NIE firms will be pushed into the more standard commodity-like, lower end of the market, or whether they can break into higher end segments. Fukasaku is pessimistic for simply economic reasons: ". . . Japan is unlikely to become the major absorber of manufactured exports from other Pacific Asian economies, partly because of the size of her economy (it is less than half the American counterpart), and partly because Japan will continue to keep technological edges over her neighboring competitors and remain cost-competitive in human-capital and technology intensive products for many years to come."<sup>53</sup>

Politically, there is a more difficult matter: Will the Japanese control their markets (leaving ambiguous whether the control is a natural product of corporate strategy or an intentional policy of government) to prevent NIE firms from leveraging themselves into a position where they could independently compete with Japan? Technology management is one mechanism for doing this. Indigenous development of technology is a central commitment of government and companies in Japan can not

be dismissed as the warnings of fear mongers. Richard Samuels, the noted scholar of Japanese political economy who has long been critical of exaggerated views of Japan, has traced the broad Japanese drive toward technology indigenization and the policies that involve protection, diffusion, and domestic promotion. Market management is another. For our concern--the implications of industrial competition for security politics--the perception of political intention in the management of access to technology and markets may be as important as the reality.

Japan may in fact be wide open and the market available to all comers. This is not, though, the popular perception. In trade, for example, Japan still tends not to import in sectors in which it exports and, despite progress, its overall level of manufactures imports is still quite low. Although manufactures have doubled to account for about 50 percent of Japan's imports, that is still far below the level of the United States and Germany, each with 75-80 percent. Moreover, the recent upsurge in imports can be seen as much as a regional adjustment of Japanese industry to the yen shock as an opening of the Japanese economy. Quantitative studies of Japanese imports suggest that in technology-intensive sectors, imports are tied to Japanese firms, a finding backed up by MITI surveys indicating that perhaps half of manufactured imports reflect intra-firm transfers between Japanese companies and their affiliates in foreign countries. Comparing equipment purchases by subsidiaries of Japanese, European, and American firms in Australia is likewise revealing. European and American firms buy equipment widely on global markets; Japanese firms buy almost exclusively from Japanese suppliers, returning to Japan for equipment. The econometric evidence will not settle this. Saxonhouse would argue that the Japanese pattern is not distinct. Belassa has argued that the Saxonhouse methodology is wrong and that the pattern is distinct. Some point to rising levels of manufactured imports. But Ed Lincoln, formerly head of the Japan Economic Institute, argues that the bulk of such imports into Japan are very low-value, initial processing activities.

Nor is Japan fully open to direct foreign investment. Though Japan is an increasingly prolific foreign investor, it has not permitted comparable foreign ownership of its domestic economy. Restrictions on takeovers, while serving the important domestic purpose of maintaining social peace and order, are still enormous barriers to foreign investment. Though direct investment into Japan has increased substantially over the past decade, by the late 1980s foreign direct investment in manufacturing accounted for less than 1 percent of Japanese manufacturing sales, employment, and assets. The comparable figures for the United States and Germany were 7-10 percent and 13-18 percent, respectively.

For the United States, the asymmetry of access to technology, markets and investment opportunities is substantial whatever the mix of causes--policy, market structure, business practice, or consumer preference. For the Asian NIEs, let us simply say that access is difficult and Japanese markets and

technology are unlikely to play the same role in their development as American markets and technology once did (or still do, depending on one's perception). Asymmetrical access maintains a strategic advantage for Japanese firms. Even foreign firms with technology or product advantage still enter licensing arrangements they would not consider either in the American or European market. Where once the government forced technology licensing (and foreigners accepted it because they perceived Japan as weak), now financial muscle and market strength ensure a flow of foreign technology into Japan. The insulated domestic market permits firms to compete intensely among themselves, honing product and processes, and then pour exports onto foreign markets. Other countries are then forced to absorb the excess capacity that Japan's market-share strategies generate. These two strategies--asymmetrical access and overbuilding of capacity--help preclude or at least slow the independent technology development of technology by foreign producers. This is a serious handicap for American and European firms. It may be decisive for the firms from the Asian NIEs. This strategic advantage can be demonstrated both in particular sectors and across industries.<sup>54</sup>

#### Summary

Asia in the 1980s began to look ever more like a Japan-centered industrial hierarchy with an export focus on Europe and North America. The Japanese position will not be easy to break. Asian rivals may find themselves acquiescing to that arrangement by pursuing expanding mid-tech markets. If this is the case, conflict can certainly be averted, at least with Japan. If, however, Asian rivals seek to challenge Japan, they will have to launch programs of domestic investment and efforts to assure technology sources and market access. This will create new lines of fracture and confrontation in the region.

#### V. What Conclusion: Lines of Fracture? Webs of Cohesion?

We return, finally, to the guiding question of this paper: what is the consequence of expanded economic interconnection in Asia for regional security? Will the focus be on relative gains. In that case rivalries over economic position will reinforce existing cleavages and define new lines of political fracture and confrontation? Governments concerned by the growing economic and technological resources of a rival, the risks of dependency -- whether real or perceived -- may fixate on the possibility of a loss of position and power. Private sector actors seeking government support in their market rivalries against other national firms may highlight the national risks of technological dependency or relative loss of position.

Examining the dynamics of the Japan-centered industrial hierarchy in Asia certainly reveals how easily economic conflicts could sharpen in the near future. Considering the economic shifts in the region has been the principal task of this paper,

but as we try to guess at the consequences, we turned to ask how Asian rivals may respond; that is, what strategies they may choose to create their own economic futures. From our discussion that began with the Japanese centered industrial hierarchy, there appear to be three lines of potential conflict. First, there will be efforts by the middle power mid tech countries such as Korea to break loose from their position in the hierarchy and move toward higher value added products built on more advanced technology. This would be the rivalry of developmental strategies. If those developmental strategies involve a broad Asian drive toward technology indigenization, that is substitution of national for European or American products, then such strategies will also involve inter-regional rivalries and conflicts over a wide range of issues. Second, China or possibly other populous countries provide an alternate and competing line of development in Asia. That would make industrial competition a means of security competition within Asia. Third, whatever the arrangements within Asia, there may be conflicts between Asia and the other two industrial regions. The core issues of regional conflicts are likely to be market access, particularly to Japanese markets, and secondarily access to Japanese technology.

Alternatively, can the possibilities of absolute gains bridge existing conflicts or at least constrain them? Do the market connections -- in the form of trade, investment, subcontracting, technology exchange, product development and the like -- represent webs of cohesion? Three major developments would push in the direction of cohesion, would set the terms of debate firmly about mutual advantage. First, the emergence of markets for sophisticated and high income products and production equipment would reduce dependence on Japanese, European, and American markets. It is not just the size of the markets, but the composition of demand. As argued above markets for high end goods are required to drive advancing production and product technology. As development continues and incomes grow in Asia, alternate markets will emerge. In fact, expanding Asian markets might have a second result. If these markets become large enough, they may open sufficiently to permit balanced regional trade, that is to absorb exports of American and European production and production services. This would almost certainly require a regional opening of markets. Third, the drive by the mid tech and populous countries to match Japanese technology may encourage both intra-Asian alliances and mutually advantageous ties to America and Europe.

We seem no closer to an answer to our question of whether expanding economic interconnection will produce lines of fracture or webs of cohesion. The situation is inherently very ambiguous. To suggest the ambiguity of the objective situation, we very cursorily sketched the position and choices of two of the actors; Korea and China, including the overseas Chinese community. Korea overtly wishes to break loose from its position in the industrial hierarchy but is deeply woven into the fabric of the Asian industrial production machinery. China's market-oriented policies represent a decision to drive development by

becoming entangled in the production web but alternately it represents a true rival to Japan. Consequently whether China's visions of its security will be influenced by that involvement in the regions production is unclear.

We find similar ambiguity when we ask whether the Asian growth powerhouse will participate in the creation of a world of managed multilateralism that binds together the three economic groups, or will it contribute to a regional rivalry of competing political blocs. Closure of the critical European and American markets or further sharp restriction of these markets would be part of and provoke regional confrontations. At least in the short run, within Asia, it would make everyone more dependent on Japan.

There can be no clear answers, since no analysis of the economic dynamics alone can answer these questions. The consequences of the economic situation are open to be defined by politics.<sup>55</sup> The situation is inherently ambiguous; more than one line of political development can be foreseen. But what kind of attempt, however qualified, can we make to translate this analysis of the economic situation into an estimate of the politics of security in the Asian region? There are two approaches to sort out a politics, a strategic story, from the ambiguous strategic options of the regions.

The first approach, rooted in political economy, might begin with an effort to gauge how intra-regional economic competition and strategies of confrontation or accommodation would influence the interests of the producer groups and the state elites within each of the major players. We would then need, for example, to specify in several countries both the place of local producers and multi-nationals as well as their relation to the state in order to understand how interests would be defined politically and approximate an aggregation of those interests. Predictions of policy or the political dynamics within the region would remain difficult, if not impossible. Each analytic step is fraught with uncertainty. Consequently, this first approach do add little to clarify ambiguous conclusions our evaluation of the economic situation provides.

There is a second approach. That is, simply, to observe from the European case that security politics determined the meaning of market connections. The European Community forged an intimately bound market with expanded political connections precisely because the several governments faced common threats. Besides the Soviet Union on the frontier, or Germany within, the great European powers had to face the fact that they had become middle-sized players squeezed between two super-powers. <sup>56</sup> A century, Bismark gave political form to a loose band of principalities and political meaning to market connections among them, forcing the creation of a "single market," by manipulating and creating external threat. The implication is that in an Asia politically divided, economic connections are perhaps more likely to reinforce lines of fracture than heal them.

In sum, our analysis of the economic connections that define new political possibilities of cohesion in Asia tells us nothing

about whether those possibilities will be captured or whether lines of fracture will be created or reinforced. But we must understand that the relations within Asia and between the Asian region the other regions intimately connected. Critically, the absolute gains to the Asian nations from development, the joint advance of the several economies in global marketplace, has hinged centrally on the ability to export outside the region. Those absolute gains have muted struggles over relative position. But remove the external markets of Europe and America and the joint gains may evaporate, turning skirmishes about relative position in the Asian growth game into more serious conflict. For Europe and America, the willingness to maintain open markets will turn on whether they sense that gains from trade are balanced among the regions. That sense will not come from the particular levels of tariffs but from substantive outcomes. Perhaps a regime of "market access" that will be of political importance. Open Asian and Japanese markets, technological exchange, and investment with Europe and America will certainly be essential to avoid mercantilistic conflict that converts the three regional economic groups into rival political blocs. Such an open market access regime for regions may prove just as essential to intra-Asian stability.

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1 See Sandholtz, et al. *The Highest Stakes: The Economic Foundations of the Next Security System*, A BRIE Project, (New York: Oxford University Press, 1992).

2 *San Francisco Chronicle*, April 27, 1993, p. 6 "CIA warns U.S. FIRMS of French Spying". Our concern has been that the extensive role of governments in directly shaping trade outcomes combined with the intellectual justifications for such roles which suggest that the stakes in particular trade conflicts are entire trajectories of economic development, and the limits of the existing approaches to trade conflict would push us toward the dangerous third outcome in which the central interests of the major countries are defined in terms of winners and losers.

3 Kiichiro Fukasaku "Economic Regionalisation and Intra-Industry Trade: Pacific Asian Perspectives," OECD Development Centre, Paris, 10 June 1991. The paper cites the Asian Development Bank Outlook of 1990.

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4 Winfried Ruigrok and Rob van Tulder, "The Ideology of Interdependence," unpublished dissertation, University of Amsterdam, 1993.

5 This argument is widely disputed. For a view parallel to ours, see Lawrence B. Krause, "Trade Policy in the 1990s: Good-bye Bipolarity, Hello Regions," *World Today*, Vol. 46, No. 5 (Royal Institute of International Affairs, May 1990). For skeptical views, see Gerald Segal, *Rethinking the Pacific* (Oxford: Clarendon Press, 1990), and Jeffrey Schott, "Is the World Developing into Regional Trading Blocs?" (Washington, D.C.: Institute for International Economics, 1989). In our view, the difference is largely one of vocabulary.

6 In 1987, Japan alone accounted for 12.4 per cent of global

GDP, and Japan plus the East Asian NICs accounted for 15.8 per cent. (These figures are based on data in Bureau d'Information et Prevision Economique, Europe in 1992 (Paris: BIPE, October, 1987).

7 Gerard Lafay and Colette Herzog with Loukas Stemitsiotis and Deniz Unal, *Commerce International: La Fin Des Avantages Acquis*, (Paris: Economica, 1989).

8 Calculations by Dieter Ernst on the basis of figures provided in the UN Monthly Bulletin of Statistics Vol. XLV No. 6, June 1991.

9 See for example "Everybody's Favorite Monsters," a survey of Multinational corporations, in *The Economist*, March 27, 1993.

10 "Foreign Direct Investment in East Asia," prepared by Sylvia Ostry for a joint research project designed by Sylvia Ostry, Center for International Studies, University of Toronto, and the Berkeley Roundtable on the International Economy, 1992.

11 Ibid.

12 See "Everybody's Favorite Monsters," op. cit.

13 *Regionalism and Rivalry: Japan and the United States in Pacific Asia*, Jeffrey Frankel and Miles Kahler, eds., NBER (Chicago: University of Chicago Press, 1993). See section 1 and the work of Jeffrey Frankel in particular.

14 Note that the view here is consistent with the position of Frankel. His question is whether the groups have been formed by politics, and this argument reverses the question to ask whether these economic developments will become the basis of new significant facts.

15 "The Rising Tide: Japan in Asia," special Supplement, *Japan Economic Journal*, 1990, p.4. See also Takashi Inoguchi, "Shaping and Sharing Pacific Dynamism," *The Annals of the American Academy of Political and Social Science*, Vol. 505, September 1989.

16 Yung Chul Park and Won Am Park, "Changing Japanese Trade Patterns and the East Asian NICs," (Paper prepared for National Bureau for Economic Research (NBER) Conference, October 19-20, 1992).

17 GATT Database, Textile Working Group, 1991.

18 Paolo Guerrieri, data prepared for this paper. See Guerrieri and Milana, "Technological and Trade Competition in High-Tech Products," BRIE Working Paper #54, (Berkeley, California: BRIE 1991).

19 Dieter Ernst, "Export Performance and Technological Capabilities - the Korean Electronics Industry Under Pressure" in Ernst and Mytelka, eds., *Catching Up, Keeping Up, and Getting Ahead: The Korean Model Under Pressure*, (Paris: OECD forthcoming). Based on figures provided by the Electronics Industry Association of Korea (EIAK).

20 Fukasaku, op.cit. p. 6.

21 A decade ago the United States was the principal source of FDI in the world. Today, after Japan (principally) and Europe (secondarily) have spent the 1980s entrenching themselves in the American market, the United States has become the most prominent recipient country for FDI. This in part mirrors America's huge trade deficits. Japan's investment mirrors its large and

entrenched trade surplus. The United States is now no longer a country whose companies use their technology and organizational advantages to implant themselves in host markets, but a host country itself. Sylvia Ostry, "Foreign Direct Investment in East Asia".

22 See Dennis Encarnation, *Rivals Beyond Trade: America versus Japan in Industrial Policy, 1925-1975* (Tokyo: Charles E. Tuttle, 1982).

23 The significant role of FDI as a source of, rather than substitute for, trade creates several real policy problems. First, it undermines the classic role of exchange rates in creating trade equilibrium. An enduring national trade surplus should induce a currency appreciation. That appreciation should, according to the classical model, create a new equilibrium by raising the prices of exports and reducing those of imports. However, that appreciation also increases the value of funds to buy foreign assets, or, put differently, reduces the prices of those foreign assets to the surplus country. The resulting investment can contribute to the trade imbalance rather than resolve it. This is particularly important, since there are similar imbalances in FDI in Asia, Europe, and North America. Consider Japan. Though FDI in Japan has increased substantially over the past decade, by the late 1980s foreign direct investment in manufacturing accounted for less than 1 percent of Japanese manufacturing sales, employment, and assets. The comparable figures for the United States and Germany were 7-10 percent and 13-18 percent, respectively. Second, FDI's promise to increase access to technology and diminish risks of technological dependence may be hollow. FDI may, in fact, lock countries into a subordinated (the French might say subjugated) position.

24 Ibid.

25 *op. cit.* p. 11.

26 Fukasaku *op. cit.* p. 4.

27 Japan's trade with the rest of Asia in 1989 surpassed her trade with the United States, more than doubling since 1982 to over \$126 billion: "The Rising Tide: Japan in Asia," *op. cit.*, p. 4.

28 See Wayne Sandholtz and John Zysman "Recasting the European Bargain" in *The Highest Stakes* *op. cit.*

29 Let us consider the recent developments considered in the series of conferences producing this volume, beginning with Russia. As the Soviet Army is disbanded, its crack Russian troops are being withdrawn from the Ukraine, though their equipment, claimed by the new Ukrainian government, remains. Those troops cannot be re-equipped by Russia without violating Soviet agreements being honored by the new Commonwealth. Since the West is now a source of technology and money--actual and anticipated--for all the Republics, violating those agreements in the coming years is not likely. At the same time, ethnic conflicts in Russia seem to undermine the organization and utility of the army. The many reasons to imagine that the Russians will try to maintain or re-constitute an armed force include bargains between Yeltsin (or any political leader) and

the army leadership and perceptions of threats from chaos within as well challenges from other Republics or even China. One can only imagine, as some Soviet analysts do, that the military reconstruction will take place East of the Urals. East of the Urals is, of course, the Chinese border. In the meantime, China seems to be beginning a major modernization of its forces. Watching the Gulf War, the Chinese may have concluded that the massive manpower of the People's Army doesn't matter unless it is back and supported by technically modern machines of war. China is also now making claims to the parts of the South China Seas and the Kuril Islands that are supposedly rich in oil. Japan, meanwhile, has lifted of the formal constraints on the role of its self-defense forces. Japan can now play a peace-keeping role under U.N. leadership outside the immediate Japanese theatre and sea lanes that approach it. But how do we look on this development? Is this the first step down the road back to Japanese sovereignty and true, great power status? Or is it simply what it is stated to be--a limited expansion of Japan's participation in UN sponsored peacekeeping? The constitutional limit of 1 percent of GNP spent on defence was in fact passed some time ago. Japan already has an extraordinarily strong conventional armed force; even in its constrained form it is one of the largest in the world. North and South Korea, finally, both flirt with unification while the nuclear intents of the North become clear. A nuclear North Korea would, of course, be very dangerous; but a non-nuclear, unified Korea could challenge Japan, and form alliances within and out of the region. Looming above all these developments, is the simple fact that arms purchases throughout the rest of the region have jumped by 20 percent a year. The drop in Western and Soviet defense needs will create a gigantic discount market for arms, making this a tempting moment for modernization and expansion of armies. This provides the makings for intra-Asian arms races and renewed rivalries and conflicts. Arguably, the American navy provides a buffer and dampener that quiets these conflicts, but whether the United States will continue its role in the region, or continue it in a sufficiently convincing way, is unclear.

30 Miles Kahler, "Strategic Uses of Economic Interdependence," prepared for the Institute on Global Conflict and Cooperation Conference on Pacific Security Relations after the Cold War (Hong Kong, June 1992).

31 op. cit. Asian Development Bank.

32 Takashi Hikino and Alice H. Amsden "Staying Behind, Stumbling Back, Sneaking Up, Soaring Ahead: Late Industrialization in Historical Perspective" in William J. Baumol, Richard R. Nelson, and Edward W. Wolff eds. *International Convergence of Productivity, With Some Evidence From History* (New York: Oxford University Press, 1993).

33 Hikino and Amsden op.cit.

34 Simon, op. cit.

35 Hikino and Amsden op. cit. Dec. 1992.

36 Ernst p. 3.

37 Simon, op. cit.

38 Ernst op. cit.

39 The absorption capacity must be differentiated. The distinctions Ernst and others make among investment capabilities, production capabilities, minor change capabilities, marketing capabilities, linkage capabilities, and major change capabilities are useful.

40 Simon, op. cit., p. 10.

41 Simon, op. cit.

42 Fukasaku, op. cit. p. 12.

43 op. cit. p. 13.

(The remainder of course are retained for domestic use.)

44 "Overseas Chinese Set Region's Trends: Report" South China Morning Post Weekly, January 30-31, 1993 p. B-4. "The Chinese Dealmakers of Southeast Asia" BusinessWeek November 11, 1991. p. 61.

45 Gaps in the U.S. Technology Supply Base

Precision-mechanical

- \* Motors--flat, high torque, sub-miniature
- \* Gears--sub-miniature, precision machining
- \* Switch assemblies--sub-miniature

Packaging

- \* Surface mount, plastic

Media

- \* Magnetic disk
- \* Optical disk

Displays

- \* Electroluminescent
- \* LCD, color LCD, LCD shutter
- \* CRT--large, square, flat
- \* LED--arrays
- \* Projection systems

Optical

- \* Lens
- \* Scanners
- \* Laser diodes

Ferromagnetic

- \* Video heads
- \* Audio heads
- \* Miniature transformer cores

Copier-printer

- \* Small engines for laser printers

Source: National Advisory Committee on Semiconductors.

46 Borrus develops the case for electronics in "Reorganizing Asia: Japan's New Development Trajectory and the Regional Division of Labor" (BRIE Working Paper 53, March 1992).

47 Michael Borrus, "The Regional Architecture of Global Electronics: trajectories, linkages and access to technology," forthcoming in Gourevitch and Guerrieri, eds., *New Challenges to International Cooperation* (San Diego: UC San Diego, 1993).

48 See Dataquest Incorporated and Quick, Finan and Associates, *The Drive for Dominance: Strategic Options for Japan's Semiconductor Industry*, (Dataquest, 1988), pp. 4-7, citing Electronics Industry Association of Japan (EIAJ) data.

49 For a thorough analysis of the display industry in these terms, see Michael Borrus and Jeffrey Hart, "Displays the Thing: The Real Stakes in the Conflict over High Resolution Displays," BRIE Working Papers #52, (Berkeley, CA: BRIE, 1992).

50 McGroddy, *supra*.

51 Denis Fred Simon "The Orbital Mechanics of Korea's Technological Development: An Examination of the 'Gravitational' Pushes and Pulls", March 1993. Paper prepared for the conference "Redefining Korean Competitiveness in An Age of Globalization" Center for Korean Studies, UC Berkeley, Berkeley April 24 1993.

52 Borrus and Zysman, *op. cit.*

53 Fukasaku, *op. cit.* p. 4.

54 In semiconductors see Borrus;

in automobiles see the very interesting essay by Jay Tate that compels a re-evaluation of the lean production notions.

Jay Tate

55 Weber and Zysman, *op. cit.*

56 Sandholtz and Zysman, *op.cit.*