

The Future of the Asian Economy^{*}

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* This report is the product of a joint research project carried out, under the general direction of the Macroeconomics Studies Team (Head: Dongkoo Chang) of the Institute for Monetary and Economic Research, by the International Economics Team, Financial Studies Team and Socioeconomics Studies Team. Youngjun Choi of the Macroeconomics Studies Team was responsible for the final editing of this report.

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<Summary>

- ☐ The Asian economy came out of its protracted slumber a mere fifty years ago. The awakening of Asia, begun by Japan's stunning economic recovery in the aftermath of the World War II, continued with South Korea's industrialization. With Chinese and Indian industry taking off in recent years, Asia has today emerged as a veritable force driving the growth of the world economy.
 - The rapid progress achieved by Asian economies owes much to the powerful combination of vast pools of skilled manpower, and foreign capital and technology made abundantly available when these countries shifted to an open economic order. The Asian economic revolution was all the more spectacular due to the latecomer advantage enjoyed by the region.
- ☐ Already back in the 1970s, the Asian economy surpassed the world average by substantial margins both in economic growth rate and export growth rate. With momentum on its side, the share of the world economy accounted for by Asia steadily rose from 12.2% in 1960 to 17.3% in 1980 and to 22.5% in 2003.
- ☐ Asia's sustained growth may be reduced in future by the worsening environmental and energy problems resulting from the rapid industrialization of populous countries like China and India, the widening economic disparity and geopolitical risks.

The Asian economy is nevertheless likely to see its weight in the global economy rise further thanks to its strong capacity for adapting to changing circumstances on the basis of regional countries' outstanding human resources in the fields of science and technology and the power of its growth model based on low-cost manpower.

□ Forecast for the Asian Economy through Year 2040: Size, Share of the World Economy and Income Level

- The size of the Asian economy is expected to equal that of the European economy (15 EU member states, as of 2003) toward the late 2010s, and that of the North American economy (the US, Canada, Mexico) by the 2020s. Toward 2040, Asia is projected to account for 42% of global GDP, far surpassing the shares held by North America (23%) and Europe (16%).
 - GDP per capita in Asia, stands at US \$ 2,400 on average as of 2003, equivalent to less than 1/10 of the corresponding figures for North America (US \$ 29,000) and Europe (US \$ 27,000). It is expected to rise to one quarter of the US and EU levels by around the year 2040.
- By country, China will edge out Japan around 2020 in terms of GDP, which will roughly equal the corresponding value for the US, accounting for one fifth of global GDP. India also is projected to move past Japan toward 2030 to claim a share of world GDP about equal to Europe's by 2050.
 - As of 2003, South Korea accounts for 1.7% of world GDP, which is expected to increase moderately to 2% by the year 2040.

As for Japan, its current 12% share will be reduced to about a half by 2040, due to the slow growth of its economy.

- GDP per capita in South Korea, about only 1/3 of the US and Japan as of 2003, will reach the range of US \$ 45,000 around the year 2040, equivalent to 2/3 of the corresponding figures for the US and Japan.

I . The Present and Future of the Asian Economy

1. Economic Decline in Modern Asia ¹⁾

- ☐ Home to three of the four cradles of ancient civilization, Asia is a continent that saw the flourishing of scientific knowledge and culture far more advanced than in Europe for thousands of years.

* Egypt, Mesopotamia (Iraq), Indus (India) and China's Yellow River

- In the modern era, this old continent with a brilliant past was long sunk in economic disarray and impoverishment, until as recently as half a century ago.

- ☐ Asian countries fell behind the West in industrialization, as they failed to adequately meet the challenges of a new era.

This failure to respond to changes in the economic and social environment is attributable to the particular characteristics of this old continent with a long history behind it, such as population density, religions and deep-rooted traditions.

- (i) Due to overpopulation, farming remained small in scale in terms of operations in Asia, which hindered both the accumulation of agricultural surplus and market expansion.
- (ii) Buddhism and Confucianism, the two dominant religions in the Asian region, also acted as factors making industrialization more difficult.
 - Both Buddhism and Confucianism are philosophies of stasis, from acceptance of the status quo to outright renunciation of worldly life, and place spiritual and moral values above material ones. Wary of the rationalism of modern times, they strive instead toward a symbiosis of the strong and the weak.

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- Accordingly, probity and frugality are praised, and the pursuit of material wealth beyond a level sufficient to guarantee a decent livelihood was frowned upon as indecent.
- (iii) Also, due to its long history and deep-rooted traditions, the region as a whole was long reluctant to accept change from the outside.
- Disdain for the merchant and artisan class in Confucian peoples and the caste system in India are examples of this powerful inertia.
 - Any threats to long-standing mores and traditions were long viewed with hostility, and this resistance to changes hindered Asia's ability to adapt to the new world.
- Meanwhile, Western countries, in the forefront of modernity, adapted quickly to the new set of circumstances as the Industrial Revolution begun in England in the mid-18th century rapidly spread across Europe, fast transforming agrarian societies into industrialized ones.
- Those countries first to succeed in industrialization acquired economic power and the capacity to successfully pursue expansionist goals. Asian countries fell one by one under the grip of European and American imperialism and became their colonies.
- In spite of its reserves of natural resources, Asia, having failed to initiate an endogenous industrialization process, became an ideal prey for a purely exploitative colonization, which only increased poverty in Asian countries and further delayed development.

2. Industrialization Process in Key Asian Countries 2)

A. Driving Forces of Industrialization

- In a move out of economic stagnation, Asian countries actively launched government-led industrialization drives from the later part of the 20th century. Most of these countries achieved fast economic advances following a similar growth pattern.
- This rapid economic growth was made possible thanks to the open world economic order of the post-World War II periods, facilitating free movement of capital and the transfer of technologies.
 - Asia's abundant labor force, provided with capital and technology supplied from the developed world, was able to turn what had previously been hindrances to progress into positive forces driving industrialization.
 - Asian economies therefore provide text-book examples for the Lewis' development model (1954), where growth is fueled by the productive force of surplus of population.
 - The combination of human capital made up of well-trained and responsible workers with an excellent work ethic with capital and technologies from abroad created a low-wage and high-profit industrial environment in manufacturing sectors, accelerating expanded reproduction.
 - Further, tapping into the Western experience of industrialization, they were able to shorten the learning curve and avoid evident mistakes. Asian countries exploited their latecomer advantage by skipping stages of development to achieve so-called compressed growth.

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- This developmental model was comprehensively laid out by Gerschenkron (1966) in his development theory of relative backwardness.
- The idea is that the more backward an economy at the outset of economic development, and the later a nation industrialized, the faster the speed of industrialization.

B. Common Characteristics of Asian Industrialization

1) Low-cost High-quality Labor Force

- Most Asian countries had a vast supply of low-wage labor. Asian work forces were furthermore better educated and trained than their counterparts elsewhere in the world and possessed high moral standards.
- Between 1970 and 1980, the average school enrollment rate in South Korea, Japan, Hong Kong and Singapore exceeded the world average.
- High educational spending in Asian countries helped supply the quality human resources required for industrialization, facilitating the acquisition of advanced foreign technologies.

<Table I-1> **School Enrollment Rate among Key Asian Countries**

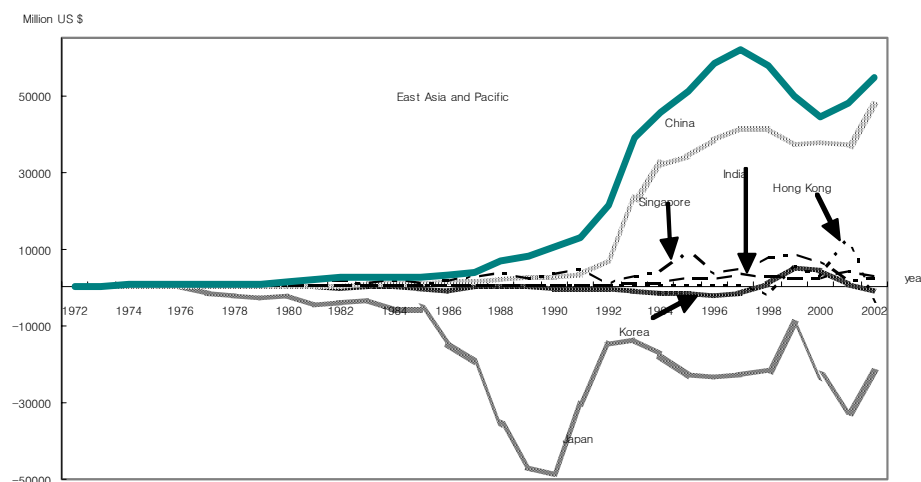
		(gross, %)				
		World	Japan	South Korea	Singapore	Hong Kong
Primary School	1970	85.4	99.5	103.4	105.5	116.6
	1975	95.1	99.4	106.9	109.7	119.6
	1980	96.9	101.1	109.9	107.7	106.5
Secondary School	1970	34.1	86.6	41.6	46.0	35.8
	1975	42.4	91.8	56.3	51.9	48.8
	1980	48.9	93.2	78.1	59.9	64.1
Tertiary Education	1970	7.2	17.6	7.4	6.1	4.9
	1975	9.8	26.3	8.8	8.4	5.1
	1980	13.0	30.5	14.7	7.7	5.2

Source: WDI

2) Transfer of Capital and Technologies

- Asian countries actively welcomed foreign direct investment and capital to acquire financial resources, advanced production and management system and technologies needed to buttress growth.
- China's growth has been driven more particularly by foreign capital than for any other Asian country. Now referred to as the world's factory, China experienced exponential growth in FDI following its move to open its market to the outside world. Inward FDI flows reached US \$ 46.8 billion in 2002, claiming an almost 85% share of total East Asia-bound FDI (US \$ 54.8 billion) during the same period.

<Figure I-1> **Changes in Net FDI Inflow among Key Asian Countries (at current value)**



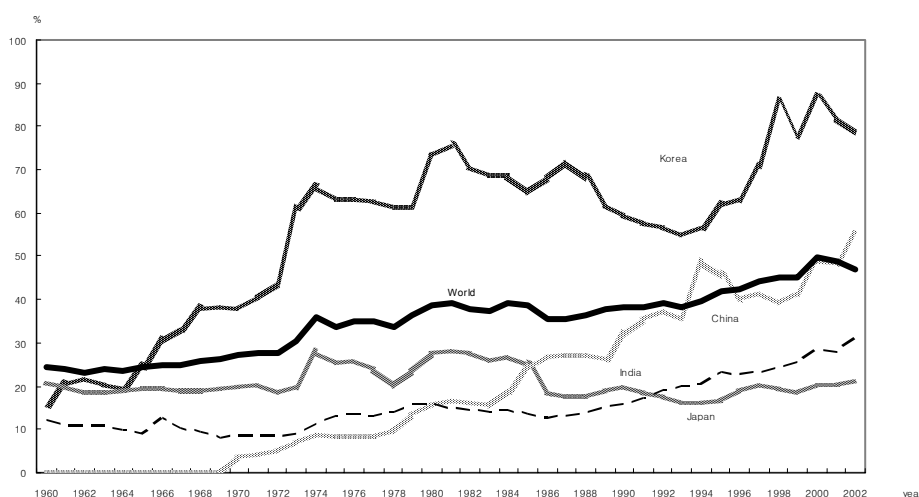
Source: WDI

3) Export-driven Growth Strategy

- To compensate for their narrow domestic demand base, most Asian countries sold goods and services to overseas markets and developed an export-driven growth pattern, heavily reliant on foreign trade.

- South Korea moved above the global average in its ratio of international trade-to-GDP already in the mid-1960s, the early years of its economic development, and China did so in the early 1990s. The ratio has shown a sustained underlying rise since then for both countries.
- As for India, the last major Asian country to begin an economic leap forward, its international trade-to-GDP ratio, while still below the world average, is steadily increasing.

<Figure I-2> **Changes in Reliance on International Trade among Asian Countries**
(International Trade (at current value)-to-GDP Ratio)



Source: WDI

4) Government-led Growth

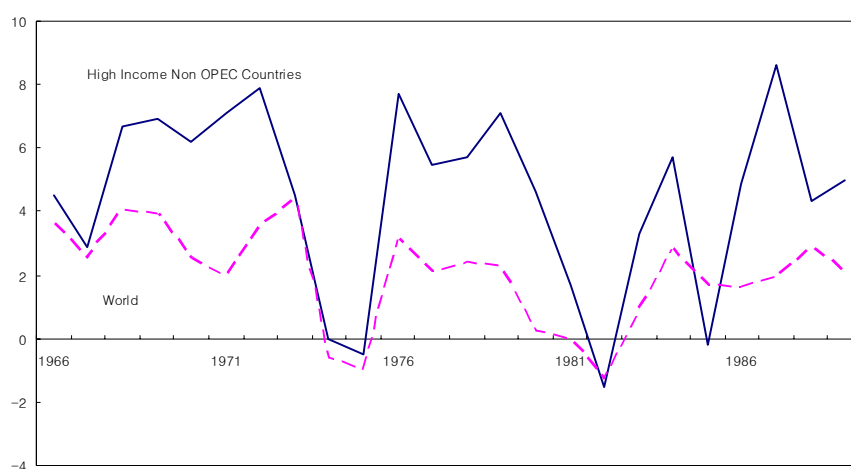
- ☐ For accelerated economic growth, Asian governments took the initiative by setting development strategies and implementing them, leading the private sector.
- Governments played a leading role in economic growth in the region both as the architect and planner of development and the regulator of reforms.

- Planned economic action went side by side with market-oriented campaigns such as incentive programs to promote exports and attract FDI, which prompted competition in the private sector, leading to the enhancement of productivity and quality.

5) Favorable External Conditions

- World economic circumstances in the post-World War II period was supportive of international trade and cooperation, and facilitated outward-looking economic growth in Asia.
- The GATT/WTO international trade regime launched after the Second World War and the stable foreign exchange system under the Bretton Woods regime spurred cross-border trade around the world, building an ideal environment for export-driven economic growth strategies adopted by Asian countries.
- With the emergence of a mass consumption society brought about by the growth of real GDP per capita in the US and Western Europe between 1960 and 1980, consumption demand sharply surged, contributing to the growth of export-driven Asian economies (Vogel 1991).

<Figure I-3> **GDP per Capita Growth among High-income Western Countries (%)**



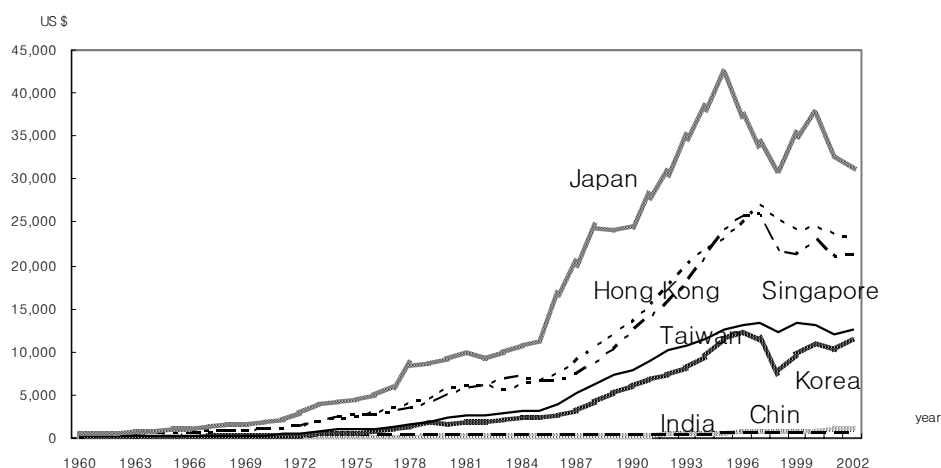
Source: WDI

- In the aftermath of World War II, in a bid to block communism, the US provided generous aid to countries in the 'free world', sharing its technologies and capital, opening its market and providing support for economic development. This was a tremendous boon for economic growth in Asia (Vogel 1991).

C. Industrialization Process by Country

- Industrialization in Asia, begun in Japan in the 1950s, continued with the NIEs (Newly Industrialized Economies), including South Korea, Taiwan, Hong Kong and Singapore in the 1960s and 1970s. China and India followed suit from the late 1990s.

<Figure I-4> Changes in GDP per Capita among Key Asian Countries



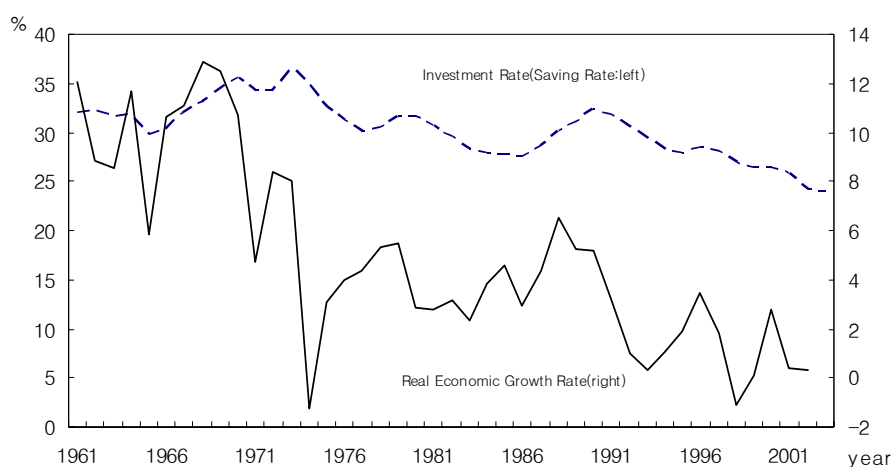
Source: WDI

1) Japan

- The industrialization and modernization process began in Japan as early as in 1868 with reforms following the Meiji Restoration, which provided it with the basis needed for rapid growth by the late 19th century.

- The Meiji government adopted a forced savings-driven growth strategy. Capital accumulated from tax revenues from the agricultural sector was invested in SOC projects creating transportation, telecommunications infrastructure and ports and was also injected into the corporate sector as subsidies to further fuel the industrialization process.
- Once again, after defeat in World-War II, a government-led industrialization policy, in the three decades from 1950 to 1980, capitalizing on the abundant labor force and high investment rate (saving rate), successfully propelled growth in the manufacturing sector, transforming Japan into a world economic power.
- A series of government economic development programs, including the Five-year Plan for Economic Self-sufficiency (1955), the New Long-term Economic Development Plans (1957), the National Income Doubling Plans (1960), was implemented to accelerate growth.
- Japan achieved an average annual growth rate of over 9% between 1950 and 1973, and in 1967, it became the world's second largest economic power on the basis of GDP.

<Figure I-5>
Changes in Japanese Investment Rate (Saving Rate) and Real Economic Growth Rate



Source: Investment rate (saving rate)= Total gross fixed capital formation / current GDP: IFS; Real economic growth rate : WDI, at 1995 constant price estimates

2) China

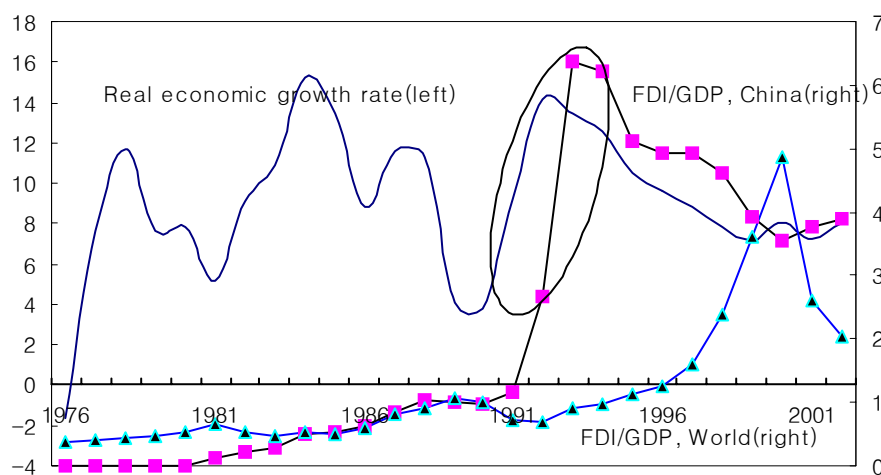
- ☐ Following the founding of the People's Republic in 1949, China shifted to a Soviet-style planned economic system. The economic development program driven by heavy industries ultimately failed to create the conditions for growth.
 - This failure is explained by a combination of stagnant agricultural output with a high population growth rate, leading on the one hand to the collapse of the saving mechanism, and, on the other, to a price policy that set factor prices such as interest rates, the exchange rate and raw materials prices at artificially low levels, which negatively affected overall economic efficiency.
- ☐ Deng Xiaoping embraced the principles of the market economy when he came to power in 1978, enabling industrialization to begin in earnest. Starting from 1991, China pressed ahead with reform and market opening policies based on the adoption of a capitalist economic framework.
 - Reform programs were geared toward the gradual introduction of a market price system, pluralization of financial institutions, formation and maintenance of financial markets and the empowerment of macroeconomic adjustments through financial institutions.
 - The scope of the opening-up policy included the improvement of China's trade management system and its liberalization, the enhancement of its investment environment to attract foreign investment and the gradual opening of more sectors to foreign investment.
- ☐ Once into the 1990s, the colossal FDI inflows were instrumental in achieving a stunning economic takeoff, which catapulted China into the rank of major contenders in the international economic race.

- During the initial period immediately following the opening-up, foreign capital entering China was chiefly small-size investments by overseas Chinese. The capital flow was interrupted in 1989 in the aftermath of the Tiananmen Square protests until 1992, when the reform-boosting speeches on the Southern-tour of Deng Xiaoping triggered large inflows of Western capital.

* This famous speech delivered by Deng Xiaoping during his Tour of Southern Chinese cities, including Shanghai, Shenzhen and Zhuhai, stating among others that market economy did not necessarily mean capitalism and that even capitalist systems contain planned elements, providing the essential tenet of the so-called 'socialist market economy theory'.

- Over the 11-year period between 1991, the year when the reform/opening-up policy was adopted, and 2002, China's real GDP grew at an amazing rate of 9.7% on an annual average.

<Figure I-6> **Changes in Economic Growth Rate and Net FDI Inflow (% of GDP) in China**



Source: WDI

- This positively affected China's economic profile on the global scene. In 2004, China ranked third in trade volume, after the US and Germany, seventh in GDP and second after Japan in foreign reserves.

<Table I-2>

Changes in China's Status in the Global Economy

	1970s-1980s		2004	
	Value (Year)	Global Ranking	Value	Global Ranking
Foreign Trade Volume (US \$ 100 millions)	380 (1982)	19th	11,546	3rd
Exports (US \$ 100 millions)	211 (1982)	16th	5,932	3th
Current-price GDP (US \$ 100 millions)	1,612 (1975)	8th	16,493	7th
Foreign exchange reserves (US \$ 100 millions)	23 (1977)	29th	7,110 ¹⁾	2nd

Note: 1) as of end of June 2005

Sources: World Bank, IMF, KITA (Korea International Trade Association)

3) India

- After regaining independence in 1947, India established a socialist economic system under Jawaharlal Nehru and implemented an internally-oriented growth strategy, which proved to be ultimately unsuccessful.
- A series of five-year economic development programs launched from 1951 fell short of the goal of supporting stable and continuous growth due to a number of factors, including high population growth rate, stagnant agricultural productivity, military conflicts with neighboring nations, natural disasters and the oil shock of the 1970s.

<Table I-3> **Objectives and Results of Indian Economic Development Plans**

	Target Growth Rate	Actual Growth Rate	Remark
1st(1951-56)	2.1	3.60	
2nd(1956-61)	4.5	4.21	
3rd(1961-66)	5.6	2.72	India-Pakistan War(1965)
4th(1969-74)	5.7	2.05	Worst drought in modern history (1965-67)
5th(1974-79)	4.4	4.83	
6th(1980-85)	5.2	5.54	
7th(1985-90)	5.0	6.02	
8th(1992-97)	5.6	6.68	
9th(1997-02)	6.5	5.35	
10th(2002-07)	7.9	..	

Source: Planning Commission, India

- In the immediate aftermath of a foreign currency crisis, in October of 1991, India obtained a promise from the IMF of a stand-by loan package totaling SDR 1,656 million, issued in 18 successive tranches. The loan was conditional among other points on the implementation of the economic reform and opening-up policy of July 1991, known as the Statement on Industrial Policy, which paved the way for India's take-off (Panagariya 2004).

* Some view that the impetus for growth has been provided by the liberalization policies which was sporadically introduced in the 1980s (Delong 2001). A number of liberalization measures, such as expanding the open general licensing (OGL) list, abolishing exclusive rights in raw material imports, promoting exports, loosening industry-entry restrictions and bringing the exchange rate to a realistic level, were implemented during this decade.

- The Statement on Industrial Policy of 1991 shifted the positive system of regulating industry and trade to a negative system, and liberalized the Indian economy through an externally-oriented economic policy.

<Table I-4> **Key Contents of India's Statement on Industrial Policy (1991)**

Industry	<ul style="list-style-type: none"> - Abolished approval-based investment system <ul style="list-style-type: none"> ○ Approval requirements were removed in all sectors by the late 1990s, except for 9 sectors, including security and the environment. - Introduction of an automatic approval system for FDI - Lifting of maximum foreign equity holding (40%)
Trade & Foreign Exchange	<ul style="list-style-type: none"> - Import regulation shifted to a negative system - Liberalization of raw material imports - Progressive lowering of import tariffs - Foreign exchange concentration system made less stringent (mandatory concentration rate 60% → 40%) - Abolition of the dual exchange rate system (market exchange rate system introduced in 1993)
Finance	<ul style="list-style-type: none"> - Interest rate restrictions removed - Private sector entry to the financial industry authorized - Authority over the stock market transferred to the Securities Exchange Committee

- Thanks to its reform/opening-up policy, since 1992, India has been recording an average annual growth rate of 5-7%, and its GDP ranked 10th globally in 2004.

<Table I-5> **Changes in India's Status in the Global Economy**

	1970s-1980s		2004	
	Value (Year)	Global Ranking	Value	Global Ranking
Foreign Trade Volume (US \$ 100 millions)	233 (1982)	33th	1,752	23rd
Exports (US \$ 100 millions)	92 (1982)	36th	754	28th
Current-price GDP (US \$ 100 millions)	959 (1975)	12th	6,919	10th
Foreign Exchange Reserves (US \$ 100 millions)	49 (1977)	15th	1,406 ¹⁾	6th

Note: 1) as of end of July 2005

Sources: World Bank, IMF, KITA

4) NIEs

- ☐ Since 1965, when it seceded from Malaysia, Singapore has consistently maintained an open economic system and has become an international business and financial center.
- In the initial decades following independence, the city-state compensated for its limited financial resources by bringing in foreign capital and encouraging saving while pursuing a government-led export-oriented industrialization policy.
- During the 1980s, Singapore abandoned its manufacturing (especially electronics) and export-oriented growth strategy, which was no longer viable due to high wages, in favor of a service industry-driven strategy with an emphasis on maritime and air transport, telecommunications and financial industries.
- ☐ Used by the British in the 19th century as the key entry point for China, Hong Kong has long been a thriving center for trade and finance. It has grown in recent decades into an international financial center and an entrepot trading-port.

- From the early days of British colonial rule, Hong Kong maintained an open market policy and a liberal economic system with minimal government intervention.
 - A series of reforms introduced from the late 1960s, including the simplification of legal and administrative procedures, and the easing of restrictions on foreign entry into the banking industry, helped increase trade with China and facilitated Hong Kong's growth into an international financial center and entrepot trading port.
- After the separation of the public and private sectors in 1949, Taiwan's government-led development strategy, combined with foreign capital and technology, resulted in steady economic growth.
- The industrialization process, which, during the 1950s, took the form of import substitution industrialization, gained momentum in the 1960s and 1970s. Bolstered by imported capital and technology, exports grew, regularly achieving new highs. Up until the 1980s, Taiwan enjoyed an impressive average annual growth rate of 8-10%.
 - In the 1990s, Taiwan succeeded in upgrading its industrial structure toward technology-intensive sectors such as information and communications, consumer electronics, semiconductors and precision machinery, acquiring for itself the level of competitiveness required in the international marketplace.

<Box I-1>

Changes in Economic Growth Strategy in Singapore and Taiwan

1. Singapore

Growth Strategy	Policy Components
1960s - 1970s Export-oriented industrialization	<ul style="list-style-type: none"> - Economic Expansion Incentives Act, 1967 <ul style="list-style-type: none"> ○ Lowering of corporate income tax and other incentives for foreign-invested companies ○ Increasing national saving through the Central Provident Fund, a forced savings program
1980s - 1990s Building an international business and financial center	<ul style="list-style-type: none"> - The Singapore Economy: New Directions, (1986) - The Strategic Economic Plan (1991) - Duty exemption programs to attract international businesses <ul style="list-style-type: none"> ○ Operational Headquarters (OHQ) program (1986) ○ Business Headquarters (BHQ) program (1994) ○ Manufacturing Headquarters (MHQ) program (1996)
2000s Becoming a service-industry hub	<ul style="list-style-type: none"> - Vision 2018(New Challenges, Fresh Goals - Towards a Dynamic Global City, 2001) <ul style="list-style-type: none"> ○ External economic cooperation system strengthened by entering into FTA with various countries ○ Becoming an international hub for specialized services such as medical and educational services ○ Shifting toward a knowledge-based economy

2. Taiwan

Growth Strategy	Policy Components
1950s Import substitution industrialization	<ul style="list-style-type: none"> - 1st (1953-1956) and 2nd (1957-1960) economic development plans <ul style="list-style-type: none"> ○ Priority set on the increase of agricultural and industrial output and improvement of trade balance ○ Protection of domestic industry through import regulation ○ Preferential treatment given to raw materials and capital good imports ○ Support toward consumer goods and other import substitution industries (especially textile industries)
1960s - 1970s Export-oriented industrialization	<ul style="list-style-type: none"> - 3rd ~ 6th economic development plans (1961-1975) <ul style="list-style-type: none"> ○ Active invitation of foreign capital ○ Export bounties and customs refunds offered to support export companies - 10 Construction Projects (1974) <ul style="list-style-type: none"> ○ Supporting the growth of heavy and chemical industries and investment in social overhead capital ○ Supporting small and medium-sized businesses by providing management training and financial assistance
1980s - 1990s Industrial structure upgraded, Shift to open economy	<ul style="list-style-type: none"> - 7th ~ 10th economic development plans (1976-1993) <ul style="list-style-type: none"> ○ Shift toward technology-intensive industries such as information and communications, consumer electronics, semiconductors, precision machinery and aviation, and spurring technological development ○ Further opening to the outside world through stabilization of consumer prices, internationalization and liberalization

<Box I-2>

Key Economic Indicators: Singapore, Hong Kong and Taiwan

Singapore	1960s (1961 ~ 1969)	1970s (1970 ~ 1979)	1980s (1980 ~ 1989)	1990s (1990 ~ 1999)	2000s (2000 ~ 2002)
GDP per Capita (US \$, current price)	395 (1960)	914 (1970)	4,854 (1980)	12,110 (1990)	22,765 (2000)
Real GNP Growth (%, average annual rate)	9.5	9.3	7.5	7.6	3.1
Consumer Price Increase (%, average annual rate)	1.8	5.9	2.8	1.9	0.7
Unemployment Rate (%, period average)	..	3.0 (1980)	3.5	2.7	3.9 (2000 ~ 01)
Current Account (US \$ 1 million, period average)	..	-584 (1972-79)	-21	10,694	16,040 (2000 ~ 02)

Source: WDI

Hong Kong	1960s (1960 ~ 1969)	1970s (1970 ~ 1979)	1980s (1980 ~ 1989)	1990s (1990 ~ 1999)	2000s (2000 ~ 2002)
GDP per Capita (US \$, current price) ¹⁾	406.4 (1960)	963.3 (1970)	5,671 (1980)	13,222 (1990)	24,810 (2000)
Real GNP Growth (%, average annual rate) ¹⁾	9.9	9.3	7.3	3.7	4.3
GDP Deflator Increase (%, average annual) ¹⁾	1.8	9.2	8.9	5.2	-3.7
Unemployment Rate (%, period average) ¹⁾	..	3.8 (1980)	2.9	2.8	5.8
Trade Balance (HK \$ 1 million, period average) ²⁾	-2,166	-4,314	-5,548	-72,201	-78,904 (2000 ~ 04)
Share of Entrepot Trade (reexports/total exports %, period average) ²⁾	23.5	22.6	42.6	79.5	91.3

Source: 1) WDI, 2) CEIC

Taiwan	1950s (1952 ~ 1960)	1960s (1960 ~ 1969)	1970s (1970 ~ 1979)	1980s (1980 ~ 1989)	1990s (1990 ~ 1999)	2000s (2000 ~)
GNP per Capita (US \$, current price)	196 (1952)	154 (1960)	389 (1970)	2,344 (1980년)	8,111 (1990)	14,188 (2000)
Real GNP Growth (%, average annual rate)	7.6	9.4	10.2	8.4	6.2	3.2 (2000-03)
Consumer Price Increase (%, average annual rate)	6.8	3.3	8.9	4.4	2.9	0.2 (2000-02)
Unemployment Rate (%, period average)	4.4 (1957)	2.2	1.0	1.2	2.0	4.4 (2000-02)
Trade Balance (US \$ 1 million, period average)	-77.7	-100.6	378	8,817	9,716	14,734 (2000-03)

Source: Taiwan Council of Economic Planning and Development, *Taiwan Statistical Data Book*, 1993, 2004

3. Current State of the Asian Economy ³⁾

- Asia has consistently surpassed the world average in real economic growth rate over the past decades, and has been the region driving global economic growth.

<Table I-6> **Asian¹⁾ Economic and Export Growth over the Recent Decades**

		1960s	1970s	1980s	1990s	2000 ~ 2002
Real GDP Growth (%, average annual rate)	Asia	6.6	6.6	6.3	5.5	4.4
	World	5.6	4.0	3.0	2.5	2.4
Export Growth (%, average annual rate)	Asia	13.9	10.3	7.8	8.1	10.8
	World	7.5	6.7	5.0	6.1	5.8

Note: 1) 14 countries including Japan, China and India, and 4 NIEs (South Korea, Taiwan, Hong Kong, Singapore), 5 ASEAN states (Indonesia, Malaysia, Thailand, Philippines, Vietnam), Pakistan and Bangladesh

Source: WDI 2004; Taiwan Council of Economic Planning and Development, *Taiwan Statistical Data Book*, 1993, 2004

- Asia's share of the global economy has steadily swelled, climbing from 12% in 1960 to 14.5% in 1970, 17% in 1980 and 22.5% in 2003.

<Table I-7> **Regional Shares of Global Economy**
(on the basis of current-price GDP)

Year	North America ¹⁾	Europe ²⁾	Asia			Rest of World	World
				A4 ³⁾	Others ⁴⁾		
1960	43.1	23.2	12.2	10.7	1.5	21.5	100.0
1970	40.1	26.0	14.5	12.5	2.0	19.4	100.0
1980	29.8	31.2	17.3	14.7	2.6	21.7	100.0
1990	30.7	30.6	21.4	18.5	2.9	17.3	100.0
2000	35.2	24.9	25.2	21.6	3.6	14.7	100.0
2003	34.3	28.6	22.5	19.1	3.4	14.6	100.0

Notes: 1) US, Canada, Mexico

2) 15 EU member countries (Germany, UK, France, Italy, Spain, Netherlands, Belgium, Sweden, Luxembourg, Austria, Finland, Denmark, Ireland, Greece and Portugal)

3) China, India, Japan and South Korea

4) 10 Asian countries excluding A4 nations

Sources: *International Financial Statistics*, WDI, *Taiwan Statistical Data Book*

3) Author(s): Jaerang Lee, Economist, International Economics Team (+82-2-759-5403, jaelee@bok.or.kr)

- The global status of key Asian countries also experienced commensurate growth. In 2004, Japan, China, India and South Korea respectively ranked 2nd, 7th, 10th and 11th globally in terms of GDP.
- Thanks to typically externally-oriented growth strategies with heavy reliance on trade, Asian countries generate high trade volumes as well. In 2004, China, Japan, Hong Kong and South Korea respectively ranked 3rd, 4th, 11th and 12th globally in trade volume.
- Meanwhile, in terms of foreign exchange reserves, Japan, China, Taiwan and South Korea claimed the top four positions in the global ranking, and seven of the global top ten were Asian countries.

<Table I-8>

Global Status of Asian Economies

Rank- ing	GDP ¹⁾ (current price, billions of US \$, 2004)		Rank- ing	Foreign Reserves ²⁾ (US \$ 100 millions, Year to end of July 2005)		Rank- ing	Trade Volume ³⁾ (billions of US \$, 2004)	
1	USA	11,668	1	Japan	8,397	1	USA	2,342
2	Japan	4,623	2	China	7,110	2	Germany	1,630
3	Germany	2,714	3	Taiwan	2,536	3	China	1,155
4	UK	2,141	4	Korea	2,057	4	Japan	1,020
5	France	2,003	5	Russia	1,446	5	France	914
6	Italy	1,672	6	India	1,406	6	UK	795
7	China	1,649	7	Hong Kong	1,219	7	Italy	800
8	Spain	991	8	Singapore	1,152	8	Netherlands	678
9	Canada	980	9	Germany	952	9	Canada	615
10	India	692	10	US	766	10	Belgium	594
11	Korea	680				11	Hong Kong	531
22	Indonesia	258				12	Korea	478
32	Thailand	163				15	Singapore	342
33	Hong Kong	163				17	Malaysia	231
36	Malaysia	118				23	India	175

Notes: 1) Taiwan is not included in the ranking; WDI data

2) Figures relating to China, Singapore and Germany are as of June 2005; data quoted from press release issued by the Bank of Korea.

3) Taiwan is not included in the ranking; the figures combine exports and imports; UN data requested from KITA material.

II. Forecasted Changes in the World Economic Environment

1. Forecasted Changes ⁴⁾

- ☐ With the rise of emerging economic powers such as China and India, the world economy will evolve away from the US, Japan and Europe-centered pattern which dominated in the 20th century, toward a new, multipolar whole. The coming decades will see also an acceleration of the trend toward regional economic integration.
- ☐ Growth engines for forthcoming decades will be chiefly knowledge-based industries such as information technology (IT), biotechnology (BT), nanotechnology (NT), software and communications
- ☐ The decline in birth rates worldwide and acceleration of population aging are expected to cause sharp reductions in labor input and changes in consumption and saving patterns among age groups and in preferences in asset types. These changes are likely to dampen economic growth.
- ☐ The global energy crisis will worsen, making energy the prime economic variable. Global warming and other environmental factors are expected to have an increased influence on the world economy.
- ☐ Finally, factors like the progress in information technology, change in population distribution and structure, and changes affecting the financial market as it heads into the next stage of globalization also promise to influence the world economy substantially.

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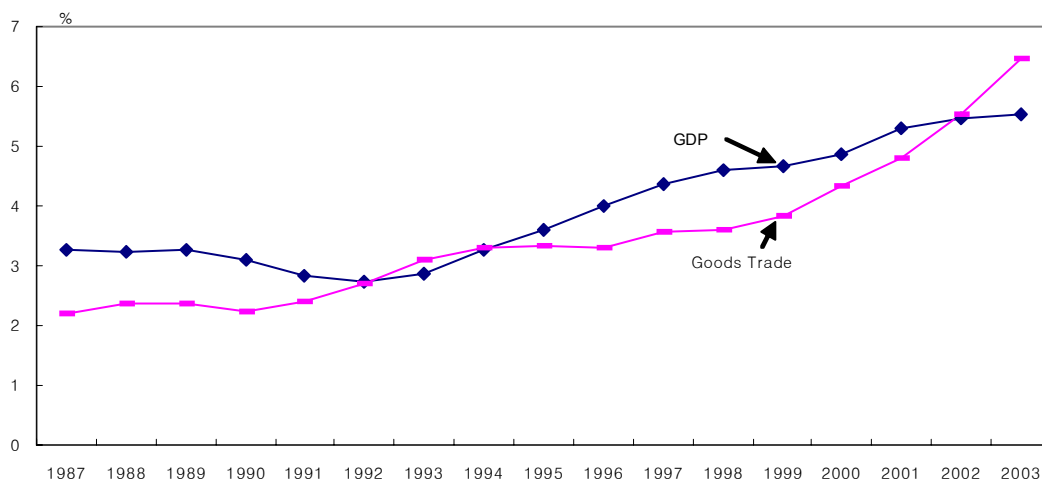
A. World Economic Order

1) Economic Multipolarization

- The world economy is expected to be no longer organized around the US, Japan and Europe as it is today. With the emergence of new economic powers such as China and India, the world economy will realign itself into a multipolar organization.
- Since the 1990s, the share of the global economy contributed by emerging economic powers such as China and India has been rapidly increasing.
- China and India's combined share of global GDP (current US dollar) grew from 3.1% in 1990 to 5.5% in 2003.
- Their share of global trade grew even faster, surging from 2.2% in 1990 to 6.5% in 2003.

<Figure II -1>

Changes in China and India's Combined Share of the Global Economy



Source: WDI

□ The multipolarization of the global economy is expected to further accelerate in the coming decades.

— According to Global Insight, over the next 20 years, while the world economy will grow at a rate of 5.3 to 7% in nominal US dollar terms, the corresponding rates for China, India and Russia during the same period will be 8.6 to 13.5%, 9.0 to 9.7% and 5.1 to 17.3%, respectively.

○ If this prediction is borne out, the combined share of the global economy held by China, India and Russia will rise from 6.3% in 2001 to 17.7% in 2025.

<Table II -1>

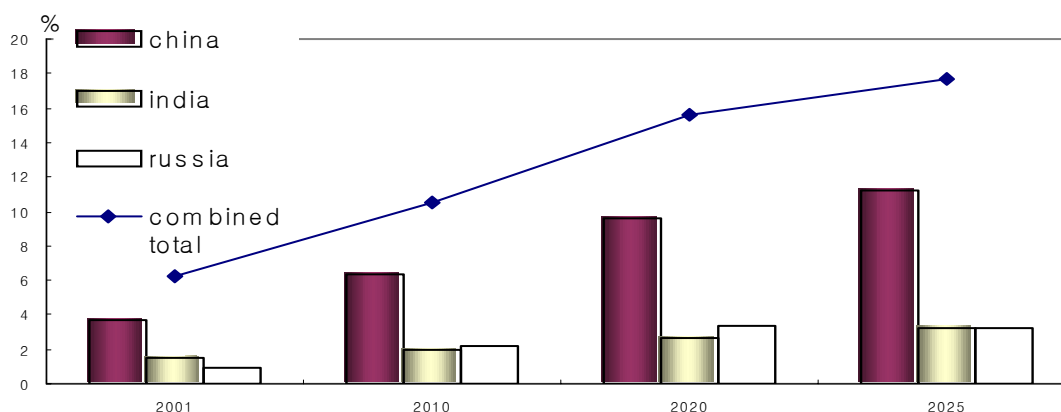
Economic Growth Forecasts for Emerging Economic Powers (Current US dollars)

	World	China	India	Russia
2001~2010	7.0	13.5	9.7	17.3
2011~2020	5.6	10.0	9.2	9.8
2021~2025	5.3	8.6	9.0	5.1

Source: Global Insight, *World Overview*, 2nd Quarter 2005

<Figure II -2>

Forecasted Shares of Global Economy by Emerging Economic Powers (2010-2025)



Source: Global Insight, *World Economic Outlook*, Jan. 2005

- ☐ Economic multipolarization is a consequence of the spread of market economy, globalization and information technology revolution. The process was spurred by the integration into the global economic system of economic powers previously at its periphery.
- ☐ The phenomenon began with the entry onto a high growth path by populous countries such as China and India. These countries that were either socialist regimes or had socialist economic systems became forces to be reckoned with, when they adopted a market economy and implemented market opening policies.
 - China began the process of reform/opening in 1978, with India following suit in 1991.
- ☐ The globalization process rapidly taking place in areas including trade, direct investment and finance is also contributing to economic multipolarization.
 - Between 1960 and 2003, global trade in current US dollar terms increased at an average annual rate of 10%, far faster than global GDP (8%).
 - Global FDI inflows in terms of annual inflow grew eleven-fold between the first half of the 1980s and the second half of the 1990s, from US \$ 56 billion to US \$ 620 billion, and, once into the 2000s, they hit a level of US \$ 720 billion.
 - o The volume of China-bound FDI surged especially sharply. China's share of overall FDI flows to the developing world increased markedly, rising from below 10% in the 1980s to a range of 20%~30% in the 1990s and the 2000s.
 - The globalization of the financial market took place at an equally impressive speed. International capital movements* grew at an exponential rate, rising over ten-fold from US \$ 2.1 trillion in 1987 to US \$ 22.5 trillion in 2003.
 - * Combined total of BIS reporting banks' foreign assets (on the basis of consolidated financial statements) and outstanding balance of international bonds
- ☐ Progress in information technology accelerated the spread of the market economic systems and globalization, and provided opportunities for growth for certain heavily-populated countries with poor social infrastructure, such as India.
 - The IT revolution dramatically reduced transaction costs in the operations of multinational companies, encouraging direct investment.
 - India rode on the crest of the IT revolution and achieved speedy economic growth starting from the 1990s by becoming the favored destination for outsourcing of corporate services and software development.
 - o Between 1990 and 1999, the annual growth rate in India's service sectors (7.2%) was substantially above its GDP growth (5.6%) and that of manufacturing industries (5.2%). Also, the contribution of software and IT-related services to India's total exports surged from 5% in 1997 to 20% in 2002.

- Goldman Sachs (2003) is even more optimistic on the outlook of emerging economic powers, predicting the combined share of the global economy contributed by China, India and Russia to be 24% in 2025 and as much as 43% in 2050.
- Virmani (2005), using his Power Potential Index (PPI)^{*} which takes into account the size of an economy, its technological capabilities and international technological barriers, predicts

that China's and India's PPI will equal that of the US around 2035 and 2060, respectively, and that the world economy sometime toward the middle of the 21st century will have four poles, consisting of these three countries and the EU.

$$* PPI_j = (GDP_j / GDP_{USA}) \times (\text{per capita } GDP_j / \text{per capita } GDP_{USA})^a$$

- GDP per capita is here considered to indicate a country's technological capabilities, while a indicates the degree of difficulty of technology transfer due to national security or other strategic factors (The closer a is to 1, the higher the technological barrier is. When the value of PPI is 1, this means that the power potential of country j is equal to that of the US.)

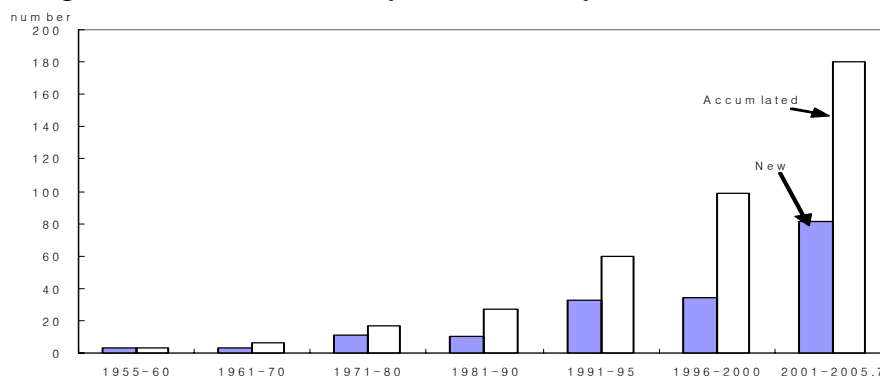
- Meanwhile, Japan's PPI is expected to undergo a slow decline, to fall below India's PPI from sometime around the year 2030.

2) Acceleration of Regional Economic Integration

- ☐ Regional economic integration has been gaining momentum worldwide in tandem with the post-World War II global movement toward multilateral negotiation-based trade liberalization as promoted by organizations like the GATT and WTO.
- By the 1990s, regional economic integration, begun in centers of the world economy such as Europe and the US, had spread to the developing world, becoming a global phenomenon.

- In its historical origin, regionalism or protectionism was a reaction to the phase-one and phase-two globalization that took place firstly between the late 19th century and the early 20th century and next during the second half of the 20th century, and that were actively pursued by the respective contemporary world leaders, Great Britain and the USA.
- The formation of the EU, for instance, was not just motivated by the political goal of promoting collective security for the region, but was in part prompted by a desire to counter the US, which rose to be the new world super power following the two successive world wars.
- In 1994, the US, which had led multilateralist globalization in the post-war world, signed NAFTA and embraced regionalism, in a move to defend its own national interests. The NAFTA was followed by other trade blocs, intensifying economic competition worldwide.
- According to the WTO, as of July 2005, there are 180 bilateral, regional and inter-regional Regional Trade Agreements (RTA) in force.
- 120 of them were entered into after the second half of the 1990s.
- By region, there are 67 regional trade agreements entered into in Europe; 27 in Asia; and 20 in North America.

<Figure II -3> **RTAs by Date of Entry into Force**



Source: WTO(www.wto.org/english/tratop_e/region_e/summary_e.xls)

□ Europe and the US, which had a head start with regional economic integration, are currently expanding the scope of integration.

— In the case of the EU, in 2004, ten Eastern European countries joined as new members and it is currently looking to further expand its membership. The EU also signed a custom union with Turkey (1996) and an FTA with South Africa (2000).

— As for the USA, it is currently working on the creation of the Free Trade Area of the Americas (FTAA)*, an expanded trade bloc built around NAFTA.

* Comprising 34 North, Central and South-American countries

□ Economic integration in East Asia began in earnest with the ASEAN Free Trade Area (AFTA), launched in 1993 as a response to the accelerating integration process in Europe and the US and to the changing economic environment following the rise of the Chinese economy.

— The foreign currency crisis that hit the region between 1997 and 1998 sharpened awareness of the need for closer regional cooperation, and East Asian countries, including those belonging to ASEAN, South Korea and Japan, have been actively entering into FTAs with their neighbors.

○ Recent years have also seen expanding cooperation in finance, as typified by examples like the Chiang Mai Initiative (CMI) and the Asia Bond Funds.

□ Emerging economic powers such as China and India appear keen on exploiting the regional movement to acquire a leadership position in the region.

— China signed an FTA with ASEAN in late 2004.

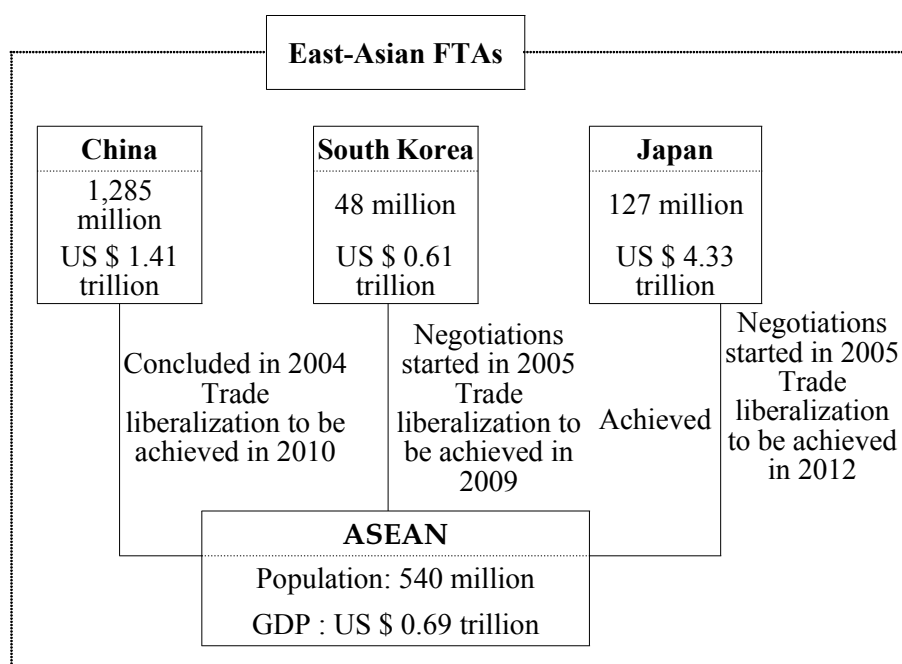
<Table II -2>

Major Regional Economic Integrations

Region	Name	Year of Entry into Force	Member Countries
Europe	European Union (EU)	1957 1973 1981 1986 1995 2004	EEC launched: Belgium, France, Germany, Italy, Luxembourg, Netherlands 1 st expansion : Denmark, Ireland, UK 2 nd expansion: Greece 3 rd expansion: Spain, Portugal 4 th expansion: Austria, Sweden, Finland 5 th expansion: 10 Eastern European countries
	European Free Trade Association (EFTA)	1960	Iceland, Lichtenstein, Norway, Switzerland
North America	North American Free Trade Agreement (NAFTA)	1994	US, Canada, Mexico
Central and South America	Mercado Comun del Sur (MERCOSUR)	1995	Brazil, Argentina, Paraguay, Uruguay
Asia	ASEAN Free Trade Area (AFTA)	1993 1995~ 1999	Singapore, Malaysia, Indonesia, Philippines, Thailand, Brunei Joined by Vietnam, Laos, Cambodia, Myanmar
	SAARC Preferential Trading Arrangement (SAPTA)	1995	7 member countries of the South Asian Association for Regional Cooperation(SAARC); India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan, Maldives
	India-Sri Lanka FTA	2000	India, Sri Lanka
	Japan-Singapore Economic Partnership Agreement (JSEPA)	2002	Japan, Singapore
Oceania	Closer Economic Relations (CER)	1983	Australia, New Zealand
Middle East	Gulf Cooperation Council (GCC)	1981	Bahrein, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates
	Arab Free Trade Zone	1997	Egypt, Tunisia, Morocco, Jordan, Iraq, Syria, Libya, Lebanon
Africa	West African Economic and Monetary Union (UEMOA)	1994	8 countries including Senegal and Ivory Coast
	Common Market for Eastern and Southern Africa (COMESA)	1994	20 countries including Egypt and Angola
	East African Community (EAC)	2001	Kenya, Tanzania, Uganda

- Japan and South Korea responded to China's move by hastening their FTA negotiation process with ASEAN member states and entering official negotiations for the FTA with ASEAN as a whole.
- India, after signing the SAARC* Preferential Trading Arrangement (SAPTA) in 1995, began economic cooperation with Myanmar and Thailand in the late 1990s.
 - * The South Asian Association for Regional Cooperation was formed in 1985 with India, Pakistan, Bangladesh, Sri Lanka, Nepal, Bhutan and the Maldives as its member countries
- More recently, the ASEAN has been showing a keen interest in entering into an FTA with India, and related negotiations are currently in full swing.
- Meanwhile, at the ASEAN+3 Summit convened in late 2004, a proposal was submitted to create an East Asian economic community with the ASEAN countries, China, South Korea and Japan as its member.

<Figure II-4> **Forecast for FTA Negotiations in East Asia**



Source: Nihon Keizai Shimbun (Dec. 30, 2004))

<Box II-2>

Regional Economic Integration Process

- <Stage 1> Free trade zone: Internal tariffs to be completely abolished, while external tariffs are left to the discretion of each member country (ex: NAFTA, AFTA)
- <Stage 2> Custom union: Introduction of common external tariffs, going one step further from the abolishing of internal tariffs (ex: MERCOSUR)
- <Stage 3> Economic community: Integration of factor markets, policy coordination and currency unification (ex: EU)

- ☐ While regional economic integration can doubtless serve as a stumbling block for global trade liberalization, the process can also be a building block.
 - In a situation where multilateral negotiations have stalled out, removing trade barriers within individual regions can be an alternative that can spur the process of trade liberalization for the world as a whole.
- ☐ Economic cooperation or integration in Asia, led by China, India and Japan, can not only enhance the status of Asia on the world scene, but also give positive impetus to global trade liberalization.
 - Increased intra-regional trade and mutual investment and magnified synergy from the network of division of labor can achieve shared growth in Asia. This, in turn, will give the region added bargaining power and strengthen its voice in negotiations with other regions, providing it with the ability to respond effectively to regionalism in the rest of the world.

B. Growth Engines

- ☐ The growth of the world economy in coming decades is expected to rely heavily on cutting-edge technology-based manufacturing (such as information technology (IT), biotechnology (BT), nanotechnology (NT)) and knowledge-based industries (such as software and communications services).

- For knowledge-based industries, knowledge creation and propagation are far more important competitive factors than traditional factors of production such as labor and capital.
- Unlike traditional factors of production, subject to the law of diminished returns, the law of increased returns is at work in using knowledge and information. Therefore knowledge-based industries, playing a crucial role in enhancing the productivity of the overall economy and ensuring its continued growth, are expected to gain further importance in the future.

1) Background to the Growth of Knowledge-based Industry

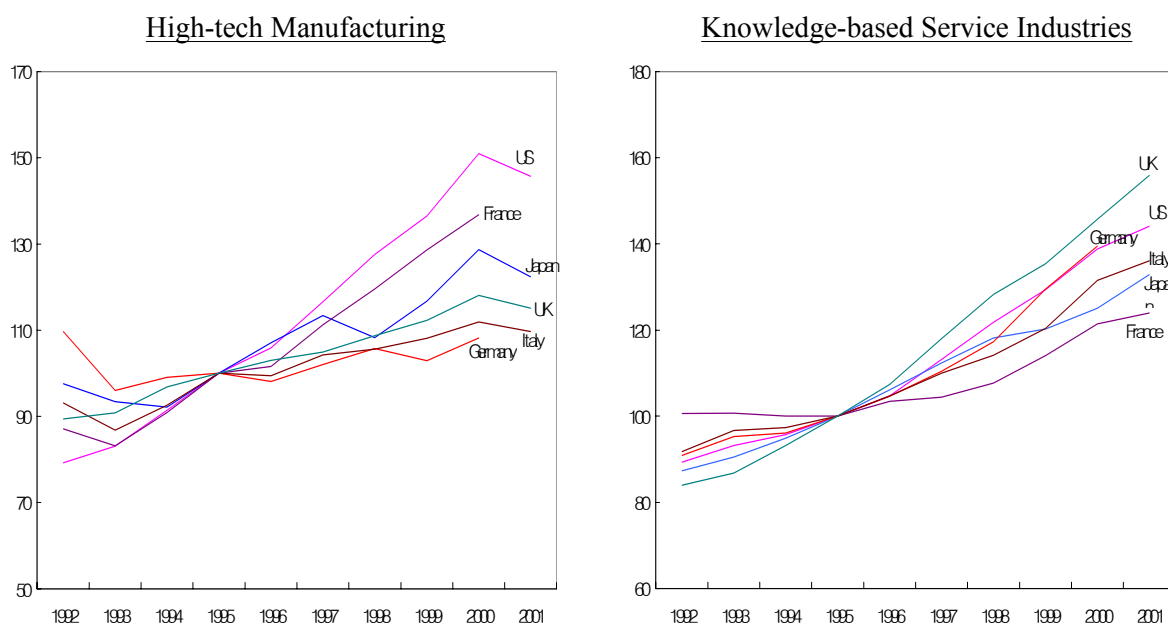
- ☐ Cutting-edge high-tech manufacturing industries are driven by the rapid progress in science and technology we have been witnessing in recent years.
- Major modern challenges such as aging populations, new diseases, environmental degradation and depletion of energy resources, affecting the developing world as well as the developed world, have been spurring research and accelerating progress in science and technology.
- Although threatening to exacerbate these problems, the high-speed economic growth in populous countries like China and India, which together account for 1/6 of the global population, is likely to spur further progress in science and technology.
- Meanwhile, the emergence of China and India as economic powers, helped by their vast pools of low-cost labor, is prompting developed countries and other nations that completed industrialization before them to redistribute their resources in favor especially of R&D, in order to create a new growth engine.

- The possession of new technologies, expected to be a crucial determinant for securing global competitiveness is a goal coveted by most countries including large newly-industrializing nations like China and India, which are harnessing their outstanding resources of scientific and technological manpower toward ambitious R&D efforts.
- The IT revolution, and the concurrent tendency toward a service-centered economy are enlarging the relative contribution of knowledge-based service industries to the overall economy in the developed countries.

2) Trends in Knowledge-based Industry

- The contribution of new technology industries to GDP has been quickly rising among key industrialized nations since the 1990s.
- Between 1992 and 2001, among G6 countries (G7 except Canada), average real value-added growth in high-tech and medium-high-tech industries,* and knowledge-based service sectors** exceeded average real GDP growth (2.1%), reaching rates of 3.2% and 4.8%, respectively.
 - * High-tech industries: aerospace, medical and pharmaceuticals, office equipment, telecommunication equipment, and precision equipment
 Medium-high-tech industries: electrical apparatuses, automobiles, chemicals (excluding pharmaceuticals), other transportation equipment, and general machinery
 - ** Communications, finance, insurance, and business services (computer-related services, etc.; excluding real estate-related services)
- As of 2000, the share of the overall economy (on the basis of real value added) accounted for by knowledge-based industries among G6 nations already stood at as high as 28% on average.

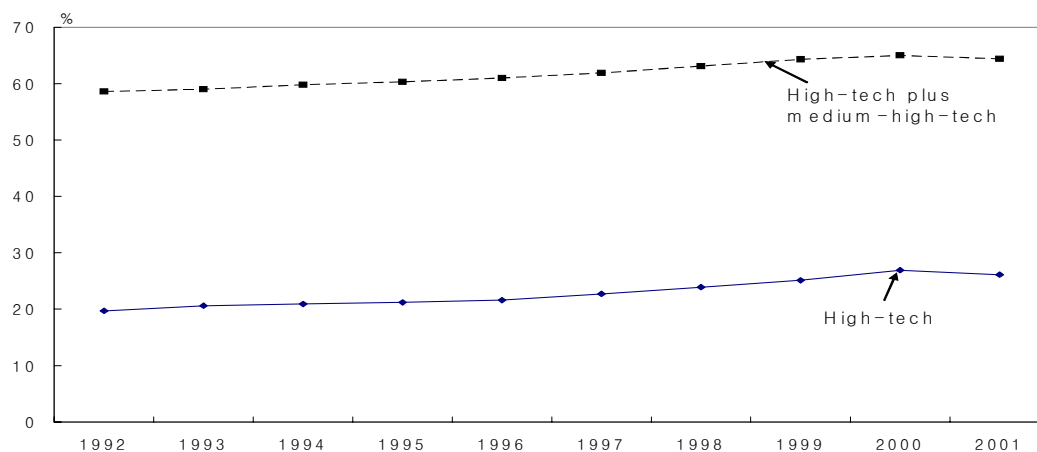
<Figure II-5>
Real Value-added Growth in Knowledge-based Industries among Developed Countries
 (1995=100)



Source: OECD, *Science, Technology, and Industry Scoreboard*, 2003

- The contribution of cutting-edge industries to trade also is climbing rapidly.
 - Between 1992 and 2001, among OECD countries, high-tech manufacturing trade increased by an average annual rate of 8.3%, far exceeding the 5% growth rate realized in manufacturing as a whole.
 - As a result, the share of manufacturing trade contributed by high-tech manufacturing rose from 20% in 1991 to 26% in 2001, up by 6 percentage points. If medium-high-tech industries are included, the total share of high-tech industries advanced from 59% to 64% over the same period.
- The progress in promising new technologies like IT, BT (biotechnology), NT (nanotechnology), ST (space technology) and E²T (environmental and energy technology) is expected to give an even larger share to knowledge-based industries in the future.

<Figure II-6> **Share of High-tech Industry in Overall OECD Manufacturing Trade**



Source: OECD, *Science, Technology, and Industry Scoreboard*, 2003

- IT, BT and NT are platform technologies underpinning not only traditional industries, but also other newly emerging high-tech industries. Hence, efforts to acquire these source technologies are in full swing nearly everywhere, from developed countries and advanced developing countries such as the NIEs to emerging economic powers such as China and India.
- Since the 1990s, IT (including communications) has established itself as a core technology, fundamental to industry as a whole. Among OECD countries, the contribution of IT to value-added growth and job creation has been rising steadily since the late 1990s.
- Between 1995 and 2000, the share of IT manufacturing in total manufacturing value-added increased by 1.4 percentage points in OECD countries on average, and that of IT related service in overall service value-added climbed by 1.9 percentage points on average.
- In result, as of 2000, the OECD average for the contribution of IT to overall corporate value-added stands at 10%.

- Meanwhile, over the same period between 1995 and 2000, job growth in IT sectors (manufacturing and service) among OECD countries is measured at over 4.3% in annual average, which is more than three times the overall job growth rate.
 - In most OECD countries, except Finland and South Korea, whose job growth in IT industries is chiefly accounted for by the IT manufacturing sector, job creation is primarily driven by the IT service sector.
- New economic forces like China and India are also fast catching up with developed nations in this field.
 - China's rise as the world factory in IT fields over the 1990s catapulted it in 2000 to the position of global number three in output, after the US and Japan. In 2003, it edged past Japan to claim the second position, which it has since retained.
 - As for India, with the size of its software exports having finally surpassed that of its textile exports in 2002, IT is fast replacing the country's traditional industries.
- BT or biotechnology collectively refers to fields devoted to producing goods and services of practical benefit to humanity by making use of the technologies related to living organisms such as DNA, protein and cells.
 - Although still an infant industry, rapid progress is being made already in fields like genomics and genetic engineering. BT is projected to emerge sometime toward 2010 as a force, equally important as IT, driving the creation of new industries.
 - Among developed countries, helped by generous government funding toward R&D and other support policies, knowledge creation in BT-related fields has been taking place at a faster rate than in other fields since the 1990s.

- During a 10-year period in the 1990s, the number of BT-related patent applications submitted to the European Patent Office (EPO) rose by an average annual rate of 9.9%, substantially higher than the growth rate in overall patents filed (6.7%).
 - As of 1999, the US, Germany and Japan, the current leaders in BT, together accounted for as much as 70% of total patent applications submitted to the EPO (50% by the US alone).
- NT or nanotechnology develops ways of analyzing, exploiting and controlling phenomena and structures occurring at the nanometer scale (10^{-9} m), equivalent to 1/100,000 of the diameter of a human hair.
- In addition to being a core technology projected to drive the new industrial revolution of the 21st century, alongside IT and BT, NT will be indispensable for the latter two's development. Its industrial and economic effects therefore promise to be hardly less than that of IT itself (OECD 2005).
 - The economic potential of this technological field has been well recognized by countries around the world. Currently, R&D programs on nano-related projects are known to be underway in close to 30 countries. Also, the size of government funding for nano-related R&D in these countries is rapidly increasing.
 - Over a three-year period between 1997 and 2000, the size of government funding for NT-related R&D in key countries doubled or tripled (EU: US \$ 110 million → US \$ 210 million, the US: US \$ 100 million → US \$ 290 million, Japan: US \$ 90 million → US \$ 190 million).
 - During the same three-year period, the number of NT-related scientific publications soared by an impressive 50% from 100,000 to 150,000. The US, Japan and Germany are chiefly responsible for this growth.

☐ ST designates technologies involved in the development of satellite bodies, launch vehicles, spacecraft and aircraft. It is a system technology consisting of cutting-edge technologies such as electronics, semiconductors, computer and materials technologies. Currently, among the G7 nations, the US has an overwhelming lead in this field.

— As of 1999, the combined OECD government budget allocated toward the aerospace industry totals US \$ 13 billion. This amount breaks down by country to 48% for the US, 14% for France and 11% for Japan.

○ In case of the US, the aerospace industry claims the largest share of the government's R&D budget (14.5%).

☐ E²T refers to the technological field concerned with reduction, prevention and restoration of environmental degradations and the development of new alternative energy sources. The demand for this technology is expected to rise sharply around the world, prompted by new environmentally-oriented trade regulations such as the Green Round.*

* The scope of these regulations includes not only the environment-friendliness of products, but also that of their production processes.

☐ In the meantime, a process of convergence and fusion of new technologies, including IT, BT and NT is fast taking place, hastening the creation of new spin-off and accelerating progress in the related scientific and technological fields.

3) Forecasted Changes for Growth Engines

☐ These emerging technologies, especially the three next-generation platform technologies (IT, BT and NT) are expected to give rise to new industries as well as having a far-reaching impact on traditional industries.

<Table II-3>

Phenomenon of New Technology Convergence

	IT	BT	NT	E ² T
BT	- Biochips - Bioinformatics - E-health (Tele-consultation and treatment)			
NT	- Nanochips - Nanobatteries - Terabyte storage devices	- Nanocapsules - Blood vessel-unclogging robots - Nano-bio materials		
E ² T	- High energy efficiency Vehicle control systems	- Bio-diesel - Alternative energy sources including methanol and ethanol	- Water and soil purification systems using nano particles, tubes and robots - Solar batteries, hydrogen batteries	
ST			- Super-light spacecraft materials	- Space resource exploration and development

— Due to the fact that in new technology fields economies of scale can be realized only at the level of the global market, and competition is taking place at the technological frontier, competition surrounding technical standards is particularly fierce between nations as well as between companies and groups of companies in strategic partnerships or alliances.

- BT and NT, in particular, are perceived as crucial determinants of national competitiveness in the post-IT era.

— This explains why countries around the world, regardless of their stage of economic development, are investing R&D resources so heavily in new technology fields.

- Most countries are expected to rely on competitiveness in their respective areas of strength to propel economic growth into the early part of the 2010s. The global industrial structure, accordingly, is also projected to remain essentially the same as today until around that time.

- This is because it takes time and colossal investments before R&D in new technology fields can reach the commercialization stage.
 - For example, the average development cycle for a cutting-edge new biotech drug is 15 years, while the odds of successful commercialization are only one in ten thousand.
 - However, from the second half of the 2010s, the effect of new technologies on traditional industries will become more tangible and substantial in scope. Therefore, the competitive map of the world economy will be visibly altered, from that point on, in favor of countries possessing new technologies.
 - Given how in emerging economic powers like China and India, efforts to catch up with developed countries are already underway, harnessing their vast pools of superior scientific and technological manpower*, the growth potential of these countries is likely to increase further in the foreseeable future.
 - * China and India produce some 500,000 scientists and engineers every year, equivalent to 8 times the corresponding figure in the US. Multinational firms, which initially set up R&D centers in China and India to tap into cheap local labor and secure a bridgehead for the local market, are now gradually expanding their R&D functions in these countries, as they recognize the excellence of the scientific and technological manpower available (Business Week, Aug. 22, 2005).
- ⇒ Amidst the forecasted redrawing of the competitive map of the world economy, prompted by the emergence of new technologies, countries like Japan, South Korea, China and India appear to be correctly assessing the situation and actively preparing to meet the challenges, making the outlook for Asia rather bright.

C. Population

1) Population Prospects

- World population growth rate is expected to decline sharply, from 1.25% a year in 2002 to 0.25% in 2050.
- In the developed countries, the rate is forecasted to fall from 0.25% on average over the five-year period between 2000 and 2005 to -0.14% between 2045 and 2050, and in the developing countries, from 1.46% to 0.4% over the same periods.
- The population of Asia, home to the world's two most populous countries, is projected to grow from 3.65 billion in 2005 to 4.86 billion in 2050 when the region will still account for over 50% of global population (9.22 billion).

<Table II-4>

World Population Forecast by Region

	(100 million, %)					
	2005	2010	2020	2030	2040	2050
Asia	39.1<60.7>	41.4<60.6>	45.7<60.4>	49.1<59.8>	51.6<58.9>	53.3<57.8>
(China)	(13.1)<20.3>	(13.5)<19.7>	(14.3)<18.9>	(14.6)<17.8>	(14.6)<16.6>	(14.2)<15.4>
(India)	(10.8)<16.8>	(11.6)<16.9>	(13.0)<17.2>	(14.2)<17.3>	(15.2)<17.4>	(16.0)<17.4>
North America	5.1<7.9>	5.4<7.9>	5.9<7.8>	6.4<7.9>	6.9<7.9>	7.3<7.9>
(US)	(3.0)<4.6>	(3.1)<4.5>	(3.4)<4.4>	(3.6)<4.4>	(3.9)<4.5>	(4.2)<4.6>
Western Europe	4.0<6.1>	4.0<5.8>	4.0<5.3>	4.0<4.9>	3.9<4.5>	3.8<4.1>
(Germany)	(0.8)<1.3>	(0.8)<1.2>	(0.8)<1.1>	(0.8)<1.0>	(0.8)<0.9>	(0.7)<0.8>
South America	3.7<5.8>	3.9<5.8>	4.3<5.7>	4.6<5.6>	4.8<5.5>	4.9<5.3>
Africa	8.9<13.8>	9.9<14.5>	12.1<16.0>	14.5<17.7>	17.1<19.5>	19.8<21.5>
World	64.5<100.0>	68.3<100.0>	75.6<100.0>	82.1<100.0>	87.6<100.0>	92.2<100.0>

Note: Figures between < > show the share in global population.

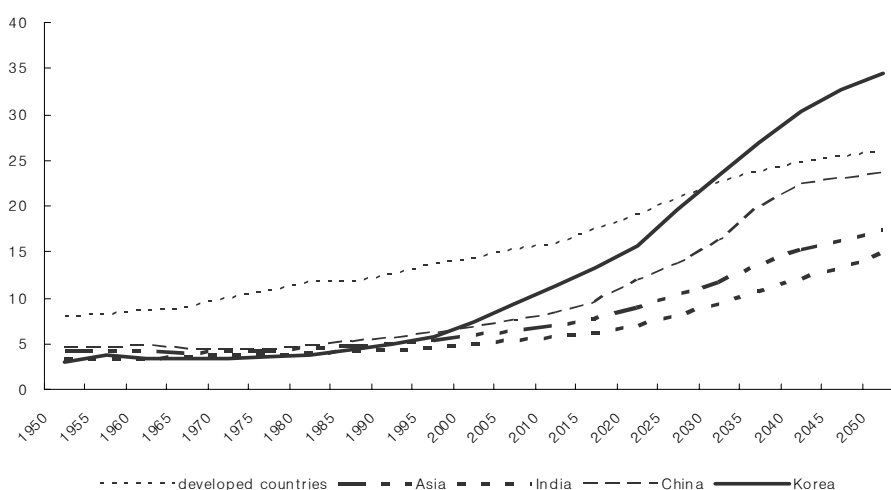
Source: US Census Bureau

2) Aging of Population

- World population is expected to undergo major structural changes over the coming fifty years, due among other things to a declining birth rate and rising share of the elderly.

- Population aging is forecasted to accelerate not just in the developed world, but everywhere around the world.
- The share of the elderly population (aged 65 or older) will rise worldwide from 7% in 1997 to 10% (WHO) in 2025 and to 16.1% (UN) in 2050.
- Among OECD countries, the elderly dependency ratio will increase from 19.2% in 2000 to 31.9% in 2025 and to 45.1% in 2050.
- The share of the elderly in Asia as a whole, estimated at 17.5% in 2050, will remain substantially lower than in developed countries.

<Figure II-7> **Share of Elderly (aged 65 or older) in Population**



- Meanwhile, the share of the working age population (aged 15-64/overall population), while it will decrease among developed countries, is expected to increase in many developing countries.
- Also, the rate of decline in the share of the productive-age population in Japan and European countries will accelerate over time, whereas the evolution will be slower in the US, at least until 2025.

- The share of the productive-age population, while growing steadily in India, is projected to sharply decrease in Russia and China.

3) The Effects of Population Aging

- Alteration in population structures, resulting in reduced labor input and causing differences among age groups in terms of consumption, saving patterns and preferred asset types, can affect growth both directly and indirectly.

<Table II-5>

Forecasted Shares of Working-age Population and Elderly among Key Countries

		(%)					
		2005	2010	2020	2030	2040	2050
China	Working age population	68.4	72.2	69.7	66.8	62.1	60.7
	Elderly population **	7.6	8.3	11.9	16.3	22.3	23.6
India	Working age population	62.7	64.4	66.7	68.1	68.3	66.8
	Elderly population **	5.3	5.7	7.0	9.3	12.0	14.8
Japan	Working age population	66.3	63.8	59.1	57.5	53.1	50.7
	Elderly population **	19.7	22.4	28.1	30.1	34.0	35.9
US	Working age population	66.9	67.2	64.9	62.6	62.3	62.1
	Elderly population **	12.3	12.8	15.8	19.2	20.2	20.6
Russia	Working age population	70.9	72.0	68.3	65.7	64.3	60.4
	Elderly population **	13.8	12.6	15.2	19.3	20.2	23.0

Notes: *) The share of population aged 15 to 64 in the overall population

**) The share of population aged 65 or older in the overall population

Source: UN, World Population Prospects (2005)

- Population aging can negatively affect GDP growth, the current account position and the fiscal balance by causing changes in real economic activities, namely consumption, savings and investment.
- Population aging can be particularly hard on developed countries where the process will shrink total savings, driving down growth potential.

- The consequence of population aging can be detrimental especially to the financial sector. By causing the prices of assets to plummet, it can jeopardize the stability of the overall financial system, which ultimately slows down growth.
- According to the IMF (2005), population aging is contributing to the slowdown in GDP per capita growth in most developed countries.
- Compared to a situation where the age structure of population is stabilized, in countries like France, Germany and Japan, where population aging is taking place at a particularly rapid pace, the growth rate of GDP per capita is expected to decline by 0.2 to 0.3 percentage points through to 2050, while the rate will continue to rise in the US, where the process is unfolding more slowly.
- Unlike in these parts of the world, Asia has vast human resources available especially in China and India, an element favoring dynamic growth of the region.
- China's population, which grew to close to 1.3 billion in 2005, is forecasted to reach its peak around 2030, hitting 1.46 billion, to gradually dwindle thereafter owing to the acceptance of the one-child policy to stand at 1.42 billion sometime around the year 2050.
 - In the case of India, its population, estimated at 1.08 billion as of 2005, is expected to continue to grow, propelled by the persistently high fertility rate. The growth rate is forecasted to be at its height in the coming 30 to 50 years. By 2050, India will count approximately 1.6 billion people, having drawn ahead of China (1.42 billion) to become the world's most populous country (US Census Bureau).
 - With its colossal population the source of a virtually unlimited supply of low-cost but high-quality labor, Asia enjoys highly favorable conditions for thriving manufacturing and service industries.

- In China, currently, agricultural workers account for about half of its 1.3 billion population. By the time changes in the country's industrial structure drive down its share of agricultural population to the level in the developed world, over 600 million workers are forecasted to be diverted to secondary and service industries (Goldman Sachs 2004).
- In India, about 75% of its total population is rural. There is ample capacity for the supply of low-cost human resources in view of the vast potential unemployment and underemployment in its farming communities.

E. Energy

1) Energy-related Environment

A) Competition to Secure Energy Sources Intensifies

- ☐ Yet another crucial factor for production to be added to the list of traditional production factors such as labor, capital and technology, is that of raw materials and energy sources. A steady supply of energy is vital for the stability of production.
 - Accordingly, securing stable sources of energy is an important variable determining industrial output and economic growth.
- ☐ The consequences of a sudden change in energy supply on the world economy could be profound and dramatic, even threatening international security and peace.
 - Petroleum, in particular, is the source of over 40% of the energy consumed worldwide. Meanwhile, the highly uneven geographical distribution of petroleum reserves is a source of considerable international tension.

☐ The world, as a matter of fact, is caught up in a race to secure energy sources, as future growth is vitally dependent upon them.

— To find an alternative oil source in the face of the instability of supply from the Middle East, the US is seeking to cooperate more closely with Russia. The US government places the highest priority on energy within its diplomatic and trade policy, viewing it as a matter of national importance.

— China is engaging in aggressive energy diplomacy and is actively encouraging Chinese oil companies to enter overseas markets in a bid to secure energy sources.*

* China's rapid growth in recent years has dramatically driven up its energy consumption. China became the world's number two energy consumer in 2002, earning it the epithet "energy black hole." The sudden rise of China as a leading energy consumer is raising concerns in Asia about a major energy crisis, triggered by the Middle Kingdom's gargantuan appetite for energy.

— As for Japan, the country is strengthening its pragmatically-oriented diplomatic initiatives to overcome its own deficit in energy resources

☐ The race for energy has on several occasions led to friction in relations between China, the US and Japan.

— A case in point is the fierce dispute between China and Japan over the exploitation of oil and gas fields in East Siberia and the route of oil pipelines.

— Also, the US House of Representatives recently expressed its objection to the attempt by the China National Offshore Oil Corporation (CNOOC) to take over US oil company Unocal, fanning tensions between the two countries.

B) Changes in the Structure of the Energy Industry

- ☐ The structure of the energy industry is likely to be heavily influenced over the mid to long-term by the Climate Convention and the status of development of alternative energy sources.
- Once the Climate Convention enters into force, developed countries must implement environment-friendly policies to comply with the requirement of reducing the emission of greenhouse gases. The strengthened environmental standards are bound to lower the overall reliance on oil, forcing the energy industry to restructure itself.
- Meanwhile, successful development of alternative energy sources, which are cleaner than fossil fuels and commercially viable, is also likely to prompt a restructuring in the energy industry.

2) World Energy Demand and Supply Forecast

A) Demand Forecast

- ☐ Global energy demand is expected to grow between 2002 and 2030 at an average annual rate of 1.7% (International Energy Agency (IEA) 2004).
- Demand breaks down by fuel type as follows: in 2002, 80% of demand is for fossil fuels (oil, natural gas, coal, etc.), 7% for nuclear fuel and 13% for other miscellaneous fuels; and in 2030, 85% for fossil fuels, 5% for nuclear fuel and 10% for miscellaneous fuels. Notable changes occurring over this period are the increase in demand for fossil fuels and moderate decrease for nuclear and miscellaneous fuels.
- ☐ According to the US Energy Information Administration (EIA), global energy consumption will rise from 404,000 trillion BTU* in 2001 to 623,000 trillion BTU in 2025, up by 54%.

* Abbreviation for British thermal unit, a measurement unit for energy and heat, corresponding to 252cal.

- Petroleum, currently accounting for over 40% of energy consumption, is expected to continue to be the main source of energy until at least 2025, given the absence of alternative sources commercially viable enough to replace it.
 - Alternative energy sources such as fuel cells are forecasted to be available some time around 2025. This, however, is not likely to diminish the reliance on petroleum for some time.
 - The share of natural gas, a cleaner form of energy than oil, in global energy consumption is projected to undergo a moderate increase, from 23% in 2001 to 25% in 2025.
 - Some forecasters, however, predict that the share of natural gas, bolstered by the entry into force of the Climate Convention and other related changes, will rise to as much as 47.5% by 2020 (with the share of petroleum plummeting to 18.1%).
 - Coal is one of the so-called dirty energy sources, which are extremely polluting. The consumption of coal, while it is expected to fall in developed countries, will increase in developing countries, propelled by increased demand from coal-based power plants. Consequently, the share of coal in 2025 will remain at its current level of 22%.
- By region 50% of total energy consumption worldwide is currently accounted for by the developed countries, 35% by developing countries and 15% by Eastern Europe. By the year 2025, the share of the developing countries is expected to have increased to 43.5%, closely trailing behind the share of the developed countries (EIA).
- The rate of increase in energy demand is projected to be highest among the emerging market countries of Asia, growing at an average annual rate of 3.5% until 2025.

- The average annual rate of demand growth in China and India are forecasted at 4.1% and 3.3%, respectively.
- In absolute terms, Asia will become the region consuming the highest volume of energy from about 2015, surging ahead of North America and Europe.

<Table II-6>

World Energy Consumption Forecast by Region

(10 trillions of BTU, %)

Region/ Country	Records		Forecasts				2002-2025 Annual average growth rate
	1990	2001	2010	2015	2020	2025	
Developed Countries							
North America	100.9	117.7	134.2	143.6	152.9	162.1	1.4
(US)	(84.6)	(98.0)	(110.6)	(117.6)	(125.1)	(132.4)	(1.3)
Western Europe	59.9	67.4	70.2	72.2	73.4	76.1	0.5
Asia	22.7	28.4	30.4	31.5	32.5	33.6	0.7
(Japan)	(18.3)	(22.0)	(22.9)	(23.6)	(24.1)	(24.7)	(0.5)
Developing Countries							
Asia	51.5	88.4	133.6	155.8	176.3	196.7	3.5
(China)	(27.0)	(43.2)	(73.1)	(86.1)	(97.7)	(109.2)	(4.1)
(India)	(8.0)	(14.0)	(19.6)	(22.7)	(26.0)	(29.3)	(3.3)
(South Korea)	(3.8)	(8.4)	(10.6)	(11.8)	(12.7)	(13.5)	(2.1)
Middle-East	13.1	22.0	28.7	32.4	35.6	38.9	2.5
Africa	9.3	12.7	16.7	19.3	21.4	23.4	2.7
Central and South America	14.5	21.2	26.8	30.4	33.2	36.1	2.3
World	348.2	411.5	503.5	553.5	598.1	644.6	2.0

Source: Energy Information Administration, *International Energy Outlook*, 2005

B) Supply Forecast

- ☐ World energy supply is projected to grow steadily until the year 2030, sufficiently meeting the demand (EIA).
- Oil supply is forecasted to increase every year at a rate of 1.9%.
- The world's total recoverable crude oil resources* are estimated at 3,345 billion barrels, which translates into a recoverable period** of over 70 years.

* The ultimately recoverable reserves correspond to the sum of the cumulative production to date and estimated future output, assuming the economic and technological conditions remain unchanged.

** The reserve-production ratio, corresponding to the ratio of annual crude oil production to total oil reserves, is an indicator toward the total number of recoverable years.

— OPEC member nations, possessing around 2/3 of the world's proven oil reserves, are also home to newly-discovered oil fields. Their influence in the crude oil market is unlikely to diminish in the foreseeable future.

○ OPEC's share in global crude oil production is forecasted to rise from 38% in 2003 to 46% in 2025, an increase of about 8%.

— The geographic distribution of coal is comparatively even. Problems associated with concentration of reserves, therefore, are expected to be negligible in the future as well.

☐ Meanwhile, less optimistic views on the world production of crude oil predict that oil production will peak between 2026 and 2047, but plummet sharply thereafter.

C) Crude Oil Price Forecast

☐ The OECD (2004) predicts no significant change in market power in the oil industry amidst the continuing importance of petroleum in global energy consumption.

— Under this scenario, the higher the GDP growth rate in China and other non-OECD countries, the higher the income elasticity of demand for energy

and the faster the rate of decline in the supply of crude oil, accelerated, for instance, by the rapid depletion of economically recoverable oil resources before the year 2050 the faster the real price of oil is projected to rise at a rapid rate over the long term.

E. Environment

- ☐ The environment can impact economic growth both directly and indirectly. In addition to the short-term effects like the impact on agricultural production, long-term environmental changes such as changes in ecosystems and climate change can expose the planet to all manner of natural disasters.
- Global warming* is an environmental phenomenon with a particularly strong potential to impact negatively on world economic growth
 - * Compared to the pre-industrial revolution period, the atmospheric concentration of carbon dioxide and global average temperature rose by 30% and 0.8°C, respectively (Inter-governmental Panel on Climate Change (IPCC), 2nd Assessment Report, 1995).
- Global warming, a phenomenon caused by the massive consumption of fossil fuels that has been occurring in the post-industrial revolution period, could, if ignored, lead to changes in the structure of the ecosystem, bringing in natural disasters with enormous economic cost.
 - By the year 2030, the scale of GDP in developed countries will have been reduced by 1-3 percentage points and, in developing countries, by 2-9 percentage points due to causes attributable to global warming.
- ☐ Waking up to the environmental crisis threatening the earth, countries around the world have been joining forces in an international effort to control global warming. The Kyoto Protocol, adopted in 1997, for instance, is intended to reduce the emission of greenhouse gases (including carbon dioxide), the chief culprit of global warming. The Kyoto Protocol entered into force in February 2005.

1) The Contents of UN Framework Convention on Climate Change

- ☐ The Climate Change Convention was adopted in 1992 by the United Nations Conference on Environment and Development (UNCED). The convention, however, contains no enforcement provisions.

<Table II-7>

Key Contents of the Climate Change Convention

Article	Content	
§2 (Objective)	- To stabilize the concentration of atmospheric greenhouse gases	
§3 (Principles)	<ul style="list-style-type: none"> - Common responsibilities, but differentiated application - Consideration of specific needs and special circumstances of developing countries - Precautionary and preventive measures - Right and obligation to promote sustainable development - Promoting an open international economic system 	
§4 (Commitments)	Developed Countries	<ul style="list-style-type: none"> - Adoption of policies and measures to mitigate climate change - Adopting policies and measures for returning emissions of greenhouse gases to their 1990 levels - Providing financial resources and related technologies to developing countries - Compiling an inventory of anthropogenic emissions by sources and removals by sinks of greenhouse gasses
	All Parties	<ul style="list-style-type: none"> - Compilation and submission of a national report comprising an inventory of anthropogenic emissions by sources and removals by sinks of greenhouse gases - Adoption of a program on mitigation of climate change - Developing energy-related technologies - Protecting and enhancing forest resources and other green house gas sinks. - International cooperation in scientific research and observation relating to the climate system
§7 (Conference of the Parties)	- Regular review of the implementation of the Convention and related legal instruments in its capacity as the supreme body of the Convention	
§9 (SBSTA)	- Establishment of the SBSTA (The Subsidiary Body for Scientific and Technological Advice)	
§10 (SBI)	- Establishment of the SBI (The Subsidiary Body for Implementation)	

— The Climate Change Convention imposes on all its parties the obligations of creating national statistics on emissions of greenhouse gases in their respective countries; establishing national plans relating to climate change; and developing technologies to reduce greenhouse gases and protecting greenhouse gas sinks.

☐ As for the Kyoto Protocol to the UN Framework Convention on Climate Change, it provides details to the provisions in the Convention by committing 38 countries from the developed countries and Eastern Europe to the reduction of emissions of greenhouse gases.

— The Kyoto Protocol entered into force on February 16, 2005, following its ratification by Russia in November of 2004.

<Table II-8>

Key Details of the Kyoto Protocol

Article	Content
Parties of Emission Limitation or Reduction Commitments	- 38 countries including Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italia, Japan, Latvia, Lichtenstein, Lithuania, Luxembourg, Monaco, New Zealand, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, UK and US
§3 (Commitment Period)	- 2008 ~ 2012
(Greenhouse Gases Covered by the Commitments and Base Year)	- CO ₂ , CH ₄ , N ₂ O: 1990 - HFCs, PFCs, SF ₆ : 1990 or 1995
(Target Reduction Rate)	- EU, Eastern Europe, Switzerland: -8% - US: -7% - Japan, Canada, Hungary, Poland: -6% - Croatia: -5% - Russia, New Zealand, Ukraine: 0% - Norway: +1% - Australia: +8% - Iceland: +10%
(Sinks)	- Changes in greenhouse gas sinks resulting from afforestation, reforestation and deforestation since 1990 recognized
§4 (Meeting the Commitments)	- Countries can act jointly to meet the emission reduction commitments.
§6 (Joint Projects)	- Developed countries carrying out joint projects are allowed to transfer or acquire emission reduction units to and from other parties of the same project.
§13 (Clean Development System)	- Participants in a joint project between developed countries and developing countries are allowed to transfer or acquire emission reduction units to and from other parties of the same project.
§17 (Emissions Trading)	- Developed countries are authorized to participate in emissions trading.
§25 (Conditions for Entry into Force)	- Must be ratified by at least 55 countries. - The ratifying parties must together account for at least 55% of the total carbon dioxide emissions for 1990 of the parties included in Annex I of the Protocol. - Entry into force on the 90th day after ratification

- The Kyoto Protocol commits its parties to an average annual reduction of 5.2% in atmospheric emissions of greenhouse gases from their 1990 levels, over the 4-year period between 2008 and 2012.

<Table II-9> **Forecasted Total Emissions of Greenhouse Gases and Level Allowed**

	(millions of TOE*)	
	1990	2010
Total Emissions	4,408	5,200
Maximum Level Allowed	-	4,182
Required Reduction	-	1,018
Average Reduction Rate	-	5.2%

Note: *) corresponds to the value calculated by dividing total energy consumption by total emission of CO₂ resulting from energy consumption. It is the abbreviation of Ton Oil Equivalent.

Source: Implementation of the Kyoto Protocol (UNFCCC, 2002) and the Kyoto Protocol to the Convention on Climate Change (ADB, 2002)

- Recently, however, the Climate Change Convention is becoming mired down in increasingly acrimonious dissensions, as countries attempt to protect their particular economic interests.
 - The restriction on the emission of carbon dioxide, since it entails a reduction in the consumption of fossil fuels, is bound to lead to a decline in production. Furthermore, the cost of complying with the emission standard is likely to vary widely from country to country, depending on the level of energy efficiency and technological development. These ramifications of the Climate Change Convention are giving rise to a conflict of interests in the international community.
 - Also, there is a large gap in the perception of the issue between the developed and developing countries, with the former insisting on the shared responsibilities of developing countries and the latter on the historical responsibilities of developed countries.
- All in all, environmental factors such as the Climate Change Convention are likely to have as great an impact on world economic growth and international economic order in the coming decades as variables relating to energy supply.
 - The entry into force of the Climate Change Convention, by restricting the emissions of greenhouse gases including carbon dioxide and thereby imposing restraints on the use of fossil fuels that are vital to industries is bound to have a direct and major impact on economic growth.
 - As a result, Canada, Australia, the US, Japan and the EU are expected to see toward the year 2010 a decline of their GDP by 1.5%, 1.1%, 0.8%, 0.8% and 0.5%, respectively from it would otherwise have been. In the developing countries, a decline of 0.15% on average is expected.

2) The Effect of the Climate Change Convention

□ The EU's adoption in July of 2003 of the Emission Trading Schemes (ETS) was followed in 2005 by the opening of the European Climate Exchange (ECX), a 'carbon market' where carbon emission units are traded like any other financial products.

— The size of the greenhouse gas emission trading market is not huge for the moment, but it is growing rapidly.

○ The global trade volume of greenhouse gas emissions skyrocketed in recent years, rising from 1.3 million tons in 2001 to 7.8 million tons in 2003; a six-fold increase (Natsource LLC^{*}).

* A company specializing in greenhouse gas trading

○ The biggest buyers of emission units are the Netherlands, Japan, Canada and the US, and, among international organizations, the World Bank.

□ Meanwhile, the entry into force of the Kyoto Protocol is expected to lead developed countries to strengthen environment-related trade barriers (ETBs) against developing countries and increase pressure on them to reduce emissions of greenhouse gases.

— As most developing countries do not possess highly-developed environmental technologies, the strengthened environment-related trade barriers could deal a severe blow to their export performance.

These developments could hit countries like China and India, two big greenhouse gas emitters (China ranks #2 globally and India #5), particularly hard if they fail to respond adequately to the Climate Change Convention.

□ While its economic effect of the reduction of emissions of greenhouse gases may be negative in the short-term especially for energy-related industries, over the long term, it is expected to spur the development and use of alternative energy sources and to thereby accelerate the emergence of new energy industries.

- Consequences of the new emission standard will be most acutely felt in energy-related sectors, including gas, oil, coal and electric power, and energy-intensive industries like steel, textile, chemicals and nonferrous metals.
 - Coming years will see the expansion of the environmental technology market such as energy-efficient technologies, technologies to reduce emissions of greenhouse gases and those for collecting and storing carbon dioxide, and of related product markets.
- The development of alternative energy sources able to replace fossil fuels has the potential to trigger far-reaching structural changes not just in energy-related industries, but in the overall industry.
- The current fossil fuel-centered industrial structure will evolve toward one built around different alternative energy sources. This will be accompanied by the emergence of environmental and energy engineering (E²T) as a new leading industry.
 - Strength in environmental technologies will become a decisive factor of competitiveness in the automotive industry, as the regulation on emission gas and fuel efficiency will become tougher. Also, the ability to move over to the production of electric vehicles using fuel cells will become crucial for auto makers' lasting competitiveness.
 - Toyota, a frontrunner in the global automotive market, for one, is responding to stricter environment regulations by investing heavily in environment-friendly technologies.
 - Sanyo's solar battery and DuPont's environment-friendly chemicals and Waste Management Inc's waste treatment technologies are among the best-known success stories involving environment-friendly technologies.

F. Finance

- ☐ Three key determinants in the evolution of the global financial environment over the next 50 years are the progress in information technology, changes in population structure and advance of financial globalization (see <Figure II-8>).

1) Penetration of e-Finance: Current Status and Prospects of e-Finance and Its Effect on the Financial Market

A) Current Status and Prospects of e-Finance

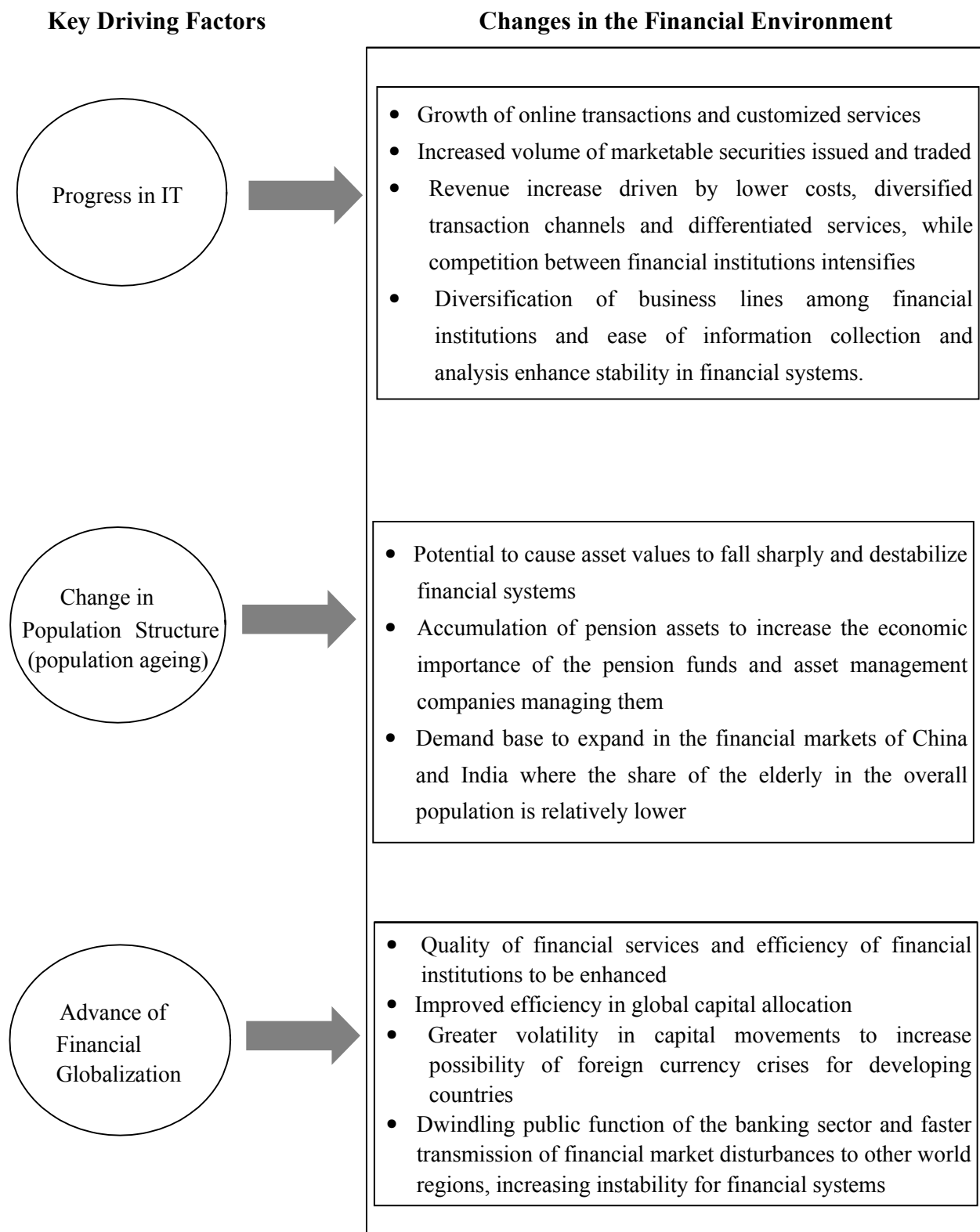
- ☐ In the next half-century, e-finance is expected to move beyond the online banking, process automation and financial network building, that currently make up the chief areas of application.

In the future, we will see the emergence of e-currencies and virtual banks with no branches at physical locations with all financial transactions conducted within cyber spaces.

- Given how financial institutions in developed countries are already offering loan services over the internet, the world may be considered to have entered the early stage of virtualization of banking and use of e-currencies.
- The stage ahead will be the application of EDI (Electronic Data Interchange), which will be achieved by digitalizing all information relating to transactions between banks and customers and between customers and integrating these transaction data to enable their processing entirely within cyber space.

<Figure II-8>

Key Factors Driving Change in the Financial Environment and Main Details of Changes



B) Forecasted Changes in the Financial Environment Resulting from the Spread of e-Finance

① Online Transactions and Universalization of Financial Services

- ☐ In the coming decades, we will see more and more retail financial transactions between financial institutions and customers take place online and also direct financing over the internet - in other words direct online transactions between demanders and suppliers of capital becoming a widespread practice.
 - On the other hand, for retail financial transactions requiring preliminary credit analysis, online channels will replace offline channels more gradually because of the accompanying introduction of credit securing techniques.
- ☐ The universalization of financial services, in other words, financial institutions offering a wide range of services tailored to the specific needs of consumers, is also expected to accelerate in coming periods. Moreover, the bundling of financial with non-financial services, offered in partnership with information and communications companies among others, will be increasingly seen.

② Increased Volume of Marketable Securities Issued and Traded

- ☐ The accelerating penetration of e-finance is likely to drive up demand for marketable securities as well as the volume of their issuance by financial institutions.
 - As online financial transactions make the encashment of marketable securities faster and easier, demand for high-yield marketable securities will grow, while the acceleration of the securitization of assets represented by loans to small and medium-sized companies and households will increase the supply of marketable securities.

③ Increase in Financial Institution Revenues and Change in Revenue Structure

- ☐ The penetration of e-finance is likely to result in increased revenues for financial institutions by enabling them to save on fixed costs and transaction costs, diversify transaction channels and provide differentiated services targeting to different customer groups.
- On the other hand, in the event of their operating margins shrinking in response to intensified competition among them, generated by reduced transaction costs, there may be a negative impact on financial institutions' revenue.
- ☐ As for the profit structure among financial institutions, non-interest revenue will claim a growing share of total revenue as the balance between non-interest and interest revenues will topple in favor of the former in coming times.
- While fiercer competition will narrow deposit-loan spreads, decreased demand for settlement accounts will reduce interest revenue.

In contrast, income from fees and commissions from asset management, debt management services and various payment services, and management fees from securities and financial derivatives will grow in scale to become the major source of revenue.

④ Greater Stability in Financial Systems

- ☐ The implementation of e-finance services can potentially enhance stability in financial systems, as it provides financial institutions with means for business diversification and makes it easier to obtain and analyze small and medium-sized company-related information.
- On the other hand, system failures and complications arising from the absence of a comprehensive legal framework can negatively affect the stability of financial systems.

2) Population Aging and Change in Asset Demand

A) Asset Value Decline

- ☐ Change in global population structure toward an increased share of the elderly is bound to reduce the supply of labor, which in turn will reduce saving, causing a decline in asset prices.
 - A rapid progress in population ageing can cause asset prices to plummet, putting the stability of financial systems at risk ('Asset market meltdown hypothesis').
 - However, if population ageing is accompanied by increased participation of the elderly in the workforce, this may slow down the rate of decrease in saving and asset demand.

B) Asset Portfolio Tilted toward Safe Assets

- ☐ The more advanced in age investors are, the stronger their preference for safe assets. Population ageing therefore can trigger massive portfolio shifts from stocks to bonds.
 - In the case of the US, a higher share of stocks in portfolios is common among investors aged 35 and younger, while older persons prefer safe assets such as CDs, life insurance and such like to more risky assets.

C) Increased Importance of Pension Funds

- ☐ As pension programs are expected to become the chief vehicles for long-term savings for retirement, pension funds will play an important role as institutional investors and drive the growth of the financial market, especially stock and bond markets.

- Facing the prospects of accelerated population ageing, more and more countries will put in place government pension programs on a mandatory enrollment basis, and introduce private pension plans with tax benefits to encourage saving toward retirement.
- As retirement pension assets accumulate, this will increase the economic role and importance of pension funds and of the asset management companies.

D) Growing Demand for Financial Assets in China and India

- ☐ While asset demand over the coming decades leading to the year 2050 is expected to decline in the developed world, affected by change in population structure, evolution in the opposite direction is likely to be the case in Asia, where demand for financial assets will instead rise.
- In the developed world, population ageing will cause total savings to fall, erode long-term growth potential, and lead to shrinking demand for assets, especially for risky assets like stocks.
- In the meantime, in Asia, where the population share of elderly is comparatively lower (except in South Korea and Japan), economic growth will keep up its pace, and widen the basis of demand in the financial markets as a whole and especially the stock market and bond markets.

3) Advance of Financial Globalization

A) Current Status of Financial Globalization and Outlook

- ☐ Since the 1980s, the liberalization of national financial markets and internalization of corporate operations have spurred a process known as financial globalization, whereby financial markets around the world are being consolidated into one large market.

- While, as part of the movement toward financial liberalization, countries around the globe are opening up their national financial markets to international competition, corporate operations are becoming increasingly global in nature, accelerating capital movement between countries; and growing numbers of financial institutions are advancing into overseas markets. These factors are further driving the progress in financial globalization.
- The overseas presence of financial institutions, which initially took the form of foreign branch offices, grew in scale in the 1980s and 1990s as leading financial players expanded their foreign business networks through M&A activity or entered into business partnerships with local institutions to achieve a global network.
 - As a result, the shares of foreign capital in banking sectors worldwide have been rapidly rising, reaching, as of 2001, 61% in Eastern Europe, 44% in South America, 15% in Asia and 10% in the developed world (excluding the UK and New Zealand).
- Financial institutions, responding to the globalized market environment, offer not only traditional deposit and loan products or foreign exchange-related services, but have taken up services such as brokering M&As and underwriting market securities, to diversify their business lines.

<Table II-10> **Share of Foreign Capital in Banking (share in total assets)**

	Country	Share (%)		Country	Share (%)		Country	Share (%)
South America	Mexico	83	Eastern Europe	Czech Republic	90	Devel -oped Coun -tries	New Zealand	99
	Panama	59		Hungary	89		UK	46
	Chile	47		Poland	69		US	19
	Uruguay	43		Romania	47		Norway	19
	Venezuela	43		Russia	9		Switzerland	11
	Peru	42	Asia	South Korea	30		Finland	6
	Bolivia	36		Malaysia	19		Japan	7
	Argentina	32		Philippines	15		Italy	6
	Brazil	30		Thailand	7		Canada	5
	Columbia	22		China	2		Germany	4

Source: World Bank Regulation and Supervision Survey(2003)

- Notably, since the late 1990s, banks' dealings with multinational firms and foreign companies have been increasing sharply, resulting in rapid growth of the overseas assets held by banking institutions, as shown in <Table II-11>.

<Table II-11> **Size of Overseas Assets Held by Banks in Developed Countries**
(unit: US \$ 100 million)

Country	1983	1988	1993	1998	2003
France	708	978	1,155	1,897	1,203
Germany	337	932	1,796	3,995	2,504
Japan	611	3,389	4,059	2,959	12,015
Switzerland	167	365	518	839	1,473
UK	858	994	1,849	3,377	15,685
US	214	1,623	1,793	3,050	7,886

Source: reproduced from Matthews-Thompson (2005)

- Financial globalization is expected to accelerate further in the future, especially among Asian countries, propelled by the globalization of corporate operations and the high growth achieved in China and India.

— The internationalization of corporate activities is being given further impetus by its strengthening of cooperation between countries such as bilateral or multilateral negotiations for trade liberalization.

In this situation developing countries such as China and India, enjoying fast-paced growth and swelling in financial assets, are continuously pushing ahead with financial deregulation.

- In particular, if the financial markets of Asian countries such as China, Japan, Taiwan and South Korea with their burgeoning foreign exchange reserves strengthen their linkages with the global market,

this will heighten the influence of China and other Asian players on the world financial markets, which is seen to bring about a comparative reduction in that of the United States.

B) Effects of Financial Globalization

- ☐ The integration of national financial markets into one global market can yield benefits for developing countries by increasing their exposure to advanced financial products and techniques and improving the worldwide distribution of capital.

However, negative ramifications such as the increased volatility of capital movements, the faster propagation of external market shocks and the diminished public character of the banking sector may also have to be reckoned with.

- ☐ At the initial stage, market entry by financial institutions from developed countries can potentially enhance the quality of financial services and raise the efficiency of local financial institutions.
 - As the local financial market opens to competition from foreign institutions, the resulting competitive effects will push up deposit interest rates, lower loan interest rates and other various service fees, and result in the improvement of the overall quality of services.
 - Advanced financial techniques and management techniques brought by foreign financial institutions will have a positive spillover effect on local institutions in developing countries, driving up efficiency.
- ☐ Second, the free capital movements caused by the globalization process will lead to the greater allocation of capital to countries with higher growth potential, enhancing the efficiency of global capital allocation as well.
 - To turn to a past example, in the US, during the 1980s, domestic saving was far from insufficient to meet investment demand in the country. This shortfall between domestic saving and investment was made up by foreign capital.

- Third, the full opening of the stock and bond markets and the short-term financial market will increase the amount of capital inflows and outflows and make the movement of investment easier. This can increase exposure to foreign currency crises even for countries with sound economic conditions and adequate foreign exchange reserves, as it makes them more vulnerable to speculative attacks.
- The foreign currency crises faced by many Asian countries in the late 1990s provide a salutary example in this respect. The expansion of short-term capital flows from the advanced countries into these countries, driven by the highly optimistic views of the prospect of a region that had been enjoying high-speed economic growth decade, abruptly went into reverse, causing a financial meltdown.
- Fourth, foreign banks, being primarily profitability-driven institutions, are less concerned about the stable long-term growth of a local economy than their domestic counterparts, and have little incentive to cooperate with the government's financial policies. Hence, the public function of the banking sector, as a stabilizer of the financial market to support the growth of the national economy, could be substantially weakened.
- Lastly, disturbances occurring in overseas financial markets can be more quickly transmitted to local markets, a potentially jeopardizing factor for the stability of financial systems.

C) Asian Responses to Financial Globalization and Outlook

- Financial cooperation in East Asia is still in its early stages. It has focused on building up the cooperative framework making it more systematic in order to prevent another intraregional foreign currency crisis, and to enable a collective response in the event of its occurrence and deepening by cooperation in providing liquidity, and broadening the Asian bond market.

- The ASEAN+3 (South Korea, China, Japan) financial ministers at a meeting convened in Chiang Mai, Thailand in May 2000 adopted the CMI (Chiang Mai Initiative)*, a measure for expanding the ASEAN currency swap agreements and Repo (repurchase agreement) transactions.

* The key points of the CMI include expanding the scope of the currency swap agreements between ASEAN countries and building a repo network among the central banks of South Korea, China and Japan to enable the transfer of US dollars between one central bank and another (maximum amounts of transfers are pre-agreed), should another foreign currency crisis hit one of these countries. The details of the CMI were finalized at the Summit which met in Singapore in November 2000. Since then, member nations have been negotiating with each other on bilateral currency swap agreements. As of end of May 2005, there are in all 17 agreements in force, for a total value of US \$ 37 billion.

- Asia Bond Funds I and II**, totaling US \$ 3 billion were set up for investment in dollar-denominated or regional currency-denominated bonds issued by the governments and government organizations of member countries of EMEAP* (excluding Japan, Australia and New Zealand).

* Executive Meeting of East Asia and Pacific Central Banks and Monetary Authorities, composed of members from 11 countries

** ABF I, a 1 billion-dollar fund, was established in June 2003, and ABF II was created in May 2005 for an amount of US \$ 2 billion.

- The establishment of ABFs I and II has made it possible to use some of the massive foreign exchange reserves available in Asian countries to enhance liquidity in the region's financial markets. As an investment vehicle, these funds yield added benefits such as diversifying investment assets and improving profitability.

- Meanwhile, given the accelerating trend toward regionalization as a counterpart to the advance of globalization, future monetary cooperation discussions among East Asian countries are likely to revolve around stronger forms of monetary cooperation such as exchange rate policy cooperation and monetary union.

Intra-regional economic cooperation will also be strengthened through Northeast Asia Development Bank and other such instrumentalities.

— In the face of the establishment of a common single market in Europe and the market integration efforts in full swing in North America,

the need for an exchange rate cooperation mechanism to ensure stable growth in the region is felt more acutely than ever in East Asia.

— Furthermore, the continued existence and long-term success of the European Monetary Union is likely to encourage Asian countries (ex: ASEAN+3 countries) to establish a similar monetary union (provisionally known as the Asian Currency Union: ACU) to reduce transaction costs between member states and promote intra-regional trade and investment, rising above the political, cultural and linguistic differences that separate them.

○ If and when ACU is launched, the world will have three key currencies, namely the US dollar, the euro and a common Asian currency.

— The plan for creating a new development bank - tentatively known as the Northeast Asia Development Bank* - to finance costly projects that are currently solely dependent on funding from the World Bank and the Asian Development Bank, such as providing social overhead capital including energy, roads and communications infrastructure in underdeveloped regions in Northeast Asia for balanced economic growth in the region and assisting North Korea's transition to a market economy, may very well become reality in the near future.

* The Finance and Economy Minister of South Korea recently stressed that South Korea, China and Japan should look actively into setting up a development bank for Northeast Asia ('Northeast Asia Development Bank') with a capital of US \$ 20 to 30 billion.

2. Conditions for Long-term Growth by Region ⁵⁾

- ☐ Asia possesses immense human resources that can provide an almost inexhaustible reserves of manpower, supply of low-cost, high-quality labor, and abundant natural resources including coal. It has also several other key long-term growth factors on its side. In addition to the latecomer advantage, which will continue to work in its favor in the future, it has a good potential for technological progress as well. The efforts both in East Asia and India to upgrade the industrial structure into a knowledge-based model and other proactive policies adopted by these countries toward the changing economic environment point strongly to the region's capacity to achieve sustained growth.
- ☐ The US, the foremost in technological competitiveness, is expected to maintain its current high productivity for a good while. Its advantage in population structure and natural resource endowment will also help with future growth.
- ☐ Europe has to reckon with the delay in European integration, a widening productivity and technology gap between it and the US, the aging of the population and insufficient energy resources, which may negatively affect its growth potential.
- ☐ Resource-rich nations like Russia and Brazil, whose growth is currently stunted by a closed market system and flawed economic system, may soon join China and India in becoming new economic power-houses provided that they remove these roadblocks and implement an effective growth strategy.

A. Asia

1) Favorable Conditions

A) Vast Pools of Human Resources

- ☐ Human capital is the single most important growth factor for this populous region which is home to China and India.

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- Population in Asia is expected to continue to account for over 50% of the world's population.
- ☐ The abundant supply of cheap labor makes Asia not only a cost-competitive region for labor-intensive light industries such as textiles and apparel, but also high-tech industries like electrical and electronics products and semiconductors.
- Asia's cost competitiveness is expected to be a strongly attractive factor for multinational firms from the developed countries, which will be drawn to this part of the world in a bid to cut down on production costs.
- ☐ Thanks to the high regard for education traditional in Asia, the region's labor forces are also of high-quality. The numbers of the skilled and educated are expected to grow sharply in coming decades as economic conditions improve in the region.
- In China, close to 5.5 million new graduates in science, engineering and medicine and 450,000 graduates from technological training institutes were produced in 2003. The country numbered roughly 2.25 million professionals in scientific and engineering fields and 1.1 million research workers hired by R&D institutions, as of the same year.
- India, counting over 800,000 postgraduate degree holders and more than 3 million scientific and technological workers, produces as many as 50,000 computer experts and 360,000 engineers every year.
- Meanwhile, seven Asian countries (India, China, South Korea, Japan, Taiwan, Thailand and Indonesia) rank among the top ten foreign nations in number of students enrolled in a US undergraduate college or graduate school.

- Asian work forces are not just known for their high level of competence and general education, but also for industriousness stemming from their socio-cultural value systems.

B) Wealth of Natural Resources

- Asia possesses a wealth of natural resources, including energy sources and minerals that are indispensable for both region-wide industrial development and that of neighboring regions.
- China and India rank 3rd and 4th globally in coal reserves, respectively. Russia, home to the largest natural gas reserves, is neck-to-neck with Venezuela in crude oil reserves and second only to the US in coal reserves.
- Eastern Siberia with its sizeable oil, natural gas and coal reserves, respectively estimated at 10%, 20% and 16% of global reserves, is considered as a new treasure house of fossil fuel resources.
- Also in key non-fuel minerals such as iron ore, lead, zinc and tungsten, China, Australia, Russia and other Asian countries are home to some of the world's largest reserves.

<Table II-12> **World Energy Resource Reserves by Country**

Type Ranking	Crude Oil (thousand million barrels, %)	Natural Gas (billion cubic meters, %)	Coal (million tonnes, %)
1	Saudi Arabia 262.7 (22.1)	Russia 48.00 (26.7)	US 246,643 (27.1)
2	Iran 132.5 (11.1)	Iran 27.50 (15.3)	Russia 157,010 (17.3)
3	Iraq 115.0 (9.7)	Qatar 25.78 (14.4)	China 114,500 (12.6)
4	Kuwait 99.0 (8.3)	Saudi Arabia 6.75 (3.8)	India 92,445 (10.2)
5	UAE 97.8 (8.2)	UAE 6.06 (3.4)	Australia 78,500 (8.6)
6	Venezuela 77.2 (6.5)	US 5.29 (2.9)	South Africa 48,750 (5.4)
7	Russia 72.3 (6.1)	Venezuela 4.22 (2.4)	Kazakhstan 31,279 (3.4)

Note: The figure inside the () is the share in global reserve.

Source: BP Statistical Review of World Energy, June 2005

<Table II-13>

Mineral Resource Reserves by Country

Mineral Ranking	Lead (million tonnes, %)	Zinc (million tonnes, %)	Iron Ore (billion tonnes, %)	Tungsten (thousand tonnes, %)	Molybdenum (thousand tonnes, %)	Manganese (million tonnes, %)	Tin (thousand tonnes, %)	Nickel (million tonnes, %)
1	Australia 15.0 (22.4)	China 33 (15.0)	Russia 14.0 (17.5)	China 1,800 (62.1)	China 3,300 (38.4)	Ukraine 140 (36.8)	China 1,700 (27.9)	Australia 22.0 (35.5)
2	China 11.0 (16.4)	Australia 33 (15.0)	Brazil 14.0 (17.5)	Canada 260 (9.0)	US 2,700 (31.4)	India 93 (24.5)	Malaysia 1,000 (16.4)	Russia 6.6 (10.6)
3	US 8.1 (12.1)	US 30 (13.6)	Australia 11.0 (13.8)	Russia 250 (8.6)	Chile 1,100 (12.8)	China 40 (10.5)	Indonesia 800 (13.1)	Cuba 5.6 (9.0)

Source: US Geological Survey, Mineral Commodity Summaries, January 2005

C) Potential for Further Technological Progress: Latecomer Advantage

□ Currently, there exist significant technological gaps to be made up between developed countries and Asia's newly-industrializing nations, including China, India, and most ASEAN member states.

— Except for Japan, Taiwan, South Korea and Singapore, all other Asian countries rank below 20th in global technological competitiveness indices.

<Table II-14>

Technological Competitiveness among Asian Countries

Country	Taiwan	Japan	South Korea	Singapore	Malaysia	Hong Kong
Ranking	2	5	9	11	27	34
Country	Thailand	Philippines	China	India	Indonesia	Vietnam
Ranking	43	61	62	63	73	92
Country	US	Sweden	Switzerland	Germany	Netherlands	UK
Ranking	1	4	7	12	16	18

Source: World Economic Forum, Global Competitiveness Report 2004-2005

— Also in terms of numbers of international patents granted, most Asian countries except Japan and South Korea trail far behind developed countries.

— These gaps, however, may be quickly made up by Asian nations which will be able to steepen their learning curves and improve their technological competitiveness by capitalizing on their high-quality human resources.

□ Meanwhile, the advanced developing countries of Asia like South Korea, Taiwan and Singapore, which no longer enjoying catch-up advantage to such a degree, are strengthening efforts to realign their industrial structure to a knowledge-based model built around next-generation industries.

- Asia's advanced developing countries are fast acquiring technological competitiveness in high-tech industries including IT and BT, in an effective combination of strong governmental leadership and private-sector endeavors.
- The region's high-quality manpower and efficient human resources development system are factors contributing to the strong likelihood of Asian countries rising to become advanced technological nations on an equal footing with developed countries, rather than resting content with simply imitating their technologies.

<Table II-15> **Number of International Patents by Country (No, %)¹⁾**

	1990	1995	2000	2001	2002	2003
Japan	19,525 (21.6)	21,764 (21.5)	31,295 (19.9)	33,224 (20.0)	34,859 (20.8)	35,517 (21.0)
South Korea	225 (0.3)	1,161 (1.1)	3,314 (2.1)	3,538 (2.1)	3,786 (2.3)	3,944 (2.3)
Singapore	12 (0.0)	53 (0.1)	218 (0.1)	296 (0.2)	410 (0.3)	427 (0.3)
China	47 (0.1)	62 (0.1)	119 (0.1)	195 (0.1)	289 (0.2)	297 (0.2)
Hong Kong	52 (0.1)	86 (0.1)	179 (0.1)	237 (0.1)	233 (0.1)	276 (0.2)
Taiwan	2 (0.0)	8 (0.0)	15 (0.0)	24 (0.0)	44 (0.0)	25 (0.0)
US	47,391 (52.4)	55,739 (55.0)	85,069 (54.0)	87,605 (52.8)	86,972 (52.0)	87,901 (52.0)
Germany	7,614 (8.4)	6,600 (6.5)	10,235 (6.5)	11,259 (6.8)	11,280 (6.7)	11,444 (6.8)
France	2,866 (3.2)	2,821 (2.8)	3,819 (2.4)	4,041 (2.4)	4,035 (2.4)	3,869 (2.3)
UK	2,789 (3.1)	2,478 (2.4)	3,667 (2.3)	3,965 (2.4)	3,837 (2.3)	3,627 (2.2)
Switzerland	1,284 (1.4)	1,056 (1.0)	1,322 (0.8)	1,420 (0.9)	1,364 (0.8)	1,308 (0.8)
World	90,365 (100.0)	101,419 (100.0)	157,495 (100.0)	166,037 (100.0)	167,333 (100.0)	169,028 (100.0)

Note: 1) US patents

Source: United States Patent and Trademark Office

D) Capital and Technology Transfer from Developed Countries

□ Thanks to the rapid economic growth that is turning the region's gigantic population into a huge consumer market, a high-quality labor force and investment-friendly government policies, Asia is expected to remain the world's most attractive investment region for a long while to come.

— With increased incomes giving Asian consumers bigger buying power, the region is expected to have an insatiable appetite for industrial goods.

- To take the example of China, toward 2011, when the country's average national income is forecasted to be double its current size, the share of middle and high income earners (making US \$ 3,000 and more) will amount to 28%, over six times the current percentage.

By 2025, middle-income earners are projected to make up roughly 80% of the total population, having registered an 18-fold increase(Goldman Sachs 2004).

⇒ The already explosive demand for durable consumer goods such as automobiles, is expected to continue to grow at a headlong pace of more than 10% every year for the next 20 years.

- India, which will probably follow the economic development pattern of China with a time lag of 10 to 15 years, will experience a sharp increase in demand for durable consumer goods from 2020 onwards. From sometime around the year 2035, the demand for durable consumer goods is expected to grow at an annual rate of over 10% (Goldman Sachs 2004).

□ Asia's huge demand base will be a strong factor in luring multinational firms based in developed countries who will attempt to gain a foothold in the region's markets through direct investment.

- There is particularly strong demand for direct investments in China to set up manufacturing plants to tap into China's reserves of low-cost manpower and to target the country's fast-growing consumer markets.

India is also enjoying an ever-increasing inflow of FDI, which is chiefly directed at IT-related industries boasting plentiful English-speaking IT research manpower. A substantial number of FDI deals are related to R&D projects and business process outsourcing.

- ⇒ A recent survey of executives of leading multinational firms revealed that China and India are respectively the number one and number three targets for direct investment (A. T. Kearney 2004).

- Aside from China and India, countries like Hong Kong, Japan, Singapore, Malaysia, Thailand, South Korea and Indonesia, endowed with high-quality human resources and business infrastructure, are also highly prized as places to invest in the R&D and financial service sectors. Asia therefore promises to retain its upper hand over North America and Europe in the global FDI race in the coming decades.

2) Destabilizing Factors Negatively Affecting Economic Growth

A) Growing Inequality of Income and Wealth

- As a general rule, inequality in income and wealth tends to become aggravated during the initial stage of economic growth via industrialization.
- The advance of industrialization widens disparities in income between the agricultural sector and the industrial sector as well as those in wages within the industrial sector, between skilled and non-skilled workers.

- Income inequality can be worsened also by external trade and foreign direct investment - the new variables coming into play, once an economy opens itself to the outside world. This contributes to widening further the wage differentials between skilled and non-skilled workers.
- Among Asian countries, however, in spite of rapid economic growth, income inequality throughout the developmental stages has been significantly lower than in other less developed regions of the world such as Central and South America and Africa.
 - This phenomenon is largely owing to the fact that in these countries, the transfer of idle labor force from the agricultural sector to the industrial sector took place at a fast rate, and that the high educational attainment also common to them contributed to an accelerated accumulation of human capital and had a mitigating effect on disparities in the local labor force.
- On the other hand, countries like China and India, in a bid to spur the growth of the export manufacturing industry, have been implementing discriminatory credit and tax policies and an industrialization policy benefiting certain geographical regions at the expense of others. As a result, income inequality has been growing at an accelerated rate in these countries, both between regions and between industries.
 - In China, income distribution has become increasingly unequal over the last two decades: the share of the top 10% income group accounted for around 17% of gross national income in the 1980s, but had swollen to over 25% in the early 2000s.
 - China's Gini index score, which indicates the level of income concentration, climbed from 0.36 in the early 1990s to 0.45 in the 2000s.
 - In India, income inequality, on a downward trend in the early 1990s, rebounded sharply from the mid-1990s as a consequence of the opening up of the Indian economy and the industrialization process, which took off in full swing around this time.

- The income concentration in the top 1% group in India evolved from about 7% in 1994 to close to 10% in 2001, growing at a rate faster than in China (approx. 5% in 2001). India far exceeds China in income inequality in absolute terms as well.
- Economic growth has worsened income inequality also in Hong Kong, Indonesia, Malaysia, Thailand and other Southeast-Asian countries.
- Prolonged and worsening income and wealth inequality can negatively affect long-term economic growth,* making its impact felt through a variety of channels.

* Although, according to the Second Fundamental Theorem of Welfare Economics which does not recognize a relationship between economic efficiency and income distribution, economic growth would be hardly affected by worsening income inequality, in the real economy, where individuals are distinct from each other in their preferences and where there is asymmetry of information, income distribution can produce concrete impact on economic efficiency (Furman and Stiglitz 1998).

<Table II-16> **Changes in Income Inequality of Asian Countries**
(Gini Index)

South Korea	China	Japan	India	Indonesia
0.3863 (1980)	0.3200 (1980)	0.3340 (1980)	0.3149 (1983)	0.3561 (1980)
0.3454 (1985)	0.3330 (1985)	0.3590 (1985)	0.3182 (1987)	0.3240 (1984)
0.3138 (1988)	0.3620 (1990)	0.3500 (1990)	0.2969 (1990)	0.3309 (1990)
0.3160 (1993)	0.4150 (1995)	0.2490 (1993)	0.2970 (1994)	0.3650 (1996)
0.3160 (1998)	0.4470 (2001)	..	0.3250 (2000)	0.3430 (2002)
0.3060 (2003)	..	0.3010 (1999)
Malaysia	Philippines	Thailand	Taiwan	Vietnam
..	..	0.4310 (1981)	0.2796 (1980)	..
..	0.4466 (1985)	0.4740 (1986)	0.2920 (1985)	..
0.4580 (1990)	..	0.4880 (1990)	0.3011 (1990)	0.3571 (1992)
..	0.4500 (1988)	0.4140 (1998)	0.3078 (1993)	0.3610 (1998)
0.4920 (1997)	0.4610 (2000)	0.4315 (2000)	..	0.3700 (2002)

Source: Korea National Statistical Office, 'Urban Household Economy Assessment Report,' Japan Statistics Bureau, 'National Consumption Report,'; the figure inside the () is the year surveyed; World Bank, World Development Indicators 2004

- The growth of low income groups, first of all, leads to diminishing investment in human capital, including education, training and health care, which ultimately slows down the improvement of productivity.
- Meanwhile, deepening income inequality can fuel distrust and conflicts among members of society and lower the level of public support for the government's growth policies. These negative political and social conditions are bound to undermine the long-term growth prospects of an economy.

B) Rising Energy and Raw Material Prices

- ☐ Brisk industrialization across Asia is quickly driving up demand for energy and raw materials in this region.
 - Increasing energy and raw material demand, especially in emerging market countries like China and India, is bringing about a remarkless upswing in their prices.
- ☐ According to the US Energy Information Administration (EIA), while total global demand for crude oil, natural gas, coal and other energy sources will rise at an average annual rate of 2.0% until 2025, demand among Asia's emerging market countries will grow at a rate of 3.5% over the same period, making Asia the region experiencing the fastest growth in energy demand.
 - The average annual rate of energy demand growth in China and India is forecasted at 4.1% and 3.3%, respectively.
- ☐ The EIA predicts that, if world consumption of crude oil increases every year by an average rate of 2.0%, global crude oil output, after reaching its peak between 2026 and 2047, will rapidly decline thereafter, due among other things to the fact that economically recoverable reserves will be becoming quickly depleted.

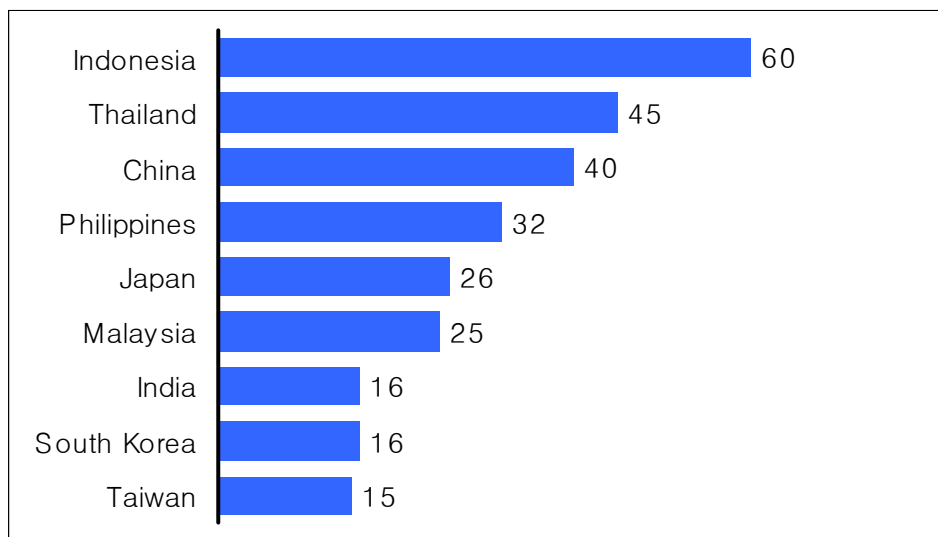
- If the world is unable to reduce its reliance on crude oil by developing alternative energy sources or improving energy efficiency before this time when output is projected to plummet, oil prices are bound to continue their upward spiral.
- The accelerated economic growth in Asia, led by China and India, is also expected to increase demand pressure in non-fuel mineral markets as well, triggering an upward price trend.
- Since the supply of minerals generally increases as prices go up, prices eventually return to a stable level in these markets. However, over the short term, due to the low price elasticity of these goods, increased demand worldwide can cause prices to escalate.
- ⇒ Price spirals in energy and minerals by interfering with economic growth may have a particularly severe effect on Asia's emerging market countries, whose demand for them is expected to reach a peak within the coming several decades.

C) Non-performing Loan Problem to Worsen

- The financial sectors of Asia's high-growth economies such as China and India are still quite underdeveloped, unlike their fast-evolving manufacturing sectors.
- This is especially the case with China and India where regulatory and institutional elements of their socialist legacy are hindering efficient distribution of resources in the financial sector.
- No control mechanism exists in the inadequately-developed financial sector of these countries for preventing over-investment in the manufacturing and construction sectors or unsound investments, resulting in a huge overhang of non-performing loans.

- In China, the ratio of non-performing loans is estimated to have reached 40% of total outstanding loans written by financial institutions(Ernst and Young 2002).
 - The ratio of non-performing loans remains rather high in Japan, Taiwan, Philippines, Indonesia, Malaysia and India as well.
- Non-performing loan problems in these countries, if left untackled, might sap investor confidence, reducing capital inflows to them and undermining their ability to grow.

<Figure II-9> **Non-performing Loans in Asian Countries¹⁾**
 (as percentage of total loans outstanding as of end of 2002) (%)



Note: 1) Estimated values
 Source: Ernst and Young (2002)

- In the case of China where financial institutions are under the direct or indirect control of the government, privatization of the country's financial sector must precede the resolution of the non-performing loan problem.

D) Accelerated Environmental Degradations

- ☐ The combination of Asia's rising population and the rapid process of industrialization and urbanization provides a toxic mix for the environment. The region is facing serious environmental degradation, in the form of air and water pollution and overflowing industrial waste.
- ☐ Asia is the region of the world where urbanization is progressing at the fastest rate. According to the World Bank, China's urban population, estimated at 550 million as of 2000, will grow to roughly 900 million by 2030, while the corresponding figure for Indonesia will climb from 100 million to 190 million over the same period.
 - The explosive growth of the urban population is accompanied by increasing urban poverty and spikes in violent crime. When a city is unable to meet the surging demand for urban infrastructure such as housing, roads and transportation, production activities are disrupted and living conditions worsen.
 - By diminishing the attractiveness and competitiveness of urban areas, environmental degradation can ultimately weaken the growth dynamic.
- ☐ Water and air pollution and the destruction of farming land and green areas as a result of urbanization and industrialization are detrimental to public health and increase the frequency of natural disasters as well as the scope of the resultant damage, which will likely have a negative impact on the improvement of productivity.

E) Increasing Pressure to Reform Industrial and Trade Structures

- ☐ The galloping industrialization and economic growth of China and India is increasing pressure on neighboring Asian countries to overhaul their industry structure and review their export-oriented growth strategies adopted thus-far.

- Asia's advanced developing nations including South Korea, Taiwan, Hong Kong, Singapore, Indonesia and Malaysia are experiencing reduced price competitiveness for their products amidst rising energy and raw material prices. These countries therefore face an urgent need to reform their industry and trade structures toward high value-added models centered on knowledge and service industries.
- ☐ Advanced developing countries of Asia, if they fail to successfully restructure their industry and trade in time before newly-industrialized countries like China and India eat away their lead, face fierce battles in the red ocean of existing markets.
- If this does come about, the relationship among Asian economies will be more competitive than complementary, weakening the stability and growth of the region's economy as a whole.

B. US, Europe and the Rest of the World

1) US

- ☐ In spite of its huge fiscal and trade deficits, the US is expected to retain its role as the powerhouse of the world economy for some time to come. Bolstered by high productivity, the US is projected to continue to grow at a rate substantially higher than the EU.
- ☐ The US is number one globally in technological competitiveness, and its lead in this sector is so far unthreatened.

<Table II-17>

US Technological Competitiveness

-
- Attraction of foreign technological manpower (2004, IMD): #1 globally
 - Number of international patents granted (2003, US Patent and Trademark Office): #1 (87,901 patents, 52% of total US patents granted)
 - Number of international patents filed (2000, OECD): #1 among OECD member states (the US, Europe, Japan together account for 35.1% of all patents filed).
 - R&D spending (2002, OECD): #1 among OECD member states (the US alone spends 42.7% of the combined R&D expenditure of all OECD member states)
-

- Thanks to strong technological competitiveness, labor productivity in the US in the period after 1995, almost doubled the level it was at between 1973 and 1995.

<Table II-18>

Changes in Labor Productivity in the US

	1959-73	1973-95	1995-99
Average Labor Productivity (ALP) Increase			
Nonfarm Business (BLS ¹⁾)	2.97	1.35	2.45
Manufacturing (BLS)	2.91	2.65	4.75
Business (Jorgenson and Stiroh)	2.95	1.42	2.58
Nonfarm Business (Oliner and Sichel)	..	1.41	2.57
Total Factor Production (TFP) Increase			
Nonfarm Business (BLS)	1.91	0.40	1.26
Business (Jorgenson and Stiroh)	1.01	0.34	0.99
Nonfarm Business (Oliner and Sichel)	..	0.36	1.16

Note: 1) Bureau of Labor Statistics

Source: Steindel, Charles and Kevin Stiroh (2001)

- The country's economic system, which emphasizes competition and innovation, its advanced financial and capital markets and the flexibility of its labor market are also believed to have contributed to the brisk rate of growth in labor productivity.
- ☐ Population structure and natural resource endowments also favor the US, giving it a greater growth potential than Europe.
- The share of the elderly population in this country where the birth rate is also rather high is not as large as in European countries.

<Table II-19> **Changes in Share of Elderly Population and Birth Rate in the EU and US**

		1987	1990	1992	1995	1997	2000	2002
Share of Population Aged 65 and Over (%)	US	12.1	12.4	12.4	12.5	12.5	12.7	12.4
	Europe ¹⁾	13.7	14.4	14.8	15.4	15.8	16.4	16.8
	UK	15.4	15.7	15.7	15.7	15.8	16.0	16.0
	World	6.0	6.2	6.3	6.5	6.7	6.9	7.1
Birth Rate (per 1,000)	US	15.5	16.7	15.9	14.8	14.6	14.7	13.9
	Europe	11.7	11.5	11.0	10.3	10.4	10.6	10.2
	UK	13.6	13.9	13.5	12.5	12.3	11.4	10.8
	World	26.8	25.5	24.3	23.1	22.5	21.4	20.7

Note: 1) Euro area

Source: WDI

- Accordingly, the burden of elderly dependency is expected to be substantially lower in the US than in Europe or Japan.

<Table II-20> **Forecasted Elderly Dependency Ratio in OECD Countries (%)¹⁾**

	2000	2025	2050	Change (2025-2000)	Change (2050-2025)
US	20.2	32.1	35.4	11.8	3.3
UK	28.4	39.1	46.5	10.8	7.4
Germany	33.1	48.4	60.8	15.3	12.4
France	35.7	55.5	68.8	19.8	13.3
Italy	41.3	55.2	86.7	13.9	31.5
Japan	24.9	47.9	65.0	23.0	17.1
South Korea	11.8	40.0	74.1	28.2	34.1
OECD	26.5	41.9	59.6	15.4	17.7

Note: 1) Economically inactive population aged 65 and over / Economically active population aged 15 and over

Source: Burniaux, Jean-Marc, et al. (2004)

- The US possesses important reserves of natural gas, coal and oil, and is one of the world's largest producers of energy from these sources as well.

<Table II-21> **US Oil, Natural Gas and Coal Production and Reserves**
(based on 2004 data)

	Oil		Natural Gas		Coal	
	Production (thousand barrels daily)	Reserves (billion barrels)	Production (billion cubic meters)	Reserves (trillion cubic meters)	Production (million tonnes)	Reserves (billion tonnes)
World	80,260	1,188.6	2,696.6	179.21	5,538.1	909.1
US (Global share)	7,241 (8.5%)	29.4 (2.5%)	542.9 (20.2%)	5.29 (2.9%)	1008.30 (18.21%)	246.6 (27.1%)
(Global ranking)	(3)	(11)	(2)	(6)	(2)	(1)

Source: BP Statistics Review of World Energy, 2005

2) Europe

- Amidst the forecasted slowdown in European integration, Europe's technological competitiveness and productivity, trailing behind the United States, and its basis for growth, expected to be weakened by population aging, make this region an unlikely candidate to replace the US as the center of the world economy, at least for the foreseeable future.
- European countries have been launching active efforts toward the goal of achieving the integration of European economies within the context of the EU and enhancing the region's growth dynamic. The year 1999 saw the establishment of the EMU (European Monetary Union), and the Lisbon Agenda, an action plan to restructure the European economic system into a dynamic system in the image of the US model, was adopted at the EU summit convened in March 2000.
 - These efforts, however, were not accompanied by adequate member-state level to re-vitalize their national economies, and economic integration has so far failed to provide much heralded synergies. Germany and France, the two countries at the heart of the EU, appear to become mired in a protracted phase of low growth.

<Table II-22> **Changes in Real Economic Growth Rate (%) in the EU Zone**

	2000	2001	2002	2003	2004	2005 (forecast)	2006 (forecast)
25 EU States	3.7	1.8	1.1	1.0	2.3	2.0	2.3
15 EU States	3.7	1.8	1.1	0.9	2.2	1.9	2.2
France	4.1	2.1	1.2	0.8	2.3	2.0	2.2
Germany	4.5	4.3	3.8	4.7	4.2	2.9	3.1
Italy	3.0	1.8	0.4	0.3	1.2	1.2	1.7
UK	4.0	2.2	2.0	2.5	3.2	2.8	2.8
US	3.7	0.8	1.6	2.7	4.2	3.6	3.0

Source: Eurostat

- Meanwhile, Western European countries are disgruntled about the widening disparity in economic growth among member states; the hollowing-out of manufacturing; the dwindling share of the agricultural sector in gross domestic product; and the increase in unemployment perceived as resulting from the migration of low cost labor.
- Also, the single interest rate policy of the EMU and the rule that fiscal deficits should not exceed 3% of nominal GDP imposed by the Stabilization and Growth Pact are making it impossible for member states to launch discretionary monetary or fiscal policies to stimulate their economies.
- The increasing relocation of manufacturing operations from Western Europe to Eastern Europe and the inflow of low-wage Eastern European labor force are bring about the hollowing out of manufacturing sectors and causing Western European unemployment to rise.
- With the recent rejection of the EU's draft constitution by France (May 17) and the Netherlands (June 1) and the collapse of budget talks for the 2007-2013 budget proposal following acrimonious disputes among member states, the progress toward political integration of the EU was abruptly halted.
- These developments, rendering the outlook for European integration uncertain and reducing expectations of the euro becoming a second international reserve currency have weakened confidence in the European economy.
- The EU as a whole boasts strong technological competitiveness, second only to the US. However, the EU has been unable to narrow the gap with the US in recent years.

<Table II-23> **Technological Competitiveness of US, Europe and Japan**

-
- International Patents Granted (2003, US Patent and Trademark Office): US (87,901 patents, #1 global ranking, 52%), Japan (35,517 patents, #2, 21%), Germany (11,444 patents, #3, 6.8%), France (3,869, #4, 2.3%), South Korea (3,944, #5, 2.3%), UK (3,627, #6, 2.2%)
 - International Patents Filed (2004, OECD Patent Database): The order of ranking among the US, EU and Japan unchanged since 1989
 - US (#1, 14,985 patent applications, 34.3%), EU (#2, 13,699 patent applications, 31.4%), Japan (#3, 11,757 patent applications, 26.9%), UK (#6, 1,794 patent applications, 4.1%)
 - R&D Concentration (2004, OECD STAN Indicators Database): R&D spending/total production US (3.04%, 2000), OECD average (2.39%, 1998), EU (1.87%, 1999), Japan (3.59%, 2001), UK (2.45%, 2001)
-

- This failure to lessen the American lead in technological competitiveness is also a cause of the widening productivity gap between the two regions.

<Table II-24> **Average Annual Labor Productivity¹⁾ Growth Rate (%) by Country**

	1980-90	1990-2000	1990-2004	1995-2004
11EU States ²⁾	2.3	2.1	1.9	1.5
UK	1.9	2.8	2.6	2.3
US	1.3	2.0	2.1	2.5
Japan	3.5	2.1	2.1	2.0

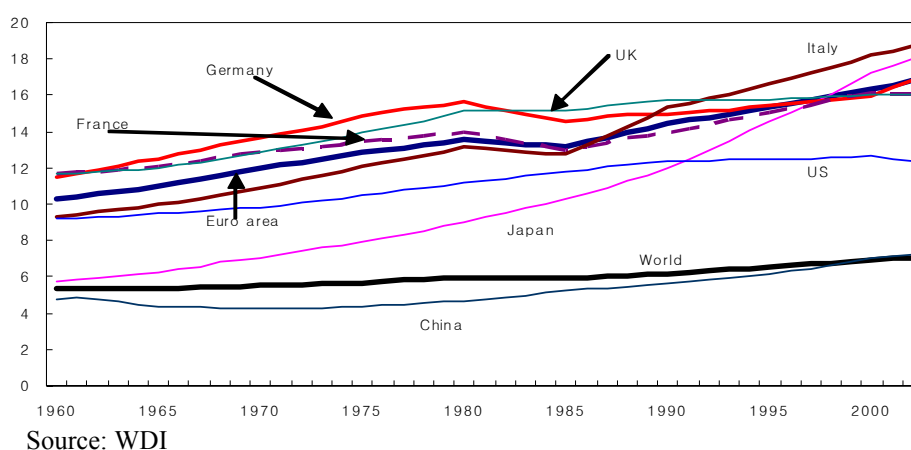
Note: 1) GDP growth per unit of labor

2) EU 15 states excluding Austria, Greece, Luxembourg and Portugal

Source: OECD, Productivity Database, Jul. 2005

- ☐ The basis for growth is expected to be weakened in Europe by aging of the population and low birth rates.

<Figure II-10> **Changes in Share of Elderly Population (aged 65 and over) in the EU**



- ☐ The UK, which although a member of the European Monetary Union (EMU) has not yet adopted the euro, has to reckon with the same potential issues as those of the euro zone, namely the productivity gap with the US and population aging.
- With London's position as the world largest foreign exchange market remaining unchallenged, the British financial sector's contribution to national GDP amounted to as much as 31.7% as of 2003, over twice the share held by manufacturing (14.9%). The financial industry's role as the growth engine of the UK economy is unlikely to be lessened in the future.

- Concerns about potential investment and trade losses to be incurred from its failure to adopt of the euro are slowly being raised in the country. The question of whether and when the UK will join the eurozone may become an important variable for the country's economic growth in the upcoming decades.

<Table II-25> **The Status of the UK Financial Industry**

	Global Foreign Exchange Trading Volume ¹⁾ (Apr. 2004)			Gross Domestic Product (GDP) ²⁾ (2003)	
	Value (billions of US \$, daily average)	Share (%)		Value (billions of British pounds)	Share (%)
World	2,408	100.0	All Industry	981.7	100.0
UK	753	31.3	Finance	310.9	31.7
US	461	19.1	Retail	154.1	15.7
Japan	199	0.8	Manufacturing	146.1	14.9

Source: 1) BIS, Triennial Central Bank Survey 2004; includes spot, outright forward and swap transactions.

2) National Statistics, United Kingdom National Accounts - *The Blue Book 2005*, Jul 25, 2005

- Although the EU's largest oil producer, the UK, however, does not stand comparison with energy resource-rich nations like the US and Russia, either in terms of its reserves or the scale of the output.

<Table II-26> **UK Oil, Natural Gas and Coal Production and Reserves**
(based on 2004 data)

	Oil		Natural Gas		Coal	
	Production (thousand barrels daily)	Reserves (billion barrels)	Production (billion cubic meters)	Reserves (trillion cubic meters)	Production (million tonnes)	Reserves (billion tonnes)
World	80,260	1,188.6	2,696.6	179.21	5,538.1	909.1
UK	2,029	4.5	95.9	0.59
(Share)	(2.5%)	(0.4%)	(3.6%)	(0.3%)
(Global ranking)	(13)	(26)	(4)	(32)

Source: BP Statistics Review of World Energy, 2005

3) The Rest of the World

- ☐ Natural resource-rich countries like Russia and Brazil also have a good potential to grow into new economic powers alongside China and India, provided that they further open their economy, overhaul their economic system and adopt a working growth strategy, eliminating political and institutional impediments to growth.
- ☐ Russia's abundant reserves of oil and natural gas are key assets for its future economic growth.
- Given the projected surge in world energy consumption demand and price hikes, Russia is uniquely advantaged in terms of its endowment of energy sources. Russia is the world's largest natural gas producer and second largest oil producer, while it ranks first and seventh globally in gas and oil reserves, respectively.

<Table II-27> **Russian Oil, Natural Gas and Coal Production and Reserves**
(based on 2004 data)

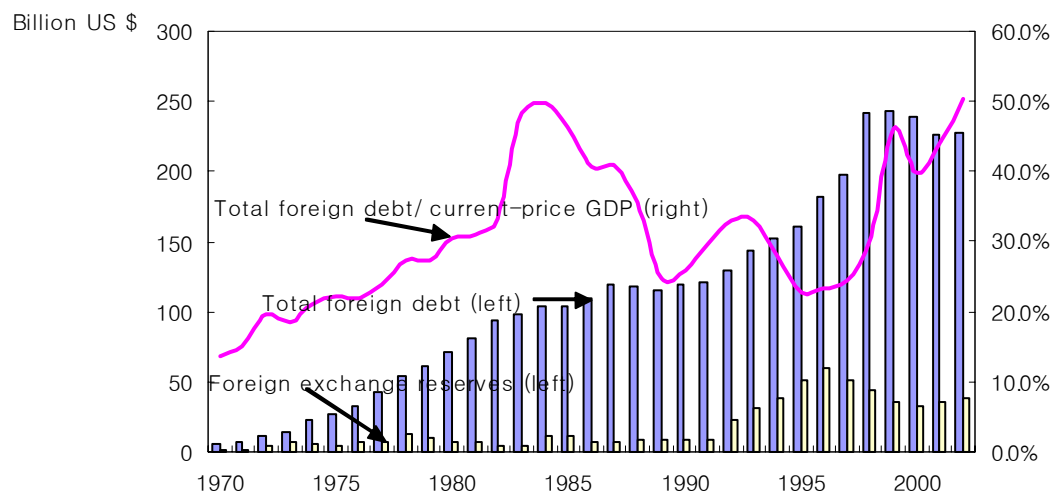
	Oil		Natural Gas		Coal	
	Production (thousand barrels daily)	Reserves (billion barrels)	Production (billion cubic meters)	Reserves (trillion cubic meters)	Production (million tonnes)	Reserves (billion tonnes)
World	80,260	1,188.6	2,696.6	179.21	5,538.1	909.1
Russia	9,285	72.3	589.1	48.0	280.0	157.0
(Share)	(11.9%)	(6.1%)	(21.9%)	(26.7%)	(5.1%)	(17.3%)
(Global Ranking)	(2)	(7)	(1)	(1)	(5)	(2)

Source: BP Statistics Review of World Energy, 2005

- However, to achieve continued economic growth, Russia has to avoid a lopsided focus on the energy industry and must also tackle issues such as income inequality, the cozy relations between politics and business, bureaucracy, corruption and a thriving underground economy.
- ☐ As for Brazil, its prospects for future economic growth depend much on whether it can efficiently develop its abundant natural resources and the outcome of South America's effort to build up a system of a regional economic cooperation.

- Blessed with a vast territory and a wealth of natural resources, making it an important source of raw materials and food for the world, Brazil has what it takes to fuel economic growth.
 - The rich biological resources of the Amazon Basin, nicknamed "green gold," make Brazil a fertile ground for biotech industries, one of the new growth engines for the 21st century.
 - Ranking first to second globally in the production of sugar, coffee and beef, Brazil was also won a reputation as the world's bread basket.
- Its active participation in MERCOSUR, the South American regional economic organization, and the Free Trade Area of Americas(FTAA) could pave the way for Brazil to rise as one of the key hubs for an integrated North and South American economy.
- To make the most of its growth potential, Brazil must begin by the eliminating endemic inefficiency across all levels of its society, famously known as "Brazil cost," driving down corporate competitiveness.
 - The Brazil cost refers to the social cost incurred by Brazil from its complicated legal systems, high tax and financial costs, bureaucracy and corruption, poor infrastructure and severe income inequality.
- Its colossal foreign debt (US \$ 228 billion as of 2002; 50.4% of current-price GDP) is another area needing urgent attention. If successful in reducing its foreign debts, Brazil can restore the confidence of foreign investors and alleviate the burden on its economy.
- As for the Middle East, continuously rising crude oil prices are bringing the region vast capital inflows, giving it tremendous clout in the international financial world.

<Figure II-11> **Changes in Brazil's Foreign Debt and Foreign Exchange Reserves**



Source: WDI

— If the region can put an end to its rampant political strife, and invest its substantial oil revenues not in overseas financial assets as it does now but in the infrastructure to support industry, then it stands to realize considerable economic growth, centering on a strong financial service sector.

- Central and South America and Africa as a whole, except for a few nations rich in natural resources, are lacking in human and material resources. Political turmoil, insufficient physical and social infrastructure and the absence of a commitment to achieve economic advance, adding to the lack of natural assets, combine to create a weak environment for long-term growth.

III. The Size of the Asian Economy in the 21st Century and Its Role in a World Context

1. How Changes in the Global Economic Environment Affect the Asian Economy ⁶⁾

- ☐ As has been discussed in the preceding sections of this report, the world economy is expected to undergo extensive structural changes. These changes occurring in the global economic environment are rife with both positive and negative possibilities for Asia's regional economy.

A. Positive Effects

- ☐ The shift to a market economy by formerly socialist countries and their moves toward opening to the international economy and trade liberalization are encouraging investments by multinational companies in the region.
- With the gathering pace of the trend among multinational firms towards setting up global business systems, those companies seeking to optimize their operations by outsourcing their production to locations around the world and realigning their production bases will continue to see Asia as a strategic investment region as well as an important consumer market. Asia's gigantic supply of low-cost labor and vast potential markets are likely to remain the strengths that ensure continuous inflows of world capital to the region.
- ☐ Also, the phenomenon of the accelerating population aging in the developed world will further heighten Asia's attractiveness for investors as the process there is much slower-paced.

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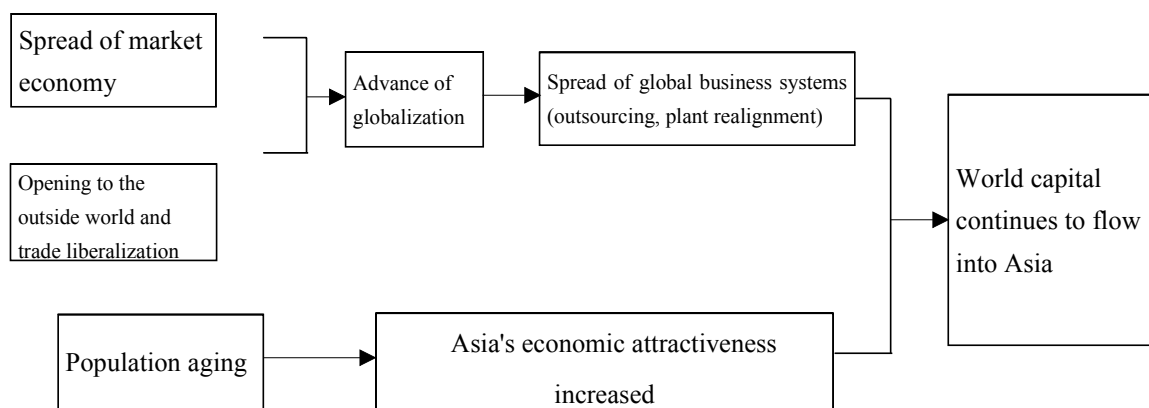
B. Negative Effects

- ☐ Rising energy and raw material prices, driven up by growing worldwide demand, may deal a severe blow to Asian economies, most of which have an energy and resource-intensive industrial structure.
 - The tightening of environmental regulations, especially among developed countries, may be a potentially negative factor for the Asian economy, as they will increase production costs and worsen market accessibility.
- ☐ The advance of economic regionalism may heighten uncertainty for Asian countries regarding their ability to procure raw materials and acquire buyers for finished products, increasing trade-related risks for Asian countries.
 - As discussions on relieving macroeconomic imbalances between world regions reach a new level of intensity, there are increased pressures from the US and Europe on Asia's emerging countries relating to trade and exchange-rate systems.
 - There is always a risk that the modification of the international exchange rate system and financial system currently under discussion may take a direction that is disadvantageous to Asia.
- ☐ Increased capital mobility brought about by the advance of financial globalization may have a detrimental effect on Asian countries, whose financial systems are less well developed than in the developed world, both in terms of financial infrastructure and regulatory systems. They could act as a factor making for destabilization of the region, as they heighten exposure to financial crises caused by sudden capital flight.

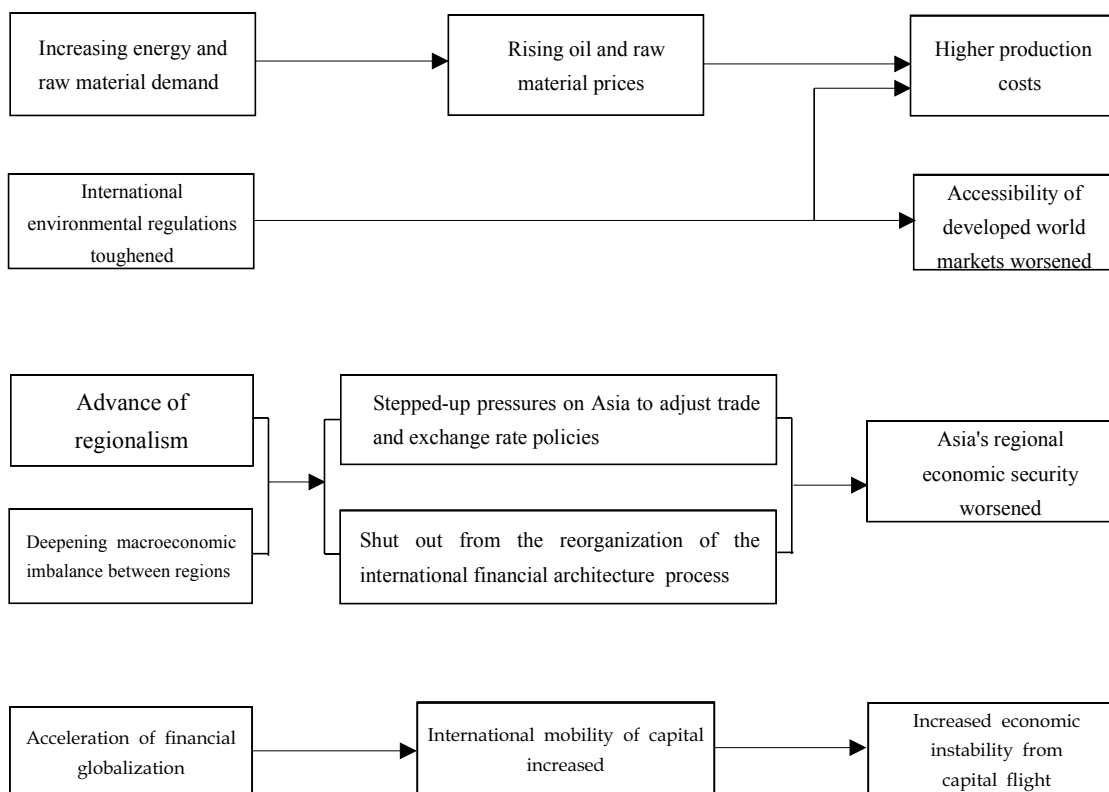
<Figure III-1>

The Effects of Changes in the Global Economic Environment on the Asian Economy

(Positive Effects)



(Negative Effects)



2. Outlook for Asia's Economic Status 7)

- Asian* economies have been leading global economic growth over the past decades, achieving growth rates that are far in excess of the world average.

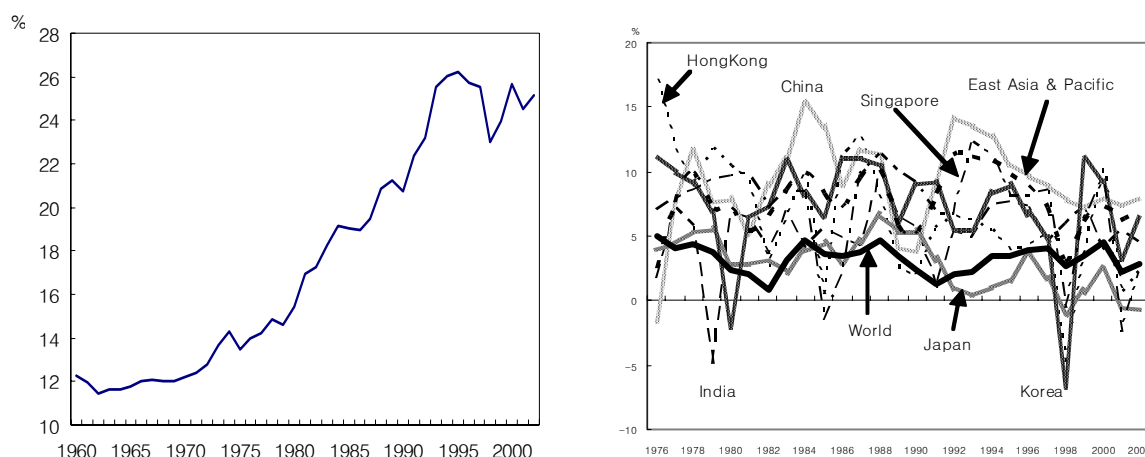
* 14 countries including Japan, China, India, 4 NIEs (South Korea, Taiwan, Hong Kong, Singapore), 5 ASEAN members (Indonesia, Malaysia, Thailand, Philippines, Vietnam), Pakistan, Bangladesh.

- This high growth rate sustained over an extended period has given Asia a growing share in World GDP, rising from 12% in 1960 to 17% in 1980 and 23% in 2003, and doubling over four decades.

<Figure III-2>

Asia's Economic Status

(Asia's Share to Global Current-price GDP) (Real Economic Growth Rate among Key Asian Countries)



Source: IFS, WDI

- Decades of high economic growth also gave a tremendous boost to the international status of Asia's leading economies. In real GDP on the basis of PPP, as of 2002, China, Japan, India and South Korea respectively ranked second, third, fourth and fourteenth globally.

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- On the other hand, in terms of GDP per capita, Asia with the exception of Japan and Singapore is still far behind Western European countries.

<Table III-1>

GDP Ranking of Asian Countries (2002)

Rank- ing	GDP (current price, bil. US \$)		Rank- ing	GDP (PPP, bil. US \$)		Rank- ing	GDP per capita (PPP, US \$)	
1	US	10,383	1	US	9,221	1	Luxembourg	54,201
2	Japan	3,993	2	China	5,199	2	Norway	32,414
3	Germany	1,984	3	Japan	2,986	3	Ireland	32,204
4	UK	1,566	4	India	2,454	4	US	31,660
5	France	1,431	5	Germany	1,977	5	Denmark	27,404
6	China	1,266	6	France	1,417	6	Switzerland	26,579
7	Italy	1,184	7	UK	1,391	7	Iceland	26,349
8	Canada	714	8	Italy	1,354	14	Japan	23,,858
9	Spain	653	9	Brazil	1,171	16	Hong Kong	23,833
11	India	510	14	South Korea	717	21	Singapore	21,296
12	South Korea	477	37	Hong Kong	165	30	South Korea	15,009
27	Hong Kong	162	53	Singapore	87	87	China	4,054
40	Singapore	87				104	India	2,365

Note: Taiwan excluded from the ranking

Source: WDI

- ☐ In what follows, we will forecast the nominal GDP of Asian countries in US dollars for the period leading up to 2050, and then compare them with other economic regions, including North America and the EU, to assess how Asia's economic status evolves over time.

A. Predicting GDP for Asia

- ☐ Goldman-Sachs (2004) forecasted the size of GDP for the BRICs and the G6 using a growth accounting method.
- Using a growth accounting method requires formulating assumptions on key variables, including the rate of capital growth, rate of technological progress, inflation and exchange rates (See <Box III-2> Goldman-Sachs' Prediction Method).

☐ In this report, the nominal GDP forecast was generated based on the convergence hypothesis.

- First, the size of real GDP was calculated based on the forecasted labor productivity of each of the countries. Then, these values were converted to nominal GDP by taking into account implicit GDP deflators, exchange rates and population (See <Box III-4> GDP Forecast under Convergence Hypothesis and Combined Forecasting Method)
- To test robustness, these forecasted values were compared with combined forecasted values derived from the traditional time trend model and the ARMA model.

A) GDP Prediction under Convergence Hypothesis

☐ Forecasts were generated under the assumption that the increase of labor productivity in each of the countries (real GDP per capita) follows the growth curve of US labor productivity (convergence hypothesis*).

* The assumption that output per capita (labor productivity) increases at a higher rate among low income countries than in high income countries, so that the gaps between countries gradually become narrower.

- To estimate US labor productivity, a time trend was used as the explanatory variable.
- Specific national characteristics or circumstances, such as recent economic performance (i.e. inflation) were taken into account where necessary to adjust real GDP per capita growth rates.
- The final forecasts were generated by calculating real GDP growth rates (adding population growth rates and then by computing nominal GDP) under the assumption that prices and exchange rates satisfy PPP over a long term.

- Population growth rates used for the calculation were the official UN long-term estimates of population growth.

B) GDP Prediction Based on a Combined Forecasting Method

- Forecasts were generated using a combined forecasting method*, which integrates a time trend model** with the ARMA model.

* Dependent variables are regressed on the time trend variable (t) or its square (t^2).

** Combined forecasting is a technique to enhance forecast results, involving the application of an optimal weight to forecasts produced using different methodologies to calculate the weighted average. The combination can be between various different forecasting models, including OLS, ARMA, VAR and macroeconomic models (see <Box III-3> Combined Forecasting Method).

- US dollar-denominated nominal GDP estimates obtained using the time trend model and the ARMA model were combined together.

<Box III-1>

GDP Prediction under Convergence Hypothesis

① $PY_{loc} = Y_{loc}^N = y_{loc} \cdot PL$: Current-price GDP obtained by multiplying both sides with prices

② $Y_{\$}^N = \frac{Y_{loc}^N}{e} = y_{loc} \cdot \frac{PL}{e}$: Conversion into dollar value by dividing both sides by exchange rate

③ $\dot{Y}_{\$}^N = \dot{y}_{loc} + \dot{P} - \dot{e} + \dot{L}$: Conversion into rate of increase by differentiating both sides with respect to time

④ $\dot{Y}_{\$} = \dot{y}_{loc} + \dot{L}$: Assumption that PPP is maintained over the long term.

* Here, Y_{loc} corresponds to real GDP in the local currency of each country; y_{loc} to labor productivity in local currency; Y_{loc}^N to nominal GDP in local currency; L to population; P to prices; e to exchange rate; and $Y_{\N to nominal GDP in US dollars; and $Y_{\$}$ to real GDP in US dollars.

< Box III-2>

Goldman-Sachs' Prediction Method

- ☐ The G-S method is essentially a growth accounting method.
- ☐ Growth rate is calculated using a growth accounting equation with terms such as capital growth rate, technological progress rate and population growth rate.
 - The Cobb-Douglas production function, $Y_t = A_t L_t^\alpha K_t^{1-\alpha}$ differentiated with respect to time,

$$\rightarrow \frac{\dot{Y}_t}{Y_t} = \frac{\dot{A}_t}{A_t} + \alpha \frac{\dot{L}_t}{L_t} + (1-\alpha) \frac{\dot{K}_t}{K_t}$$
 - can explain $(\frac{\dot{Y}_t}{Y_t})$, the growth rate, in terms of $(\frac{\dot{A}_t}{A_t})$, the technological progress rate, $(\frac{\dot{K}_t}{K_t})$, the capital growth rate, and $(\frac{\dot{L}_t}{L_t})$, the population growth rate.
- ☐ Current-price GDP growth rate is calculated by adding the inflation rate to real GDP growth rate, while US dollar-denominated current-price GDP is computed by dividing the current-price GDP by US dollar/local currency exchange rate.
 - Finally, GDP per capita is calculated by dividing the US dollar-denominated current-price GDP by the size of mid-year population

<Box III -3>

Combined Forecasting Method

- ☐ The forecasted values of current-price GDP per capita, obtained respectively using the time trend model and the ARMA (p,q) model, \hat{Y}_t^1 and \hat{Y}_t^2 were combined to produce the final estimates.
 - $\hat{Y}_t^C = w_1 \hat{Y}_t^1 + w_2 \hat{Y}_t^2$
 - The weight, $w_i (i=1,2)$, was obtained using the ordinary least square estimation method, a technique considered valid for cases in which forecasting errors are not unbiased.
- ☐ Estimation under the time trend model and the ARMA model was carried out as follows:
 - (t) , the current-price GDP per capita, was obtained by performing a regression analysis of (Y^P) , the current-price GDP per capita, against (\hat{Y}^P) , the time trend, or (t^2) , its square.

$$\rightarrow Y_t^P = a + bt + \epsilon_t \text{ (or } Y_t^P = a + bt + dt^2 + \epsilon_t)$$
 - (\hat{Y}_t) , the forecasted current-price GDP, was computed by multiplying (\hat{Y}^P) , the forecasted current-price GDP per capita, just obtained, by the forecasted population size.

$$(\rightarrow \hat{Y}_t^1 = \hat{N}_t \cdot \hat{Y}_t^P)$$
 - The forecasted value of current-price GDP (Y^P) per capita was calculated using the ARMA (p,q) model.

$$\rightarrow Y_t^P = \alpha_1 Y_{t-1}^P + \dots + \alpha_p Y_{t-p}^P + \epsilon_t + \beta_1 \epsilon_{t-1} + \dots + \beta_q \epsilon_{t-q}$$
 - (\hat{Y}_t) , the forecasted value of current-price GDP, is obtained by multiplying (\hat{Y}^P) , the forecasted value of current-price GDP per capita, by the forecasted population size.

$$(\rightarrow \hat{Y}_t^2 = \hat{N}_t \cdot \hat{Y}_t^P)$$

B. Outlook for Asia's Economic Status

- For the purposes of gauging Asia's status, a comparison between three economic regions, including North America, Europe and Asia (14 states), and between country groups, including China, India, BRICs, Big5*, A4** and 4 Asian dragons*** was conducted.

* BRICs with India

** Japan, China, India and South Korea

*** South Korea, Hong Kong, Singapore and Taiwan

- The US, Canada and Mexico are included among North American countries.
- 15 EU-member European countries (based on 2003 data)* were selected, including Germany, the UK, France and Italy.
 - * In 2004, 10 new members joined up, including former Eastern Bloc countries like Poland, Czech Republic and Hungary. These countries, however, are excluded from this comparison, as their share of the EU economy is less than 5%.
- 14 Asian countries chosen for the purposes of this comparison are China, India, Japan, 4 Asian dragons, 5 ASEAN states (Indonesia, Thailand, Philippines, Vietnam, Malaysia), Pakistan and Bangladesh.
 - 4 of the 10 ASEAN states, namely Brunei, Myanmar, Laos, and Cambodia were not considered in this comparison.*

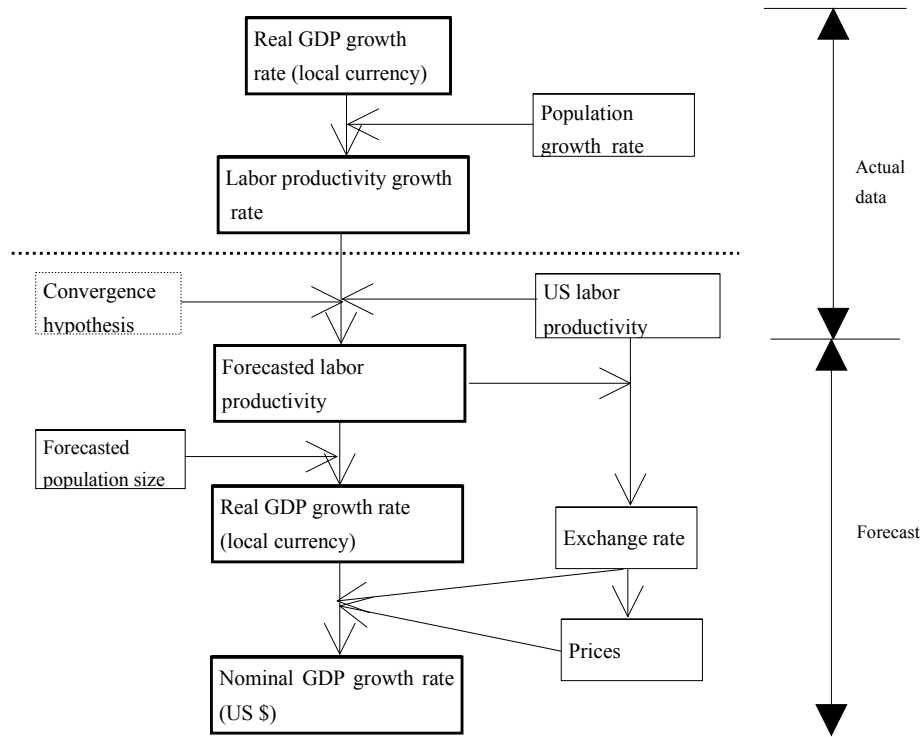
* Reasons for excluding these countries from consideration were the insufficiency of available statistical data in the case of Brunei, the recent hyper-inflation of 300-500% in the case of Myanmar and the insignificant shares of global ASEAN GDP (2003) in the case of Laos and Cambodia, corresponding to just 0.04% and 0.09%, respectively.

- The forecast of the size of economy and share of global economy over a period leading up to the year 2050 on the basis of current-price GDP, by economic region, by group of countries and by country yielded the following results:

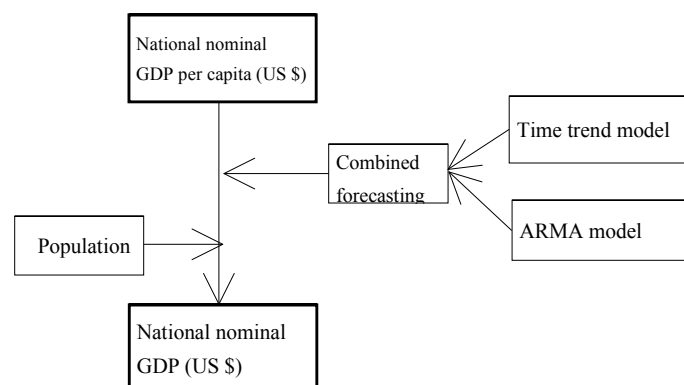
<Box III-4>

GDP Forecasts Under Convergence Hypothesis and Combined Forecasting Method

1. Convergence Hypothesis



2. Combined Forecasting



- The size of Asia's regional economy is expected to roughly equal that of Europe toward the late 2010s and to reach a size similar to that of North America sometime around the early 2020s. Toward the year 2040, the region will account for a 42% share of global GDP, far ahead of North America (23%) and Europe (16%).
 - As for the A4 nations (China, India, Japan and South Korea), the group will surpass the US and EU in the early years of the 2020s, and edge out North America toward the late 2020s.
 - Meanwhile, the 4 Asian dragons and ASEAN appear to be unable to outstrip Japan and the US in the years leading up to 2050.
 - The BRICs, after overhauling the US and the EU sometime in the mid-2020s (G-S, 2027), are expected to surpass North America toward the late 2020s.
 - The Big5 states (BRICs + Indonesia) are projected to outpace the US, EU and North America at around the same point in time as the BRICs.
- By country, China will edge past Japan toward the 2020s (G-S, 2016) and, by the year 2040 (G-S, 2041), roughly equal the US in economic scale, accounting for one fifth of global GDP.
 - The size of the Indian economy will outgrow that of Japan toward 2030 (G-S, 2032), and by around 2050 will catch up with that of Europe, acquiring a 12% share of the world economy.
 - South Korea's share of the world economy will undergo a moderate increase, rising from 1.7% in 2003 to 2% in 2040.
 - As for Japan, due to the slow growth rate, its current 12% share of the world economy will almost halve by the year 2040.

- Asia's average regional GDP per capita, standing at about US \$ 2,400 as of 2003, equivalent to less than one tenth of North America (US \$ 29,000) and Europe (US \$ 27,000), is expect to narrow the gap to reach about one quarter their level toward the year 2040.
- South Korea's GDP per capita, estimated at US \$ 13,000 as of 2003, only about one third of Japan, is expected to grow to approximately US \$ 45,000, equivalent to roughly two thirds of the level in the US and Japan.
- While GDP per capita in China and India will increase more than ten-fold between 2003 and 2040, rising from US \$ 1,100 to US \$ 15,000 and from US \$ 560 to US \$ 7,500, respectively, the corresponding rate of increase for the US and Japan will be only about one quarter and one eighth.

<Table III-2> **Asian Long-term Competitiveness Forecast by Country (Current-price GDP)**

Country of Comparison		BOK	Goldman-Sachs(2004)	Global-Insight(2002)
China	> Japan	2019 ~ 2020	2016	2016 ~ 2020
	> US	2039 ~ 2041	2041	—
	> North America	2045 ~ 2049	—	—
	> EU	2036 ~ 2038	—	—
India	> Japan	2028 ~ 2030	2032	—
	> US	×	×	—
	> North America	×	—	—
	> EU	2047 ~ 2050	—	—
BRICs ¹⁾	> Japan	2007 ~ 2008	2009	2011 ~ 2015
	> US	2025 ~ 2028	2027	—
	> North America	2027 ~ 2031	—	—
	> EU	2024 ~ 2026	—	—
B5 ²⁾	> Japan	2006 ~ 2008	—	2011 ~ 2015
	> US	2024 ~ 2027	—	—
	> North America	2026 ~ 2030	—	—
	> EU	2023 ~ 2026	—	—
Asia ³⁾	> US	2016 ~ 2018	—	2016 ~ 2020
	> North America	2021 ~ 2025	—	—
	> EU	2012 ~ 2016	—	2016 ~ 2020
A4 ⁴⁾	> US	2021 ~ 2025	—	—
	> North America	2026 ~ 2030	—	—
	> EU	2019 ~ 2020	—	—
4 Asian Dragons ⁵⁾	> Japan	×	—	—
ASEAN ⁶⁾	> Japan	×	—	—
	> US	×	—	—

Notes : 1) Brazil, Russia, India, China

2) BRICs + Indonesia

3) 14 countries including China, India, Japan, 4 Asian dragons (South Korea, Hong Kong, Singapore, Taiwan), 5 ASEAN nations (Indonesia, Thailand, Philippines, Vietnam, Malaysia), Pakistan and Bangladesh

4) Japan, China, India, South Korea

5) South Korea, Hong Kong, Singapore, Taiwan

6) Malaysia, Vietnam, Singapore, Indonesia, Thailand, Philippines (excluding Brunei, Myanmar, Laos and Cambodia)

<Table III-3> **Distribution of Global Economic Power (Current-price GDP)**

	BOK						Global Insight	
	2005	2010	2020	2030	2040	2050	2006 ~ 2010 Average	2016 ~ 2020 Average
China	4.6	5.8	9.8	14.8	19.6	19.0	5.0	8.4
US	30.8	29.0	25.3	21.7	18.2	14.9	26.6	25.7
Japan	12.5	11.0	8.8	6.8	5.1	3.7	10.9	9.4
India	1.9	2.5	4.4	7.0	9.8	12.1	1.8	2.4
South Korea	1.8	2.0	2.2	2.3	2.0	1.7	1.8	1.9

3. The Role of Asia in the World Economy ⁸⁾

The growing size of the Asian economy suggests that the region will be leading the global economic scene alongside other front-runners such as North America and Europe. The role of Asia within the world economy will be (i) supplying cheap and high-quality labor force, (ii) providing gigantic consumer markets, (iii) contributing to the creation of an international cooperation and peace system, and (iv) maintaining and expanding an open economic system.

- ☐ In the 21st century, the world must steer away from regional egoism, whereby the prosperous region leading the global economy pursues its own regional interests at the expense of its neighbors. A paradigm shift toward the pursuit of shared growth is urgently needed for this century.
 - Regions around the globe must together tackle common problems facing humanity such as important environmental and energy issues, and seek social and economic progress through shared prosperity at a global level.
- ☐ The Asian regional economy, which is expected to continue to drive world economic growth for the foreseeable future, is likely to reach a size equal to those of Europe and North America before long, thus becoming one of the three pillars of the global economy.
 - China and India, still possessing huge reserves of idle manpower not yet committed to economic development, are likely to be able to maximize their latecomer advantage through traditional industries which they can fuel with abundant manpower, realizing continued growth.
- ☐ The rapid growth of the Asian economy, which has thus far played a secondary role, will gain a leading role in the global economic scene to this region on a par with North America and Europe.

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The fact that Asia is becoming a leading player in the world economy must prompt its peoples to make active efforts to live up to the responsibilities of this new role. They must join forces with the global community to support the needed paradigm change in the international economy, so that Asia's growth can be a positive force driving global growth.

- ☐ In concrete terms, the economic take-off of Asia will have an impact on the world economy along the axes outlined below:

A. Source of Cheap and High-quality Labor

- ☐ The large supply of workforce from China and India is expected to produce a so-called positive supply-side shock, enhancing the supply capacity of the world economy. This will not only increase the potential growth rate of the global economy, but can also help ease upward pressure on consumer prices worldwide, as goods and services can be supplied at low prices to consumers around the globe.
- Freeman (2004), a labor economist and a professor at Harvard University, estimates that the global labor force nearly doubled following the integration of China, India and the former Soviet bloc into the global economic system, and he attributes the greatest part of this increase to China and India.

<Table III-4> **Changes in Global Work Force (millions)**

	World	Developed Countries	Developing Countries ¹⁾	China	India	Former Soviet Bloc
1980	960	370	590	-	-	-
2000	2,930	460	1,000	760	440	260

Note: 1) China, India and former Soviet bloc excluded

Source: R. Freeman, Doubling the Global Work Force: The Challenge of Integrating China, India, and the Former Soviet Bloc into the World Economy, 2004

- ☐ In addition, the increased labor supply of Asian origin is expected to have a stimulating effect on investment around the globe, as it will result in a decline of the capital-labor ratio worldwide and thereby drive up return on capital.

- According to the estimation of Richard Freeman, after China, India and the former Soviet bloc joined the world economy, the global capital-labor ratio fell by between 55% and 60%.

B. Huge Consumer Market

- ☐ The economic growth in Asia, as it raises incomes and increases buying power for Asians, makes this region a consumer market with huge effective demand.
- Asia's high-growth countries rely more heavily on imports from other regions for the supply of goods and services, and their import dependency is expected to grow further in the future.

<Table III-5> **Goods and Service Trade as Percentage of GDP (2002)**

	China	India	South Korea	Japan	US
Trade/GDP	54.8	30.8	78.6	21.0	23.6
Exports/GDP	28.9	15.2	40.0	11.1	9.8
Imports/GDP	25.9	15.6	38.6	9.9	13.8

Source: WDI

- ☐ The rising personal income levels in China and India are likely to lead to a dramatic increase in demand for consumer durables and luxury items.
- Currently, only one in 70 Chinese owns a car, while in the US, one in two Americans does.*

* *The Economist* (Jul. 28, 2005), "From T-shirts to T-bonds"

C. International Cooperation and Peace System

- ☐ The growth of the world economy has so far failed to relieve regional income disparities, and a substantial portion of the world's population still lives in absolute poverty.

- According to the World Bank, per capita incomes in high-income regions are about 13 to 14 times greater than in low-income regions. As of 2000, the number of people worldwide subsisting on less than US \$ 1 a day is estimated at as many as 1.1 billion, according to the same source.

<Table III-6> **GDP per Capita (US \$) by World Region (PPP)**

	1975	1980	1990	2000	2002
World	1,806	2,866	5,078	7,388	7,868
High-income Region (A)	5,786	9,463	18,204	26,964	28,405
Middle-income Region (B)	1,106	1,873	3,376	5,348	5,909
Low-income Region (C)	428	652	1,277	1,987	2,149
(A/C)	13.5	14.5	14.3	13.6	13.2
South Korea	1,310	2,440	7,400	15,220	16,950

Source: WDI

- ☐ Asia, as a growingly prosperous region, should increase its aid and support to underdeveloped regions to spur the growth of their local economies on a scales commensurate with its share of the world economy.
- Asia's emerging market countries can help regions with low levels of development, notably by sharing the know-how gained from their own experience in economic development.
- ☐ Lastly, Asian countries must seek to resolve or alleviate political and economic tensions within the region (ex: territorial disputes between China and India, and between India and Pakistan) to build an intra-regional peace system to guarantee harmonious coexistence and shared prosperity.

D. Open Economic System Maintained and Expanded

- ☐ The objective pursued by countries around the world in the 21st century should no longer be increasing national power through invasion of or dominance over other countries, but instead be shared prosperity. They must work together to enhance the quality of life and welfare for citizens of all countries through international cooperation.

- To achieve shared progress and prosperity, it is urgent that countries and regions stop seeking to monopolize economic power, and instead establish an open world order to increase trade and technological exchange.
- Moreover, Asian countries' drive toward increased economic exchange must be accompanied by efforts to broaden the scope of cultural exchange, both intra-regionally and with other regions, to improve effective mutual understanding in the international community. In this way they should work to reduce the potential for political or social conflicts and contribute toward peaceful coexistence and to securing the framework for prosperity.

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