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Rationale for Regional Economic Cooperation: Korea's Perspective

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INTRODUCTION

In the last decade or so, there has been a surge in regional economic integration all over the world, most notably with NAFTA and the European Union but also in parts of South America, Africa, and Asia. The popular trend, however, has failed to reach one of the most dynamic and vibrant economic regions in the world—East Asia, consisting of China, Japan, and Korea. Despite the visible absence of such formal economic integration, since the early 1980s there has been a profound shift in the geographic pattern of East Asian trade and investment, with a steep rise in intraregional flows. Not surprisingly, this increase of intraregional trade closely tracks the growth experienced by each of the East Asian economies. Thus, in contrast to Europe and North America, economic "integration" in East Asia can

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be viewed more as a byproduct of overall economic development—that is, market forces and the private sector at work rather than a part of any institutionalized integration scheme.

One of the recent stumbling blocks to regional economic integration was the 1997 Asian financial crisis. Because the crisis had a domino effect throughout the region, Asian countries began to shy away from the concept of limited regionalism for fear of heavy interdependence on one another. Rather, as the countries scrambled to rejuvenate their economies, one of their key concerns focused on how to best open their economies to unrestricted flows of trade and investment in order to promote economic growth—that is, how to deal with the forces of globalization. As demonstrated by the financial crisis, however, too much openness will leave countries vulnerable to external shocks that can trigger domestic conflicts and political upheaval. Ultimately the pace of economic integration in East Asia will depend on institutional reforms, which in turn, when combined with a global policy, will sustain economic growth and structural changes in the region. The growth in intraregional trade in East Asia has stimulated much discussion as to whether establishing institutional economic integration in the form of a free trade area or trading bloc will enhance economic cooperation in the region. In this endeavor, APEC meetings have produced a substantial agenda for cooperative action, the most significant being the Bogor Declaration. Nevertheless, reaching any operational agreement will take some time.

This paper seeks to explore the rationale for, and barriers to the development and implementation of formal economic cooperation in East Asia by first examining the growth of intraregional trade and some other regional trends. This issue, however, cannot be assessed merely by examining intraregional trade ratios and trends, because such figures may not accurately reflect other contributing factors. As a result, the paper will provide a more detailed review of the salient characteristics that make up intraregional trade, including the significant role of transnational corporations (TNCs) and foreign direct investment (FDI). The paper will argue that although regional

economic cooperation must be sought, establishing institutional economic integration in East Asia at this time would not be beneficial for all of its members. In fact, the notion of an East Asian free trade area anchored by Japan seems a little far-fetched. Developing a trading group in East Asia would require major structural changes in the Japanese economy so as to create a market equivalent to that of the United States. Furthermore, given the strong bias toward outward-oriented economic policies that already exists in most of East Asia, the benefits of a regional trade bloc are unclear—particularly if they exclude major portions of the existing geographical pattern of trade. Notwithstanding these points, the paper will argue that the pursuit of global strategies through the activities of TNCs, rather than a limited focus on regional expansion, will not only strengthen intraregional trade, it will bolster overall international trade and investment.

INTERPRETING REGIONALIZATION TRENDS

In recent years, as evidenced by the number of emerging and established regional trading blocs and the World Trade Organization, the notions of regionalization and globalization have grown both in popularity and practice. Initially, regionalization was met with criticism as it was viewed as a dangerous attempt to create regional trade enclaves at the expense of multilateral liberalization. Further analyses of the actual agreements and figures of world trade flows as well as the positive conclusion of the Uruguay Round, however, yielded a different conclusion—that regional integration can enhance trade liberalization rather than endanger it.[1)]

Stemming from the fact that neighboring countries tend to trade intensely among themselves, regional agreements act merely to strengthen trade flows by phasing out trade barriers.[2)] Although

1) World Trade Organization, *Regionalism and the World Trading System* (Geneva: WTO, 1995).

regional agreements organize trade liberalization within limited geographical areas, they have a positive effect on overall international trade as well.

Due to political, economic, and social factors, the experiences of regional economic integration differ among varying geographical areas. For example, the primary driving force behind European integration was political will, and such integration could be realized in a relatively smooth manner given the political, economic, and cultural parities among its members. In contrast, any East Asian regional economic integration would most likely be driven by market rather than institutional forces. Not only is the distribution between inter- and intraregional trade quite different among regions, economic integration, as measured in terms of regional bias, has increased moderately in Europe while it decreased substantially in East Asia. Furthermore, any East Asian integration will be challenging given the disparities of economic development among the three countries. Consequently, any economic benefits sought from such regional integration may be disproportionately in favor of Japan rather than the other countries. For instance, while Europe may exploit a horizontal division of labor, East Asia would be saddled with vertical integration. Thus, Japan and Korea may benefit from China's cheap labor and raw materials but China will not.

Regionalization has often been measured by intraregional trade ratios. Intraregional trade represents a growing part of international trade. This trend has been particularly strong from the beginning of the 1980s, leading many to conclude that regionalization is growing rapidly and contributing significantly to global trade. Measuring intraregional trade solely by intraregional trade ratios, however, may be misleading

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2) R. Langhammer, "Regional Integration in East Asia: From Market-Driven Regionalization to Institutionalized Regionalism," *Weltwirtshaftliches Archiv*, Vol. 131, No. 1 (1995); S. Thomsen, "Regional Integration and Multinational Production," in V. Cable and D. Henderson (eds.), *Trade Blocs? The Future of Regional Integration* (London: Royal Institute of International Affairs, 1994).

for several reasons.[3] One of these is that such ratios fail to account for the increase in the relative size of each East Asian economy and the fact that such economies are strongly integrated with the industrialized economies to which they direct a substantial part of their exports.

In addition to the increase in intraregional and global trade, FDI has become a major channel by which economic integration throughout the world is being realized. In fact, one of the most striking components in the integration of the world economy has been the rise in FDI flows. In addition, it is important to note that TNCs are increasingly funneling a larger portion of such FDI flows and influencing the degree of regional integration through their decisions of regional and global organization.[4] Because trade and investment are often complementary, such interactions between trade and investment are reinforced as firms build complex international networks that

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3) Intraregional trade ratio is not a satisfactory indicator of economic integration because it tends to increase with the size of the region under consideration, independently of any possible regional bias. The greater the size of the region, the higher the proportion of trade conducted within itself. The ratio of intraregional trade to the share of the region in world trade is the appropriate indicator of regional bias: There would be regional bias if the ratio exceeds 1. According to this ratio, the intensity of regional integration is quite different from the usual perception relying on intraregional trade ratios. Estimations based on gravity models by Frankel and Wei show that the regional bias is stronger for both North America and Asia than for Europe. See, J. Frankel and S-J. Wei, "Trade Blocs and Currency Blocs," *NBER Working Paper Series* No. 4335, Cambridge National Bureau of Economic Research (1993); *idem*., "The New Regionalism and Asia: Impact and Options," Paper presented at Conference on Emerging Global Trading Environment and Developing Asia, May 19-20, 1995 (Manila: Asian Development Bank).

4) Since the 1980s, a more comprehensive analysis regarding the operations of TNCs has emerged. Initially viewed simply as firms making isolated decisions to invest abroad, TNCs now operate based on a global strategy of competition within their industrial sector. From this perspective, it becomes important to understand the entire set of constraints and opportunities TNCs face. For instance, TNCs' decision to produce abroad should be integrated into the competition process.

organize transactions across international borders.

Regional intensification of FDI flows has been strong—even stronger than the intensification of intraregional trade flows. The regional bias in terms of FDI, however, is similar to that in terms of trade. In both cases, regionalization, as measured by the share of intraregional flows to total flows, does not seem very relevant, because the share of regional flows does not necessarily result from regional biases. As a result, comparisons of the extent of regionalization between regions remain difficult, especially in terms of the share of intraregional FDI flows to total flows as comparisons between regions lead to somewhat contradictory results.

Some interregional FDI flows are intense. In particular, flows from the European Union to the United States are relatively more intense than intra-European flows, though the interregional figure decreased during the 1980s. Flows from Japan to the United States were also intense (in the 60-70s) and grew even more during the 1980s. Whereas the regional bias was moderate and nearly constant for Europe, it was much stronger but declining for Asia. Such strong regional bias could be explained by the fact that firms from East Asian developing economies do not possess sufficiently strong competitive advantages to venture into sophisticated and far-distant markets such as those of the United States or the European Union by way of FDI. This configuration, however, is slowly changing as Asian economies develop. For instance, during the 1990s, the redistribution of Japanese outward FDI flows may have increased the Asian bias.

ECONOMIC INTEGRATION IN EAST ASIA

Market-Led Integration Based on Complementarities

Although East Asian countries were left out of the wave of regionalism, they have benefited from increased economic integration within the region. Until the mid-1970s, the United States and Europe

were the major markets for East Asian exports, but since the early 1980s the growth of intraregional trade in East Asia has outpaced the growth of its interregional trade. The intensification of economic integration in East Asia was primarily the consequence of private sector initiatives and not of state-led efforts and institutionalized integration schemes. In contrast to the institutional integration initiatives launched in other developing regions, which largely involved developing countries with similar economic structures and trade patterns, the main driving force behind East Asian economic integration was complementarities among the countries in the region. While the former initiatives failed mainly due to the fact that the export structures of the member countries were competitive rather than complementary, the informal integration in East Asia was founded on international division of labor based on comparative advantages.

The rapid growth of Asian developing countries and the evolution of their respective industrial structures have resulted in a substantial share of intra-industry trade. These flows are particularly well developed between Japan and the NIEs, as well as between the latter and the ASEAN countries. The total share of Japan in ASEAN's exports, however, has been decreasing. While sales to Japan may represent a lower share of exports from East Asia, it is clear that Japan is dependent on East Asian imports. East Asian trade exhibits a more hierarchical specialization pattern than Europe, reflecting the larger disparities in factor endowments and economic development levels within the region. Recently, however, the general increase in intra-industry trade in East Asia has been due to both vertical and horizontal intra-industry trades.

Intraregional investment flows have also paralleled the growth experienced in intraregional trade.[5)] FDI in Asia differs from that of other developing regions in that a large proportion—at least one-third

5) While industrial economies still account for the largest share of total world FDI (about two-thirds), the volume of FDI flows to developing regions has grown rapidly since the early 1980s, and over half of that inflow has been directed to East Asian economies.

of the inflow—has been generated from within the region. The East Asian model of intraregional investment has been described as the "flying-geese pattern," in which FDI flows are directed in terms of shifts in comparative advantages. That is, Japan initially dominated intraregional FDI flows by investing heavily in the NIEs. As the NIEs developed, they started investing in less-advanced ASEAN-4 countries (Malaysia, Thailand, Indonesia, and the Philippines), which in turn have recently begun to invest in even lesser developed countries such as Vietnam. More importantly, however, is the degree to which FDI has been instrumental in transmitting growth impulses, employment generation, market networking, and technology from more- to less-developed countries in the region. Such flows not only add to the economic development of each affected country in the region, they also trigger important synergies within it. Recent data indicates an overwhelming surge of investment flows into China, the source of more than half of which is other Asian countries.

Initially, Japan played a pivotal role in the overall development of the region. There was a strong rationale and incentive for Japan and other industrialized countries such as the United States to invest in the region as the costs of production at home continued to rise. Looking to stay competitive on a global basis, both Japan and the United States invested heavily in the region and took advantage of the sufficiently skilled and cheap labor force there. Thus, the principal impetus for the Asian regionalization trend stems from the industrialized nations' need to find competitive advantages and embrace a global strategy. The trend has become more pronounced as the NIEs, to whom such initial investment was directed, have become economically developed and have begun wearing the hat of a foreign investor.

The positive impact of regional integration is that it may have helped to develop stronger market pull, particularly in countries with a limited domestic market. Diversifying exports has helped sustain an efficient scale of industrial production beyond the limits imposed by a domestic market's size. In East Asia, however, this feature should not be overemphasized, as extraregional trading partners have also gained

prominence. For instance, while intraregional trade has increased, so too has the export trade by East Asian countries to the shares of the United States and the EU, the two largest markets for East Asian exports. Regionalization may have helped compensate for the sluggish demand from the United States and the EU. More significantly, however, the development of tighter intraregional links not only contributed to the export dynamism in the region, it also enhanced overall trade and globalization strategies.

Tighter economic integration in the form of large FDI flows certainly contributed both to the development of technoeconomic capacity and to the strengthening of diversification. As an initial matter, inflows of large-scale foreign investment helped the less-developed countries in the region upgrade their industrial capacity. Strong industrial linkages between the members of the region also reinforced such positive spillover effects. Moreover, as far as technological transfers are concerned, the role of major partners outside the region should not be underestimated. Particularly, the clear outward orientation of some East Asian countries was mainly due to exporting activities by TNCs established in such countries.

The integration of East Asian economies into the international division of labor contributed to their building up a strong development potential. Because of its informal and dynamic nature and also because it is based on complementarities, economic integration within East Asia was instrumental in sustaining growth and promoting development. Regional complementarities favored the emergence of tighter regional linkages, thus reinforcing the potential for strong, durable growth and giving the region more autonomy.

Regional Free Trade Area

The growth of intraregional trade in East Asia and the recent financial crisis forced the central governments of East Asian countries to strive for closer economic cooperation. Leaders of Korea, Japan, and China met during the ASEAN+3 meetings at Manila in November

Table 1. Macroeconomic Effects of a Korea-Japan FTA

(Unit: US$100 million)

Economic indicators		Korea	Japan
Welfare (%)		-0.19	0.14
Equivalent variation1[1)]		-7.66	62.32
Real GDP (%)		-0.07	0.04
Changes in exports (%)[2)]		2.32	0.50
Changes in imports (%)[2)]		3.40	1.09
Trade Balance	Changes in trade balance	-60.90	-60.90
	Trade Changes in trade balance with other regions	45.56	-68.46
	Changes in total trade balance	-15.43	-7.67

1) Equivalent variation is the change in welfare level converted into income change.

2) Quantity based.

Note: Korea's nominal GDP was $489.4 billion in 1995.

Source: KIEP and IDE, *Toward a Korea-Japan FTA: Assessments and Prospects*, p. 81.

1999 to discuss strengthening economic cooperation within the region. The countries agreed that they would jointly conduct a study for economic integration in the region. Prompted by this meeting and with the support of both the Korean and Japanese governments, a study entitled "Toward a Korea-Japan FTA: Assessments and Prospects" was conducted by the Korea Institute for International Economic Policy (KIEP) and the Institute of Developing Economies (IDE / JETRO).

The results of this study were presented last May in Seoul. As shown in Table 1 and as can be expected, a Korea-Japan FTA is expected to reduce Korea's real GDP and welfare. In addition, Korea's trade balance with Japan will record an additional trade deficit.

Some may argue that this kind of static model does not reflect the effects of economies of scale because it is based on constant returns to scale. Moreover, it is suggested that the model fails to consider the potential dynamic effects resulting from productivity enhancement derived from intensified competition as well as the effects of

Table 2. Impact of Removal of Tariffs on East Asian Intraregional Exports

(Unit: US$ million)

Origin \ Destination	Korea	Japan	China	Total
Korea	–	332.00	22,385.67	22,717.67
Japan	8,506.73	–	52,122.21	60,628.94
China	4,664.93	19,310.44	–	23,975.37
Total Intraregional Trade Increase				107,321.98

Source: KIEP

Table 3. Impact of Removal of Tariffs on Trade Balances in East Asia

(Unit: US$ million)

	Korea	Japan	China	Expected Variation of Intraregional Trade Balance	Trade Balance In 1997
Korea	-	-8,173.73	17,720.74	9,546.01	-9,680
Japan	8,174.73	-	32,811.77	40,986.47	-6,999
China	17,720.74	-32,811.77	-	-50,532.51	16,679

Source: KIEP

investment expansion. Realistically speaking, however, despite any gains that may be realized over the long run, it appears that Japan would emerge from any bilateral FTA as the big gainer, while Korea would gain very little in the short term.

A similar simulation that adds China to the Korea-Japan FTA was also performed by KIEP. The results of the study are summarized in Tables 2 and 3.

As noted by the tables, under a trilateral FTA, Japan—with its strong international competitiveness in the manufacturing sector—would enjoy the highest trade creation effect with an aggregate trade gain of $60.6 billion. Korea's estimated increase in exports is $332 million and $22.4 billion to Japan and China, respectively. In China's case, its exports to Korea would increase by $4.7 billion and its exports to Japan would increase by $19.3 billion. In summary, the formation of a trilateral FTA would solely benefit Japan by improving its regional trade balances at the expense of both China and Korea. Hence, it is

unlikely that Korea and China will agree to form a trilateral FTA in the near future.

Before any decision regarding the formation of a regional FTA can be made, the dominant roles played by the United States and the EU in the economies of each of the East Asian countries must be considered. For instance, a study by Frankel and others found strong evidence of supernormal trade only if the United States was included in the regional grouping (APEC) and there was no evidence of a preexisting level of abnormally high trade with Japan. In fact, there was no evidence of a significant Japan bias at the level of total trade, in part because of the low level of imports into Japan from other Asian countries. This is due to the fact that the Japanese market is less transparent and open than that of the United States. Thus, prior to the formation of any regional trading bloc, Japan will need to undertake serious reforms to its existing economic structure, including eliminating all nontariff barriers, so that it emulates the market conditions of the United States—the biggest market currently for East Asian exports.

Because the United States currently has an enormous trade deficit with East Asia, any serious effort to establish a trading bloc in this region will probably provoke a negative response from the United States.[6] Much of the current trade with East Asia could be easily redirected to Latin America at a relatively small cost to the United

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6) There has been growing public concern in the United States regarding the magnitude of its trade deficit with East Asia. To make matters worse, the general public perception is that this trade deficit is due to problems of market access. In addition, there has been much opposition within the United States to continued reliance on the multilateral trade negotiation system because that system has thus far failed to produce a level playing field. On issues of importance to the United States (such as services trade, agriculture, and protection of intellectual property rights), the United States favors bilateral negotiations, using access to its own market as the strongest point of leverage. While there has undoubtedly been some growth in public concerns about the effects of increased imports, the major U.S. trade initiatives of recent years have all focused on issues of expanded access to foreign markets, not restraints on imports.

States. Consequently, given the strong bias toward outward-oriented economic policies that are rooted in most of East Asia, the benefits of creating an FTA are unclear—particularly if they exclude major portions of the existing geographical pattern of trade.

Moreover, the composition of trade between East Asian countries (excluding Japan) and between these countries and Japan is quite different. For example, U.S. TNCs are less committed to using a presence in foreign markets as a vehicle for promoting U.S. exports; rather, their manufacturing exports to East Asia consist largely of products for further processing, which are then reexported back for sale in the U.S. market. In contrast, Japanese subsidiaries maintain a focus on local market sales, with a considerable Japanese export content. As a result, even though Japan has recently been expanding intra-industry trade with East Asia, only a small proportion is directed back to Japan. In fact, there is little difference in the amount of export growth to East Asia between the United States and Japan. The extremely slow growth of Japan's imports from East Asia—even in the face of the yen's appreciation—seems supportive of the U.S. argument that Japan is relatively closed to imports. In the future, this contrast in corporate strategy between the United States and Japanese TNCs may diminish as the latter becomes more globalized.[7)]

Although a regional FTA may not be viable right now, the seeds for formation may be planted now. First, Japan could allow for an

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7) As part of the globalization process, firms try to take full advantage of their global reach, both on the market and supply side. They redeploy their assets and reorganize their operations on a global basis. From this perspective, not only does global integration mean locating operations in areas according to costs or the size of markets, it also means taking advantage of the multinational network as a whole. As a result, activities and functions from the value chain may be conducted in foreign countries, thereby providing an efficient coordinating structure at the global level. Such a structure should aim at maximizing the competitive advantage that the firm draws from multinationality itself. This is clearly a cumulative process that may be analyzed as part of the buildup of the firm's competitive advantage.

asymmetrical trade liberalization scheme that would allow Korea and China a longer period for implementing tariff reductions. In addition, Japan should continue to invest in Korea and China, while also providing for easier transfer of technology. Furthermore, the three countries must work cooperatively to standardize and modernize the differing trade norms of each country, such as customs procedures, anti-dumping rules, and rules of origin in order to lay the groundwork for closer economic integration. The formation of a regional FTA should be pursued only with a long-term perspective, and it is essential that the three countries actively coordinate their efforts for the successful launch of such regional economic integration.

Asian Monetary Union

The principal catalyst for forming a monetary union is to reduce the cost and uncertainty involved in transactions by stabilizing exchange rates. The price to pay for such monetary integration, however, is the abandonment of an independent monetary policy. Thus, if a common monetary policy is applied to countries with heterogeneous economic structures, the costs from relinquishing control over independent monetary policy may potentially be quite large. Furthermore, the larger the differential in inflation rates among member countries, the more difficult it is to maintain fixed exchange rates. In view of the range of economic development levels among East Asian countries, it is unlikely that countries such as China, which is still at an early stage of development, can meet the conditions for participating in a monetary union.

If the initial steps toward the formation of an Asian monetary union were to be undertaken, they would need to be led by Japan, the country with the most stable currency—the Japanese yen. In order for this occur, however, the Japanese government will need to first remove barriers that presently hinder the widespread use of the yen in international transactions.[8)] Thereafter, Japan must undertake the task of deregulating the Tokyo market and upgrading it to an international

financial center, making it an attractive trade venue for nonresidents to participate, while at the same time opening its markets to Asian products. Doing so will deepen the interdependence between Japan and Asia and give the yen a more prominent international role, thereby encouraging countries to shift the focus from a foreign exchange policy based on the U.S. dollar to one based on the yen.

Other Proposals for Economic Integration

Since neither the formation of a trilateral FTA nor an Asian monetary union seems probable in the near future, scholars and associations have proposed alternative paths for regional economic integration. For example, the Research Council for East Asian Economic Cooperation has suggested that rather than looking merely to trade, East Asian countries should also endeavor to enhance economic and financial cooperation in other areas, such as investment, industrial cooperation, technology, the environment, telecommunications, transportation, energy, and macroeconomic policy. Others have argued on the provision of regional public goods and the formation of economic territories. In the next section, this paper will discuss how TNCs—by way of FDI—have played, and will continue to play an essential role in East Asian regional economic integration.

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8) From a Japanese perspective, four principal benefits would result from forming a monetary union with Asian countries: (1) management of foreign exchange risks in international transactions will be easier; (2) the development of Tokyo as an international financial center will be facilitated; (3) the Japanese economy will become less vulnerable to fluctuations in the yen-dollar exchange rate; and (4) the value of Japanese overseas assets will be stabilized, thus encouraging the recycling of Japan's current account surpluses into the world economy.

TRANSNATIONAL CORPORATIONS AND REGIONAL ECONOMIC INTEGRATION

Globalization and Developing Economies

In recent years, FDI has been playing an increasingly influential role in the international economy.[9] Although FDI may comprise only a relatively small proportion of total investment in most economies, its economic significance should not be underestimated. TNCs, representing over two-thirds of the total share of FDI flowing into developing countries, have been the most significant conduit through which FDI flows on a global basis.[10] Not only do TNCs invest cold capital in strategic foreign entities, they provide technology, skills, and access to international markets to the host economies, thereby raising the overall competitive position of such economies. The degree to which TNCs invest in host countries and help improve such countries' technologies and ability to compete in global markets varies from country to country, and depends on each recipient country's internal framework and policies. For instance, while TNC shares of manufactured exports to Singapore and Malaysia comprise over 75 percent of total FDI, they make up only around 10 percent of total FDI into Korea.

In addition, it is important to note that TNC export shares are concentrated in technologically advanced and differentiated products, the portion of trade that forms the most dynamic end of world trade. This means that the participation of TNCs is particularly significant

9) FDI to developing countries has risen over the past decade from an average of $29 billion during the 1986-91 period to $149 billion in 1997. In that same year, the ten leading developing countries of FDI flows accounted for nearly 80 percent of total FDI flows. To the extent that FDI stimulates technology inflows, exports, and general integration into the world economy, there is growing dualism in the developing world.

10) The figures are based on UNCTAD estimates. TNCs include investors from developing countries.

for countries that wish—and are able—to enter these complex market segments. TNC trade shares are rising over time in response to liberalized trade and investment policies. This implies that the setting up of production facilities across the globe does not substitute trade, but rather shifts the composition of trade into other products—intermediates, capital goods, or very new products that cannot be relocated to other countries. A very large and growing part of TNC trade is intrafirm trade, estimated at around half of the total.[11] The propensity to engage in intraform trade as compared to interfirm trade is again higher in technologically more complex and novel products, reflecting the innovative nature of such products and the high transaction costs involved in trading such products between independent parties.

Because developing countries depend on foreign technology as the primary source for new productive knowledge, they are looking for ways to access such technology. Although foreign technology may be imported by way of equipment imports and through formal technology contracts, TNCs often provide the most important means of access. The ability to exploit technologies in global markets is also increasingly linked to TNC participation. In addition to transferring technology by way of FDI, TNCs may also sell their more mature and less valuable technologies to local firms. If the local firms are technologically capable, TNCs may enter into OEM or production-sharing arrangements, supplying technology and components and marketing the product under their own brands.

In 1997, the developing world as a whole paid $5.8 billion for technology, representing 14 percent of the world total of $41 billion.[12] A major portion of this figure is derived from royalties and license fees

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11) With respect to U.S. TNCs, for instance, exports to majority-owned affiliates in 1996 comprised 48 percent of parent company exports, up from 41 percent in 1977; trade between affiliates (excluding the parent) also grew from 12 percent to 18 percent over the same period.

12) Data collected by UNCTAD for the *World Investment Report 1999*.

that flow between TNC affiliates. For instance, the United States receives a hefty 76 percent of its foreign technological earnings from affiliates of its TNCs, Japan receives 65 percent, and Germany 95 percent. Technology markets, however, are notoriously imperfect. With rapid and expensive technological change, rising internalization of transactions, and the formation of strategic alliances between technology leaders, competition in the global market is becoming increasingly difficult, especially for less-developed countries.

Advanced technologies are the engine of export growth.[13] With the help of TNCs, developing countries have become significant exporters of high-tech products. By 1995, their high-tech exports ($299 billion) comprised the largest single export category, higher in value than low-tech exports ($266 billion). Due to the varying levels of economic development in countries, TNCs operate differently in different countries. They may take advantage of developing countries' simple, labor-intensive assembly activities, while strategically working with local companies in only a handful of developed countries to produce sophisticated exports. For instance, TNCs dominate manufactured exports from Singapore, Malaysia, Thailand, Indonesia, China, and the Latin American countries. In contrast, domestic enterprises account for the bulk of manufactured exports from Korea, Taiwan, Hong Kong, and India. Of the technology-intensive exporters, only Korea and Taiwan show significant domestic competencies; the other countries mainly assemble imported components from foreign affiliates. In fact, several of Korea and Taiwan's larger enterprises comprise some of the

13) Within the manufacturing sector, the highest growth rate was for high-tech products (fine chemicals, electronics, precision instruments, and aircraft) followed by medium-tech products (machinery, chemicals, simple electronics, and transportation equipment). Low-tech products (textiles, clothing, toys, simple metal and plastic products, footwear), the main comparative advantage of developing countries, grew more slowly. Medium-tech products still constitute the largest single category in world trade. S. Lall, "Exports of Manufactures by Developing Countries: Emerging Patterns of Trade and Location," *Oxford Review of Economic Policy*, Vol. 14, No. 2 (1998), pp. 54-73.

leading TNCs in the world.

The process of mastering imported technology in developing countries, however, is generally slow, incremental, and path-dependent. Mastering new technologies—even those existing elsewhere—requires new skills, efforts, and institutional changes. It often occurs in an uncertain environment where the necessary skills, information, and networks are not available. It faces extensive coordination problems, externalities, missing markets, and cumulative effects that give rise to market failures.[14] The diffusion of technologies even in industrialized countries poses challenges.[15] In developing countries, with weak markets and deficient institutions, it is generally far more difficult. Furthermore, mastering new technology is not just a one-time effort. Technology requires continuous upgrading and enhancement of technologies and human capital, as well as of supporting networks and institutions. Systematic differences arise from how efficient the various markets and institutions are, and the extent to which governments can improve them when they are deficient.

In the East Asian model, the effectiveness of TNCs and long-term economic growth will depend heavily on China's ability, and to some extent, Korea's ability to acquire, adapt, and master new technology. In some cases, it will be more economical to acquire new commercial technology from abroad than to develop it at home. Much of this technology is embodied in capital equipment, such as turnkey projects or imported capital goods. In other instances, it is packaged along with equipment finance and management, as in FDI by TNCs. Regardless of the methods, a structure that facilitates TNC activity and trade should be in line with the efficient dissemination of technology domestically. Such a structure should include more transparent and streamlined foreign investment procedures as well as more liberal

14) J. E. Stiglitz, "Some Lessons from the East Asian Miracle," *World Bank Research Observer*, Vol. 11, No. 2 (1996).

15) Organization for Economic Cooperation and Development, *Technology and Industrial Performance* (Paris: OECD, 1996).

rules on technology licensing agreements.

In short, the main source of regional economic growth will come from technological and organizational innovation facilitated primarily by the activities of TNCs. Not only will the global strategy embraced by TNCs bolster economic development in the region as a whole, hopefully it will bring parity to the economic levels of the three countries, thereby making it easier for a regional FTA to be established in the future.

Globalization and the Korean Economy

In the 1990s, the Korean industrial structure became more sophisticated mainly as a result of market forces. In the face of eroding competitiveness caused by rapidly rising wages, increasing difficulty in acquiring foreign technology, and the consequent imperative to shift to higher-value, technology-intensive products, Korean companies intensified domestic R&D to strengthen industrial competitiveness through creative imitation of sophisticated foreign technologies.[16] Despite significant advancements realized in technology, Korea's technological capability is still far behind advanced countries, especially in product design and basic project engineering.[17]

In the 1980s, Korean companies began to make the transition from

16) The Korean capital goods industry has developed rapidly in recent years, but its level of development still lags far behind Japan, Germany, and the United States, showing a low share of locally made machinery in major industries. For the automobile and petrochemical industries, machinery has been localized around 50 percent and 60 percent, respectively. Consequently, the Korean economy resorts to imports to support its economic expansion.

17) In many activities related to the production of intermediate and capital goods with significant economies of scale, technological acquisition has been restricted by the relatively small size of the domestic market. Until the domestic market, together with export production, grows sufficiently large enough to support a minimally efficient scale of operation, investment that can exploit existing competitive advantages and the development of dynamic competitive advantages will be delayed.

an imitative to a defensive position, making it imperative for them to assimilate R&D-intensive and system-oriented technologies.[18] In the face of accelerating global technological advancement, efficiency in local technological development implies continued imports of technology elements. The pattern of technology imports, however, shifts as local capabilities are developed and the growing size of the domestic market allows for the acquisition of new technologies related to activities with significant economies of scale.

One of the methods by which Korea has been making its transition is through increased overseas direct investments. This strategy has not only contributed to Korean firms' acquiring advanced technology in major industries, it has also expanded their respective share in the world market. In the face of accelerating global technological advancement, major Korean corporations established extensive networks of in-house laboratories in order to learn by research. At the same time, they established a number of R&D facilities in the United States, Japan, and Europe to monitor technological change and to tap into the abundance of high-caliber scientists.[19] In 1997, fifteen Korean companies owned thirty-two R&D facilities in the United States.[20]

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18) The strategy that a firm can pursue is strongly influenced by its national environment. The accumulation of human and institutional capital in specific technological capability has not been without opportunity costs. The necessary costs and benefits that are foregone by dedicating scarce resources to developing specific capabilities should be evaluated. Naturally, Korean companies were mostly imitative in their R&D strategies until the late 1980s. Resources were devoted to R&D activities, but R&D activities had been far less important for Korean firms than for defensive innovators who try to stay close to the leaders.

19) For example, LG Electronics has developed a network of R&D laboratories in Tokyo, Sunnyvale, Chicago, and Aachen (Germany). These facilities monitor technological change at the frontier; seek opportunities to develop strategic alliances with local firms; and develop state-of-the-art products through advanced R&D. Samsung and Hyundai Electronics have developed similarly extensive R&D branches.

20) There were 695 U.S. R&D facilities owned by 363 foreign parent companies from twenty-four different countries. The 249 Japanese R&D facilities in the United States account for over 30 percent of the total foreign-owned U.S. R&D facilities.

They also used M&A to gain access to frontier technologies.[21] In some technology sectors, major Korean corporations have grown sophisticated enough to enter strategic alliances with leading foreign companies. The government also played an important role in the supply side of technology by strengthening public R&D capability and promoting joint research between industry and public R&D institutes and between industry and academia. Korean companies registered 1,567 U.S. patents in 1996, which is the seventh largest number of U.S. patents registered by foreign countries. In the long run, Korean firms must endeavor to strengthen their technological capability so as to phase out their current high dependency on imported materials, components, and production machinery in technology-intensive industries.

During the Asian financial crisis, Korean TNCs' overseas investments declined. The contracted domestic market and shortage of investment capital accounted for the reduction of FDI. In addition, successive bankruptcies of Korean conglomerates had negative impacts on credit ratings for Korea and Korean companies, making it more difficult for foreign affiliates of Korean TNCs to secure local financing, and forcing them to abandon overseas operations. As the Korean economy began to edge out of economic hardship, Korean

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The UK was second with 103 facilities, followed by Germany (96 facilities), France (44 facilities), Switzerland (42 facilities), and Korea (32 facilities).

21) Korean firms also globalize R&D through M&A. Hyundai has been the most aggressive at acquiring equity stakes in foreign firms as a way to gain access to cutting-edge technologies. In California, it acquired full ownership of Axil Computer for computer development; significant stakes in Laserbyte Corp. to gain access to magneto-optical disk drive technology; in Metaflow to develop the SPARC compatible microprocessor; in Image Quest to develop TFT-LCD; and in Maxtor to develop hard disk drives. In 1995, Samsung Electronics acquired a controlling share of AST Research, one of the largest PC makers. The acquisition gives Samsung access to more than 190 patents and its strategic alliance with IBM, Apple, and Compaq. Samsung also obtained a majority interest in Union Optical (Japan) and Rollei (Germany) to enhance its competitiveness in camera and optical equipment making.

TNCs again endeavored to transform themselves from mere domestic players to global entities by redirecting their attention to FDI. While the Korean TNCs' FDI projects in the early 1990s were aimed primarily at finding sites with cheap labor so that they could overcome shortcomings of the high cost/low efficiency structure at home, the strategies embraced today are less oriented toward expansionary overseas investment goals and more focused on fostering core competencies and concentrating on traditional key industries such as electronics, automobiles, and telecommunications. For instance, their investments have enabled them to acquire market knowledge, establish ties with local agents to enhance marketing capability, build R&D centers in local markets to broaden technology bases, and pursue strategic alliances to exploit complementary resources and build core competencies. By entering into FDI projects through strategic alliances, Korean TNCs will not only be able to complement their existing capabilities (not capacity), they will strengthen their overall managerial competence for global business.

The Asian financial crisis not only affected Korea's FDI, it revealed the fragility of the Korean won and other structural weaknesses in the Korean financial and economic system. Although Korea's economic fundamentals are not too bad, its pace of recovery will remain slow due to such structural problems. In view of rapidly expanding non-OECD markets, Korea's exports will sustain a moderately high growth rate in technology-intensive industries such as electronics, transportation equipment, general machinery, and precision instruments, while the export of low-value-added goods such as textiles, clothing apparel, and leather products will gradually decrease. These changes in the trade structure are consistent with the emerging patterns of world trade and global investment. Over the past twenty-five years, the share of non-OECD countries in world trade and inward FDI has grown markedly. The product composition of OECD's trade with non-OECD economies has also changed dramatically. As developing countries have reoriented their exports toward manufactured goods, OECD countries are becoming strong net

importers of low-tech goods such as textiles and clothing apparel, leather goods, rubber and plastics, and other manufacturing. However, net OECD exports remain strongly positive in machinery, chemicals and pharmaceuticals, motor vehicles, iron, steel and metal products, and aerospace products. This pattern is broadly consistent with intuitions about comparative advantage, although net exports of medium-tech goods (such as machinery and motor vehicles) are much higher than some high-tech goods (notably telecommunications equipment, computers, and office equipment). The highly aggregated industry groupings disguise some important intra-industry variations in the technological intensity of specific products and/or production processes. For certain high-tech goods, production is highly internationalized, and a very significant share of trade between the OECD and non-OECD economies consists of intrafirm trade of technology-intensive parts and components and production machinery. Between OECD—based TNCs and their foreign subsidiaries, the latter perform relatively labor intensive assembly operations. The bulk of world merchandise exports originates from large-scale enterprises, and trade within globally diversified TNCs accounts for an increasing share of that trade.

If Korea could attract more TNC R&D activity, it would be the most effective and efficient way by which Korean firms could upgrade their local technological capability. In this regard, the following issues should be addressed. What kind of R&D activities will TNCs delegate to their Korean affiliates? Will the presence of foreign-owned R&D facilities stimulate or inhibit the development of local technological or absorptive capabilities? Under what circumstances will TNCs promote a more efficient international division of labor in the generation of new technology? What should the policy responses of the Korean government be to the innovatory strategies of TNCs and to their impact on national economic goals?

In order to respond to such questions, much research has been conducted on the process by which TNCs determine the location of their research and innovation activities. No definitive results have

been produced, for empirical evidence on the share of innovation generated outside the TNC's home country is controversial. Yet some conclusions drawn from the statistical evidence on TNCs' overseas activity—sparse as it is—may contribute to the following discussion of inbound FDI to Korea. First, data on patents registered in the United States seem to indicate a slow but significant trend toward an increasing share of innovation generated outside the home country of TNCs' parent companies. The proportion of U.S. registered patents attributable to the foreign affiliates of TNCs is generally lower among the higher research-intensive sectors than it is in medium to low research-intensive sectors. And it is in these latter sectors that TNCs record the highest propensity to patent from their foreign affiliates.

Foreign subsidiaries of TNCs generally engage in three types of R&D. The first type of R&D is product, material, or process adaptation or improvement to develop products tailored to meet local needs. The second type of R&D is rationalized research, whose equivalent is rationalized or cost-minimizing production. To gain economies of scale and scope, TNCs may choose to concentrate on particular kinds of research in selected foreign countries, the output of which they export to other parts of their network of activities. The third type of R&D is to acquire or gain an insight into foreign innovative activities. As the ownership of R&D becomes increasingly concentrated and the locations of its activity more dispersed, TNCs, particularly in the technologically intensive sectors, find it effective to establish both research and manufacturing activities in the main innovation centers. Competitive pressures and the escalating costs of R&D are also leading an increasing number of TNCs to engage in cross-border research alliances. Therefore, countries that are desirous of attracting the high-value activities of TNCs must create centers of innovatory excellence.

Much of the R&D undertaken by Korean subsidiaries of TNCs are of the first type, as they are endowed with the requisite skills and expertise as well as external links. This can be best exemplified by the machinery and automobile industries. In the 1990s, Korean carmakers built up their R&D and engineering capabilities through investments

targeted to attain technical independence, to raise the competence level in supply and manufacturing, and to raise their ability to become a viable partner with major foreign carmakers. Although Korean carmakers have yet to develop extensive capabilities in generic research and advanced engineering, they have accumulated the significant skills and expertise necessary to develop new models, such as concept initiation and definition of car attributes, car engineering and design, production readiness, and styling. In addition, they have cost advantages in implementing new car programs, especially of small-size cars for emerging markets. The skills and expertise of Korean carmakers may constitute valuable complementary assets that could enable major foreign carmakers to build a platform in their endeavor to enter the Chinese market and the rest of the Asian market.

Although the Korean machinery industry has yet to match its Japanese counterpart in terms of technology, especially in the areas of software design, network and system establishment, it has accumulated significant skills and expertise in developing and manufacturing its own models of sophisticated machinery.[22)]

In the long run, as Korean subsidiaries acquire their own technical, managerial, and marketing expertise, TNCs would engage in Korea-based rationalized R&D, if the price of innovation resources in Korea

22) The machine tool industry, for example, began to develop its own technology at the end of the 1970s and, around the early 1990s, it began to produce high-speed multiprocessing machines. Efforts have focused on enhancing main shaft and conveyor functions to curtail cutting time, improving processed surface quality, and saving on chip processing costs. It is now offering main shaft machines that run in excess of 20,000 rpm for high-speed processing at the micron unit level, and multifunction machines are now beginning to appear on the market. Recently it introduced the FMS (Flexible Manufacturing System), which can operate for more than seventy-two hours continuously without any human input. Currently under development are machines that feature open-style CNC equipment, and those that are Internet-, intranet-, and CAD/CAM-capable, enabling users to acquire new technological information and obtain long-distance warranty service through the Internet by accessing the home pages of machine tool builder-vendors.

is relatively lower than in advanced countries--including home countries. Such increased participation in TNC activity would not only foster the growth of Korean firms' technology base and capabilities, it would prepare Korea to adequately respond to the forces of globalization, a whirlwind of technological change and liberalized trade and investment.

CONCLUSION

East Asia represents one of the most vibrant and influential economic regions in the world. As a result, how the region shapes its economic, financial, and trade policies will not only have a profound effect on the entire Asian region, it will affect how companies from countries all over the world decide to conduct their businesses. Although the region has thus far been immune to the popular trend of establishing institutional economic integration, it has actively engaged in concerted economic cooperation efforts with the primary objective of not only safeguarding the region from external market forces, but also strengthening the region's global position and influence.

The growth experienced by the economies of Japan, Korea, and China has not only contributed to intraregional trade flows, it has contributed tremendously to global trade. Prompted by the growth in intraregional trade and investment as well as their rising influence in world trade, the East Asian countries began studying the feasibility and viability of forming some form of regional free trade agreement. The consensus, however, has been that the varying levels of economic development and political structures do not currently lend themselves to the creation of a formal East Asian FTA or monetary union because any such structure would unfairly benefit Japan, and would fail to eliminate other trade impediments such as non-tariff barriers. Rather, in the interest of preserving and attaining regional prosperity and global competitiveness, the region should continue its present private sector initiatives and government deregulation activities, as well as

focusing more on the posturing of TNCs.

Up to the present, the most significant contributing factors to the region's powerful dynamism have been market forces and private initiatives. That is, the East Asian developing countries have benefited from increasing economic integration within the region largely as a result of the globalization strategies of TNCs. As a result, market-led regional integration is progressively inducing TNCs to organize their operations on a regional base. Although East Asia exhibits a more hierarchical specialization pattern than Europe, reflecting the larger differences in development levels within the region, TNCs have become increasingly influential in controlling the flow of technology, capital, and goods within the region.

As in the 1990s, TNCs will continue to increase their role in the economic integration of East Asia. Attracting and retaining TNCs will not only provide an entry into the web of globalization, it will also lay the groundwork for upgrading technologies and adding value to and restructuring existing industries. The realization of such a framework will likely be facilitated more readily by market forces rather than by any form of institutionalized regional integration. Not only have TNCs successfully penetrated foreign markets, integrated their worldwide operations, and profited from economies of scale, they have also been instrumental in the overall development of many countries' economies. As a result, trade and technology transactions are increasingly taking place more and more within TNCs than in the marketplace.

Because of the rising influence of TNCs on global trade and economic growth, the competition in the marketplace is leading to competition between governments to retain or attract TNC activities. In order to succeed in attracting TNCs and promote regional prosperity and harmony, the East Asian countries must not only implement institutional and structural reforms at home, they must embrace strategies based on market forces and comparative advantages that enable them to successfully compete in the global arena.