

## Chapter 9 Impact of Globalization on East Asia's Economic, Energy and Environmental Relations

### 1. Introduction

Globalization, where successful, is likely to increase international trade, foreign direct investment and economic growth. However, it has also created new threats to human security, including financial volatility, job and income insecurity, health and personal insecurity, political and community insecurity and cultural and environmental insecurity (UNDP, 1999).

From the environmental point of view, globalization can bring adverse impacts in several ways. Firstly, it enhances economic growth, and thus leads to an associated increase in pressure on environment and resources. Secondly, it potentially increases average income, and thus may lead to environmentally more damaging lifestyles. Thirdly, it leads to more trade and investment, which does not only expand production and consumption, but also changes international division of labor and brings structural change in production and consumption in the medium and long run, resulting in the overexploitation of natural resources, loss of biodiversity, increased amount of waste, and climate change. Eagerness for investment and/or fear of capital loss leads governments to weaken, avoid tightening or disregard transgressions of environmental standards.

On the other hand, globalization and its associated economic growth can also bring environmentally benign impacts. Firstly, higher income leads to higher environmental awareness and sensibility, increasing local pressure for a better environment to the government. Secondly, foreign direct investment (FDI) to higher income nations may bring latest and efficient technology that discharges less pollution. Under certain conditions, multinational corporations (MNCs) may have incentives to press local governments in less stringent countries for tougher regulations to achieve reputation gains and disadvantage domestic competitors, or transfer environmental norms in their operations to create green supply chain with firms in developing nations. Thirdly, globalization also offers opportunities for a government to share effective, and/or innovative environmental policies of other countries, reducing political and economical risks for adoption. Finally, international environmental negotiations legitimize environmental nongovernmental organizations (ENGOS) by permitting them to participate as observers and help create networks to empower local or domestic ENGOS in other countries (Schreurs, 2007). All of them enable developing countries to implement effective environmental policies at the earlier stage of economic development (O'Conner, 1994).

At the same time, globalization affects the relationships between the various types of actors. It tends to deprive individual states of authority and control with deregulation and liberalization and increases business influence in the decision-making process. It encourages the diffusion of new

ideas and information, which can lead to new patterns of behavior. This may change myopic nationalist interest attitude toward regional or global regime that provides nations with common instruments to deal with environmental insecurity. Such regimes, once established, will facilitate actors' learning through generation and distribution of new information, through the development of new intellectual capital, or through a reassessment of roles and values leading to the redefinition of actor interests and roles (Lee, 2007).

East Asian nations, struck by the economic crisis in the late 1990s, have reconstructed safety nets to protect themselves from increased volatility and insecurity. At the outset, they attempted to establish regional institutions to block the outside effects. Later on, however, they gave up this effort and enhanced security individually that was consistent with national interests. These responses have significant impacts on the basis for domestic and regional approaches for environmental governance.

This chapter focuses on the trade and investment, energy and intellectual capital to examine the impact of globalization on environmental governance in East Asia, namely;

- (a) How does globalization in terms of freer trade and investment on one hand and increasing diffusion of intellectual capital of environmental protection on the other hand affect incentives for regional harmonization of environmental policies and standards?
- (b) How does growing energy demand as a consequence of globalization affect cooperation and conflicts over energy resources?

## 2. Structural Change in Trade and Investment

The late 1980s and 1990s were characterized by the dominance of the Japan-led model of the East Asian economic system, or "flying goose" label. It was based on the perception that (a) there is a clear hierarchy of economic development in East Asia, (b) Japan is the key source of both capital and technology, and (c) Japanese economic policy is not only successful but also replicable (MacIntyre and Naughton, 2005).

The flying goose label emerged as a consequence of the drastic change in the international economic environment. The Plaza Accord in 1985 and the currency realignments that followed encouraged firms in Japan, South Korea and Taiwan to relocate production to Southeast Asian economies and China. With strong pressure from the United States on the reduction of trade surplus, Japan increased the amount of official development assistance (ODA) as a "financial circulation" measure. On the other hand, the collapse in raw material prices and debt crisis that followed forced developing economies to deregulate and open their economy. Southeast Asia and China turned their view on foreign companies from an entity that invaded economic territories to an engine of growth. They unilaterally began deregulating economic activities, especially those of foreign companies. To

attract FDI, they provided foreign companies with tax and investment privileges, created special economic and/or export zones and then lifted restrictions on economic activities, ranging from domestic sales of their products to banking services.

This label fit well with economic growth and trade policies in Southeast Asia. As long as selective trade promotion effectively targeted the emerging export sector—and stable macroeconomic policies provided a predictable, low-inflation environment—they could gradually emerge into the world economy without the political and economic disruption of across-the-board liberalization (MacIntyre and Naughton, 2005). They could enjoy inflow of capital and transfer of technology and managerial know-how not only for industrialization, but also for environmental protection. It also served to open regionalism and satisfied Japanese economic and regional diplomatic interests. By incorporating the United States and other developed nations into regional institutions, Japan undermined protectionist impulse and avoided the danger of discriminatory trade policies directed at Japan.

This label was disintegrated in the latter half of 1990s. It had intrinsic limitations in implicitly assuming heavy reliance on the United States. Despite the increase in capital and market of Japan, financial and product markets of East Asian nations depended heavily on the United States, keeping their currencies at a fixed exchange rate with the US dollar. Besides, prolonged recession and continued political turnover reduced Japan's capacity to provide capital and technology, and the gradual revaluation of their currencies against the Japanese yen reduced the international competitiveness of East Asian economies. Coupled with large amount of foreign borrowing these negative economic indicators generated a loss of credibility and triggered withdrawal of foreign capital, leading to the Asian economic crisis in 1997. However, the Japanese government passively watched the devaluation of currency and withdrew investment during the crisis (Figure 9-1), which hit exports of East Asian nations hard (Figure 9-2). This created a sharp discrepancy between Japan and Southeast Asian nations and seriously undermined Japanese claims of regional leadership. Though the IMF's and the World Bank's imposition of structural adjustment measures angered East Asian nations against the IMF and the United States, Japan failed to materialize its proposal to establish the Asian Monetary Fund (AMF) against the strong opposition of the United States and China. It modified the proposal to the Miyazawa Plan and agreed to establish a regional currency swap under the Chiang Mai Initiative.

In the meantime, Japan, South Korea, China, and ASEAN nations individually took measures to hedge against the adverse impact of globalization and to regain economic growth.

The first such measure was the conclusion of free trade agreements (Table 9-1). To hedge against the risk of its volatile relations with the West that came from its high dependence in terms of export market and capital inflow, China adopted the policy of “reassuring, enriching and befriending

neighbors.” It used the ASEAN plus three (APT) as a way of enhancing East Asia’s interregional trade and of preventing a recurrence of a regional financial crisis (Kuik, 2008). It proposed a China-ASEAN FTA at the APT meeting in 2000. To mitigate cautions of ASEAN nations, it offered tariff reduction in agricultural products that would benefit ASEAN members and finally agreed to realize it within ten years.

To enhance international competitiveness, South Korean has pursued its own regional policy via bilateral free trade agreements (FTAs). It proposed a tripartite FTA with Japan and China and set up a study group for investigation, but eventually shelved the idea, recognizing that an FTA with Japan would do more harm than good. It also sought an FTA with ASEAN, first to counteract the increased influence of China (Lee, 2008) and then to explore new markets. After signing the Trade in Goods Agreement in 2006, it extended the area of agreement to service and investment, and finally agreed to create a free trade area by 2010. Then it sought a FTA beyond the East Asian region and signed with EU and Canada in 2010. In signing the FTA with EU, South Korea gave way to adopt EU regulations and standards on goods and services.

ASEAN has become a regional hub of FTA. It has already ratified FTA and Economic Partnership Agreement (EPA) not only among ASEAN members, but also with China, South Korea, Japan, and India, and is negotiating an FTA with Australia and New Zealand.

Japan has concluded a number of bilateral economic partnership agreements (EPAs), though not FTA. However, the persistent agrarian protectionism restricted the Japanese government to make concessions at the negotiation for FTA, excluding many agricultural products from the target.

The second measure is establishing closer ties with the United States that had angered East Asian nations before and after the economic crisis. Japan gave up initiatives for regional integration and opted to draw closer to the United States again, recognizing that in the face of a nuclear threat from North Korea, gaining independent leverage in the negotiation with North Korea could not be a primary concern, and that investment from the United States is indispensable to make deregulations effective in boosting the economy.

South Korea also changed its anti-US policy in 2004, recognizing that riding a wave of anti-Americanism led to a sharp drop in foreign investment and graved concerns about security (Rozman, 2004). Though Japan has had a significant share in foreign capital and export, it has heavily relied on foreign capital, advanced technology and export markets in the United States and Europe (Table 9-2). It signed bilateral FTA with the United States in 2006, though it has yet to be ratified.

China, by compromising to offer foreign companies opportunities to invest in its financial sector, agreed with long-term negotiations with the United States, and was admitted to the World Trade Organization (WTO) in 2001.

The third measure is the devaluation of currency and increase in foreign reserve. East Asian nations, especially China and South Korea, intentionally devalue their currency to boost export. China, after a large devaluation in 1994, has kept a fixed exchange rate system until 2010 when it compromised after repeated pressure from the United States (Figure 9-1). However, it still keeps strong control under the basket of currencies and often intervenes in foreign exchange market. South Korea adopted a floating exchange rate system after the economic crisis, but has kept the exchange rate lower. The Lee Myong-buk government has intentionally devalued the Korean currency and lowered interest rate since 2008 to boost export to and direct investment from foreign countries. ASEAN nations, with the exception of Malaysia, did not make intentional interventions for devaluation, but have not regained their currency value at pre-crisis level.

This currency policy, coupled with the policy to hedge foreign capital flight risk, has prompted East Asian economies to accumulate foreign reserves. China has accumulated the largest amount, followed by Japan and South Korea (Figure 9-3). Contrary to European nations, they hold most of their foreign reserve as foreign assets, especially treasury security of the United States.

These three measures have increased the export share in GDP of East Asian countries, except in the case of Japan (Figure 9-2). Vietnam has increased the share most (from 43.1% in 1997 to 77.9% in 2008), followed by Thailand (from 48% in 1997 to 76.5% in 2008), South Korea (from 32.4% in 1997 to 53% in 2008) and China (from 21.8% in 1997 to 38.4% in 2007). Structural adjustment in South Korea and Thailand, and accession to WTO in China and Vietnam apparently accelerated exports. For these nations, export has become the engine of growth.

In this process, East Asian nations have changed the composition of exports and FDI inflow. All of them have increased the share of interregional trade, especially their export share to China, while reducing that to Japan. South Korea increased its export share to the United States and Europe during 2000-2005 but decreased it during 2005-2008. Instead, it increased export and FDI significantly to Vietnam and Cambodia during this period. ASEAN 4 has decreased the export share to the United States, Europe and South Korea while increased that of rest of world, including India (Table 9-3). China increased its export share to and share of FDI inflow from the United States and South Korea during 2000-2005, but decreased during 2005-2008 (Figure 9-4), while increasing their export share to Europe and rest of the world.

These changes have several implications on regional institutions. First, China is gaining a position to place upward pressure on environmental requires to investment and export from East Asia, given the rising dependence on China in terms of trade and investment.

Second, China has capitalized on its growing economic power to dilute the influences of Japan and the United States in East Asia, as well as to legitimize authoritarian development and socialist capitalism regime, but yet completely diversified risks of its volatile relations with the West. China

has decreased its export reliance on Japan and the United States while increasing that on the EU. It has accumulated foreign reserves to hedge against the global financial risk, but faces risk of devaluation of US dollar after the Lehman shock in 2008. This implies that China has to abide by EU regulations and standards in expanding export, and compromise with the requirements of the United States to secure the value of foreign reserve.

Third, South Korea has also diluted influences of Japan in East Asia but has not yet reduced the influence of the United States. Its active negotiations on FTA, coupled with intentional currency devaluation, have increased investment and export to ASEAN nations, especially the growing economies of Vietnam and Cambodia, gained international competitiveness against Japanese firms, and are increasing export to Europe after the FTA made effective. But this export gain is realized at the expense of accepting EU regulations and standards. This makes it harder to create East Asian common regulations and standards, which renders to reduce transaction costs of trade and investment.

Finally, Japan has no longer had enough capital and market to influence economic activities in East Asia. Though Japanese FDI outflow is still significant, China and South Korea has rapidly increased the amount of direct investment (Figure 9-5) and surpass that of Japan in some nations. Decreasing export share to Japan discouraged East Asian nations to adapt to the Japanese standards that often require higher costs.

### 3. Energy

Energy-poor economies of Northeast Asia have highly relied on oil imports. Two oil crises forced Japan, South Korea and Taiwan to seek bilateral relationship with oil suppliers in the Middle East. These three economies competed with each other to establish long-term contracts for oil even at higher prices to gain energy security (Shim and Schreurs, 2007). At the same time, they attempted to improve energy efficiency and developed nuclear energy development to diversify energy sources as well as to reduce air pollution from fossil fuel fired power plants.

However, economic growth and cheap oil prices have increased energy consumption in the 1990s, offsetting these efforts. In South Korea, the Lee Myong-buk government instigated an electricity price reform in 2008 to set the night time price lower to enhance international competitiveness, resulting in further increase in energy consumption and carbon emission. It continued to depend significantly on oil and gas imports (Figure 9-6). It turned their eyes to the exploitation of continental shelf oil resources in areas of the East China Sea, and to the acquisition of mining concessions in the Middle East (Shim and Schreurs, 2007).

China has often suffered from serious energy shortages in the rapid economic growth. Most cities went through episodic brownouts or rotating blackouts, resulting in underutilized industrial

capacity. To increase energy supply capacity, the government abandoned the state's monopoly on energy supply and allowed regional and corporate entities and joint ventures, including foreign economic entities to enter into the production market. This policy mitigated energy shortage by the latter half of 1990s, but coupled with the substitution of coal in place of crude oil for export, increased coal reliance and inefficient energy use, both of which caused serious air pollution. The Chinese government then began to remove energy subsidies and forced closure of more than thirty thousand small and inefficient coal mining. However, this measure lowered rate of return of thermal power generation, and generated structural power shortage problem. To achieve the conflicting goals of meeting growing energy demand and reducing air pollution, Chinese government obtained technology of coal gas production, exploited natural gas in the western region for nationwide distribution, and increased crude oil imports (Mori and Hayashi, forthcoming). Despite being one of the largest coal producers in the world, China became a net energy importer in 1997 (Figure 9-7). In 2003, it surpassed Japan to be the second largest crude oil importer in the world. Net energy import has grown up to 10% of energy consumption in 2008. The Chinese government also encourages state companies to invest in resource exploitation in foreign countries, though sometimes sacrificing certain economic and energy interests in an effort to maintain its more significant relationship with the United States (Currier and Dorraj, 2011). Set aside investment to financial intermediation in Hong Kong, Cayman and Virgin Islands that aims to gain preferential status in tax treatment, outbound foreign investment in mining has grown rapidly, from US\$ 1.4 billion in 2006 to US\$ 13.3 billion in 2009 (Figure 9-8). Finally, it unilaterally began to put into operation an oil-drilling platform in the above disputed area of the East China Sea and conducted a military operation to legitimize its occupation of Spratly islands.

Two oil crises also caused economic turbulence in the energy-poor nation of Thailand. To hedge against the risk of oil price hike, the Thai government accelerated the exploitation of natural gas in the Gulf of Thailand and developed a petrochemical industrial complex nearby. This measure enabled Thailand to reduce reliance on imported energy. However, growing energy demand coupled with failures to manage air pollution and to obtain public consensus for new power plants has forced Thai government to develop a gas pipeline that enables gas import from Burma, and to initiate power generation in the neighboring nations: i.e., hydropower in Laos and coal-fired power in Burma.

The two energy rich nations of Malaysia and Indonesia have exported oil and gas to other East Asian nations as well as across the region. However, Malaysia has significantly reduced production and export recently due to declining capacity in the field. Indonesia still produces plenty of oil and gas, but subsidy for domestic energy consumption accelerated demand and made the government suffer from increasing fiscal deficit. To stop increasing its budget deficit while avoiding people's

protests, Indonesian government reduced subsidies in 2005 and 2008 to a certain extent.

Despite clear benefits of collective consumer action in avoiding conflicts over energy import and exploitation, thus territorial disputes, each nation has sought energy security by itself, without close collaboration with neighboring ones. There is little concerted effort to safeguard energy supplies by combating maritime piracy in the South China Sea and the Straits of Malacca. Indonesia and Malaysia resisted to Japan's proposal of multinational patrols in both territorial and international water due to suspicion and concerns over sovereignty violations (Rosen, 2008). China accepted Japan's assistance to build oil buffer stockpiles, but refused to the proposal of a joint safeguard of sea line. Instead it assists Burma to develop a port and gas pipeline to China that enables China to be free from risks in the Malacca Straits and sea line in South China Sea.

#### 4. Diffusion and Learning of Environmental Policy

Despite the provision of large amounts of environmental ODA, Japan has hesitated to provide intellectual capital for environmental protection to avoid this measure being regarded as a policy intervention. It assumed that recipient governments would attempt to develop environmental capacity with its assistance. This disintegration of technological and financial assistance with the intellectual one proved to have limited visible performance in technology diffusion and environmental improvement. Recipient governments have often not capitalized on its assisted monitoring centers and stations to strictly enforce environmental policies. They sometimes failed to convince firms to take wastewater charge, and nearby households to locate or expand the assisted wastewater treatment plants. They also failed to enforce stringent regulation to force thermal power plants to fully operate its assisted fuel-gas desulphurization (FGD). The environmental soft loan program showed a relatively better performance, but was only institutionalized in the Philippines (Mori, 2009).

By contrast, European donors have attempted to closely connect financial and technological assistance with diffusion of policies that were regarded as successful in their home countries. Typically, they provided training programs and assisted pilot and/or demonstration projects in the initial phase, and then gave policy advice in the later phase that had rendered wider diffusion in their home countries. To encourage ratification of the Kyoto Protocol, they shifted the focus from cleaner production and wastewater management to renewable energy: Enhancing renewable energy is one of the prominent Clean Development Mechanism (CDM) projects and enables East Asian nations to achieve national priorities, such as increasing energy and power supply capacity, reducing blackouts, promoting electrification in remote areas and avoiding air pollution (Mori, 2011).

Faced with these apparent failures and clear protests against its imposed green neo-liberalism policies that consist of the private ownership of environmental resources, transformation of



community-managed uncapped lands into transnationally regulated zones for commercial logging, pharmaceutical bio-prospecting, export-oriented cash cropping, mega fauna preservation and eco-tourism, the World Bank also added new policy elements that emphasized information disclosure and a participatory approach, and created new assistance aimed at these. Its emphasis on stakeholders' involvement led to the Eco-Watch Program which disclosed information on firms' emission discharge, referring to the effective reduction of toxic chemicals under the Toxic Release Inventory in the United States (Mori, 2011).

These environmental assistances showed mixed results (Mori, 2011). East Asian nations did not adopt the proposed policy instruments that had significant distributional impacts. Malaysia and Thailand refused to remove price subsidies of raw material and utilities and to adopt pollution charges and taxes that had promoted cleaner production nationwide in the donors' countries. The Philippines and Huhhot city government ceased the implantation of the Eco-Watch program soon after the World Bank assistance had ended. On the other hand, they have evolved donor-supported programs and policies to enhance the effectiveness. Indonesia has expanded the scope and target of the Eco-watch program and made it its core environmental policy. Thailand adopted feed-in-tariffs to promote renewable energy nationwide.

China exceptionally capitalized on the intellectual capital to implement new environmental policy instruments and measures. It not only capitalized on assistance to convince local governments and firms to implement environmental projects and adopted the associated policies (Mori, 2008), but also went further to develop and institutionalize its own programs and policies. It mandated coal-fired thermal power plants to install FGD, enacted the Cleaner Production Promotion Act and the Environmental Information Disclosure Act, to set an ambitious renewable energy target, and to provide subsidies to photovoltaic power manufacturers to enhance competitiveness both in the domestic and international market.

Some East Asian economies enhanced social learning to implement new environmental policies by themselves (Table 9-4). South Korea and Taiwan learned from the experience of Europe to implement pollution charges, recycling charges and extended producer responsibility (EPR). China learned the concept of circular economy and zero-emission from Europe and Japan, adapting them to the Chinese context by enacting the Circular Economy Promotion Law (Mori, 2009). China has also capitalized on the China Council on International Cooperation for Environment and Development (CCICED) to learn a variety of advanced environmental policies all over the world, actually implemented some of them, including ISO 14001, Regulation on Hazardous Substances (RoHS), vehicle exhaust gas emission regulations, and payment for ecological services (or in Chinese terminology 'ecological compensation').

## 5. Implications to National and Regional Environmental Governance

The above sections have shown that globalization has brought direct and indirect implications for environmental governance in East Asia. First, globalization has not always brought race to the bottom and regulatory chill in East Asia. Stronger domestic pressure for democratization and better environment, international pressure for global environmental agreements, and resource price hike have counteracted pressures toward deregulation in the field of environmental protection. Such counteractions, however, vary among regions and industries (Stanley, 2010). Those industries that seek export markets tend to adopt environmental regulations and practices to access to the international supply chain organized by MNCs. Wealthy regions that can obtain plenty of capital have enhanced environmental policies and enforcement, refusing polluting industries to join in so that they can keep prestige of green regions. In contrast, some regions attempt to implement *weak enforcement* to attract “dirty” industries to get out of the poverty, concentrating environmental pollution in the area.

Second, globalization makes it difficult to achieve upward harmonization of environmental policies and standards in the region, given the mutual distrust among nations shown in the introduction of this volume. Freer trade and investment enabled East Asian nations, especially South Korea and China, to discredit Japan to seek their national interests. They do not have to rely on capital and markets in Japan or to harmonize trade and environmental standard with Japan-led ones. Instead they have increased dependence on European market and capital of the United States while increasing their export share with these countries. This implies that they have to adopt environmental regulations and policies of the Europe and the United States to get over the “green trade barriers.”

In addition, East Asian nations have acquired the capacity to learn to adopt best suitable environmental policies and technologies by themselves without being imposed by international donors. In the meantime, Japan cannot be a dominant provider of intellectual capital for environmental protection any longer. Strong opposition by vested interests inhibited implementing innovative environmental policies, degrading Japan’s attractiveness as a leading model of environmental protection. This implies that East Asian nations adopt environmental policies and measures that are best suited to their respective political, economic and social context. This patchy form of adoption causes competition over regulations and standards, resulting in inconsistent ones within the region.

Third, globalization has opened the gate for East Asian nations to relocate environmental degradation to foreign countries. Despite intensive efforts for increasing renewable energy and energy saving, globalization and the associated rapid economic growth accelerated energy consumption and accordingly increased energy imports. Coupled with the shutdown of small

mining for safety and environmental reasons, East Asian nations have not merely increased energy imports, but have pushed investment towards resource exploitation in foreign countries, both within and outside East Asia (see Figure 9-4). China's foreign aid is suspected to support such investment and export of machinery, equipment and construction service for infrastructure development with repayment in oil and other resources, thus causing adverse social and environmental impacts in recipient countries, even if some of them are discussed controversially (Brautigam, 2009). These activities may cause serious environmental degradation unless both investors and host countries take serious considerations to the environment.

International diffusion of environmental policy may also cause the same effect. As a way of waste reduction, an increasing number of East Asian nations has adopted the German-origin EPR (Table 9-4). However, higher implementation cost has brought large amounts of legal and illegal exports of recyclable waste, resulting in serious environmental pollution at the treatment sites in China and Southeast Asia.

Effective domestic enforcement in host countries can prevent such relocation. At the same time, it becomes crucial to increase environmental responsibility of home countries. Assuming insurmountable barriers to create regional environmental frameworks and regulations, at least in the short run, this becomes the matter of how to convince emerging East Asian nations to adopt the existing international agreements and recommendations regarding environmental consideration on trade, investment and foreign aid.

## 6. Conclusions and Perspective

This chapter examined the implications of globalization on environmental governance in the East Asian region, with special focus on upward pressure of local and regional environmental policies and standards. Major findings are as follows. First, globalization has encouraged East Asian nations to hedge against economic risks individually, discouraging them to create regional economic and environmental regime. Second, the nationalistic quest for energy security as a means to satisfy growing energy demand, coupled with suspicion and concerns over sovereignty violations have made it difficult to enhance regional cooperation to safeguard energy supplies. Finally, globalization has shown mixed results in enhancing domestic and corporate approaches in environmental policies and management, despite of its pressure for race to the bottom and regulatory chill.

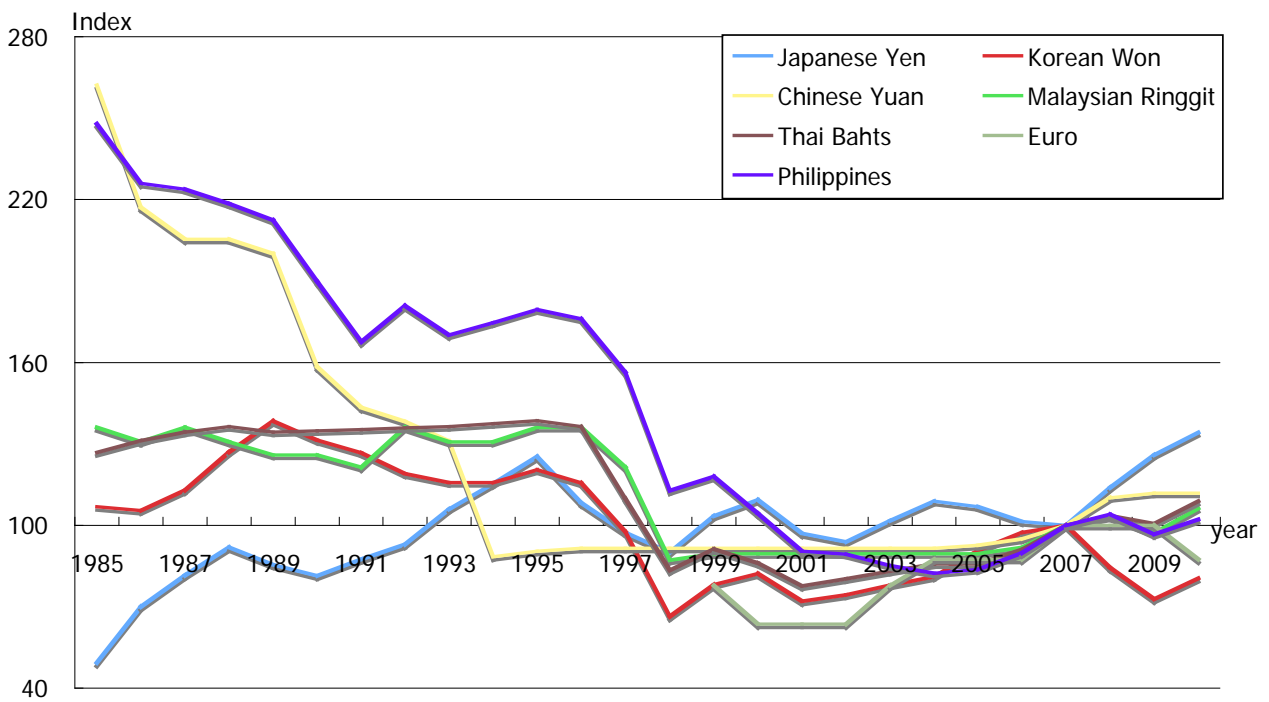
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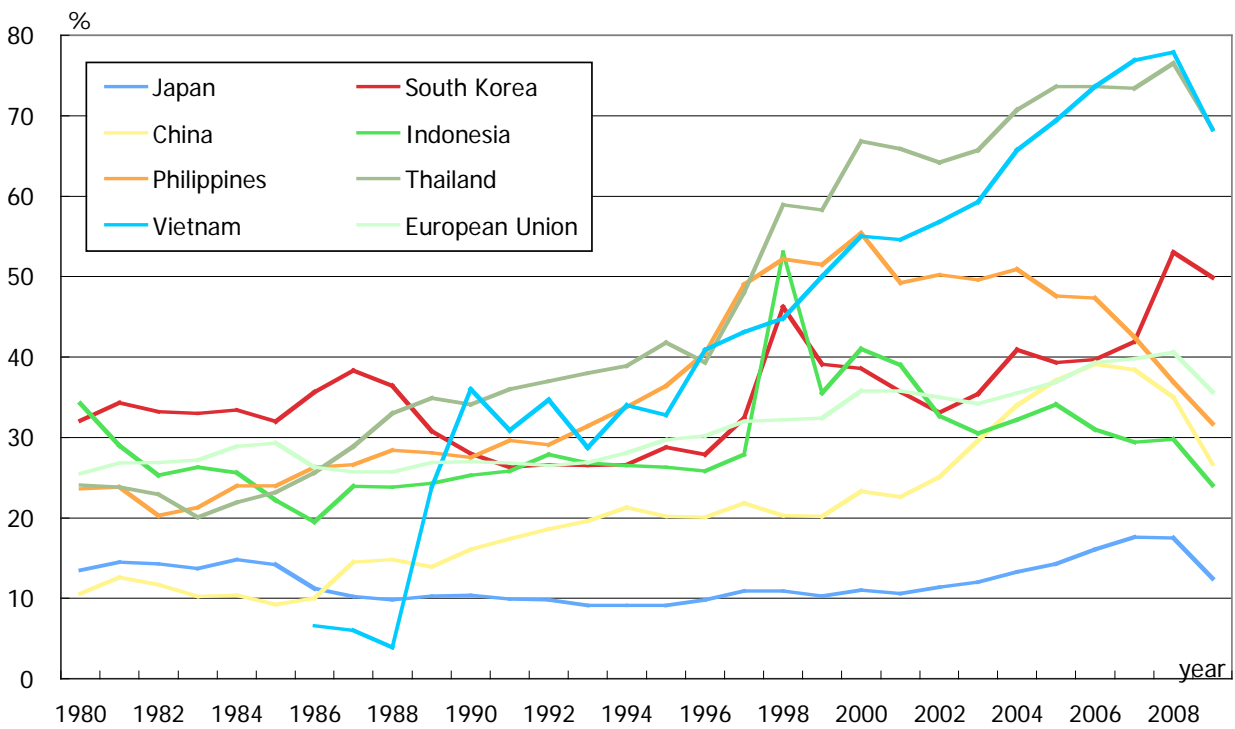
Figure 9-1 Index of Exchange Rate against US\$



Note: Year 2007=100

Source: World Bank (2011).

Figure 9-2 Export Share in GDP in East Asia



Source: World Bank (2011).

Table 9-1 Brief History of FTA in the East Asian Region

Japan		
2002	Singapore	signed the bilateral Economic Partnership Agreement (EPA)
2004	Mexico	signed the bilateral EPA
2005	Malaysia	signed the bilateral EPA
2006	Philippines	signed the bilateral EPA
2007	Brunei, Thailand, Indonesia	signed the bilateral EPA
2007	ASEAN	signed the Agreement on Comprehensive Economic Partnership among Japan and Member States of the ASEAN (AJCEP) (made effective with member countries during 2008-2010 except Indonesia)
2008	Vietnam	signed the bilateral EPA (yet effective as of August 2011)
2011	India	signed the Comprehensive. Economic Partnership Agreement (CEPA)
South Korea		
1998	Japan, China	proposed joint study for tripartite FTA
2003		Published the FTA Roadmap
2004	Japan	stopped FTA negotiation
2005	Singapore	
2006	EFTA	signed FTA
	ASEAN	signed Trade in Goods Agreement (Thailand signed in 2009)
2007	ASEAN	signed Trade in Service Agreement (Thailand signed in 2009)
	United States	signed Free Trade Agreement (KORUS FTA)
2008	ASEAN	signed the Agreement on Investment
2009	India	signed the CEPA
2010	EU	signed FTA (made effective in 2011)
China		
2002	ASEAN	signed the Framework Agreement on Comprehensive Economic Cooperation
2003	Hong Kong, Macao	signed the Closer Economic Partnership Arrangement (CEPA)
2004	ASEAN	signed Trade in Goods Agreement
2007	ASEAN	signed Trade in Service Agreement
2008	Singapore	signed the FTA
2009	ASEAN	signed the Agreement on Investment
2009	Pakistan	signed the Agreement on Trade in Service of the China-Pakistan FTA
2010	Taiwan	signed the Cross-Straits Economic Cooperation Framework Agreement (ECFA) and began to lower tariff in 2011
ASEAN		
1992	within ASEAN	signed ASEAN FTA (AFTA) to lower tariff within region
2009	Australia, New Zealand	signed to establish Free Trade Area (AAZNFTA)
2009	India	signed the Trade in Goods Agreement

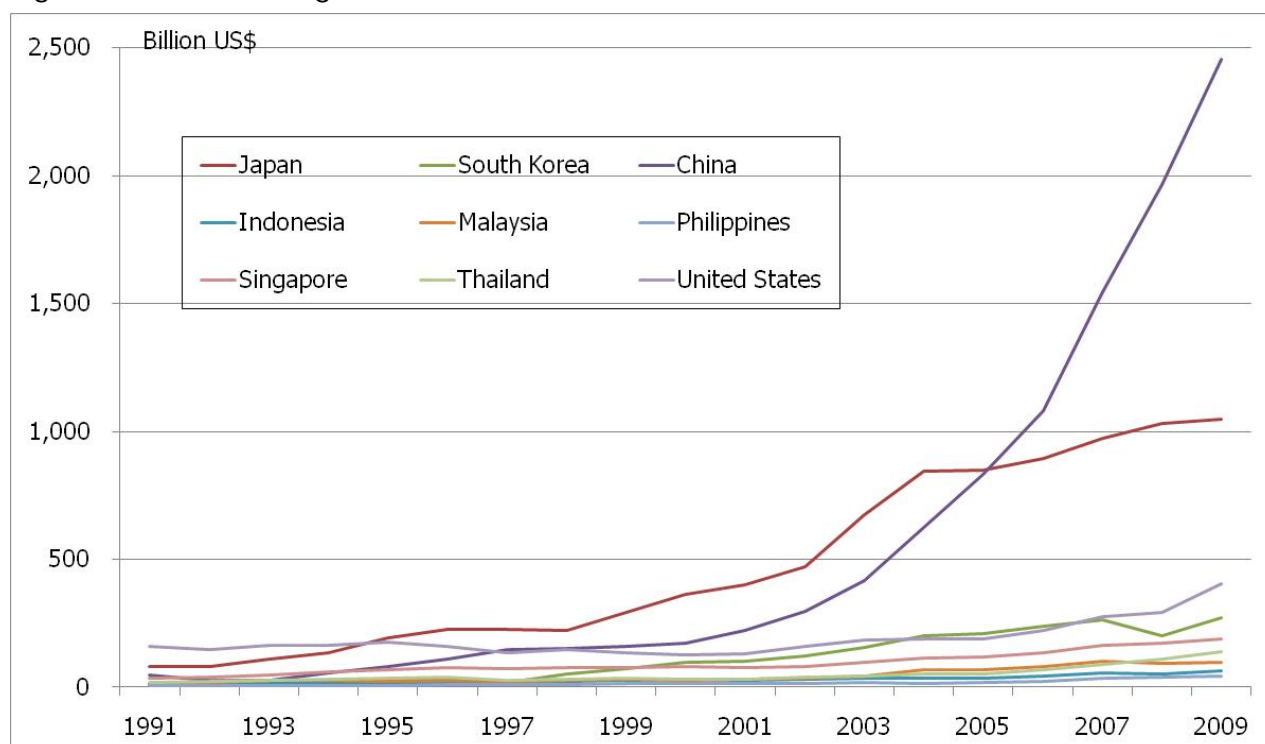
Source: Own compilation.

Table 9-2 South Korea's Inbound Direct Investment by Country (US\$ million)

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
United States	1782	404	305	393	2969	1751	549	409	1674	1124
Japan	996	524	377	186	1735	1469	1431	633	2083	1592
Belgium	158	123	175	1257	-226	-403	515	-2762	-18	114
Germany	1102	393	290	300	409	393	-584	286	621	559
Netherlands	1191	1052	328	124	1100	-199	-665	-484	-2494	186
United Kingdom	15	180	117	502	641	1936	458	201	1588	1393
Singapore	77	61	120	66	117	324	308	503	-31	-353
Malaysia	599	372	274	193	-89	-71	-29	57	62	42
China	58	47	81	184	696	2	29	47	242	67
HongKong	118	61	103	52	49	-5	40	82	238	214
Others	2547	644	890	631	324	868	2914	2479	3638	1648
Total	8643	3859	3059	3888	7726	6066	4964	1450	7603	6586

Source: OECD (2011).

Figure 9-3 Total Foreign Reserve



Source: World Bank (2011).



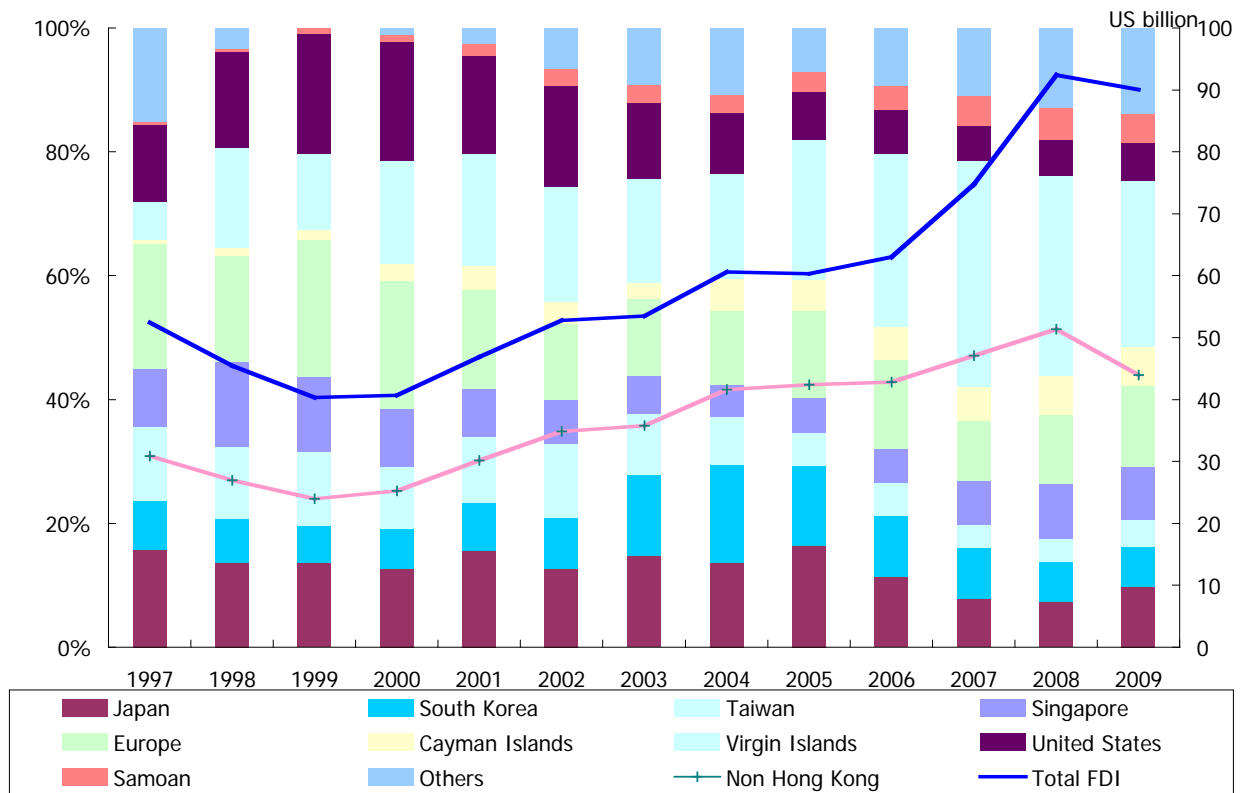
Table 9-3 Direction of Export in East Asia, 1980-2008

from	To	China	Japan	Asian NIEs	ASEAN4	USA	EU25	ROW
China	1985		22.3	33.7	2.7	8.5	10.0	22.7
	1990		14.7	47.2	2.9	8.5	10.2	16.5
	1995		19.1	31.0	3.7	16.6	13.6	15.9
	2000		16.7	24.7	3.7	20.9	16.4	17.5
	2005		11.0	23.1	4.1	21.4	18.9	21.4
	2008		8.2	20.0	4.3	18.6	20.3	28.6
Japan	1985	7.1		9.9	4.2	37.6	13.3	27.9
	1990	2.1		14.4	7.7	31.6	20.7	23.4
	1995	4.9		18.5	12.1	27.5	16.1	20.9
	2000	6.3		16.4	9.5	30.1	16.8	20.8
	2005	13.4		17.0	9.0	22.9	14.6	23.1
	2008	16.0		16.1	8.8	17.8	14.0	27.4
Asian NIEs	1985	9.8	9.5	6.2	8.1	29.8	12.3	24.3
	1990	10.4	10.8	7.2	8.6	24.8	16.6	21.6
	1995	16.5	8.7	9.1	11.2	19.8	14.3	20.4
	2000	18.2	8.2	7.9	10.4	21.2	14.7	19.4
	2005	26.3	6.4	8.0	11.4	13.9	14.1	19.9
	2008	28.0	5.3	8.1	11.9	10.3	12.2	24.2
ASEAN4	1985	1.3	31.0	18.0	14.1	19.8	12.5	3.2
	1990	2.1	24.3	19.5	15.6	19.3	16.9	2.2
	1995	2.8	17.1	21.9	18.8	19.3	15.1	5.0
	2000	3.5	16.1	20.6	16.9	20.5	15.3	7.2
	2005	7.7	14.1	19.8	15.7	16.4	12.9	13.4
	2008	12.1	12.9	18.3	14.5	11.7	11.5	19.1
USA	1985	1.8	10.6	5.7	2.1		24.4	55.3
	1990	1.2	12.4	7.4	2.7		26.5	49.7
	1995	2.0	11.0	9.4	4.1		21.6	51.9
	2000	2.1	8.4	7.7	3.7		21.7	56.5
	2005	4.6	6.1	7.1	3.1		20.6	58.4
	2008	5.5	5.1	6.6	2.8		21.1	58.9

Note: Taiwan is not included.

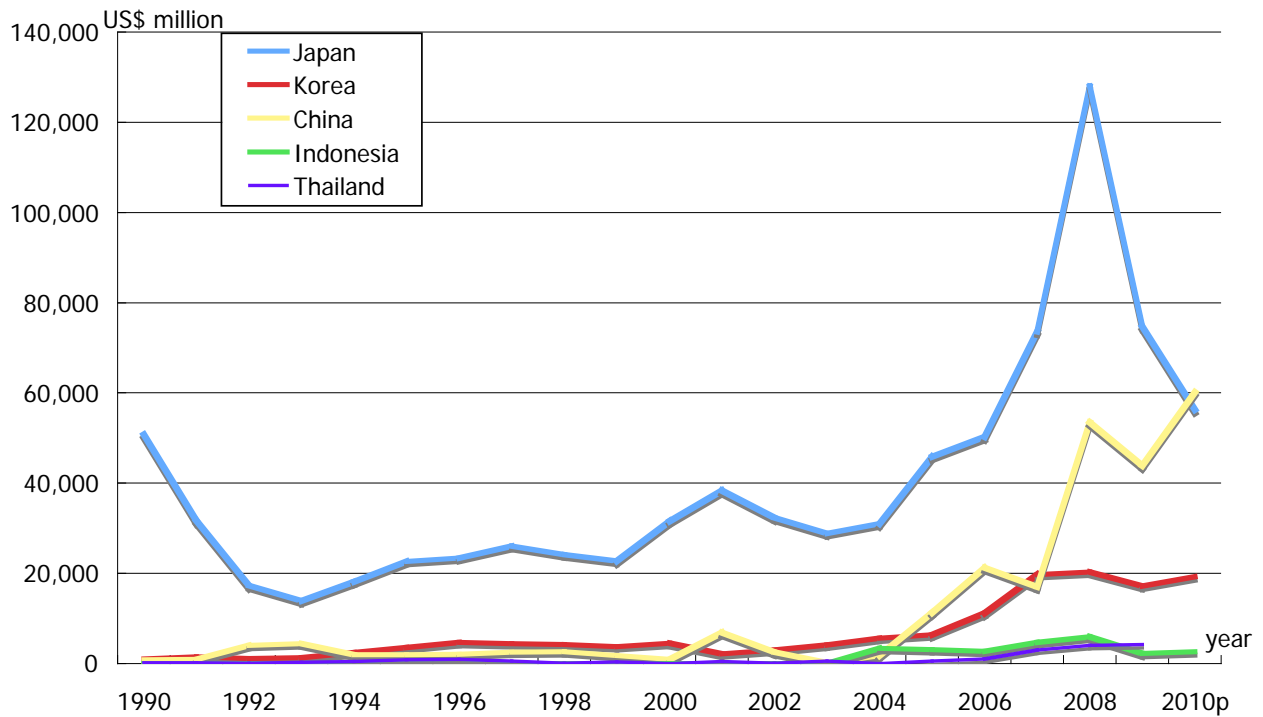
Source: IMF (1990, 2000, 2009).

Figure 9-4 China's Inbound Direct Investment by Country



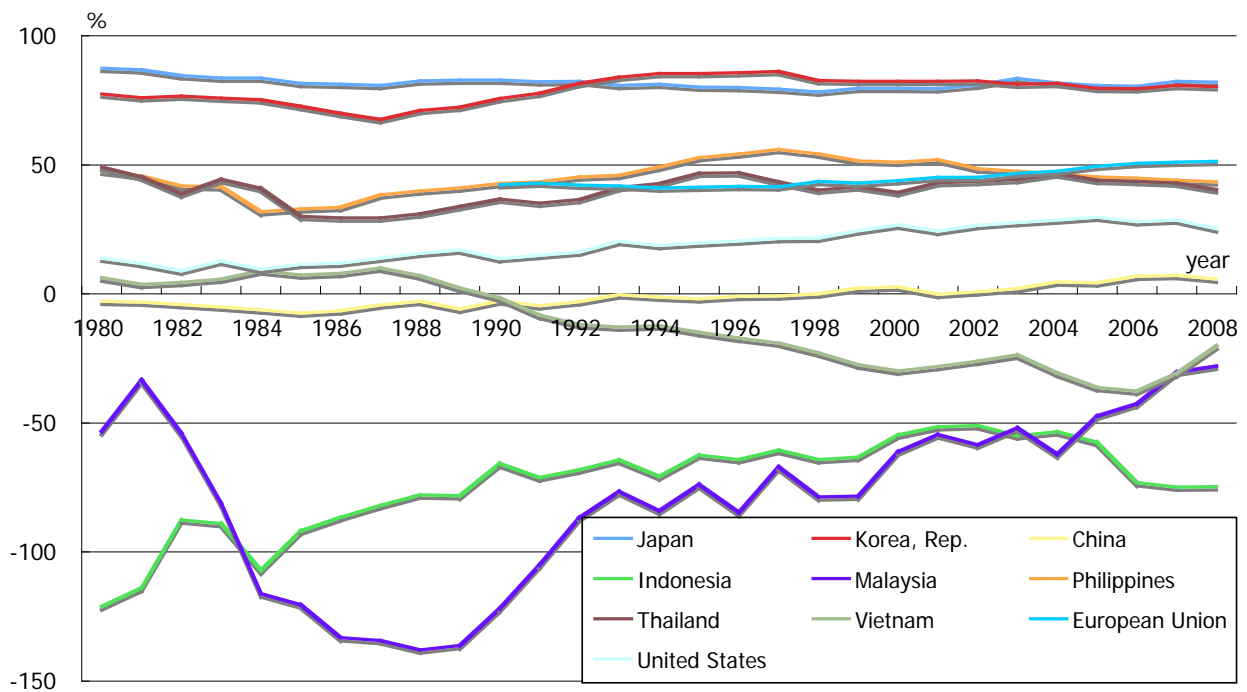
Source: Statistical Yearbook of China (1998, 2000, 2002, 2004, 2006, 2008, 2010).

Figure 9-5 Outbound Direct Investment in East Asia



Source: OECD (2011) and World Bank (2011).

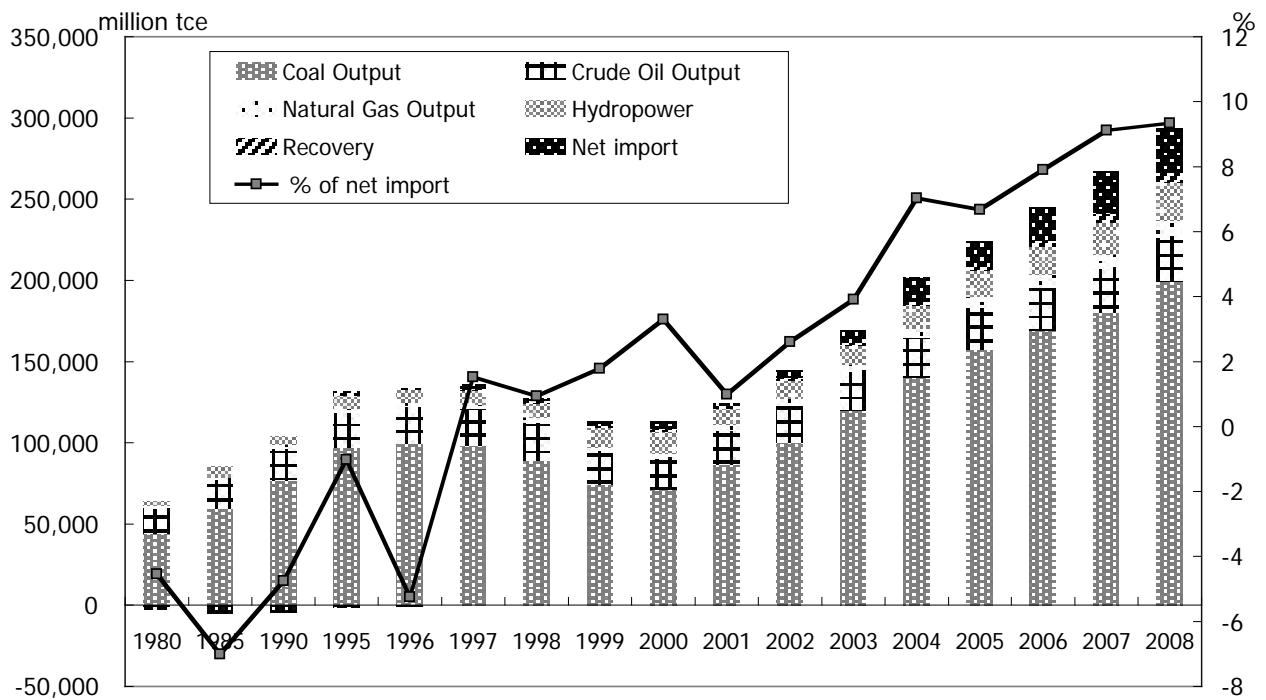
Figure 9-6 Share of Import Energy in Total Consumption



Note: minus means net export.

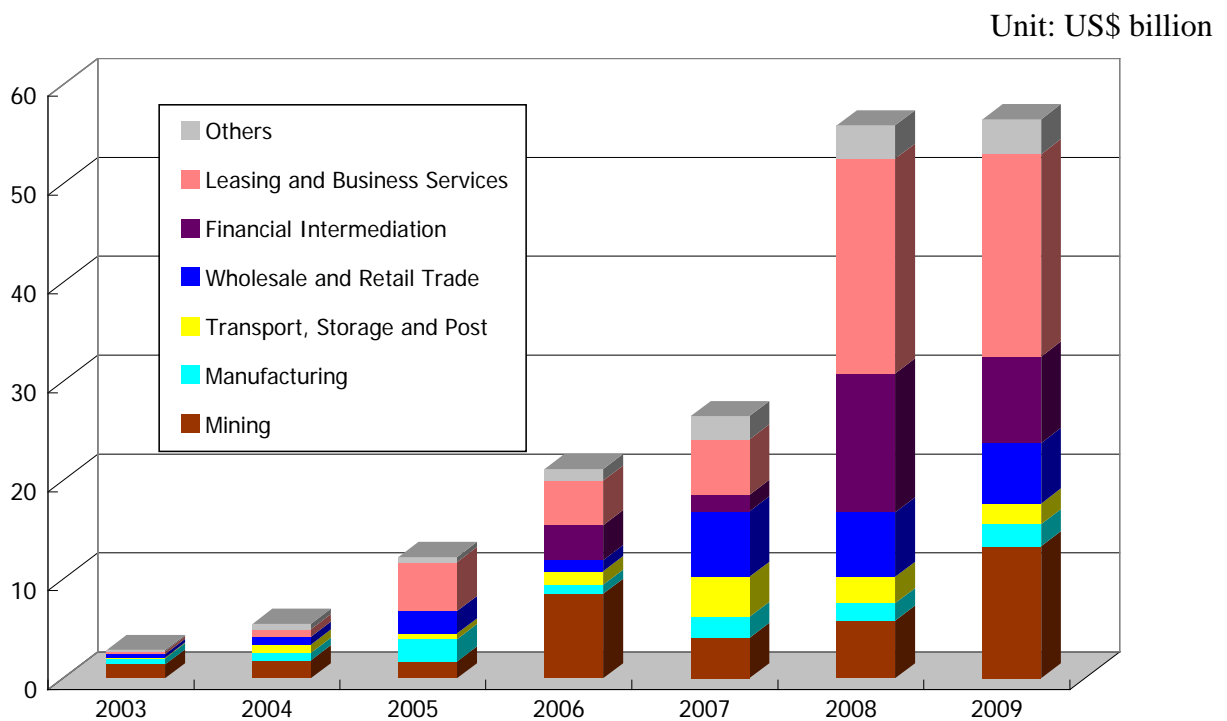
Source: World Bank (2011).

Figure 9-7 Amount of Energy Consumption and Share of Net Energy Import in China



Source: China Energy Statistical Yearbook (2009)

Figure 9-8 China's Outbound Direct Investment by Industry



Source: Statistical Yearbook of China (1998, 2000, 2002, 2004, 2006, 2008, 2010).

Table 9-4 Cross-national Diffusion of Environmental Policy in East Asia

Regulations		
Extended Producers' Responsibility		
1994	Germany	Act for Promoting Closed Substance Cycle Waste Management
1998	Taiwan	Recycling charge and the Material Recycling Fund
2000	Japan	Basic Act for Establishing a Sound Material-Cycle Society
2003	South Korea	Extended Producer Responsibility System
2009	China	Circular Economy Promotion Law
Regulations of Hazardous Substances		
2002	EU	Restriction of Hazardous Substances Directive
2006	EU	Registration, Evaluation, Authorisation and Restriction of Chemicals
2006	China	Administrative Measure on the Control of Pollution Caused by Electronic Information Products
Voluntary Approach		
Disclosure of firm's environmental performance		
1986	United States	Toxic Release Inventory (TRI)
1995	Indonesia	World Bank-assisted Program for Pollution Control, Evaluation, and Rating (PROPER Prokasih)
1996	OECD	Recommendation on Implementing PRTR
1999	Japan	Pollutants Release, Transfer and Register (PRTR)
1998	Philippines/China/ India	World Bank-assisted Eco-Watch Program
2003	EU	European Pollutant Release and Transfer Register (E-PRTR)
2008	China	Environmental Information Disclosure Act (Trial)
Market-Based Instruments		
Environmental soft loan		
1960	Japan	Soft loan for investment on wastewater treatment
1992~98	Indonesia/ Thailand/ Philippines/ Sri Lanka/ India	Japan-assisted soft loan for pollution abatement investment
Feed-in-tariff for renewable energy		
1978	United States	implemented under the Public Utility Regulatory Policies Act (PURPA)
2000	Germany	German Renewable Energy Act
2004	South Korea	New and Renewable Energy Development and Diffusion Promotion Act
2006	China	Preferential Purchase Pricing for Renewable Energy
2006	Thailand	Enacted a feed-in tariff
2009	Japan	implemented for excess amount of photovoltaic power generation

Source: Own compilation