

The Asian Network Economy in the 21st Century

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When asked about the impact of the French Revolution on China, the late Premier Zhou Enlai is reputed to have remarked that it was too early to tell.

The French Revolution occurred at the rise of the industrial revolution, when Asia accounted for nearly 40 percent of world gross domestic product (GDP) (Maddison 2003).

This essay is an attempt by a Western-trained Asian to reflect on how recent concepts of modern markets apply to the emergence of the Asian economy and how ready Asia is to take its rightful place in the 21st century.

The question why Asia declined even as the West emerged in the 18th century is one that has vexed Asian and Western historians. Asian intellectuals who attribute the recent rise of Asia to Confucian values tend to forget two important points. First, large parts of Asia, notably India, do not have a Confucian tradition, and, second, many Chinese reformers argued in the late 19th and early 20th centuries that it was precisely the conservative Confucian values and incentive systems that were blocking attempts to advance technologically and institutionally to meet the Western challenge. Harking back to the best of Brahmin, Confucian, or Bushido spirits could not deter the encroachment of a Western cannon in the 19th century. Nor do they account for the recent emergence of the Asian economies.

Some Western historians attribute the decline of Asia to institutional and governance frameworks that were not friendly to markets and technological progress. They are perhaps closer to the mark. It is one of the great puzzles of Asian intellectual history: why had the concept of the market as an efficient system of social governance never evolved in Asia? This was despite the flourishing bazaars, the commerce, and the trade between Asia and the West over the Silk Road since the classical age of Greece. I have yet to find a Chinese historical text that enunciates the concept of the market, although there are numerous descriptions of how various trades were conducted in ancient times. The concept of the market as a social mechanism that is more efficient than other forms of social governance is decidedly a Western invention.

A clue in understanding why, historically, the market was not conceptualized or cultivated actively to achieve development in Asia lies in the preeminence of the Asian bureaucracy. Despite all its ups and downs working under enlightened or despotic leaders, including colonial conquerors, the Asian bureaucracy, notably in China and India, remained the bastion of intellectual culture, civilization, and tradition. But it was also the inward-looking, self-satisfied complacency of Asian bureaucracy, combined with the corruption and profligacy of the ruling elites, that grossly underestimated the technological ascendancy of the West. The Asian ruling class, dominated by the bureaucracy, lost touch with the fact that technological change came from market-competitive forces. The top-down controls of the Asian paternalistic mindset meant that markets served only as a source of revenue for the state. In both China and India, traders were much lower than bureaucrats on the social scale. Historically, merchants could only influence state policy through corruption or by ensuring that their children or relatives would become bureaucrats through the competitive examination system.

More than anything else, it was the humiliation caused by colonization and war that drove home the realization that Asian institutions had to change everything even down to the core values. As the Asian elites became more and more exposed to Western trade, technology,

and education, they slowly altered the bureaucracy. Once political leaders had convinced them of the need to change, bureaucracies helped propel the Asian economies toward economic and social rejuvenation. This movement toward change led the way in the revival of Asian economies after World War II.

The reemergence of Asia has not been smooth, despite the momentum. The Asian crisis of 1997–98 was a rude awakening, even in advanced economies such as the Republic of Korea. Organisation for Economic Co-operation and Development status does not guarantee protection against the ferocious animal spirits of global markets. Becoming an advanced economy requires a deep institutional ability to manage national and global risks, level the playing field, promote transparency in economic and social behavior, and be a partner in global growth that is shared with equity and stability.

More than anything else, the Asian crisis was a test of the quality of private and public governance in Asia.

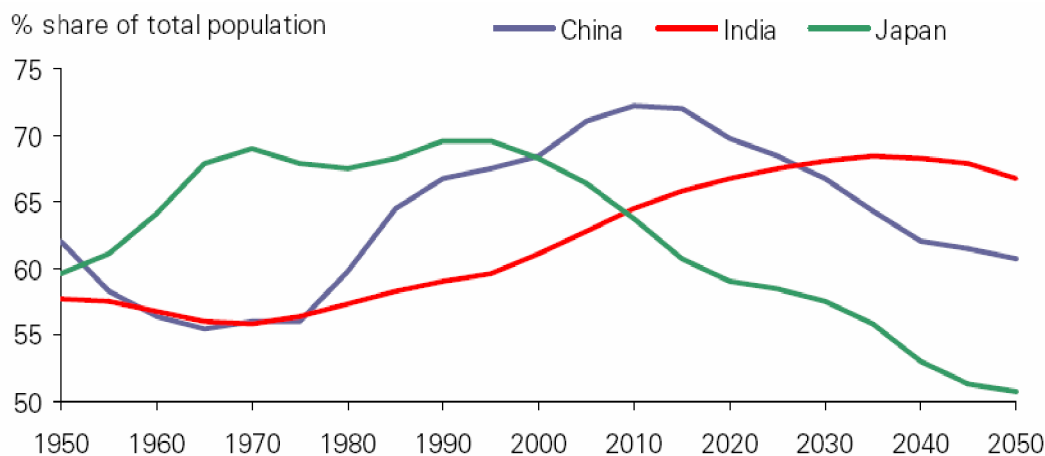
The East Asian miracle

There are several explanations for East Asia's rapid rise. There is the school that focuses on conventional Asian values. Other observers attribute the rise to the monsoon rice-growing economy. Rice planting generates a social cooperative spirit. Farmers need to work together to irrigate and till the soil, as well as to harvest. During the seasons when farmers are not tilling or harvesting the land, the women learn dexterity in weaving and handicrafts. These characteristics account for the high quality of the Asian labor force in learning and adapting to manufacturing skills, as well as the importance of social infrastructure.

The Asian miracle may also be a demographic phenomenon. Japan grew quickly in the 1960s and 1970s because of the rise of a young, skilled workforce and access to markets in Europe and the United States. Today, China is growing rapidly because of its large young labor force. The workforce accounts for around 70 percent of the country's population (see figure 15.1), one of the highest shares in the world. When Japan's workforce reached that population share in the second half of the 1960s, the Japanese economy was also growing at double-digit rates. India, which does not have a one-child policy (unlike China), is about 10–15 years behind in terms of this population share of the workforce.

It is also no accident of history that the path of modernization in Asia has been heavily influenced by Western thought: Marxism in China, the Democratic People's Republic of Korea, and Vietnam and Fabian social development in India and many parts of the former British Empire. Both influences led to fairly closed models of development until the end of the Cold War. On the other hand, export-led technocratic nationalism was the leitmotif that propelled Japan and the Asian dragons into industrialization. Japan's willingness during the Meiji era to adopt Western technology and even bureaucratic forms enabled it to take the lead on the path to industrialization.

Asians like myself have been fortunate to grow up in a period since World War II of unprecedented peace and stability characterized by functioning global institutions. The United Nations coordinates efforts to resolve world conflicts and improve world health, and world trade and finance have prospered in a context of lower tariff barriers under World Trade Organization conditions. In the financial arena, the Bretton Woods institutions have contributed to development and aid through the World Bank, while the International Monetary Fund has overseen the rising integration of global financial markets.

FIGURE 15.1. Population Share of the Workforce in China, India, and Japan, 1950–2050

Source: UN Population Statistics

Source: Based on data from the United Nations Population Information Network. Department of Economic and Social Affairs, United Nations Population Division. <http://www.un.org/popin/index.html>.

Asia accounts for 55 percent of the world's population, one-quarter of the world's exports, and slightly more than one-fifth of world nominal GDP, compared with the United States, which accounts for less than 5 percent of the world's population, 14 percent of exports, and one-third of world GDP. Europe is more comparable to the United States: 6 percent of the world's population, 36 percent of exports, and 20 percent of world GDP.

In trade terms, the world is now practically tripolar. Asia is the smallest pole, but the most rapidly growing. The North American Free Trade Agreement (Canada, Mexico, and the United States) encompasses a population of 430 million, but a US\$13 trillion economy. The European Union has a slightly larger population, at 460 million, but a smaller GDP, at US\$12 trillion. Asia (essentially East and South Asia) has a population of over 3 billion, but only US\$8 trillion in GDP. However, in capital market terms, the United States alone accounts for 55 percent of global market capitalization using the weighting in the Global Capital Markets Index of Morgan Stanley Capital International; the European Union accounts for an additional 17 percent, and the whole of Asia accounts for 13 percent.

The rise of China and India added over 2.5 billion workers and consumers to the market economy (Prestowitz 2005). Within the next 40 years, the four large population giants, Brazil, China, India, and Russia, are expected to grow more quickly and become larger than the G-7 (Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States) did over the last 40 years. Estimates of Goldman Sachs suggest that China will overtake Japan as the second largest economy by 2016, while India's economy will be larger than Japan's by 2032 (Wilson and Purushothaman 2003). The Goldman Sachs estimates assume that China will grow in real terms by an average 7.2 percent per year to 2010, while India will grow at 6.1 percent. Recent regional forecasts of the Asian Development Bank suggest that East Asia, excluding Japan, would grow in real terms by 6.7 percent a year to 2010, Southeast Asia by 6.9 percent, and South Asia by 7 percent (Roland-Holst, Verbiest, and Zhai 2005).

Japan and the Asian economy

No proper analysis of the rise of Asia is possible without an understanding of the key role Japan has played as the first Asian economy to reach industrial-country status. Japan was able to do this because the nation adopted a growth model led by the manufacture of exports, supported by a technology- and export-friendly bureaucracy, and financed through mild repression in the banking system. The mercantilist approach of backing winners, which was led by the Ministry of International Trade and Industry and supported through the main banking system (Vittas and Wang 1991), proved so effective that the Republic of Korea, Taiwan (China), and other East Asian countries tried to imitate the system, with varying degrees of success.

Japan's model was essentially a dual economy structure. The externally oriented manufacturing sector was extremely efficient, but the protected services sector, such as property, distributive trades, and finance, lagged behind global efficiency. A McKinsey study (Kondo et al. 2000) on the Japanese economy revealed that the best Japanese industries—autos, steel, machine tools, and consumer electronics—account for only 10 percent of GDP, but show productivity levels that are 20 percent above the global competitors. However, 90 percent of GDP is accounted for by nonexport sectors, such as domestic production and services, that show productivity levels 63 percent below levels in the United States.

Japan was able to industrialize because its government coached companies and groups of companies interlinked via communal or clan ties into becoming world-class manufacturers and exporters. The competition among these groups to meet significant consumer requirements enabled them to make sophisticated products by copying, at first, but later on through innovations in production, design, and marketing (Ohmae 1982). For example, the Toyota Way illustrated the extent to which Japanese corporate philosophy, engineering technology, and process could be combined to achieve standards of quality control, marketing, and global reach that made Japanese products the standard setters in many areas (Liker 2004).

Companies like Toyota evolved a process to manage manufacturing so that end products of the highest quality could be sold at reasonable cost. They were able to do this because the corporate philosophy was identical to the philosophy of a corporate citizen. Each worker had ownership through this philosophy. Each worker believed that the value he added helped to make a better product for the consumer, for the company, for the nation, and for himself. Every worker was a quality controller and a process manager. The corporate philosophy, the process, the people, and the problem-solving capacity formed a value chain that extended beyond single companies.

Japanese companies clustered together to achieve critical mass and then extended the production and distribution chains vertically and horizontally to destination markets such as Europe and the United States, but also to the rest of Asia. This Japanese advance in the theory and practice of production, the value chain along geographical and product space, was a major innovation and contributed greatly to the development of Asia.

Yet, the rise of Asia is complex. One cannot describe it properly purely through the single discipline of economics. The realization that markets are social institutions and function like networks that are path dependent has introduced into the mix other disciplines, including sociology, politics, demography, management, corporate governance, information technology, and engineering, as well as the lens of history and the history of economic thought (Fligstein 2001).

The network economy

How do we weave together all the confusing, profound changes in Asia? In 1996, Professor Manuel Castells aptly named the convergence of globalization, information, and communication technology and the consequent changes in society and culture “the rise of the network society.” With the Internet, the global economy has become a market “with the capacity to work as a unit in real time on a planetary scale.” In his view, “the global economy emerging from informational-based production and competition is characterized by its *interdependence*, its *asymmetry*, its *regionalization*, the *increasing diversification within each region*, its *selective inclusiveness*, its *exclusionary segmentation*, and, as a result of all these features, an extraordinarily *variable geometry* that tends to dissolve historical economic geography” (Castells 1996, 106).

It is perhaps no coincidence that the rise of globalization and the rise of financial innovation occurred at the same time as the rise of free-market fundamentalism (Stiglitz 2002). With amazement and puzzlement, we have all lived through the Asian crisis, the irrational exuberance during the technological bubble of 2000, and the challenges to corporate governance and to free-market capitalism. More recently, advances in behavioral and institutional economics, such as those achieved by Oliver Williamson and Nobel Laureate Douglass North, help us to understand the behavior of firms and their role in the marketplace (Williamson 2005). At the same time, work on the natural laws of networks by physicists such as Professor Albert-Laszlo Barabasi (2003) suggest that an understanding of network behavior might be applied to market behavior.

Indeed, network theory helps us understand how markets behave, but also how Asia has evolved its production and finance chains.

First, a network is a set of interconnected nodes. It may be a network of individuals, firms, or institutions (market participants) connected in order to exchange information, products, and services. Such exchanges are possible because the participants share common values, rules, processes, codes, or standards. Standards facilitate interconnectivity and interoperability. Common standards enable more efficient communication and lower transaction or friction costs. The more widely used a common standard, the larger the network.

Second, nodes do not connect with each other at random. Metcalf’s law applies; it states that the value of a network goes up as the square of the number of users (Shapiro and Varian 1999). To increase their own value, nodes seek to connect to other nodes or hub through what Barabasi calls “preferential attachment.” In order to attract more nodes to link, the hub would have to offer more “free goods” through the “the more you give, the more you receive” principle, or what I call the “network altruism” principle. This explains the “loss leader” sales attraction in supermarkets and Google offering free Web addresses and superior search services to gather more enthusiasts.

Third, hubs and clusters are efficient because the shortest route between two distant nodes may be through a hub. The more the efficient hubs cluster together and share and exchange information, the greater the network externality because each node benefits from higher efficiency in accessing information and knowledge and can cooperate in producing greater output (Economides 1993). Economies of scale increase with clusters and critical mass mostly because production and distribution processes (including exchanges of information and decision making) occur at a more rapid pace, as just-in-time processes illustrate.

Fourth, preferential attachment and network externalities, taken together, explain why there is a winner-take-all situation common to networks. The hubs compete with each other until one leading hub emerges. We have already seen how winning standards and distribution networks such as VHS, Wal-Mart, Coca-Cola, and Microsoft achieve market leadership in a short time. The rich-get-richer aspect of networks may be seen in the way markets have become more and more concentrated among an ever smaller number of big players. A large number of small players feel marginalized. For example, there were over 100 stock exchanges in the United States during the 19th century, but, with the arrival of the telegraph and now Internet, the market is dominated by NYSE and NASDAQ. Physicists have discovered that networks behave according to power laws. The most common power law is Pareto's Law, which says that 20 percent by number account for 80 percent by effect. Physicists have also noted that the presence of power laws often signals a transition from disorder to order (Barabasi 2003, 72).

Fifth, networks are scale free and not static, because each hub continually seeks to increase its links through its own competition or cooperation strategy. If one hub becomes dominant, the smaller hubs may cooperate or ally with other hubs to compete with the dominant hub. At the local level, some networks may become dominant through law or state control, but, because there is no universal law, there is no single architect for the global network of markets. The world is always evolving through continuous competition between different hubs arising from innovation, technology, and random events. As there are competing standards, so there are competing values and competing networks. Networks are therefore path dependent because they emerge from different social, historical, and political environments.

Finally, since markets are competitive by nature, they adapt and evolve around their environments. Hong Kong Monetary Authority Chief Executive Joseph Yam once observed that "free markets simply move around any (legal or regulatory) obstacles put in front of them." Markets operate through four key arbitrages: information arbitrage, taxation arbitrage, regulatory arbitrage, and governance arbitrage. In local markets, if there are obstacles to growth, the market simply moves offshore, which is why we have witnessed the rapid growth of offshore financial centers relative to onshore financial markets. In the language of London Business School Professor John Kay (2004), markets are, by their very competitive nature, pluralistic and disciplined, adaptive, and with good feedback mechanisms, and, consequently, much more resilient and stable than we realize.

Once we begin to look at markets as networks in an engineering or sociological sense, we move outside classical economics into the realm of political and institutional economics. The architecture of markets is already common terminology. There are, in fact, three basic network topologies or structures: the star or centralized network, the decentralized network, and the distributed network. The star system is the most vulnerable in the event of a failure of the central hub. The star system exists where there is a single dominant hub. Sometimes, decentralized networks with several large competing hubs appear as markets become concentrated among larger and larger players (or hubs). The Web, on the other hand, is so widely distributed that it is much more resilient to viruses and hacker attacks because it does not have a single hub. The self-organizing behavior of the Web ensures survival.

The market is a network. Property rights are delineated, traded, and exchanged across it. A local market is a local area network, and the global market is a network of local networks. If market networks follow power laws, this explains the inherent procyclicality of financial markets (Borio 2005).

The Asian supply chain network

Our quick survey of network theory gives us a clue how the global supply network evolved. Ford's production line revolutionized manufacturing by standardizing the products, components, and processes. The efficiencies of production through lower transaction costs, including staff training and learning costs, created value. Now, information technology, automation, innovation, and competition have converged to the point that manufacturing has become more flexible. It has higher quality standards and is more responsive to consumer needs. More than anything else, information technology has driven globalization, so that the world is increasingly operating as one global network where ideas, capital, and products flow with less and less concern for geographical borders. Through the World Wide Web, manufacturers are able to source production and restructure operations and delivery systems to serve global customers. Production need not be carried out at the point of distribution, but may be outsourced to a place where it is more efficient to produce.

We can trace the rise of the global supply chain to the earlier rise of multinational companies. Trade among the affiliates, subsidiaries, and related companies of multinational companies probably account for about 45 percent of global trade.

In Asia, a World Bank study identified four waves of trade and change (Yusuf, Altaf, and Nabeshima 2004). The waves of global chain decomposition are reminiscent of the Japanese flying geese formation, where industrialization moved from the lead goose, Japan, through newly industrialized economies to the Association of Southeast Asian Nations and then China (Ozawa 2005).

At the domestic level, the idea that enterprises operate together as networks is not new. Japanese enterprises grouped together initially as clan-based industrial groups or *zaibatsus*. When these were broken up after World War II, the components were still knit together in groups called *keiretsus*. The Korean variety is well known as *chaebols*, of which Samsung has emerged as a world-beater in electronics. In the 1960s, there was already awareness that multinational enterprises were using horizontal and vertical integration of production across national borders. The American firms led the way by setting up production companies in Europe and Japan.

By the 1970s, as costs rose in Japan, production began to be outsourced to the newly industrializing economies, such as Hong Kong (China), Korea, Singapore, and Taiwan (China). At about the same time, a large number of Indian and Taiwanese graduates and workers in Silicon Valley decided to set up plants in Bangalore and Taiwan where they could produce goods and services cheaper than in the United States and where local governments were eager to offer assistance because they welcomed the foreign direct investment (FDI). This was the beginning of the spread of the global supply chain back into Asia.

In the second wave of export-led growth in the 1980s, Indonesia, Malaysia, the Philippines, and Thailand began to receive FDI in special development zones. Malaysia was one of the first to benefit from FDI from both Japan and the United States. Footwear, textiles, and consumer electronics were followed by machinery, electronics, chemicals, and transport equipment.

There were two lines of FDI, each with their own networks. The U.S. investments in electronics in Penang, Malaysia, were the first signs that American firms were taking advantage of the cheaper labor, good infrastructure, and tax benefits to move production overseas (Ernst 2004). All the output was exported because Malaysia had little internal demand for electronic

chips and components.

Much of the Japanese outward FDI went toward consumer durables and automotive manufacturing, where advantage was also taken of local tax and customs incentives. Initially, these factories served local markets, but, as the Japanese realized that the quality of production in Malaysian and Thai factories was comparable to that in Japan, these factories became part of the supply chain that fed components into the main plants in Japan and other parts of the world.

Japanese manufacturers worked in clusters, and Japanese investments in an auto plant in Thailand, for example, would bring along Japanese component manufacturers, whose networks expanded to include the local component manufacturers, once the quality and timeliness of supply had risen to Japanese requirements. The non-Japanese suppliers and distributors in Asia prospered with the supply chain.

By the mid-1980s, it had become clear that there were five types of networks: supplier networks, producer networks, customer networks, the standards coalition network, and technology cooperation networks (Ernst 1994). Global supply chains combined rapid geographical dispersion and two types of clusters (Ernst 2005). The first cluster consisted of centers of excellence in research and development, typically close to good universities and defense research centers, and the second cluster revolved around precision mechanical engineering or cost- and time-reduction centers that could drive down production costs.

At the same time, companies such as Li and Fung in Hong Kong used information technology and their network of suppliers in Asia to provide a global distribution and sourcing supply chain (DeMeyer et al. 2005). This was also a major innovation in the supply chain for distribution. Much of the regional distribution chain relied on the Chinese diaspora of entrepreneurs scattered throughout Asia, but located particularly in Hong Kong, Singapore, and Taiwan. European, Japanese, and U.S. multinational companies used the network of firms of the Chinese diaspora to help in production and distribution. Wal-Mart, Ahold, Carrefour, Tesco are some of the names of the large retail chains outside Asia that backward integrated into Asia for their supplies, but also expanded their own retail networks in Asia to distribute their goods globally. The distribution networks depended also on specialist skills, such as quality control and outsourcing.

In addition, the Indian diaspora, particularly those people with high technical skills working in Silicon Valley, backward integrated to India to build up the software business and information technology outsourcing. The Indian model of an invisible, services-oriented production network deserves far more study to appreciate the management and processing innovations involved and to highlight the great significance of this model at the forefront in development.

By the 1990s, the high cost of production in the newly industrialized economies had driven investments toward China. China's position in the global supply chain was consolidated during the Asian crisis, when production began moving to areas where cheap labor was available in an environment with good technological capability and good infrastructure. Those Asian countries that had suffered through huge problems in domestic banking during the Asian crisis found that they had lost production to China, which offered stable financial facilities and a large domestic market that provided a means to reduce the risk. Smaller production centers, such as Singapore, that did not have large domestic markets had to move up the value chain in order to compete.

In a short 10 years, China has emerged as the world's fourth largest trading nation and second largest producer of information technology hardware, with close to 14 percent of the

world market (Yusuf, Altaf, and Nabeshima 2004, 6). Today, 75 percent of the world's toys, 36 percent of its television sets, and 31 percent of its crude steel are produced in China. China alone was taking in more than US\$50 billion in FDI annually, even exceeding the United States as the leading destination of global FDI flows.

Global supply networks have had a tremendous impact on regional trade. Intra-East Asia trade grew from about one-quarter of all trade in the region in 1971 to more than half in 2004 (Damuri, Atje, and Gaduh 2006). Trade integration has moved beyond the Association of Southeast Asian Nations. China has also emerged as the aggregator of Asian trade and production for reexport to the West. In 2005, it ran a net trade surplus of US\$114.2 billion with the United States, but it ran net trade deficits with Taiwan (US\$58.1 billion), Korea (US\$41.8 billion), Japan (US\$16.4 billion), Southeast Asia (US\$15.6 billion), and Australia (US\$5.1 billion).

As David Roland-Holst (2006) so insightfully pointed out, what we see in today's global economy is a process of supply chain decomposition, whereby FDI is leading to the distribution of production tasks across an international matrix of intermediate producers. In East Asia, this process has advanced rapidly and pervasively, facilitated by both Western FDI and a regional cascade effect, as more advanced Asian economies reallocate production to less advanced ones. He calls this Bamboo capitalism: firms and markets sprout from the nodes in the root system that supports global intermediate supply.

Despite Asian trade integration, the essential point is that the ultimate trade destination remains primarily the United States and then Europe. The U.S. demand for goods and services spawned the global supply chain. Essentially, the opportunity to supply the U.S. economy with cheaper, better goods resulted in the spread of the global supply chain throughout Asia.

The Asian financial network

From the balance sheet point of view, assets have to be financed by liabilities of either equity or debt. The global production supply chain had huge implications for the transformation of Asia, but financing was crucial to the network economy.

First, since the main buyer was the largest economy with the best credit standing, its demand for high-quality goods at value prices created the supply and distribution network to support that demand. This meant that credit financing for the Asian supply chain, with subcontractors or original equipment manufacturers and component suppliers lower down the chain, was never a serious problem. Markets cannot grow if the end buyer is a major credit risk.

Second, a distinctive feature is that the financial network relied primarily on the domestic banking channel, while capital market developments were driven largely by the non-Asian supply of FDI and foreign portfolio investments. The result was an imbalanced growth strategy. The strategy was vulnerable to the sort of sudden withdrawals of capital flows that culminated in the Asian crisis. In the absence of a strong regional lender of last resort, the Asian economies built up large foreign exchange reserves and current account surpluses, so that Asia became the primary funder of the global imbalances.

The funding for U.S. direct investments in host countries was never a problem. These investments were funded out of equity or through direct borrowings from local credit markets in local or foreign currency. Asian banks had no credit concerns about providing trade financing nor about supplying bridging finance for FDI projects in Asia. For Japanese FDI in non-Japan Asia, the availability of trade credit for work-in-progress was rarely in doubt because leading

Japanese producers were cash rich and were able to provide both investment and trade credit for non-Japanese component suppliers lower down the production chain. Japanese banks had no credit worries over financing Japanese FDI or financing distributors of Japanese products.

Third, Asia remains a bank-dominated financial system for well-known reasons. In the classic flying geese formation, the other Asian economies mimicked the Japanese bank-financed manufacturing export model and never moved up the value chain in the financial sector by deepening capital and derivative market skills. Many were happy financing the booming domestic mortgage market, domestic property developers, or government-led enterprises. This shortsighted strategy meant that higher-value financial intermediary skills were dependent on markets in London and New York.

The result was overreliance on short-term funding to finance trade credit and long-term investment. The Japanese supply chain model depended on funding from Japanese banks for the keiretsu investments overseas, as well as the trade credit that these leading manufacturers offered their component suppliers and distributors. The ultimate income source was in dollars, but, to avoid the impact of currency fluctuations, Japanese trading houses tended to buy in dollars from Asia and lend in Japanese yen. To keep the yen relatively competitive, there was also considerable outflow in yen official credits.

The Japanese supply chain was therefore the first to undertake the carry trade by borrowing cheaply in yen and lending and investing in higher-return FDI in non-yen countries. Unfortunately, Asian recipients of these yen credits and FDI did not fully understand the risk management implications of the supply chain model and the financial network. They used the capital inflows in foreign currency to invest in local currency assets, particularly stocks and real estate, creating the conditions for the onset of the Asian crisis.

It is thus no coincidence that Thailand, the largest recipient of Japanese FDI in the 1990s, was vulnerable to supply chain pressures. Between 1995 and 1997, Thai companies (especially suppliers to Japanese manufacturers) depended heavily on trade credit from Japanese companies to fund their activities. A number were drawing down heavily on bank borrowing to fund their real estate and nonmanufacturing activities. Japanese banks are especially important in Thailand, accounting for over half of all international bank lending. The combination of yen weakening and the decline in the Nikkei index in 1997 caused Japanese banks (under capital rules) to cut back on their credit to Japanese firms, as well as their foreign exchange loans to Thailand. The combination of the cut in bank credit and the sharp reduction in trade credit exacerbated the credit deflation. Since there were insufficient foreign exchange reserves to meet capital outflows, the Thai baht devaluation sent a tsunami shock wave across the Asian financial network (Love, Preve, and Sarria-Allende 2005).

There is now agreement that the Asian crisis was a case of a surge in capital inflows into a dollar-based zone. This led to a rise in the real effective exchange rate, which led to growing current account deficits in the crisis economies. Much of the surge in capital inflows was caused by the Japanese FDI coming into the region between 1990 and 1996, including Japanese bank lending to support the spread of the Japanese supply chain. The spread of the supply chain was necessary to maintain Japanese competitiveness in exporting to the world by using cheap labor, but it also involved the development of an Asian backyard market. The European banks and the fund managers joined the herd of inflows into the region.

After the sharp appreciation of the yen in 1995 to nearly 85 to the dollar, the yen began to depreciate, and Japanese banks began to face mounting losses on domestic loans. The pressure to boost capital ratios reduced their appetite for international lending. By 1996/97, the appearance

of a significant premium on their international interbank funding, plus the impact of a weaker yen on their capital adequacy, had forced them to reduce their dollar exposure. Almost 80 percent of their international loans were booked to Asian borrowers; so Japanese banks had their largest international exposure toward Asia (Jeanneau and Micu 2002).

In the five years to 1997, roughly US\$200 billion flowed into Asia. In 1997 and 1998, roughly US\$160 billion flowed out, of which Japanese bank lending withdrawals accounted for roughly US\$65 billion. Indeed, between the end of 1996 and the end of 2000, the Japanese banking system had a net international lending exposure reduction worldwide of ¥20.8 trillion or US\$170 billion, the largest retrenchment in recent banking history.¹ As Japan went into deflation, short-term interest rates were brought to zero, and hedge funds and smart investors engaged in a feast with the carry trade by borrowing cheap yen and buying Asian assets that yielded a higher spread in dollars. Once the baht devalued, much of the carry trade had to be unwound in a hurry. Asia experienced a bank run, but domestic central banks did not have enough foreign exchange reserves to meet the run on foreign currency. The Asian global supply chain was without a lender of last resort.

We might conceive of the global market as a network among local networks that operate according to local standards. Broadly, there are three or four dominant international currencies, namely, the dollar, the euro, the yen, and pounds sterling, which make the local networks interoperable. The exchange rate is not only an asset price, but also a network standard. In the postwar Bretton Woods model, the global financial system used essentially the dollar standard fixed against gold, while all other local currencies were effectively pegged against the dollar, so that, *de facto*, there was one leading standard across the global financial system.

Since World War II, when the U.S. dollar replaced sterling as the premier international currency, it attained a dominant power law status. We might argue that the United States is today the super hub of global financial markets. The U.S. economy accounts for 4 percent of the world population, 30 percent of global GDP, and half of world market capitalization, and the U.S. dollar is used in roughly 60 percent of all trade and financial transactions. Global foreign exchange reserves are roughly 60 percent in dollars, 20 percent in euros, and the rest in yen, sterling, and other currencies. The dollar has contributed significantly to the stable growth of global trade.

The history of the emergence of the United States as the dominant economy in the world is well documented, but it is useful to remember that, after World War II, the U.S. economy accounted for 46 percent of world GDP. One reason there is preferential attachment to the U.S. dollar as a standard is that the U.S. financial market still provides superior infrastructure and transparent protection of property rights through common law and that, until very recently, the track record of the United States in macroeconomic terms has been superior. Specifically, through appropriate monetary and fiscal policies, the U.S. dollar has been a benchmark currency that has not suffered from severe inflation or political shocks.

Since the United States is the final customer, a dollar standard would be the most efficient for all the suppliers to the United States. A dollar standard imposes fiscal and monetary discipline on the economy. Hong Kong relies on this discipline to make sure the economy adjusts to the dollar standard, not the other way around. A fixed exchange rate standard demands a huge amount of discipline in the domestic economy, since you cannot use flexibility to achieve competitive advantage. It also ensures that both the private sector and the public sector must maintain financial discipline, but also match the productivity levels of the dominant standard.

The Asian financial network has two main contending standards, the dollar and the yen.

The yen's role has been declining as a share of global foreign exchange trading since 1989, when it had a 13.5 percent share of daily trading; now, the share is 10.4 percent, whereas the dollar's share has been maintained at roughly 44–45 percent (BIS 2004). This is so despite the fact that Japan is the third largest economy after the United States and the European Union. Japan's GDP of US\$3.75 trillion is nearly half the total Asian GDP, and Japan has financial assets worth nearly double the assets of the rest of Asia put together.

The underutilization of the yen has several possible causes. One has to do with the fact that Japanese companies export in dollars and import in yen. Another is that the short-term capital market is relatively underdeveloped in Japan, so that transaction costs in yen tend to be higher than transaction costs in dollars (Dominquez 1999). Of course, the volatility in the yen-dollar exchange rate, which moved from 85 yen in 1995 to 137 in 1997, was a factor causing borrowers and investors to worry about borrowing or holding yen.

The Japanese economy is so large in Asia that we cannot divorce Asian economic and financial development from consideration of the interactions between Japan and non-Japan Asia. The Asian crisis was not merely a crisis of four countries outside Japan. It was a crisis that included Japan, which had been suffering through a deflation and an adjustment for 15 years after the Japanese bubble of 1989/90. For example, International Monetary Fund staff estimates suggest that "the downturn in Japanese domestic demand and the depreciation of the yen against the dollar could lower GDP in the Asia-5 countries by almost 1 percent in 1998. On the other hand, the Asia crisis is estimated to lower Japan's GDP by 1–1.25 percent in 1998" (Shimizu 2000).² If the yen had depreciated beyond 146 in August 1998, and the Chinese yuan had followed, the ensuing disaster would have been tremendous.

When the yen became strong, non-Japan Asia benefited from Japanese FDI and the shift in production and exports to non-Japan Asia. When the yen became weak, the reverse happened, and production shifted back to Japan. Hence, the dual-standard Asian supply network was subjected to unnecessary volatility and stress, especially because people in non-Japan Asia expected the inflows of capital to be permanent. Prior to the Asian crisis, non-Japan Asia was essentially on a dollar standard, as Professor McKinnon (2005) rightly points out.

The real design flaw in operating a *de facto* dollar standard is that you must either maintain very high dollar reserves, as Hong Kong did, with minimal external liabilities, or you must have access to a dollar lender of last resort. Prior to the crisis, everyone thought the International Monetary Fund was, subject to appropriate conditionality, the lender of last resort. Asian central bankers did not keep sufficient reserves because they did not have proper international balance sheets that might have helped them understand their true net international position. Indeed, from Indonesia to Korea, people discovered that greater foreign exchange liabilities had been committed offshore than anyone had realized. The second mistake was to underestimate global market volatility in exchange rates and in exchange flows. The contagion that spread from Asia to Russia and Brazil caused market volatility to move by as much as 15 standard deviations.

The Asian global supply chain was therefore a single supply chain with two financial channels and two standards. On the one hand, the United States was the leading consumer, the provider of the global dollar standard, and the leading banker for Asia's external savings. On the other hand, Japan, as the main hub of the supply chain, had a bank-dominated system based on yen funding. The rest of Asia traded mostly in dollars and had assets in domestic currency and net liabilities in foreign currency, creating a vulnerability to currency and maturity mismatches. The architecture was vulnerable to currency and liquidity shocks.

The hard facts can now be gathered through the Lane and Milesi-Ferretti (2006) data set on global net international assets from 1970 to 2004. As a result of persistent current account surpluses and despite rising exchange rates versus the dollar, Japan's net foreign asset position rose from US\$12.2 billion (6.0 percent of GDP) in 1970 to US\$293.3 billion (9.9 percent of GDP) in 1989. Over this period, similarly, the net foreign asset position of the United States deteriorated from US\$65.5 billion (6.3 percent of GDP) in 1970 to negative US\$152.2 billion or (-2.8 percent of GDP) in 1989. By then, Japan was clearly a net creditor to the rest of the world.

Why were Asians willing to put their hard-earned savings with the United States at the risk of exposing themselves to depreciation there? The answer is that we are in Bretton Woods II, in which Asia is satisfied with export sales and with low returns on a dollar exposure. In exchange, Asia obtains open markets in the United States and American skills in venture capital and in reinvestment in Asia (Dooley, Folkerts-Landau, and Garber 2005; Spencer 2006). The imbalance is actually a total equity return swap that is mutually beneficial and could be sustainable. Holders of dollars are willing to pay seigniorage and more to ensure that the world's leading banker remains both the banker and the consumer.

As the issuer of the dominant currency standard, the United States was, at the end of World War II, the banker to the world, with a strong current account surplus and a net creditor position equivalent to 10 percent of U.S. GDP in 1952. By the end of 2004, after running persistent current account deficits, the net external debt of the United States (with FDI at market value) was US\$2.5 trillion, or 22 percent of U.S. GDP. The United States had foreign assets of US\$10 trillion (85 percent of GDP) and liabilities of US\$12.5 trillion (107 percent of GDP). However, 70 percent of U.S. foreign assets were in foreign currency, and the United States was unique in that almost all its liabilities were in U.S. dollars. Gourinchas and Rey (2005) estimate that a 10 percent U.S. dollar depreciation would lead to the transfer of 5.9 percent of U.S. GDP from the foreign holders of its liabilities to the United States.

Before the Asian crisis, the Asian authorities assumed that, since the United States was the banker to the world, either the U.S. Federal Reserve or the International Monetary Fund would be the dollar lender of last resort. This expectation appeared to be confirmed because the United States had stepped in during the Mexican crisis of 1994. But it was not to be. Moreover, it is now abundantly clear that the International Monetary Fund was never designed to be a lender of last resort. It might provide some liquidity. However, with only US\$300 billion in assets, it has less than 0.5 percent of the total international assets in the global financial network (over US\$85 trillion); meanwhile, 70 percent of its loans are concentrated in only three countries.

Implications of the global network economy for growth in Asia

We have one global network, but we also have different standards. What are the implications? By switching standards, one would generate different gain and loss allocations in terms of flows and balance sheets across the world. If the law of one price applies, then, ideally, we should have a single global currency and a global lender of last resort. We have seen that, since Bretton Woods I, this is not feasible politically. The dominant standard may therefore decide whether to maintain or enhance its dominant status or allow other standards to take up some of the burden.

Two possibilities are discernible. As Asia grows in gravitas in terms of wealth, the rest of the world would like Asia to rely more on domestic engines of consumption in Asia, rather than such significant dependence on American consumers. By and large, there is reasonable

consensus even within Asia that this is the correct course of action. A point of disagreement is whether Asian savings patterns are able to change rapidly given the demographic profile and the fact that much of the social security infrastructure is not yet in place, and domestic financial systems are not yet ready to recycle domestic savings.

The second possibility revolves around whether Asians should change the one supply chain and two standards into a more robust regime. The recent moves by the Association of Southeast Asian Nations, plus China, Japan, and the Republic of Korea, at Chiang Mai, Thailand, and the Asian Bond Fund initiatives indicate that Asians are beginning to consider further Asian monetary and financial integration. The end game is not yet clear, mainly because regional and historical rivalries cloud the debate.

First, network problems call for cooperative solutions. The global architecture has moved beyond the point where only one country or a small group of leading economies such as the G-7 can solve global problems. Global taxation and loss sharing, if needed, cannot be accomplished without greater representation. The emerging markets and the more rapidly growing economies must be represented at the table.

Second, we cannot be complacent that the status quo will continue. The United States will begin to adjust its imbalances sooner or later. This is likely to lead to profound changes in capital flows and market volatility. The Bretton Woods institutions have fewer resources to deal with large capital flows and global volatility. The smaller economies have to improve their risk management capability and reach up to the best international standards in order to withstand future shocks. One must adopt a national perspective on risk management in dealing with foreign exchange exposure. National policy makers can learn much from corporate risk management skills that are widely available within the market.

Third, closed-door solutions run huge risks. The dangers of greater protectionism are not trivial. If global imbalances are not addressed, then protectionism and the shrinkage of world trade would reverse all the growth that the world has enjoyed over the last few decades. This means that there must be a greater exchange of views on the appropriate way forward.

Fourth, in the medium term, Asians will have to address the complexity and weaknesses of increasingly integrated Asian production and financial networks. Europe sought greater stability and risk sharing through the creation of a common viable standard, the euro.

Asia faces four general choices.

The first choice is to maintain the dominant standard. However, recent research has found that the Asian currencies have been showing signs since 1997 of behaving less and less like a dollar bloc (Ho, Ma, and McCauley 2005). With the floating of the yuan and the Malaysian ringgit beginning in July 2005, Asian currencies appear to be moving toward a period of greater flexibility, with possible inflation targeting as an objective, rather than pegging for greater trade and network efficiency.

The second choice involves increasing the use of the euro as the important payment and store-of-value standard. This is likely to put pressure on the euro bloc and can only work if euro bloc countries indicate their willingness to act as the dominant standard.

The third choice is to work within a regional currency framework of variable geometry. In this case, the risk of shock is likely to be less because the currency grouping is smaller. This is not an impossible task, but to carry it out would require considerable leadership and statesmanship within Asia.

The fourth choice is to institute free floating and pull the plug if the shocks get too large. If, cumulatively, a large number of smaller economies break off links with each other, and the

leading standards seek greater protectionism, then the global network would unwind, which would be a disaster for all.

The Asian network economy in the 21st century

Until recently, many Asian governing elites were not aware of the importance of the market as a primary engine of development; they believed that growth could be achieved through state intervention.

By imitating the West, Japan was the first Asian nation successfully to evolve the export-oriented manufacturing model of development, but it made the mistake of relying mainly on the banking system to finance that model, while protecting the domestic services and agriculture sectors. The originality and value-creation of the Japanese production network was, on its own, unable to offset the high costs of deflation brought about by the imbalanced growth model. The rise of the global economy meant that previously protected domestic sectors would sooner or later be marked to global prices. Through derivatives, such as real estate investment trusts, even nontradable products can be priced internationally. Wealth losses during this adjustment to world prices are inevitable. In a closed economy, these efficiency losses might be hidden and allocated without transparency. In an open and transparent global economy, these inefficiencies become fully exposed, and losses have to be allocated for under full public scrutiny. Hence, closed economies or highly protected parts of open economies cannot avoid the pain of adjustments to the global economy.

The dilemma of the dual economy model is not unique to Japan. The rest of Asia that broadly followed the dual model was rudely awakened by the Asian crisis. Only the small city economies of Hong Kong and Singapore, with their highly global, integrated public and corporate governance, could absorb the shocks with resilience. China and India, as well as other transitional economies that are not yet entirely following global standards and price levels, were protected by their relatively closed systems, including exchange controls. But, as they open up, they will also have to deal with the adjustment process.

The Asian bureaucracy must make the important transition from a paternalistic top-down governance structure to a pluralistic market economy structure. However able and determined, a top-down model dominated by a small elite can no longer manage large complex market economies open to wide public choice and rapid technological change. As markets become more open and as network friction costs are reduced, consumers, savers, and skilled labor will have the choice of moving across borders with ease. The law of one price is beginning to become a reality.

I am optimistic that private- and even government-led corporations in Asia would, through global competition, make the transition with relative ease. However, it is in the arena of government bureaucracies where the real battle of market change will have to take place. Asian bureaucracies, in the first years of independence, were the vanguards of change, flush with the idealism of freedom, united by the vision of a new society, and eager to prove to the world that Asians could stand on their own. But, as Asian economies reach the middle age of prosperity, the old bureaucratic traits of conservatism, complacency, and nationalism may combine with the venality of regulatory capture, corruption, and incompetence. The record of privatization throughout Asia has been patchy precisely because bureaucrats are loath to give up their interests as proxy owners and managers. Reforms demanded by the market are slow in coming because many bureaucracies are large and have vested interests in the status quo.

To be fair, many bureaucrats, even in the West, have not understood the important

differences between the roles of the state as owner, regulator, and facilitator of business in terms of achieving market efficiency. As society becomes more complex, the bureaucracy is the only agency available to address market and social failures such as inequality, pollution, energy wastages, and terrorism.

The principal-agent problem is everywhere evident in markets. Society demands that the agent (the bureaucracy) must be able to deliver what the market and society want in terms of long-term value-creation and greater social equality and stability. The Asian bureaucracy must be able to manage the process of transition to the market economy without wasting the fruits of development and demographic endowment through lack of focus, incompetence, or corruption.

Asians have evolved managerial innovations such as the Toyota Way, the Li and Fung Global Distribution System, and the Indian software outsourcing model. Asian production and distribution systems can evolve and innovate to global standards and beyond. They have already been able to make important leaps. They have created value and wealth and generated resources so the state might address what the state is good at addressing: education, health, security, regulation, and social infrastructure.

But as Asian bureaucracies have become large and unwieldy, they have lost focus. Many social commentators think that changing politicians through the electoral system can solve this problem. Elected politicians find that the greatest challenge is not simply the right policies, but the capacity of the bureaucracy to identify the policies, offer the right options, and implement them effectively. A defensive bureaucracy that digs in against the demands of the market and the public demand for greater efficiency, transparency, and accountability only delays and impedes the inevitable adjustment to globalization. But the politicians are ultimately accountable to the public. They should set the goals and requirements of the bureaucracy.

Political, business, and civil society leaders must bear much of the responsibility for the readiness of the economy to meet globalization because they are responsible for the bureaucracy. The success of the market economy stands or falls on the professionalism, competence, and integrity of the bureaucracy, from the smallest village official to the cabinet office secretariat. It is time for the bureaucracy to stand up and be counted.

In the modern network economy, among the irreplaceable roles and responsibilities of the state is the creation and enforcement of standards, codes, and rules of the game, as well as putting in place the property rights infrastructure of a market economy that is fair, transparent, robust, flexible, and efficient.

Markets are the most important deliverers of the efficiency necessary to achieve social equity and sustainability, but issues of fairness and public goods still require the intervention of the state. The state should be a partner, not a private sector adversary. Asian bureaucracies will have to rise to this important challenge.

The old order of success is no guarantee of the future success of the new order. If crisis is an event, reform is a process. For reform to be successful, it must be managed as a process. The real challenge for Asia in the 21st century is to manage the process of transition to Asia's rightful place in the global economy. Altering the management of this process so as to meet the goal will be a big challenge in years to come.

Notes

¹ Web site of the Ministry of Finance, Japan, on the net international asset position of Japan.

² The Asia-5 are Brunei Darussalam, Hong Kong, Japan, Singapore, and Taiwan.

References

- Barabasi, Albert-Laszlo. 2003. *Linked: How Everything is Connected to Everything Else and What It Means to Business, Science and Everyday Life*. New York: Plume Books.
- BIS (Bank for International Settlements). 2004. "Triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity in June 2004." Regular publication, December 6, Bank for International Settlements, Basel, Switzerland.
- Borio, Claudio. 2005. "The Search for the Elusive Twin Goals of Monetary and Financial Stability." Paper prepared for the conference organized by the IMF Institute and the Monetary and Financial Systems Department, "Financial Stability: Central Banking and Supervisory Challenges," International Monetary Fund, Washington, DC, September 6–7.
- Castells, Manuel. 1996. *The Rise of the Network Society*. Vol. I of *The Information Age: Economy, Society and Culture*. Cambridge, MA: Blackwell Publishers.
- Damuri, Yose Rizal, Raymond Atje, and Arya B. Gaduh. 2006. "Integration and Trade Specialization in East Asia." CSIS Economics Working Paper WPE 094, East Asia Bureau of Economic Research and Center for Strategic and International Studies, Jakarta. http://www.csis.or.id/working_paper_file/66/wpe094.pdf.
- DeMeyer, Arnoud, Peter Williamson, Frank-Jürgen Richter, and Pamela C. M. Mar. 2005. *Global Future: The Next Challenge for Asian Business*. Singapore: John Wiley & Sons (Asia) Pte. Ltd.
- Dobbs-Higginson, Michael S. 1993. *Asia Pacific: Its Role in the New World Disorder*. London: Heinemann.
- Dominquez, Kathryn M. 1999. "The Role of the Yen." In *International Capital Flows*. National Bureau of Economic Research Conference Report, ed. Martin Feldstein, chap. 3.2. Chicago: University of Chicago Press.
- Dooley, Michael, David Folkerts-Landau, and Peter Garber. 2005. "International Financial Stability: Asia, Interest Rates and the Dollar." Global Markets Research paper, October 27, Deutsche Bank Global Research, Deutsche Bank, New York.
- Economides, Nicholas. 1993. "Network Economics with Application to Finance." *Financial Markets, Institutions and Instruments* 2 (5): 89–97.
- Ernst, Dieter. 1994. "Inter-Firm Networks and Market Structure: Driving Forces, Barriers, and Patterns of Control." BRIE Research Paper, University of California, Berkeley, CA.
- . 2004. "Global Production Networks in East Asia's Electronic Industry and Upgrading Prospects in Malaysia." In *Global Production Networking and Technological Change in East Asia*, ed. Shahid Yusuf, M. Anjum Altaf, and Kaoru Nabeshima, 89–158. Washington, DC: World Bank.
- . 2005. "The New Mobility of Knowledge: Digital Information Systems and Global Flagship Networks." In *Digital Formations: IT and New Architectures in the Global Realm*, ed. Robert Latham and Saskia Sassen, 89–114. Princeton, NJ: Princeton University Press.
- Fligstein, Neil. 2001. *The Architecture of Markets: An Economic Sociology of Twenty-First-Century Capitalist Societies*. Princeton, NJ: Princeton University Press.
- Gourinchas, Pierre-Olivier, and Hélène Rey. 2005. "From World Banker to World Venture Capitalist: U.S. External Adjustment and The Exorbitant Privilege." CEPR Discussion Paper

- 5220 (September), Center for Economic Policy Research, London.
- Ho, Corrine, Guonan Ma, and Robert N. McCauley. 2005. "Trading Asian Currencies." BIS Quarterly Review, March, Bank for International Settlements, Basel, Switzerland.
- Jeanneau, Serge, and Marian Micu. 2002. "Determinants of International Bank Lending to Emerging Market Countries." BIS Working Paper 112 (June), Bank for International Settlements, Basel, Switzerland. <http://www.bis.org/publ/work112.htm>.
- Kay, John. 2004. *The Truth About Markets: Why Some Countries are Rich but Most Remain Poor*. London: Penguin.
- Kojima, Kiyoshi. 2000. "The 'Flying Geese' Model of Asian Economic Development: Origin, Theoretical Extensions, and Regional Policy Implications." *Journal of Asian Economics* 11 (4): 375–401.
- Kondo, M. J., W. Lewis, V. Palmade, and Y. Yokohama. 2000. "Reviving Japan's Economy." McKinsey Quarterly 4, McKinsey Global Institute, Washington, DC.
- Lane, Philip R., and Gian Maria Milesi-Ferretti. 2006. "The External Wealth of Nations Mark II: Revised and Extended Estimates of Foreign Assets and Liabilities, 1970–2004." IMF Working Paper 06/69, Research Department, International Monetary Fund, Washington, DC.
- Liker, Jeffrey. 2004. *The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer*. New York: McGraw-Hill.
- Love, Inessa, Lorenzo A. Preve, and Virginia Sarria-Allende. 2005. "Trade Credit and Bank Credit: Evidence from Recent Financial Crises." Policy Research Working Paper 3716, World Bank, Washington, DC.
- Maddison, Angus. 2003. *The World Economy: Historical Statistics*. Paris: Organisation for Economic Co-operation and Development.
- McKinnon, Ronald I. 2005. *Exchange Rates under the East Asian Dollar Standard: Living with Conflicted Virtue*. Cambridge, MA: MIT Press.
- Ohmae, Kenichi. 1982. *The Mind of the Strategist: The Art of Japanese Business*. New York: McGraw-Hill.
- Ozawa, Terutomo. 2005. "Asia's Labor-Driven Economic Development, Flying-Geese Style: An Unprecedented Opportunity for the Poor to Rise?" APEC Study Centre Discussion Paper 40 (July), Asia-Pacific Economic Cooperation Study Center, Columbia University, New York.
- Pan, Lynn. 1990. *Sons of the Yellow Emperor: A History of the Chinese Diaspora*. Boston: Little, Brown and Company.
- Prestowitz, Clyde. 2005. "Three Billion New Capitalists: The Great Shift of Wealth and Power to the East." New York: Basic Books.
- Rohwer, Jim. 1995. *Asia Rising: Why America Will Prosper as Asia's Economies Boom*. Singapore: Butterworth-Heinemann Asia.
- Roland-Holst, David. 2006. "Global Supply Networks and Multilateral Trade Linkages: A Structural Analysis of East Asia." Working paper, March 31, University of California, Berkeley, CA.
- Roland-Holst, David, Jean-Pierre Verbiest, and Fan Zhai. 2005. "Growth and Trade Horizons for Asia: Long-Term Forecasts for Regional Integration." ERD Working Paper 74 (November), Economics and Research Department, Asian Development Bank, Manila.
- Shapiro, Carl, and Hal R. Varian. 1999. *Information Rules: A Strategic Guide to the Network Economy*. Boston: Harvard Business School Press.
- Shimizu, Yoshinori. 2000. "Convoy Regulation, Bank Management, and the Financial Crisis in Japan." In *Japan's Financial Crisis and Its Parallels to U.S. Experience*. Special Report 13

- (September), ed. Riyoichi Mikitani and Adam S. Posen, 57–99. Washington, DC: Institute for International Economics.
- Spencer, Michael. 2006. “A Guide through Bretton Woods II.” Global Markets Research paper, April 10, Deutsche Bank Global Research, Deutsche Bank, New York.
- Stiglitz, Joseph E. 2002. *Globalization and Its Discontents*. New York: WW Norton.
- Vittas, Dimitri, and Bo Wang. 1991. “Credit Policies in Japan and Korea: A Review of the Literature.” Policy Research Working Paper 747, World Bank, Washington, DC.
- Williamson, Oliver E. 2005. “The Economics of Governance.” *American Economic Review* 95 (2): 1–18.
- Wilson, Dominic, and Roopa Purushothaman. 2003. “Dreaming with BRICs: The Path to 2050.” Global Economics Paper 99 (October 1), Goldman Sachs, New York. <http://www.goldman-sachs.com/insight/research/reports/99.pdf>.
- Yusuf, Shahid, M. Anjum Altaf, and Kaoru Nabeshima, eds. 2004. *Global Production Networking and Technological Change in East Asia*. Washington, DC: World Bank.

