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Capital Flows in East and Southeast Asia

3.1.1 Introduction

The currency crises in Southeast Asia in the summer of 1997 have shown that even Asian "miracle" countries are not immune to the problems of volatile capital flows. From July to September, the four major currencies in the region depreciated by 20 to 30 percent, and stock prices continued declines that had started earlier. Although weak economies and financial sector problems are underlying causes of weakness, a speculative attack seems to have triggered the crises. A sharp exchange through the media between George Soros and Prime Minister Mahathir highlighted some frequently asked questions about the benefits and costs of free capital mobility and speculation.

This paper reviews and analyzes capital flows to Asian countries in connection with past growth and current pain in these economies. There is no doubt that capital inflows to most Asian countries accelerated their industrialization. Part of high economic growth was financed by foreign capital and technology. Capital inflows to Asian countries were considered to be managed relatively well in the first half of the 1990s. Even at the time of the Mexican peso crisis (December 1994 to 1995), "contagion" effects in Asian countries were short-lived and less serious.

This chapter was written with information available up to the time of the conference, October 1997. The crisis in East Asia, particularly in Indonesia and Korea, became much more serious. However, that topic needs another paper. Footnotes partially update events in Thailand.

In late 1996, exports from Asian countries started to slow and economic growth started to decelerate. The high-flying stock prices in Southeast Asian economies turned downward too. Since most Asian currencies were "effectively pegged" to the U.S. dollar, they were considered to have become overvalued. In 1997, pressure intensified. The Thai baht came under attack in February, March, and May. In July, the Thai authorities decided to float the currency. The Malaysian ringgit, the Indonesian rupiah, and the Philippine peso followed suit soon after the baht devaluation.

Capital flows to the Asian region provide an interesting case study in economic development and growth. The summer 1997 episode of currency crises in Asia contains lessons as significant as those learned from the Mexican crisis of 1994–95. The rest of the paper is organized as follows. Section 3.1.2 gives a historical overview of capital flows with an emphasis on Asia. Section 3.1.3 explains how capital flows helped economic growth in Asia. Section 3.1.4 surveys the literature on the problems associated with too much capital inflow. Section 3.1.5 gives a concise account of what happened in Thailand in 1997. Section 3.1.6 concludes.

3.1.2 Capital Flows to Asia

Net private capital flows to developing countries are estimated to have increased more than fivefold in the past six years. In 1990, total capital flows to emerging markets (developing countries and transition economies) were about $50 billion, of which half went to Asia and one-third to Latin America. By 1993, total capital flows rose to $160 billion, of which slightly less than 40 percent went to Asia and slightly more than one-third to Latin America. A majority of flows to Asia took the form of direct investment and an overwhelming portion of flows to Latin America took the form of portfolio investment. The large ratio of portfolio flows to Latin American countries in 1991–93 became a source of instability in the wake of—if indeed it did not trigger—the Mexican peso crisis. In 1994, capital flows to Latin American countries, especially in the form of portfolio flows, declined compared to the preceding two years, while capital flows to Asia continued to increase. In particular, in 1995, net portfolio investment in Latin America was negative. That is, there was net outflow from Latin America after the Mexican crisis. Capital flows to Latin America recovered sharply only in 1996, contributing to a new record high for the capital flows to emerging markets, exceeding $230 billion, of which about half went to Asia and one-third to Latin America. (For details, see table 3.1.)

Asian countries have in the past ten years tried to manage the rate of capital inflow. Technocrats and central bankers are well aware of the macroeconomic problems associated with too much capital *in*flow. However, the crisis in the summer of 1997 is the first test for the Asian countries of thinking in terms of managing capital *out*flow (or a decline in capital inflow).

Table 3.1 **Net Private Capital Flows to Emerging Markets (billions of U.S. dollars)**

Flows	1990	1991	1992	1993	1994	1995	1996
All countries							
Total	45.7	139.8	133.7	161.0	147.0	192.8	235.2
FDI	18.8	32.1	35.8	56.9	75.5	87.3	105.9
Portfolio	17.0	39.7	46.3	106.8	97.2	31.6	58.7
Others	9.9	68.0	51.7	−2.7	−25.7	73.9	70.6
Asia							
Total	21.4	37.7	22.4	59.5	75.1	98.9	106.8
FDI	9.5	15.2	17.2	35.2	44.6	50.7	58.0
Portfolio	−0.9	2.8	9.6	23.8	18.5	20.1	20.1
Others	12.9	19.7	−4.5	0.5	12.0	28.1	28.8
Latin America							
Total	10.3	24.9	55.5	61.7	44.9	35.7	77.7
FDI	6.6	10.9	12.9	13.4	21.5	19.9	29.9
Portfolio	17.5	14.5	30.6	61.1	60.8	−7.5	27.1
Others	−13.8	−0.5	12.0	−12.8	−37.5	23.3	20.7
Other regions							
Total	9.9	78.8	48.5	28.8	11.6	28.9	31.2
FDI	2.7	3.7	3.7	2.3	3.9	3.6	6.7
Portfolio	0.4	21.6	19.8	18.3	15.1	15.7	10.0
Others	6.8	54.7	25.0	8.0	−7.5	9.7	14.5
Transition countries							
Total	4.2	−1.6	7.1	10.9	15.4	29.1	19.4
FDI	0.0	2.4	4.2	6.0	5.4	13.1	11.3
Portfolio	0.0	0.8	−0.8	3.4	2.7	3.4	1.6
Others	4.2	−4.8	3.8	1.5	7.3	12.6	6.6

Source: Folkerts-Landau et al. (1997, 41).

Note: "Others" includes short- and long-term credit, loans (not including uses of IMF credit), currency and deposits, and other accounts receivable and payable. "Other regions" includes the Middle East, Europe, and Africa.

Even in Asia and Latin America, only a handful countries receive disproportionately large amounts of capital inflow. From 1990 to 1995, only eight countries have received more than $15 billion in net long-term private capital inflows: China (more than $160 billion), Mexico (more than $80 billion), Brazil ($60 billion), Korea ($50 billion), Malaysia, Argentina, Thailand, and Indonesia (World Bank 1997a, 12). The top three, China, Mexico, and Brazil, are relatively large countries. In ratio to GDP, Malaysia (1991–93) and Thailand (1989–91 and 1995) received the largest capital inflows (more than 10 percent) in the past several years. (For details, see table 3.2 and figs. 3.1 and 3.2.) Hence, relative to the sizes of their economies, some Asian countries have had to deal with much larger capital flow shocks than Mexico (and other Latin American countries).

Table 3.2 **Net Capital Inflows (percent of GDP)**

Country	Period	1988	1989	1990	1991	1992	1993	1994	1995	Cumulative
Indonesia	1990–95			2.5	1.9	1.3	0.2	1.1	3.6	8.3
Korea	1991–95				2.6	2.5	0.6	2.4	3.5	9.3
Malaysia	1989–95		2.9	5.7	11.1	15.3	23.2	1.2	6.6	45.8
Philippines	1989–95		2.1	3.9	4.4	2.3	4.4	7.9	5.2	23.1
Thailand	1988–95	7.4	10.4	12.3	12.3	8.6	7.7	8.3	12.1	51.5
Argentina	1991–94				1.3	3.8	2.9	3.1		9.7
Brazil	1992–95					2.8	2.3	1.9	4.8	9.4
Chile	1989–95		3.3	8.6	3.1	7.4	6.3	7.7	4.0	25.8
Colombia	1992–95					1.8	5.6	5.6	5.3	16.2
Mexico	1989–94		2.6	2.2	7.5	7.6	8.5	3.3		27.1
Peru	1990–95			3.9	5.4	5.3	4.6	10.8	8.2	30.4
Venezuela	1992–93					3.3	2.0			5.4

Source: World Bank (1997a, 175, table 4.1).

Country Experiences

The high intensity of capital flow, that is, exceeding 10 percent of GDP, that Thailand and Malaysia experienced in the late 1980s and early 1990s is truly remarkable. It is unparalleled among the Latin American countries, with only Peru reaching this volume in one year, 1994. Figures 3.1 through 3.4 show time series of ratios of net private capital flow to GDP for selected Asian and Latin American countries.

An examination of the details in table 3.3 reveals substantial differences among Asian countries. China receives the lion's share of capital flows, and most of them are in the form of direct investment, rather than bank credit or portfolio investment. Unlike other countries that attract capital inflows, China has recorded current account surpluses. This means China has very rapidly accumulated foreign reserves, because roughly speaking the sum of the current account surplus and capital inflow equals the increase in foreign reserves. These three aspects of the Chinese situation—that the current account is in surplus, that most capital inflows are in the form of direct investment, and that foreign reserves have been accumulated—mean that the risk of capital flow reversal is minimal in China.

In other countries (discussed below) capital inflows often finance current account deficits. For example, from 1993 to 1996, current account deficits increased sharply in Korea. The current account went from a small surplus in

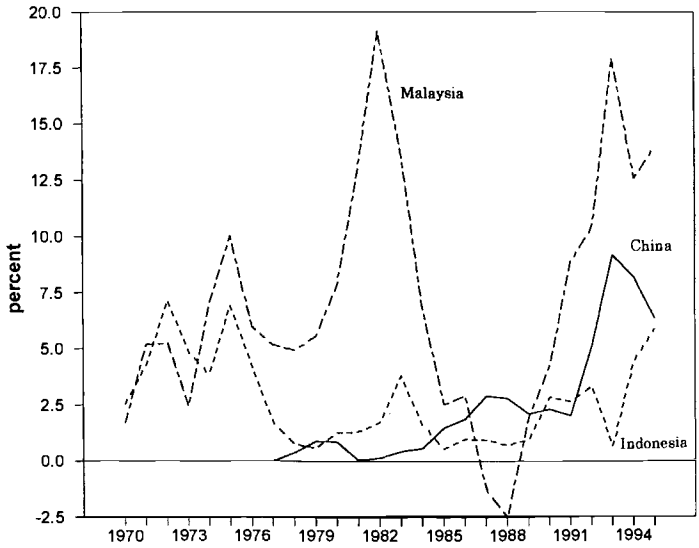

Fig. 3.1 China, Indonesia, and Malaysia: ratio of net private capital flow to GDP

Source: World Bank (1997b).

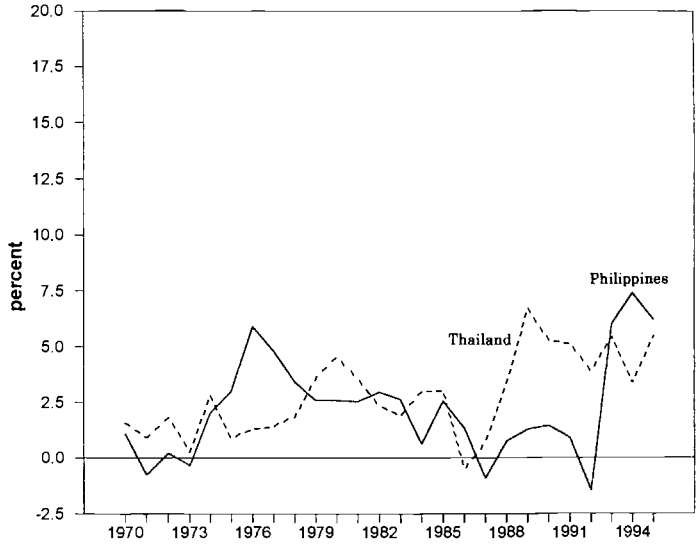

Fig. 3.2 Philippines and Thailand: ratio of net private capital flow to GDP
Source: World Bank (1997b).

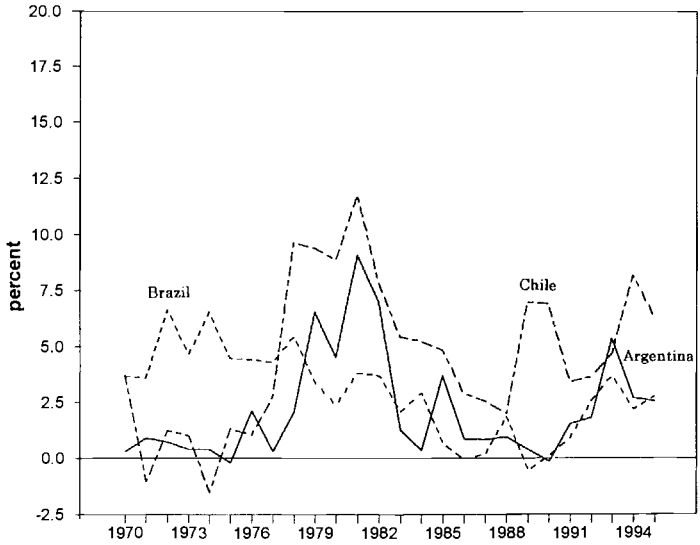

Fig. 3.3 Argentina, Brazil, and Chile: ratio of net private capital flow to GDP
Source: World Bank (1997b).

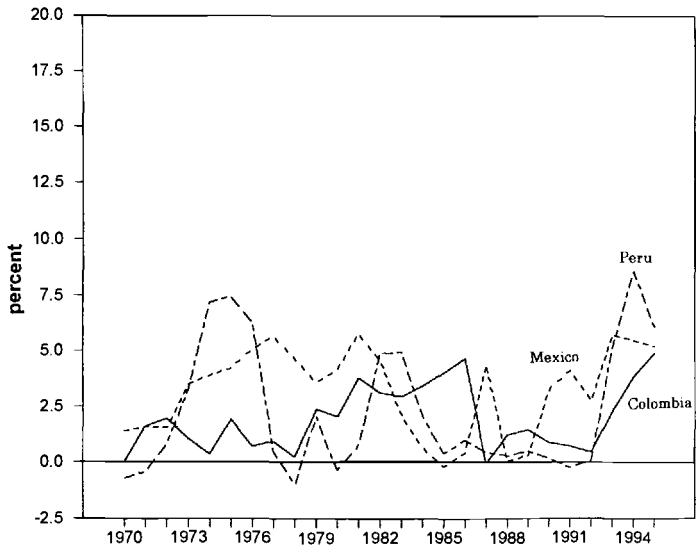

Fig. 3.4 Colombia, Mexico, and Peru: ratio of net private capital flow to GDP
Source: World Bank (1997b).

1993 to −5 percent of GDP in 1996. Capital inflows to Korea increased accordingly, most flows taking the form of bank credit.

Thailand has maintained relatively high current account deficits. Capital inflows have also been high and, up to 1996, more than offset the deficits, resulting in a steady increase in foreign reserves. Most capital inflows to Thailand took the form of bank credit, as in Korea. In fact, in 1993 Thailand opened an international offshore banking facility (Bangkok International Banking Facility), which became an intermediate point through which foreign banks could move funds into Thai domestic markets. This resulted in a threefold increase in bank credit inflows between 1993 and 1994. The size and characteristics of the capital inflows described here will be an important part of the backdrop to the baht crisis of 1997, described below.

Malaysia has also used capital inflows to finance current account deficits. However, the current account deficit in Malaysia is smaller than in Thailand, though larger than in Korea. The portion of bank credit in capital flows to Malaysia is much less than that to Korea and Thailand. Equity investment in Malaysia has been larger, probably because of its deep capital market (the ratio of stock market capitalization to GDP in Malaysia is the highest in the world), which attracts foreign equity investors.

Indonesia and the Philippines have also attracted increasing capital flows, though their size (in ratio to GDP) has not reached the level that Malaysia and Thailand experienced earlier. Both Indonesia and the Philippines have experienced modest current account deficits. Traditionally, both Indonesia and the

Table 3.3 **Type of Private Capital Flow (millions of U.S. dollars)**

	1992	1993	1994	1995	1996
			Asia		
China					
GDP	469,003	598,765	546,610	711,315	834,311
Current account	6,401	−11,609	6,908	1,618	7,243
Capital inflows	−250	23,474	32,645	38,674	39,966
Equity	7,922	24,266	34,208	36,185	39,981
Bank credits	4,008	2,146	3,786	8,405	10,625
Indonesia					
GDP	139,116	158,007	176,892	202,131	227,370
Current account	−2,780	−2,106	−2,792	−6,431	−7,663
Capital inflows	6,129	5,632	3,839	10,259	10,847
Equity	1,947	2,692	2,573	4,285	5,195
Bank credits	663	1,573	2,030	8,021	12,602
Korea					
GDP	307,938	332,821	380,822	456,356	484,569
Current account	−3,944	990	−3,867	−8,507	−23,006
Capital inflows	6,994	3,217	10,733	17,273	23,924
Equity	2,057	5,659	1,580	2,205	2,956
Bank credits	3,806	1,782	15,314	24,351	35,119
Malaysia					
GDP	58,310	64,180	72,506	87,315	99,169
Current account	−2,167	−2,991	−4,520	−8,469	−4,596
Capital inflows	8,746	10,805	1,288	7,639	9,479
Equity	5,439	11,664	8,986	4,604	5,361
Bank credits	2,001	4,518	−2,924	1,472	4,159
Philippines					
GDP	52,976	54,368	64,084	74,120	82,847
Current account	−1,000	−3,016	−2,950	−1,980	−3,953
Capital inflows	3,208	3,267	5,120	5,309	11,277
Equity	268	812	1,558	1,609	3,517
Bank credits	302	−2,843	115	1,513	3,875
Thailand					
GDP	111,453	125,575	144,525	168,355	185,047
Current account	−6,303	−6,364	−8,085	−13,554	−14,692
Capital inflows	9,475	10,500	12,167	21,909	19,486
Equity	1,538	4,337	259	3,238	2,718
Bank credits	4,630	3,964	11,490	17,828	9,531
			Latin America		
Argentina					
GDP	228,990	257,842	281,925	279,613	297,460
Current account	−5,462	−7,672	−10,117	−2,768	−3,787
Capital inflows	7,373	9,827	9,279	574	7,033
Equity	4,630	4,038	3,954	4,589	7,375
Bank credits	1,152	9,945	1,139	2,587	959

Table 3.3 (continued)

	1992	1993	1994	1995	1996
			Latin America		
Brazil					
GDP	446,580	438,300	546,230	704,167	774,868
Current account	6,089	20	−1,153	−18,136	−23,602
Capital inflows	5,889	7,604	8,020	29,306	33,984
Equity	3,147	4,062	5,333	8,169	15,788
Bank credits	11,077	4,375	9,162	11,443	14,462
Chile					
GDP	41,882	44,474	50,920	65,215	69,218
Current account	−958	−2,554	−1,585	−1,398	−3,744
Capital inflows	3,134	2,996	5,294	2,488	6,781
Equity	876	1,326	2,580	1,959	4,090
Bank credits	2,192	804	1,108	1,100	1,808
Colombia					
GDP	44,140	50,863	68,631	80,531	86,355
Current account	901	−2,102	−3,160	−4,365	−4,946
Capital inflows	183	2,701	2,770	4,485	7,098
Equity	744	913	1,532	1,384	3,416
Bank credits	813	1,453	1,483	2,503	3,564
Mexico					
GDP	363,608	403,194	421,721	286,697	330,044
Current account	−24,442	−23,400	−29,662	−1,576	−2,330
Capital inflows	27,039	33,760	15,787	−10,487	6,133
Equity	10,149	15,104	15,056	10,045	11,986
Bank credits	4,643	2,246	3,166	−58	−396
Peru					
GDP	41,739	−41,186	−50,287	−59,129	−61,002
Current account	−2,116	−2,327	−2,667	−4,314	−3,619
Capital inflows	451	−259	3,320	2,308	3,097
Equity	136	892	3,644	2,354	3,942
Bank credits	386	77	775	1,515	459
Venezuela					
GDP	60,422.69	60,047.78	58,417.47	77,389.42	70,537.85
Current account	−3,749	−1,993	2,541	2,014	8,914
Capital inflows	3,386	2,656	−3,203	−2,964	−1,784
Equity	644	−446	740	1,064	2,800
Bank credits	1,370	501	−500	−625	−740

Sources: GDP is nominal GDP converted into U.S. dollars at the annual average exchange rate and current account is current account surplus (negative means deficit); from IMF, *International Financial Statistics* CD-ROM (Washington, D.C., March 1999).

Capital inflows are net private capital inflows, equity is net equity investment including direct equity investment and portfolio equity investment, and bank credit is commercial bank, net credit flows; from Institute of International Finance, *Comparative Statistics for Emerging Market Economies* (Washington, D.C., December 1998).

Philippines have not relied on bank credit, but Indonesia recently received an increased level of bank credit.

Among Latin American countries, the ratio of capital inflow to GDP was highest in Mexico, before the peso crisis, and has recently become highest in Peru. However, the average level of this ratio among Latin American countries is lower than among Asian emerging market countries. The reason Asian countries did not experience a currency crisis or volatile capital outflows until 1997 is that growth rates were much higher there than in Latin America. When the growth rate is high, the future ratio of external liability to GDP is expected to be "sustainable." (See Milesi-Ferretti and Razin 1996 for the literature on current account sustainability.) For example, Mexico got into trouble when its current account deficit reached 8 percent with an economic growth rate of 3.5 percent in 1994, while Thailand with the same current account deficit ratio had no crisis in 1995 and 1996, when the Thai economic growth rates were 8.6 and 6.7 percent, respectively. Only when the growth rate declined sharply in 1997 did pressure on the baht become unavoidable.

Bank Credit

Since bank lending plays a large role in many countries in Asia, and to a lesser extent in Latin America, a more careful look at the nature and source of bank lending is necessary. According to Bank for International Settlements (BIS) data, as of the end of 1996, Asia in total had borrowed $367 billion from abroad (in all currencies and locally in foreign currencies; for details, see table 3.4, panel A). Latin American countries had borrowed $244 billion from abroad. Korea's cross-border liability amounted to $100 billion, while Thailand's reached $70 billion. Among Latin American countries, Brazil with $68 billion and Mexico with $61 billion were the largest. Both China and Indonesia in Asia had external bank liabilities of almost $56 billion, and Argentina had $45 billion in external bank liability.

Bank liability is important because currency crises are often associated with banking crises (as forcefully argued by Kaminsky and Reinhart 1996). Causality can go either way. The banking sector, which performs a clearing and settlement function for all transactions, is a key financial sector, so the government has to step in if a banking crisis develops. With a weak and vulnerable banking sector, a strong currency defense is impossible. Hence, the higher the ratio of external liability in the banking system, the more vulnerable is the banking system once a crisis develops. A banking crisis then results in a currency crisis as foreign investors withdraw funds. If the currency depreciates sharply, external liabilities, especially those denominated in foreign currencies, become a much larger burden. Hence, a currency crisis will develop into a banking crisis if external liability in the banking sector is unusually high. Put simply, the Mexican peso crisis caused a banking crisis in the subsequent months, while the Thai baht crisis was preceded by a banking crisis (to be precise, it was a financial market crisis, because the troubled institutions were not banks but finance companies).

Table 3.4 **International Bank Lending: International Positions of All Reporting Banks on Countries outside the Reporting Area, End of December 1996 (millions of U.S. dollars)**

A. By Maturity and Sector

Claims Vis-à-Vis	Total	Maturity of One Year or Less	Sector		
			Bank	Public	Nonbank Private
Developing countries	692,563	398,757	252,590	118,880	319,756
Asia	367,056	225,710	158,885	33,141	174,588
China	55,002	26,879	22,797	8,476	23,725
Indonesia	55,523	34,248	11,788	6,942	36,759
Korea	99,953	67,506	65,896	5,677	28,310
Malaysia	22,231	11,191	6,510	1,993	13,722
Philippines	13,289	7,737	5,246	2,723	5,319
Taiwan	22,363	18,869	12,924	475	8,955
Thailand	70,181	45,704	25,906	2,276	41,854
Latin America	243,608	131,320	59,934	67,533	115,639
Argentina	44,819	25,215	8,792	10,578	25,440
Brazil	67,954	42,835	20,978	17,849	29,102
Chile	15,155	7,762	3,701	1,689	9,765
Colombia	16,772	6,590	4,015	3,705	9,052
Mexico	61,335	28,080	12,953	22,305	26,069
Venezuela	11,082	3,150	796	5,654	4,627
Memorandum item for					
offshore banking centers	663,897	493,152	402,647	3,967	255,697
Hong Kong	207,164	170,867	135,474	1,084	70,020
Singapore	189,310	175,303	156,938	440	31,765

B. By Source Country: Japan and the United States

Claims Vis-à-Vis	Total	Japan	United States
Developing countries	692,563	138,317	106,468
Asia	367,056	118,576	34,241
China	55,002	17,792	2,688
Indonesia	55,523	22,035	5,279
Korea	99,953	24,324	9,355
Malaysia	22,231	8,210	2,337
Philippines	13,289	1,558	3,902
Taiwan	22,363	2,683	3,182
Thailand	70,181	37,525	5,049
Latin America	243,608	15,399	66,461
Argentina	44,819	1,789	13,242
Brazil	67,954	5,171	18,443
Chile	15,155	794	4,228
Colombia	16,772	1,310	4,125
Mexico	61,335	5,360	17,426
Venezuela	11,082	1,694	2,834
Memorandum item for			
offshore banking centers	663,897	219,690	35,617
Hong Kong	207,164	87,462	8,665
Singapore	189,310	58,809	5,727

Sources: Bank for International Settlements, "The Maturity, Sectoral and Nationality Distribution of International Bank Lending, Second Half 1996" (Basel, June 1997).

Note: Table reports consolidated cross-border claims in all currencies and local claims in nonlocal currencies.

The statistics also reveal that the public sector in Asian countries did not borrow much from foreign banks. Most cross-border borrowing went to either the domestic banking or nonbank private sector. Out of the $367 billion that Asian countries borrowed from abroad, only 10 percent went to the public sector. In contrast, one-fourth of the $243 billion that Latin American countries borrowed went to the public sector. Mexico has an external liability of $61 billion from abroad, of which one-third is owed by the public sector. In sum, Asian countries, most notably Korea and Thailand, relied on cross-border bank credit more than their Latin American counterparts. The domestic banking and nonbank private sectors were the major borrowers in Asia, while the public sector was also a substantial borrower in some Latin American countries.

In the BIS statistics on cross-border bank credit, it is also possible to trace the origin (lender) of funds (see table 3.4, panel B). For Asian and Latin American countries, substantial lending came either from Japan or the United States. Of the Asian liability of $693 billion owed to international banks, Japanese banks have lent $138 billion and U.S. banks $106 billion. In Latin America, U.S. banks have lent $66 billion, one-fourth of the total Latin American liability of $243 billion. Japanese banks lent only $15 billion to Latin American countries. Among Asian countries, Thailand is notable: of its $70 billion external liability to international banks, Japanese banks account for $38 billion, or more than half. No other major Asian or Latin American country has borrowed more than half its debt from the banks of a single country. This fact partly explains why Thai authorities particularly asked Japanese banks to keep the line of credit open during the baht crisis.

Foreign Direct Investment

Foreign direct investment (FDI) is often said to be a preferred form of investment for host countries. (Direct investment is usually defined as the purchase of more than 10 percent of the equity of a particular company.) Compared with bank credit, bank deposits, or bonds, it is more difficult and costly to withdraw investment that has become factories and other real assets. Moreover, with direct investment comes foreign management and technological transfers, which are expected to contribute to raising the industrialization level of the host country. In the beginning of the 1990s, Indonesia, Thailand, and Malaysia were the favored destinations of Japanese FDI. On average Indonesia has received more than 150 billion yen (about $1.3 billion) annually in the 1990s. By the mid-1990s, China had become the top host of Japanese FDI. In 1995, China received more than 430 billion yen (about $4 billion) of Japanese FDI.

Japanese FDI flows to Latin American countries were much smaller than those to Asian countries. Only Brazil has received more Japanese FDI than some Asian countries, such as the Philippines and Korea, in the 1990s (for details, see table 3.5).

Japanese FDI, mostly for the assembly of finished products, in Asia has stimulated industrialization. However, factories built by Japanese FDI continue

Table 3.5 Flow of Foreign Direct Investment from Japan (billions of yen)

Country	1990	1991	1992	1993	1994	1995	Average for 1990–95
Asia							
China	50.1	78.7	138.1	195.4	268.3	431.9	193.75
Indonesia	161.5	162.8	214.2	95.2	180.8	154.8	161.55
Korea	41.9	35.7	29.1	28.9	42.0	43.3	36.82
Malaysia	106.7	120.2	91.9	89.2	77.2	55.5	90.12
Philippines	38.3	27.7	21.0	23.6	68.3	69.2	41.35
Taiwan	65.3	55.4	37.6	34.3	29.2	43.9	44.28
Thailand	169.6	110.7	84.9	68.0	74.9	119.6	104.62
Latin America							
Argentina	30.4	5.5	2.4	3.9	2.1	11.0	9.22
Brazil	89.2	23.5	60.6	49.2	130.8	28.7	63.67
Chile	4.3	10.2	3.5	0.4	1.4	13.6	5.57
Colombia	8.9	0.5	0.0	0.0	2.4	2.1	2.32
Mexico	24.8	26.1	7.8	6.1	65.1	20.2	25.02
Venezuela	11.3	13.8	3.2	2.3	0.6	2.7	5.65

Source: Japan, Ministry of Finance, *Annual Report of the International Finance, 1996* (Tokyo: Kinyu Zaisei Jijo Kenkyukai, 1997), 436–37.

Note: FDI from Japan in these statistics is on the "reporting basis" of cross-border investment. It may not match actual disbursement because some reported investment may be canceled, and some will be carried out without reporting (no penalty). New FDI financed locally or reinvestment from past FDI is not covered by these statistics.

to require imports of parts and semifinished goods from Japan. Domestic production of parts has become a challenge for Asian countries that have recorded large trade deficits against Japan. (An exception is Indonesia, which records surpluses against Japan.)

3.1.3 Capital Flows and Economic Growth: Virtuous Circle

Until the Thai baht crisis of 1997, no one questioned that capital flows to Asian countries have contributed to accelerating economic growth. As the economies grew and industrialization proceeded, the funds needed to build more factories became larger every year. As domestic saving lagged behind high investment, capital inflows were used to fund investment. Unlike in Latin America, where capital inflows were often fueling a consumption boom, Asian capital inflows were either directly building factories (as in the case of "green field" FDI) or intermediated by the banking system to materialize in fixed investment.

Although Japan, Taiwan, and, to a lesser extent, Korea achieved their industrialization and high economic growth without foreign capital, the ASEAN countries—Singapore, Thailand, Malaysia, and Indonesia—relied heavily on foreign capital at least at the beginning stage of industrialization in the 1980s.

In the 1990s, China became a large importer of foreign capital. The authorities of these countries were keen on selecting industries for their economic development.

In the past fifty years, Japan has upgraded its industries from textiles to consumer durables, to heavy and chemical industries, to automobiles, and to high-tech products. Korea and Taiwan seem to be following a similar industrialization path, a few decades later. And the ASEAN countries are chasing Korea and Taiwan up the industrialization ladder, while themselves being chased by China and Vietnam. This pattern of staggered industrialization by the Asian economies is often nicknamed the "flying geese pattern" (see Ito 1996, 1997b for the concept and earlier literature of this pattern). Capital flows play an important role in this pattern of economic development. As some industries, say textiles, lose competitiveness as the result of wage hikes in one country, say Korea, a company will seek to move its factories to a lower wage country, say Thailand. If management skills are transferable to different countries, this will accelerate the industrialization process of the host country. The host country will develop its own industries as skilled workers and middle-level management become available through training at the foreign firms on domestic soil. Technological transfer has to occur sooner or later. Korea and Taiwan have already become capital exporters.

This explanation also points out that capital flows in Asia are related to trade. In some cases, exports are replaced by FDI, and in other cases, foreign investment is followed by more trade. Initially, parts and semifinished goods have to be imported by a host country, until they become available domestically, and then exports from the host country will increase as the firms become successful. This process took place in many industries in many countries in Asia.

3.1.4 The Problem of Too Much Capital Flow

Although capital inflows are essentially beneficial to a host country, emerging market countries sometimes face what the authorities consider "too much" capital inflow. Malaysia faced capital inflows that amounted to more than 10 percent of GDP in 1991, more than 15 percent of GDP in 1992, and more than 20 percent of GDP in 1993. Thailand also attracted capital flows that exceeded 10 percent of GDP in 1989, 1990, 1991, and 1995. In Latin America, Chile, Mexico, and Peru experienced capital inflows that exceeded 6 percent of GDP in the past decade. Capital inflows of this magnitude are difficult to manage (Khan and Reinhart 1995; Folkerts-Landau and Ito 1995, chap. 4).

Doing nothing in the face of large capital inflows will certainly appreciate the currency sharply. That will force some export industries out of business. Once an industry is lost, even if the exchange rate depreciates to the earlier level, production and exports of the industry may not recover. Because many industries require fixed investment, volatility in the exchange rate has an adverse effect on exports. Hence, unless the current account is in surplus, which

is unlikely for most emerging market countries, the first macroeconomic response to large capital inflows is usually to intervene in the foreign exchange market to prevent a sharp nominal appreciation of the currency. If the exchange rate regime is de facto fixed, then intervention is not a choice but a must. Foreign reserves will increase as a result of intervention to keep the nominal exchange rate from appreciating too much. Foreign exchange intervention will increase the domestic monetary base. There then are two choices: the increase in monetary base can be offset by domestic open market operations (sterilized intervention), or the increase can be left alone (unsterilized intervention).

Suppose the case of unsterilized intervention. Unless an increase in money demand, which is sometimes observed in a rapidly growing economy, absorbs the increase in the monetary base, the result will be lower interest rates, overheating, and inflation. These are undesirable consequences. Suppose the case of sterilized intervention. It can reduce the risk of inflation, but it may lead to even larger capital flows. In order to see this, suppose that the initial surge in capital inflows takes the form of FDI and equity investment. Then one-to-one sterilization will likely increase the short-term interest rate (as opposed to keeping the same rate). This leads to an increase in short-term capital inflows, such as investment in interbank deposits, interbank lending, and short-term securities. From the viewpoint of a host country, capital inflows in short-term instruments are less desirable than FDI or equity investment. In fact, sterilized intervention may adversely change the composition of capital inflows.

If intervention, sterilized or not, is not a cure-all, what other options or combinations of options does the host country have? If overheating (e.g., as a result of unsterilized intervention) is a problem, the period of capital inflows provides an excellent opportunity for tightening fiscal expenditure. Thailand succeeded in reducing fiscal deficits during the 1989–91 period of large capital inflows. Emerging market countries tend to have current account deficits caused by imports of capital goods, and surges in capital inflows tend to worsen these gaps. In order to prevent current account deficits from increasing, domestic saving has to be promoted. Tax incentives for saving, or some more direct measure (introducing a compulsory pension plan), can help to prevent further deterioration in current account deficits.

If all these options are exhausted and capital inflows are still substantial, capital controls, a more controversial option, may be used. Capital inflows in short-term instruments can be discouraged by reserve requirements on bank deposits by nonresidents, a withholding tax on interest from bank deposits and short-term securities, or an outright ban on sales of short-term instruments to nonresidents. Reserve requirements on deposits by nonresidents and especially on those denominated in foreign currency can be justified as a part of prudential policy rather than foreign exchange capital controls. When capital flows are volatile and exchange rate risk rises, bank risk management has to be enhanced.

A tricky part of introducing capital controls is that the host country does not

want to discourage long-term capital inflows or lose the confidence of investors in the long run. Changes in capital controls should be transparent and fair. It would be better to slow a liberalization process rather than eliminate capital control measures once and then reintroduce them. Capital controls, if implemented without loopholes, will make it possible for a host country to induce a shift in the composition of capital flows to more long-term instruments and will allow the monetary authorities to use the short-term interest rate for domestic purposes, such as keeping inflation in check.

Several Asian and Latin American countries have implemented capital controls. For example, in 1991–92 Chile introduced a withholding tax on borrowing from abroad; Brazil in 1994 introduced a tax on foreign investment in the stock market; Malaysia introduced a ban on the sale of short-term instruments to nonresidents in January–August 1994, and banks were required to place reserves at the central bank. Both Malaysia and Thailand maintained restrictions on the open foreign currency positions of banks (see Folkerts-Landau and Ito 1995, chap. 5; Dooley 1996).

3.1.5 The Baht Crisis of 1997

Economic growth in Thailand starting in the late 1980s has been one of the miracles of Southeast Asia. After staying at or above 10 percent from 1988 to 1990, the growth rate has been stable at 8 to 9 percent in the 1990s. However, in 1996 Thailand fell into a (growth) "recession," and the growth rate declined below 7 percent, a decline that continued in 1997. One of the reasons for this was a decline in export growth. The twelve-month export growth rate had become zero by the beginning of 1997. Suddenly, the engine of growth, namely exports, stalled, and several structural weaknesses in the economy became exposed. Since large current account deficits, 8 percent of GDP, were financed by capital inflows, a lower economic growth rate posed the question of sustainability. A high growth rate means that a country may be able to grow out of debt (in ratio to GDP), while a low growth rate means that debt (in ratio to GDP) will accumulate quickly. The difference in economic growth rate affects confidence among investors, even if the ratio of the current account deficit to GDP is the same.

Overvalued Currency

One of the reasons for the export slowdown was overvaluation of the currency. The Thai baht was under the basket system. However, an overwhelming weight was placed on the U.S. dollar. Thus it was de facto pegged to the U.S. dollar. The situation was similar in Malaysia and Indonesia. When the U.S. dollar depreciates against the Japanese yen (as when the yen went to 80 per dollar in April 1995), Southeast Asian goods sell well in the United States and Japan. However, when the dollar appreciates (as between April 1995 and late 1996, when the yen went from 80 to 125 per dollar), the price competitiveness of Southeast Asian exports is lost.

Since all of these countries have a significant trade relationship with Japan, and some Asian countries have products that compete directly with Japanese products in global (mostly U.S.) markets, fluctuation in the yen-dollar exchange rate affects their trade accounts. When the yen appreciated in the first half of the 1990s (from the 120s in 1993–94 to the peak at 80 yen per dollar in April 1995), these countries enjoyed a boom in exports. However, the subsequent depreciation of the yen (back to the 120s in 1995–96) sent the exports of these economies into a tailspin.

Japan accounts for one-third of total imports to Thailand. Most imports from Japan are in the category of parts and semifinished products. The goods then manufactured and assembled are exported mostly to the United States (accounting for 20 percent), Japan (15 percent), and other Asian countries (30 to 40 percent). Malaysia has a similar import and export structure. For Indonesia, Japan is the most important export destination (25 percent) as well as import origin (25 percent). Therefore, the dollar peg has gradually lost its justification for these countries. During the period of yen appreciation, the dollar peg served these countries well by providing gradual depreciation for export competitiveness. However, recent large fluctuations of the yen put these countries in an awkward position.

Another factor that indicates the strong linkage of the Asian economies to Japan as well as the United States is the ratio of yen invoicing in Japanese exports to and imports from East Asian countries. According to Ministry of International Trade and Industry statistics, the yen invoice ratio for Japanese exports to the region increased from 30 percent in 1981 to more than 50 percent at the beginning of the 1990s; the yen invoice ratio for Japanese imports from the region increased from 2 percent in 1983 to more than 25 percent in 1993. When prices are quoted in yen, while currencies are pegged to the dollar, fluctuation in the yen-dollar rate directly affects the trade accounts of these economies.

Property Sector Problems

The slowdown in economic growth was accompanied by the bursting of the real estate bubble. Some bank credit, which had increased in 1994, went to the real estate sector. Office buildings were overbuilt. As the financial bubble collapsed, stock prices and real estate prices declined sharply, and nonperforming loans increased. Finance companies (nonbank financial institutions lending heavily to the real estate sector) were particularly hard hit. In the spring of 1997, the Bank of Thailand had to start providing liquidity support to the troubled finance companies because funds started to flee institutions that were perceived to be weak. The earlier collapse of the Bangkok Bank of Commerce (eventually taken over by the government) created a background of pessimism about financial institutions. The central bank extended loans to finance companies through the Financial Institutions Development Fund (FIDF), which is vaguely similar to a deposit insurance system. By the time these finance companies were suspended (sixteen in June and another forty-two in August), 430

billion baht had been lent. These financial troubles weakened the confidence of foreign investors in the economy and the currency. As discussed in section 3.1.2, Thailand had large inflows to its banking sector. Hence the loss of confidence in the financial system among foreign investors had a much larger effect on capital flows and on the economy in general than would otherwise have been the case.

In order to alleviate the problem of nonperforming property loans, the Thai authorities set up the Property Loan Management Organization (PLMO) in the spring of 1997 to help restructure such loans. However, the operational details of the PLMO are still under discussion, and it is unclear to what extent the PLMO will be beneficial to developers and financial institutions. Open, transparent pricing of properties to be bought by the PLMO is crucial.[1]

Speculative Attack

When the banking sector is in trouble, the currency becomes vulnerable. The interest defense (increasing the interest rate in the hopes of stopping capital outflows or even attracting inflows) cannot be deployed when financial institutions are beset with large portfolios of nonperforming loans. Capital flight becomes a serious concern. Precisely at this moment, the probability of success in a speculative attack increases.

A massive attack on the baht took place in mid-May 1997.[2] Baht selling took place in the spot market and also in the forward market in the form of swap arrangements. Speculators hoped to cause devaluation by selling short the baht. When this strategy was countered by intervention, and the spot rate held, speculators went to sell the baht forward, through swap arrangements. The swap arrangements that speculators engaged in were essentially contracting to sell baht forward at the same time that they were buying baht in the spot market (probably squaring the position of earlier short selling in the spot market). When the central bank becomes a counterparty in swap deals, it is able to acquire dollars on the balance sheet (as a result of the spot transaction, the first leg of the swap arrangement) while having dollar liabilities off the balance sheet. The fact that the foreign reserve level changed little from May to June means that the central bank countered spot selling of the baht by intervening in the market, while engaging in swap arrangements similar in magnitude. Had the future liabilities of dollar selling (buying baht) been consolidated, the true foreign reserve level at the end of May would have revealed a substantial decline. At that point, keeping the de facto fixed rate would have become impossible. The Thai authorities must have hoped for some event that would allow

1. The resolution of bad debt needed a very radical solution in the end. Of the fifty-eight suspended finance companies, fifty-six were closed in December 1997. Assets from these companies were sold to the public in several auctions in 1998. See Ito (1998) for updates on the events in Thailand.

2. See Nukul Commission (1998) for exactly what happened during the speculative attack of May 1997.

the central bank to regain a comfortable level of foreign reserves before the forward liabilities became due, but no such event took place. Although the central bank managed to keep the fixed rate until 2 July, the game had been over by the end of May.

Market participants knew the fact that the central bank had engaged in the swap arrangements, but they did not have precise information on the size of the swaps in which the central bank had engaged. It was revealed in August (as part of the IMF loan conditions) that the Bank of Thailand had forward liabilities of more than $23 billion (about two-thirds of its foreign reserves). It was a shock to most market participants.

"Mai Thai" Hangover

In the aftermath of the Mexican crisis of December 1994, pressures on currencies and stock prices spread to other Latin American countries and even some Asian countries. Indeed, the "tequila effect" was felt as far away as Thailand in January 1995. In 1997 it was Thailand's turn to be at the epicenter of a shock, and effects on the region's other currencies—the Philippine peso, the Korean won, the Malaysian ringgit, and the Indonesian rupiah—have been considerable. All, including the Thai baht, are continuing to fall through September. I call this state of affairs the "Mai Thai" hangover (after the Mai Tai, a popular cocktail in Bangkok).[3]

Stock prices are also falling in these countries. Even Hong Kong, where the currency board arrangement fortifies the already strong financial system, experienced speculative attacks, and an interest rate hike intended to defend the currency triggered a sharp stock price decline.

The episode poses several questions: Why did the IMF rescue package fail to halt the decline in exchange rates and stock prices in Thailand and beyond? Are there similar fundamental conditions in the Southeast Asian economies that contributed to the spillover? What should be done in the region to prevent such crises in the future?

The IMF decided to offer $4 billion under a standby arrangement, and the Asian countries led by Japan contributed an additional $10 billion. The total package, including pledges from the World Bank and the Asian Development Bank, amounted to $16.7 billion by the time the IMF plan had been approved by its board. The amount was considered to be more than enough to offset the drain of foreign reserves expected to result from the Bank of Thailand's unwinding of its forward positions. The hope was that halting the slide of the baht would make the crisis less contagious, thereby restoring confidence in the region as a whole. The intended effect did not, however, materialize.

The IMF package was not immediately effective for two reasons. First, as part of the IMF standby agreement, the Bank of Thailand announced a larger than expected volume of forward contracts (or maximum size of foreign re-

3. This section draws heavily on Ito (1997a).

serve losses), causing the baht to slide further. The market reaction may not be fully justified, since some of the forward exposures (especially onshore contracts) were the result of providing baht to the market through swap agreements—just like government bond repurchase agreements—as a part of domestic open market operations. However, this point was too subtle to calm the market. The wisdom of "full" disclosure in this case is open to question.

Second, the IMF package did not directly address the problems in Thailand's financial sector. The balance sheets of many financial institutions, in particular finance companies, were damaged by declining property values. The monetary authorities in Thailand had taken several measures before the IMF package: the PLMO was created to buy nonperforming loans, and the worst finance companies, sixteen of them, were suspended in June, and an additional forty-two were suspended in August. However, the market apparently did not take comfort from the actions, partly because it was not clear at that point whether the merger or liquidation of these institutions would require any fiscal expenditure and whether the liquidity support to these institutions provided by the FIDF could be paid back in full. The market did not like the uncertainty about the fate of these institutions and its possible impact on fiscal positions in the future.

The Mai Thai hangover seems to have been more widespread, prolonged, and damaging (having forced countries to abandon their pegs) than the tequila effect. (To be fair, though, it took a month or two after the IMF package for Mexico was announced to stabilize Mexican financial markets.) General spillover of the Thai baht crisis to other currencies certainly suggests a common root of the problems. The region's economic structures may be so similar that one external shock rocks all countries. The yen-dollar exchange rate is a prime suspect for the external shock. All of the currencies of the emerging markets in the region were effectively pegged to the U.S. dollar. Even those countries that had basket systems, such as Thailand, put an overwhelming weight on the U.S. dollar in the basket. (Singapore was known to have put a relatively heavy weight on the Japanese yen.) As discussed earlier, the dollar peg, with yen-dollar fluctuation, led to weak export performance.

With the "big bang" of the Japanese financial markets, competition for financial business in Asia will become fierce. Now that Japan is awakening and will make a move, financial markets in the region will become more liberalized and efficient. Low interest rates in Japan are making Japanese investors seek opportunities outside. Capital flows are not scarce, despite the turmoil in the currency and stock markets in the region. In a sense, the current crisis is manageable in an environment where interest rates are low and liquidity is ample. The integration of financial markets will proceed. But danger may come the next time Japan raises interest rates. Its effect will be much more strongly felt in the region than before, because financial markets will be more integrated than before. Markets in the region have to prepare for an eventual rise in yen interest rates, once the current turmoil is over.

The simultaneous depreciation of the currencies in the region looks like a competitive devaluation. With the baht, Philippine peso, and ringgit depreciating, the rupiah has no choice but to depreciate in order to maintain its competitiveness. All this suggests that the monetary authorities of these countries may be well advised to consider pegging their currencies, with a wide band, to similar baskets—if not the common basket—in which the yen and euro are heavily weighted.

Given that these Southeast Asian economies have been integrated with the Japanese manufacturing and financial sectors, as well as with the U.S. economy and financial markets, the weights in the baskets to which their currencies are pegged should have been revised some time ago. Announcements and press releases from the IMF claim credit for having recommended "flexibility" in exchange rates well before the crisis. However, the IMF has not shown a safe way to exit from the peg. "Exit policy" has become a hot issue in discussions of exchange rate policy for emerging markets.

Both the Mexican and Thai crises teach the lesson that the financial sector (especially banks) is important in managing the economy. Banks in Thailand had borrowed short-term funds through an offshore facility and then lent to domestic industries. Some funds went to property markets, which had been booming. The bursting of the property bubble made these loans nonperforming, and then depreciation of the baht further troubled those institutions that had borrowed in dollars.

This compares, on one side, to the Mexican Tesobono problem and, on the other side, to the Mexican banks that suffered losses from the peso depreciation and subsequent recession. Tesobonos made it possible for Mexico to continue financing large current account deficits, while short-term bank loans played a similar role in Thailand. Thailand argued before asking for the IMF loan that Thai obligations were in the private sector, unlike the sovereign debt (Tesobonos) of Mexico. However, when the banking system is at risk, the government has to step in. Indeed, the Thai government had to guarantee the depositors (holders of promissory notes) of all suspended finance companies and even the creditors of the forty-two finance companies that were suspended in August in order to prevent a run on the remaining finance companies and banks. It might not make any difference in the end whether the "overborrowing" occurred in the private banking sector or the government sector. As with the Tesobonos, most creditors were bailed out in Thailand. International financial communities have not found a way to prevent moral hazard among international creditors (holders of Tesobonos and creditors of finance companies).

3.1.6 Concluding Remarks

This paper described the size and types of capital flows to Asia and analyzed their impact on the Asian economies. Capital flows bring both benefits and risk to a host country. Appropriate macroeconomic responses to manage the size

and composition of capital flows are crucial. Domestic financial markets have to be deep and robust in order to minimize the risk from volatile capital flows. In particular, the banking system is crucial to keeping the economy away from a chaotic recession in the wake of currency turmoil. The Thai baht crisis proves that even Asian miracle economies can suffer the kinds of financial crises that have occurred in Latin America. Understanding the mechanism behind such crises and developing appropriate prudential policy to prevent them is a challenge for all of us.

References

Dooley, Michael. 1996. Capital controls and emerging markets. *International Journal of Finance and Economics* 1 (3): 307–20.

Folkerts-Landau, David, and Takatoshi Ito. 1995. *International capital markets: Developments, prospects, and key policy issues.* Washington, D.C.: International Monetary Fund.

Folkerts-Landau, David, Donald J. Mathieson, Garry J. Schinasi, et al. 1997. *International capital markets: Developments, prospects, and key policy issues.* Washington, D.C.: International Monetary Fund.

Ito, Takatoshi. 1996. Japan and the Asian economies: A "miracle" in transition. *Brookings Papers on Economic Activity,* no. 2:205–72.

———. 1997a. The "mai thai" hangover. *Nikko Capital Trends,* September, 1–2.

———. 1997b. What can developing countries learn from East Asian economic growth? Paper presented at the annual bank conference on development economics, World Bank.

———. 1998. The development of Thailand's currency crisis: A chronological review. *Japan Import/Export Bank Review* (September/October), 68–93.

Kaminsky, Graciela L., and Carmen M. Reinhart. 1996. The twin crises: The causes of banking and balance-of-payments problems. Washington, D.C.: Board of Governors of the Federal Reserve System. Photocopy.

Khan, Mohsin S., and Carmen M. Reinhart, eds. 1995. Capital flows in the APEC region. IMF Occasional Paper no. 122. Washington, D.C.: International Monetary Fund.

Milesi-Ferretti, G. M., and A. Razin. 1996. Current account sustainability. Princeton Studies in International Finance, no. 81. Princeton, N.J.: Princeton University, International Finance Section, October.

Nukul Commission. 1998. *The Nukul Commission report: Analysis and evaluation on facts behind Thailand's economic crisis.* Bangkok: Nation Multimedia Group.

World Bank. 1997a. *Private capital flows to developing countries: The road to financial integration.* Washington, D.C.: World Bank.

———. 1997b. *World development indicators.* Washington, D.C.: World Bank.

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The Role of the Yen

3.2.1 Introduction

Over 90 percent of American exporters sell their goods abroad using contracts denominated in dollars. Over 80 percent of German exporting companies denominate their sales in deutsche marks. Over 50 percent of French and British exports are denominated in francs and pounds sterling, respectively. This pattern of invoicing exports in domestic currencies is characteristic of most developed countries with a single, notable exception: Japan. Japanese companies are more likely to denominate exports in dollars than in yen.

This paper analyzes the role of the yen in international financial and commercial transactions. Over the past twenty-five years the yen has played a surprisingly small role in international markets. Far fewer commercial contracts, bonds, bank loans, and official reserves are denominated in yen than in U.S. dollars, and fewer in yen than in deutsche marks, in spite of the size and performance of the Japanese economy. Nowhere is this puzzle more apparent than in Japan itself, where Japanese companies and investors are more likely to transact in dollars than in yen.

There are several possible explanations for the apparent underutilization of the yen. The first is habit formation. After the Second World War the dollar replaced the pound sterling as the dominant currency in world trade. Although the U.S. economy has declined in importance, habit formation works to maintain the central role of the dollar. A second explanation is that a large and growing share of Japan's exports go to the United States, and U.S. imports are predominately invoiced in dollars. Third, the short-term capital market in Japan is relatively underdeveloped. For example, the size of the Japanese treasury bill market is much smaller than that in the United States. Foreign investors or importers receiving yen therefore have fewer opportunities to park their yen-denominated funds. Also, high transaction costs in the bankers' acceptance market limit the amount of trade financed in yen. A fourth explanation involves the role of Japan's large trading companies that handle the bulk of Japan's exports (and imports). It may be that these trading companies are able effectively to hedge the foreign exchange risks that arise when Japanese exports are denominated in foreign currencies.

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Over time it should be the case that any impact of dollar habit formation on yen usage should diminish; similarly, any limitations on short-term yen investing and financing should have little long-run impact. Further, although these considerations might explain the dominance of the dollar over the yen, they apply equally well to Germany, yet the deutsche mark is much less dominated by the dollar than is the yen. The only explanation, of the first three, that distinguishes Germany from Japan is the bias in Japanese exports toward the U.S. market. Exports to the United States do not directly explain why Japanese companies invoice so rarely in yen, but this bias combined with "pricing to market" strategies often followed by Japanese firms may partly explain low yen invoice ratios.

Pricing-to-market models imply that firms set their export prices in foreign currencies if profits are at risk of falling sharply when the domestic currency appreciates yet profits rise only slowly when the foreign currency appreciates (in other words, profits are concave functions of the exchange rate). If the reverse is true (profits are convex functions of the exchange rate), then exporters will prefer to invoice in the domestic currency (see Krugman 1987; Giovannini 1988). Fukuda and Ji (1994) found empirical evidence supporting the hypothesis that the profits of Japanese firms generally fall more rapidly as the yen appreciates than they rise when the yen depreciates. However, this explanation ignores the possibility that exporters can hedge exchange rate risk. If hedging is possible and not too costly, invoicing can be separated from exchange rate risk management and pricing-to-market behavior will not necessarily be related to the choice of the invoice currency. The fourth explanation for the low yen invoice ratios is related to this point. If the large Japanese trading companies are able effectively to hedge the exchange rate exposure exporting firms face when invoicing in currencies other than the yen, then pricing-to-market behavior does not explain the low yen invoice ratios.

The final explanation, that large trading companies effectively hedge the foreign currency exposure of Japanese exporters, does not explain why the dollar remains the dominant currency used in Japan. If hedging is possible and relatively costless, then the denomination of the invoice currency is, in principle, arbitrary. On the other hand, the dollar remains the dominant currency in derivative markets, suggesting that the cost of hedging dollar exposure may be lower than for other currencies.

There are signs that the yen is being used more heavily in international capital markets even as yen invoice ratios remain low. The share of yen-denominated sovereign debt has risen dramatically, at the expense of the dollar, in certain Asian and Pacific countries. Over a quarter of new bond issues by developing countries and countries in transition are now denominated in yen. And the volume of yen transactions in over-the-counter foreign exchange derivative contracts now exceeds those denominated in deutsche marks.

What is the ultimate significance of the continued underutilization of the

yen? In the short run, a case can be made that the low yen invoice ratios accentuate the slow adjustment of Japanese bilateral current account imbalances. The Japanese economy has run large and persistent current account surpluses with the rest of the world, and particularly with the United States. Theory indicates that such surpluses are unlikely to persist over prolonged periods. If exchange rates are flexible, then the value of the domestic currency should rise in response to a current account surplus, rendering export goods less competitive and imports more attractive so that, in equilibrium, a country's current account returns to balance. If exports are invoiced in the domestic currency, the automatic adjustment process is straightforward. However, if exports are invoiced in the foreign currency and relative prices remain unchanged (perhaps due to pricing-the-market behavior), the adjustment process is far from automatic. Of course, if the domestic currency strengthens and relative prices do not change, the profits of exporting firms (as denominated in the domestic currency) will fall. Eventually, relative prices must change if exporters are to stay in business. Price adjustment therefore implies that the significance of yen invoicing lies in its implications for short-run adjustments and not long-run resource flows.

This paper explores the reasons why the role of the yen has not kept pace with the rise in Japan's economic power in world trade, as well as the implications of this pattern for Japan and the rest of the world. The paper is organized in five sections. Section 3.2.2 reviews the history of Japanese inflation, the liberalization of the Japanese financial markets, and the international use of the yen. Section 3.2.3 explores the reasons why the yen is rarely used as an invoicing currency in international trade. Section 3.2.4 examines the practice of yen exchange rate risk management and shows how hedging techniques can be used by Japanese firms to offset the risks of invoicing in foreign currencies. Section 3.2.5 considers the relation between the international use of the yen and the Japanese balance of payments. Section 3.2.6 concludes the paper by analyzing the significance of the relatively minor role of the yen in international markets.

3.2.2 The International Role of the Yen

The U.S. dollar is the dominant international currency. The dollar is widely used in international trade contracts, it makes up the bulk of international reserves, and over 80 percent of the derivative market is dollar based. The German mark is second in importance after the dollar, while the Japanese yen is a distant third. Domestic and international currency demands depend on several factors that include the ease with which currency transactions can be made, the stability of a currency's purchasing power, regulatory oversight of the currency, and the investment opportunities available in the currency. This section reviews each of the factors that influence demand for the yen.

The Theory of International Currency Use

International currency uses are similar to national currency uses. An international currency is a medium of exchange, a unit of account, and a store of value outside the country in which it is issued. So, for example, the dollar is used to discharge financial obligations, used to denominate trade contracts, and serves as an investment asset for individuals, companies, and governments outside of the United States. An international currency is considered a "vehicle" if it is used to denominate and execute foreign trade and international capital transactions that do not involve direct transactions with the issuing country.

The same factors that determine whether a currency is used internationally also influence its use as a vehicle currency, although most international currencies are not vehicle currencies. For example, the Mexican peso is an international currency in that it is widely held and used by traders and investors outside of Mexico. On the other hand, the peso is not a vehicle currency in that it would rarely be used in transactions other than those involving at least one party from Mexico. Vehicle currencies are distinguished from international currencies by their relatively low transaction costs (see Krugman 1980; Black 1991). After all, parties to a transaction are unlikely to use a currency other than one of their own unless using the third currency is considerably cheaper than the alternatives. Transaction costs for currencies, in turn, are likely to be lowest for currencies that are heavily used. Moreover, once a currency emerges as a vehicle, economies of scale come into play, reducing transaction costs yet further (see Swoboda 1968; Krugman 1984).

Historical studies of the emergence of the pound sterling as the dominant vehicle currency during the second half of the nineteenth century and the rise of the dollar after World War II suggest that at least two conditions must describe an issuing country for its currency to achieve dominance (see, e.g., Cohen 1971; McKinnon 1979). First, the value of the currency should be relatively stable. Second, the country issuing a dominant international currency should have well-developed financial markets. The next two sections examine Japan's inflation history and the development of Japanese financial markets in order to determine whether Japan satisfies the two conditions needed for the yen to achieve vehicle status.

Japan's Inflation History

Monetary policy decisions in Japan are not made by an independent central bank. The Bank of Japan Law authorizes the Policy Board, which includes representatives of the Ministry of Finance (MOF), to formulate, direct, and supervise Japanese monetary policy. Over the past twenty years, MOF influence on Bank of Japan (BOJ) policy decisions has varied with changes in top personnel and economic conditions. Typically, when the BOJ wants to change monetary policy, it consults with MOF, the finance minister, and the prime minister before coming to a decision. The objectives of Japanese monetary

policy have undergone substantial changes over the past two decades, focusing alternately on economic growth, the value of the yen, the balance of payments, and inflation. The BOJ has no legal mandate to maintain price stability.

In the early 1970s, partly as a result of the first oil price shock, the Japanese inflation rate exceeded that in the United States or Germany. From 1970 to 1975 Japan's inflation averaged over 10 percent, while inflation in the United States and Germany averaged 6 percent. In the second half of the 1970s Japanese inflation rates continued to exceed those in Germany but were, on average, slightly lower than inflation rates in the United States. In the 1980s inflation rates in all three countries were significantly lower; German and Japanese inflation rates were roughly comparable, and U.S. inflation was about 2 percentage points higher. More recently, Japanese rates of inflation have been well below those of both Germany and the United States; indeed, using some definitions of price changes, Japan is currently experiencing deflation.

Of the G-7 countries, Japan experienced the highest rate of inflation variability (6 percent) in the 1970s. In contrast, in the 1980s Japan had the third lowest rate of inflation variability, only 0.1 percent above that of Germany. These data suggest that markets might have doubted the stability of the yen's purchasing power in the 1970s, but for the past decade and a half Japan's inflation record has been comparable to that of Germany and slightly better than the U.S. record. Therefore, Japan's more recent inflation performance might more credibly establish the purchasing power stability of the yen. At the same time, however, that Japan's inflation rate has stabilized at a low level, so too have the inflation rates of the other G-7 countries. It may be that one of the impediments to greater international use of the yen is the wide array of other currencies that currently have strong records of low and stable inflation.

The Liberalization of Japanese Financial Markets

In the period after World War II and before the breakdown of the Bretton Woods system, the Japanese monetary authorities actively discouraged international use of the yen. Historical accounts suggest that Japanese policymakers were concerned that, if the yen were widely held outside of Japan, then the BOJ's ability to control the yen money supply would be substantially reduced. Consequently, Japanese financial markets were highly regulated and capital inflows and outflows severely limited. Moreover, the financial system was designed to encourage personal saving and to direct financial resources to chosen private and public investment projects.

In the mid-1970s Japan entered a recession along with most of the G-7 countries as a consequence of which the corporate sector demand for funds declined and large government budget deficits emerged for the first time in postwar Japan. The public sector became a net borrower of funds; the number of government bonds outstanding rose eightfold from 1974 to 1982 (see Eken 1984). Japan's bond markets grew dramatically over this period, and a rising share of bank portfolios consisted of government bonds. Further, in order to reduce the

burden of the government debt, interest rates on new issues were kept below market levels. At the same time the Japanese financial community, and particularly Japanese banks, began to demand changes in the financial system. Japanese bank profits suffered as a consequence of the low interest rates they received on government debt and the highly regulated interest rates they were allowed to offer depositors. In order to compete with other financial institutions Japanese banks needed to be able to offer new financial instruments and to access international capital markets.

Deregulation of Japan's financial markets began in the late 1970s. Table 3.6 provides a chronology of Japanese financial market liberalization starting in the 1970s. One of the first measures taken was to allow resale of government bonds. As a consequence the primary and secondary government bond markets dramatically expanded. At the same time the Gensaki market (for repurchase agreements on government bonds) and the market for certificates of deposit were established. In 1980 the Foreign Exchange and Foreign Trade Control Law was enacted, under which capital flows were gradually liberalized although numerous restrictions on outflows and inflows remained. In 1984, in the aftermath of the Yen-Dollar Agreement,[1] and in part to allay U.S. and other G-7 concerns that the closed nature of Japanese domestic markets was artificially depressing the value of the yen, a new phase of financial market liberalization was initiated. A number of measures were taken to increase foreign access to Japanese financial markets and to allow Japanese capital to flow into the Eurocurrency markets. In June 1984 the conversion of foreign currencies into yen was completely decontrolled; in June 1985 the market for yen-denominated bankers' acceptances was created and the Japanese government was allowed to issue short-term bonds to refinance existing debt; in June 1986 foreign banks were given permission to issue Euroyen bonds; in December 1986 the Tokyo offshore market was created; and in November 1987 the Euroyen commercial paper market was decontrolled.

The implementation of BOJ monetary policy has undergone substantial changes in the past twenty years in conjunction with the deregulation of financial markets. The intermediate target of BOJ monetary policy shifted in mid-1978 from bank lending to a broadly defined money stock. Money market operations also shifted from "window guidance," or moral suasion, together with direct control of interest rates, to controlling the supply of reserves to the banking system and thereby indirectly influencing interbank interest rates. The discount rate in Japan is the rate at which commercial banks can borrow funds from the BOJ, and it is always lower than the interbank rate. Consequently, discount window lending is rationed by the BOJ.[2] The two-month bill discount

1. See Frankel (1984) for a detailed description of the Yen-Dollar Agreement.

2. Further, the level of discount window lending changes at the initiative of the BOJ, rather than at the initiative of private banks (as in the United States and Germany).

Table 3.6 **Chronology of Japanese Financial Market Liberalization**

Month and Year	Measure
March 1972	Japanese banks permitted to purchase foreign securities
December 1973	Abolition of limits on acquisition of Japanese bonds and equities by foreign investors
August 1974	Liberalization of acquisition of fiscal bills by foreign investors
May 1979	Foreigners permitted to engage in Gensaki market
December 1980	Foreign Exchange and Foreign Trade Control Law enacted
June 1983	Short-term Euroyen loans to nonresidents liberalized
April 1984	External yen loans liberalized
	Rules for yen bond issuance and management relaxed
	Guidelines for Euroyen bond issuance by residents relaxed
June 1984	Conversion of foreign currencies into yen completely decontrolled
December 1984	Guidelines for Euroyen bond issuance by nonresidents relaxed
	Market for Euroyen certificates of deposit (CDs) (with maturity of six months) created
April 1985	Withholding tax on resident Euroyen bonds abolished
	Medium- and long-term Euroyen loans to nonresidents liberalized
June 1985	Nonresident Eurobonds diversified (to include, e.g., dual-currency bonds)
	Market for yen-denominated bankers' acceptances created
October 1985	Temporary Interest Rates Adjustment Law (TIRAL) begins liberalization process of interest rates on large time deposits
April 1986	Maximum maturity of Euroyen CDs extended (from six months to one year)
	Restrictions on the recycling of Euroyen relaxed (mandatory holding period for funds borrowed in the Euroyen market reduced from 180 to 90 days)
June 1986	Foreign banks given permission to issue Euroyen bonds
December 1986	Tokyo offshore market created
April 1987	Medium-term Euroyen bonds (wtih maturities of four years or longer) deregulated
May 1987	Yen-denominated bankers' acceptances further liberalized (by lowering the minimum denomination from ¥100 million to ¥50 million and extending the maturity from six months to one year)
November 1987	Euroyen commercial paper issuance by nonresidents decontrolled
May 1989	Restrictions on Euroyen loans to residents relaxed
September 1994	Interest rates on demand deposits, with the exception of current deposits, liberalized (part of TIRAL)
	MOF lifts ban on issuance of asset-backed corporate bonds by Japanese firms overseas
December 1994	Tokyo Foreign Market Practice Committee abolishes the time limit on foreign exchange trading hours, thereby making twenty-four-hour trading possible in Tokyo
May 1997	Amendment of the Foreign Exchange and Foreign Trade Control Law passes the Diet
April 1998	Permission and prior notification requirements for all external settlements and capital transactions abolished

Source: Fukao (1990) and Tavlas and Ozeki (1992); original data from Bank of Tokyo, *Tokyo Financial Review* (various issues), and Bank of Japan, *Annual Review* (various issues).

rate, the interbank rate that serves as an intermediate target for the BOJ, often diverged from comparable market interest rates during the 1980s. For example, in the summer of 1988, Euroyen rates were markedly higher than comparable bill discount rates, suggesting that arbitrage between offshore and onshore markets was not then possible.

In November 1988 the BOJ introduced a number of measures intended to further liberalize Japanese domestic money markets. One of the more important of these measures consisted of shifting BOJ market interventions into markets for securities of shorter maturities, including the one- to three-week bill market and the overnight commercial paper market. One of the goals of the 1988 reform effort was to enhance interest rate arbitrage between the domestic and offshore markets, as well as arbitrage between the interbank and open money markets.[3] Since the reforms were implemented, the markets for shorter maturity instruments have grown dramatically and short-term interest rates are now more reflective of market conditions.[4]

By 1990 virtually all the restrictions on Japanese capital flows had been eliminated. However, a number of the new financial instruments introduced in the 1980s have yet to develop significant market depth. For example, complicated operating procedures have hampered the development of the yen bankers' acceptance market; trading in the Gensaki market is complex due to the tax on securities transactions; and the treasury bill market is relatively inactive. In November 1996 Prime Minister Hashimoto initiated a financial system reform plan to liberalize the remaining restrictions on Japanese financial markets.[5] A drastic revision of the foreign exchange law took effect on 1 April 1998. And in principle, permission and prior notification for all external settlements and capital transactions are no longer required.

Although Japanese financial markets have changed dramatically over the past twenty-five years, many of the important liberalization measures are relatively recent. It is clear that the highly restrictive financial market structure put in place immediately after World War II actively discouraged international use of the yen. Deregulation has reversed this policy, but the pace of financial market reform has been quite slow. Part of the reason the yen is so little used internationally may be the incompletely developed financial markets in Japan.

3. The maturities of collateralized commercial bills were extended on the short end to one week, so that their maturities now range from one week to six months, compared with one month to six months previously; the maturities of collateralized call trading now range from overnight to one week, compared with overnight to three weeks previously. Also, the maturities of uncollateralized call trading were lengthened to a range of overnight to six months. For further discussion, see Tavlas and Ozeki (1992).

4. Prior to November 1988 the daily variation in the two-month bill discount rate was typically very small, reflecting the smoothing operations of the BOJ. Since the reform, the variation in the bill discount rate, as well as other short-term rates, has markedly increased.

5. Details of the 1997 financial system reform are currently available on the MOF home page (www.mof.go.jp).

Stylized Facts about the International Use of the Yen

International use of the yen has increased steadily over the past two decades. This is not surprising given the relatively low base from which the yen market started in the early 1970s. Moreover, the share of yen-denominated instruments varies widely across financial markets. A small percentage of international bonds are denominated in yen, while the share of yen-denominated sovereign debt in selected countries is relatively high. This section examines data on the use of the yen as a medium of exchange, as a reserve currency in central bank portfolios, and as an investment currency.

The Yen as a Medium of Exchange

Information concerning the currency composition of the spot foreign exchange market is not readily available because physical markets for foreign exchange transactions do not exist. The foreign exchange market is decentralized, and data on the volume of global trading are not collected. However, starting in 1989 the central banks of twenty-one countries began a triennial survey of foreign exchange turnover in the interbank markets in an attempt to estimate global activity in the spot and various derivative markets. (The survey in 1995 included twenty-six countries.) Table 3.7 presents data on the currency

Table 3.7 **Selected Currencies in Global Gross Foreign Exchange Turnover (percentage share)**

Currency	April 1989	April 1992	April 1995
U.S. dollar	90	82	83
Deutsche mark[a]	27	40	37
Japanese yen	27	23	24
Pound sterling	15	14	10
French franc	2	4	8
Swiss franc	10	9	7
Canadian dollar	1	3	3
Australian dollar	2	2	3
ECU	1	3	2
Other EMS currencies	3	9	13
Currencies of other reporting countries	3	3	2
Other currencies	19	8	8
All currencies[b]	200	200	200

Source: BIS (1995, table F-3).

Note: Number of reporting countries in 1989: 21; in both 1992 and 1995: 26. Data for 1989 and data for Finland in 1992 include options and futures. Data for 1989 cover local currency trading only, except for the U.S. dollar, deutsche mark, Japanese yen, pound sterling, Swiss franc, and ECU. The figures relate to gross turnover because comparable data on a "net-gross" or "net-net" basis are not available for 1989.

[a]Data for April 1989 exclude domestic trading involving the deutsche mark in Germany.

[b]Columns sum to 200 percent because both buying and selling volumes are included.

Table 3.8 **Currency Composition of Foreign Exchange Activity by Country, April 1995 (daily averages; millions of U.S. dollars)**

		Specified Currency against All Other Currencies				
Country	Total	U.S. Dollar	Deutsche Mark	Japanese Yen	Pound Sterling	ECU
United Kingdom	463,769	387,914	164,677	92,180	74,167	18,118
United States	244,371	211,072	103,755	54,767	23,298	2,430
Japan	161,316	151,150	25,684	130,810	3,587	357
Singapore	105,421	95,818	33,597	29,460	8,015	518
Hong Kong	90,198	84,155	25,746	28,050	7,144	–
Switzerland	86,462	62,676	40,981	8,034	3,807	1,944
Germany	76,236	55,477	58,106	5,942	3,600	1,456
France	58,047	38,215	27,087	4,854	1,810	4,183
Australia	39,534	36,896	10,800	6,162	3,119	–
Denmark	30,543	21,673	11,248	749	571	379
Canada	29,814	28,793	4,754	1,762	1,259	–
Belgium	28,107	23,179	8,682	1,876	1,647	2,458
Netherlands	25,509	17,754	11,006	1,287	2,998	685
Italy	23,248	17,708	5,692	485	242	1,290
Sweden	19,947	13,141	9,881	665	342	111
Luxembourg	19,060	14,872	11,029	694	484	1,042
Spain	18,261	13,897	7,252	393	585	216
Austria	13,340	10,254	9,565	214	115	61
Norway	7,557	5,499	3,045	139	170	73
New Zealand	7,115	6,755	1,039	916	282	1
Finland	5,302	2,986	2,930	47	109	217
South Africa	4,979	4,737	815	210	176	20
Ireland	4,875	2,518	2,879	171	1,841	424
Greece	3,291	2,059	1,554	786	54	126
Bahrain	3,080	2,844	938	523	231	2
Portugal	2,382	1,397	1,074	199	37	74
Total[a]	1,571,785	1,313,440	583,816	371,375	139,689	127,234

Source: BIS (1995, table 1-D).

Note: Table reports spot, outright forward, and exchange swap transactions.

[a]Becaused two currencies are involved in each transaction, the sum of transactions in individual currencies comes to twice total reported turnover.

composition of global spot foreign exchange turnover from these central bank surveys. (These data are made available by the Bank for International Settlements—BIS.)

According to the BIS surveys, use of the yen relative to other currencies has actually declined over the past five years. While use of the dollar has fallen, it is the deutsche mark and other European Monetary System (EMS) currencies, rather than the yen, that have replaced the dollar in some markets. Table 3.8 indicates that yen trading tends to be concentrated in Asian and Pacific centers as well as in the United States and the United Kingdom. In these markets, major shares of yen turnover are reported (between 14 and 29 percent), but yen

trading accounts for low single percentages in most other markets. Although practically all markets report some turnover in yen trades against domestic currencies, most yen transactions involve the U.S. dollar (85 percent), the pound sterling (6 percent), or the deutsche mark (5 percent). In contrast to London and New York, the range of currencies actively traded in Tokyo is limited: 76 percent of all turnover in Japan involves the yen and the U.S. dollar, up from 67 percent in 1992.

Unsurprisingly, the yen is used most heavily domestically, with the United Kingdom and the United States ranked two and three in terms of total transactions. In percentage terms, however, it is in Singapore and Hong Kong that the yen is used most heavily. Other than in Japan, the yen is always ranked behind the U.S. dollar, and with the exception of Hong Kong, the yen is also always ranked behind the deutsche mark in terms of total currency transactions in each of the countries.[6]

The Yen as a Reserve Currency

Central banks hold foreign reserves to facilitate trade and to affect exchange rates through interventions in foreign exchange markets. The importance of currencies as international media of exchange and stores of value can therefore be inferred from their relative shares in official reserves. Table 3.9 presents aggregate data on the currency composition of all official reserve holdings and, for available years, the holdings of selected Asian countries.[7]

The share of the yen in official reserve holdings has remained relatively low and stable over the past fifteen years for all countries, and it actually fell between 1985 and 1990 in selected Asian countries. The U.S. dollar remains the dominant currency held in aggregate by central banks, and the share of Asian central bank reserves denominated in dollars has risen, not fallen, in recent years.

The Yen as an Investment Currency

One of the characteristics of international currencies, and particularly vehicle currencies, is their use to denominate investments. Until the mid-1970s, most international bonds, Eurocurrency deposits, and international bank loans were denominated in dollars. Over the past twenty-five years the share of dollar-denominated investments has fallen, and depending on the particular form of investment, the relative shares of those denominated in deutsche marks and yen have risen.

The share of yen-denominated international bonds (Eurobonds plus foreign currency bonds) rose dramatically in the second half of the 1980s. Table 3.10

6. It should be noted that the Japanese yen reached a postwar peak against the U.S. dollar during the month in which the BIS conducted its 1995 survey, possibly biasing the 1995 numbers.

7. Garber made the case that these data may not fully reflect actual central bank reserve holdings: "The data suffer from an incompleteness of coverage, as some countries that may carry weight in the demand for yen reserves do not regularly respond to the IMF's inquiry" (1996, 8).

Table 3.9 **Currency Composition of Official Reserve Holdings (percentage share)**

Currency	1980	1985	1990	1995[a]
Japanese yen				
All countries	4.4	8.0	8.2	7.5
Selected Asian countries	13.9	26.9	17.1	n.a.
U.S. dollar				
All countries	68.6	64.9	50.3	56.4
Selected Asian countries	48.6	44.8	62.7	n.a.
Pound sterling				
All countries	2.9	3.0	3.2	3.4
Selected Asian countries	3.0	4.1	4.9	n.a.
Deutsche mark				
All countries	14.9	15.2	17.4	13.7
Selected Asian countries	20.6	16.4	14.2	n.a.
French franc				
All countries	1.7	0.9	2.3	1.8
Selected Asian countries	0.6	0.9	0.2	n.a.
Swiss franc				
All countries	3.2	2.3	1.3	0.9
Selected Asian countries	10.6	4.9	0.5	n.a.
Netherlands guilder				
All countries	1.3	1.0	1.0	0.4
Selected Asian countries	2.8	2.1	0.5	n.a.
Unspecified currencies				
All countries	3.0	4.6	6.7	9.7
Selected Asian countries[b]	–	–	–	n.a.

Source: IMF, *Annual Report* (Washington, D.C., 1996), and Tavlas and Ozeki (1992).

[a]The holdings of selected Asian countries are not available for 1995.

[b]The holdings of unspecified currencies by the selected Asian countries have been negligible.

indicates that the yen share reached a peak in 1990 at 13.5 percent of the international bond market. By 1996, however, the yen share had fallen back to just over 8 percent of the market. Part of the explanation for the sudden rise and fall in numbers of yen-denominated bonds is that, in the early 1990s, many Japanese companies had difficulty raising funds in the stock market due to the fall in stock prices, and therefore they turned to international bonds for alternative financing (Taguchi 1994). The data suggest that this shift to bond financing reversed itself by 1996. Further, aggregate yen-denominated issuance of long-term international bonds contracted further in 1997, apparently due in large part to Japanese investors shifting their purchases of foreign securities away from straight Euroyen and dual-currency Samurai issues toward U.S. dollar and sterling bonds (BIS 1997).

Although the yen share in the overall international bond market is relatively low, yen-denominated bond issues by developing countries and countries in

Table 3.10 **Currency Composition of International Bonds (percentage share)**

Currency	1975	1980	1985	1990	1991	1996
U.S. dollar	50.6	42.7	60.6	33.3	28.5	43.0
Japanese yen	0.4	4.8	7.7	13.5	12.9	8.6
Pound sterling	0.2	3.0	4.2	9.5	9.1	8.8
Swiss franc	17.1	19.5	8.9	10.5	7.3	3.3
Deutsche mark	16.4	21.9	6.7	8.3	7.1	14.0
ECU	–	–	4.1	8.1	11.1	0.7
Other	15.3	8.1	7.8	16.8	24.0	21.6
Total	100.0	100.0	100.0	100.0	100.0	100
(billion US$)	(20.0)	(38.3)	(167.8)	(240.2)	(311.4)	(719.0)

Source: OECD, *Financial Market Trends* (Paris, various issues).

transition has risen dramatically; the yen's share in these issues rose from 13 percent in 1994 to 26 percent in 1995 (Ito and Folkerts-Landau 1996). The expansion of the yen market in bonds issued by developing countries is due to the relatively low interest rates prevailing in Japan and the elimination (in January 1994) of the ninety-day lockup period before which sovereign yen-denominated Eurobonds could be sold to Japanese investors after initial placement.[8]

Bank deposits of currencies held outside countries of issue are termed Eurocurrency deposits. The volume of transactions in the Eurocurrency market is now well over $4 trillion on a net basis (netting out all interbank deposits). As a matter of accounting, a currency's share in the Eurocurrency deposit market rises as the currency appreciates against other currencies. Given the substantial appreciation of the yen in 1995, therefore, we might expect the yen share in the Eurocurrency market to have risen, but the data in table 3.11 indicate that the yen share has remained low. The share of yen-denominated Eurocurrency deposits has only risen 4 percentage points since 1980, when 1 percent of deposits were denominated in yen. Table 3.11 shows that Eurodollar deposits make up over 44 percent of the Eurocurrency market, and mark-denominated deposits are ranked second at 15 percent. The other European currencies, including the ECU, have smaller than 5 percent shares in the Eurocurrency market. At the same time, Europe is the dominant region for Eurobanking (56 percent of the market in 1995). Japan's share in the Eurocurrency market was 9 percent, just below that of the United States (at 11 percent) in 1995.

Table 3.12 shows that while the share of yen-denominated international bank lending increased twofold from 1991 to 1995, the share of mark-denominated international bank lending increased fivefold. Shares of bank loans denominated in U.S. dollars, pounds sterling, and Swiss francs fell over the period.

8. Most international yen bonds are either Euroyen issues or Samurai bond issues. Samurai bonds are issued by non-Japanese residents and sold to investors in Japan under Japanese regulations, while Euroyen bonds are issued in the international offshore market.

Table 3.11 **Currency Composition of Eurocurrency Deposits (percentage share)**

Currency	1980	1985	1990	1991[a]	1996[a]
U.S. dollar	61.3	67.7	52.9	50.8	44.8
Japanese yen	1.1	3.4	5.0	4.8	5.6
Pound sterling	2.3	1.9	4.2	3.6	3.2
Swiss franc	5.3	6.5	5.6	3.2	4.1
Deutsche mark	12.2	11.7	16.2	15.6	15.3
ECU	–	2.4	4.4	5.1	2.9
Other	17.8	6.4	12.6	14.9	24.9
Total	100.0	100.0	100.0	100.0	100.0
(billion US$)	(1,056)	(1,385)	(3,576)	(3,508)	(4,288)

Source: BIS, "International Banking and Financial Market Developments" (Basel, various issues).
Note: Foreign-currency-denominated cross-border positions by BIS reporting banks, shares are based only on liabilities.
[a]First nine months of 1991 and 1996.

Table 3.12 **Currency Composition of International Bank Lending (percentage share)**

Currency	1980	1985	1990	1991[a]	1995
U.S. dollar	66.3	64.6	49.8	49.6	23.9
Japanese yen	2.7	2.7	4.5	4.0	10.5
Pound sterling	2.2	5.7	11.2	11.6	5.8
Swiss franc	14.4	11.3	14.5	13.2	2.6
Deutsche mark	7.0	6.4	5.5	5.0	20.1
ECU	0.0	2.2	3.3	3.8	4.8
Other	7.4	7.1	11.2	12.8	32.3
Total	100.0	100.0	100.0	100.0	100.0
(billion US$)	(1,500.1)	(2,557.2)	(6,132.4)	(5,735.4)	(7,753.9)

Source: BIS, "International Banking and Financial Market Developments" (Basel, various issues).
[a]First nine months of 1991.

Although yen-denominated international bank lending has significantly lower volume than do dollar and deutsche mark lending, Japanese banks rank first in terms of international banking assets. In 1997 international lending by Japanese banks represented 22 percent of the world market, a thirteen-year low, but a share that nevertheless exceeds those of German banks (17 percent) and U.S. banks (11 percent). Japanese banks have reduced international lending since the early 1990s due to the new capital adequacy ratio requirements and the dismantling of restrictions on the domestic financial system (BIS 1997). In addition, the weakness of domestic credit demand and the recent poor performance of the Japanese equity market (which reduced the value of the latent reserves included in Japanese banks' core capital) resulted in a 3 percent drop in Japanese bank lending between 1996 and 1997.

Although the overall share of yen-denominated loans is small, the proportion

of yen-denominated debt in selected Asian and Pacific countries has risen dramatically in recent years. The increase is in part due to the appreciation of the yen in 1995 and the increase in official yen loans as part of an increase in official development aid (Taguchi 1994).

The yen share in sovereign debt issued by selected countries in Asia and the Pacific has also increased dramatically. Table 3.13 shows that, in the case of Thailand, over 50 percent of sovereign debt is denominated in yen, up from

Table 3.13 Sovereign Debt Denomination (percentage share)

Country	1980	1985	1989	1995
Indonesia				
Deutsche mark	7.8	6.3	5.2	4.6
Japanese yen	20.0	31.7	34.1	37.7
Pound sterling	0.8	2.1	1.5	0.9
U.S. dollar	43.5	30.7	25.0	20.3
Other currencies	28.0	29.3	34.2	36.5
Total (million US$)	15,019.9	26,845.2	44,255.0	63,848.0
Korea				
Deutsche mark	3.7	1.6	4.7	4.0
Japanese yen	16.6	16.7	31.5	32.2
Pound sterling	3.3	1.7	0.7	0.3
U.S. dollar	53.5	60.3	33.0	48.1
Other currencies	22.9	19.8	30.1	15.4
Total (million US$)	15,932.8	28,304.0	18,787.0	27,103.0
Malaysia				
Deutsche mark	3.3	6.0	11.7	8.0
Japanese yen	19.0	26.4	33.4	39.4
Pound sterling	3.6	1.8	1.5	2.5
U.S. dollar	38.0	50.6	30.7	21.6
Other currencies	36.1	15.3	23.2	28.5
Total (million US$)	4,007.5	14,686.5	14,173.0	18,578.0
Philippines				
Deutsche mark	2.0	0.6	1.5	1.4
Japanese yen	22.0	24.9	31.1	38.1
Pound sterling	0.2	0.2	1.0	0.3
U.S. dollar	51.6	47.8	35.9	30.3
Other currencies	24.3	26.5	30.5	29.9
Total (million US$)	6,367.8	13,782.6	24,076.0	29,577.0
Thailand				
Deutsche mark	4.7	2.5	3.6	2.3
Japanese yen	25.5	36.1	42.8	53.0
Pound sterling	0.2	0.5	0.4	0.2
U.S. dollar	39.7	25.5	17.8	24.4
Other currencies	29.8	35.4	35.4	20.1
Total (million US$)	3,903.8	9,836.0	12,570.0	16,672.0

Source: World Bank, *World Debt Tables,* vol. 2 (Washington, D.C., 1996), and Tavlas and Ozeki (1992).

Note: Entries represent percentages of each country's total sovereign debt.

only 25 percent in 1980. The shift into yen-denominated debt by these countries is largely at the expense of the dollar. The share of Asian sovereign debt denominated in deutsche marks and other European currencies is generally less than 5 percent.

The data presented in this section suggest that while the use of the yen in international capital markets has grown substantially since the early 1980s, the U.S. dollar and the deutsche mark remain the dominant currencies. The yen's market shares in international bonds, Eurocurrency deposits, external bank loans, and official reserves remain well below 20 percent. On the other hand, the share of yen-denominated sovereign debt among selected Asian and Pacific countries has risen dramatically, suggesting an emerging regional bias toward the yen.

3.2.3 The Role of the Yen as an Invoicing Currency

Exporters must determine the currencies in which to denominate their prices. Most firms in developed countries choose to invoice exports in domestic currencies. The advantage of this strategy is that the exporter's exchange rate exposure is thereby minimized. Since invoice prices are not easily changed when exchange rates fluctuate, export prices rise when domestic currencies strengthen relative to currencies of export destinations. To the extent that higher export prices reduce market shares, long-run profits may suffer. This line of reasoning suggests that, under certain demand conditions in foreign countries, invoicing in the currencies of destination countries may be preferable to invoicing in domestic currencies. This strategy of focusing on shares of foreign markets is termed "pricing to market," and it is this strategy that Japanese firms are alleged to follow. This section examines the roles of exchange rates and market structure in the invoicing decisions of Japanese firms.

The Choice of Invoicing Currency in International Trade

A study of Swedish companies in the 1960s found that the exporter's currency, rather than a common vehicle currency, was most frequently used to denominate international trade contracts (Grassman 1973, 1976). This observation, commonly known as Grassman's law, continues to describe most developed countries other than Japan. Recent empirical studies of international invoicing practices find the following additional patterns: (1) invoicing in the exporter's currency is more likely for differentiated manufactured products; (2) trade between a developed country and a developing country tends to be denominated in the currency of the developed country; (3) trade in primary products and transactions in financial investments are usually denominated in U.S. dollars; (4) exports to the United States tend to be invoiced in U.S. dollars; and (5) currency hedging by importers in forward markets is not common.[9]

9. Magree (1974), Marston (1990), Fukuda and Ji (1994); see Bilson (1983) and Tavlas (1991) for overviews.

When an exporting firm invoices in a foreign currency, company profits are affected by exchange rate changes. Likewise, from an importer's point of view, the cost of foreign products depends on exchange rates if prices are set in foreign currencies. Both exporters and importers, therefore, prefer to invoice trade contracts in their own currencies in order to minimize foreign exchange risk. Given this, why is it commonly observed that exporters (and not importers) invoice in their own currencies? One explanation is that, in the case of differentiated manufacturing products, exporters are likely to have some degree of monopoly power, as a consequence of which they will have more negotiating power than importers. Another explanation focuses on the ability of both sides to offset exchange rate risks. Importers may be in a better position to guard against currency fluctuations by shifting the burden of higher costs due to exchange rate changes to their domestic customers. This is most easily accomplished in the absence of competing domestic industries. This may be the reason trade contracts between developing countries (which are less likely to have competing domestic industries) and developed countries tend to be invoiced in the developed country's currency. McKinnon (1979) offered yet another explanation for observed invoicing patterns. He reported that importers often receive open account credits from exporters that allow importers some discretion in the timing of their payments in return for bearing currency risk.

Explanations of why primary products and capital assets are usually denominated in dollars rely on the role of market structure. Whereas exporters selling differentiated products are typically assumed to have some degree of market power, international capital markets and markets for primary products are more often highly competitive. Because prices in competitive markets tend to be relatively volatile, it is useful to denominate prices in numéraire currencies in order to make price changes as informative as possible (Swoboda 1968; Magree and Rao 1980). Further, the numéraire currency is likely to be an established vehicle currency, such as the dollar.

It is difficult to explain why hedging exchange rate risk is so uncommon among importers. McKinnon (1979) noted that prices of primary goods are determined by global demand and supply conditions, thereby providing importers an automatic hedge. If the value of an importer's currency falls, the homogeneous nature of the product ensures that the domestic currency price of the importer's inventories will rise by the same amount as the exchange rate change.

Recent Currency Invoicing Practices among the G-6 Countries

It is instructive to compare invoicing practices among the G-6 countries in order to place Japan in context. Table 3.14 presents domestic currency invoice ratios for exports and imports by G-6 countries in the years 1980 and 1988. Japan and Italy are outliers in the export panel of the table with the lowest domestic invoice ratios. In the import panel of table 3.14, Japan's domestic invoice ratio is well below those of the other G-6 countries.

Table 3.14 **Domestic Currency Invoice Ratios among the G-6 Countries, 1980 and 1988**

	1980			1988[a]		
Country	National Currency	Japanese Yen	Other	National Currency	Japanese Yen	Other
Exports						
France	62.5	–	37.5	58.5	0.5	41.0
Germany	82.3	–	17.7	81.5	0.5	18.0
Italy	36.0	–	74.0	38.0	–	62.0
Japan	29.4	29.4	70.6	34.3	34.3	65.7
United Kingdom	76.0	–	24.0	57.0	–	43.0
United States	97.0	–	3.0	96.0	1.0	3.0
Imports						
France	33.1	1.0	65.9	48.9	1.3	49.8
Germany	43.0	–	57.0	52.6	2.5	44.9
Italy	18.0	–	82.0	27.0	–	73.0
Japan	2.4	2.4	97.6	13.3	13.3	86.7
United Kingdom	38.0	–	62.0	40.0	2.0	58.0
United States	85.0	1.0	14.0	85.0	3.0	12.0

Sources: Page (1981), Alterman (1989), Black (1993), and Tavlas and Ozeki (1992); original data from the ministries of finance of France, Germany, Italy, and Japan and U.S. Department of Commerce, Bureau of Labor Statistics.

Note: Entries are percentages of G-6 trade invoices denominated in national currencies, the yen, or other currencies.

[a]1988 data are provided except for German exports and Italian exports and imports, for each of which 1987 data are provided.

Why Is the Yen Rarely Used as an Invoicing Currency?

The share of yen-denominated invoicing of trade contracts is low, especially when compared to dollar and deutsche mark shares. Not only is the yen rarely used by other countries to denominate trade contracts, the yen is also rarely used by Japanese firms. If we compare the use of the yen against the dollar (in table 3.15) in Japan's export or import contracts we find that, although the dollar share has fallen over the years, use of the dollar continues to outstrip that of the yen.

One of the explanations for the low ratio of yen usage in Japan's export and import contracts is that a large share of Japanese trade is with the United States. U.S. exports and imports tend to be denominated in dollars. In order to ascertain whether the low use of the yen is mainly due to U.S. dominance of Japan's trade, it is instructive to consider whether Japan's trade with other parts of the globe are more likely to be denominated in yen. Table 3.16 breaks out the share of yen invoicing in Japan's exports and imports to East Asia.

The data in table 3.16 suggest that the share of yen invoicing in Japanese trade contracts with firms in East Asia is indeed higher than the overall share and that, at least until 1993, the share was growing. Interestingly, the data show that the percentage of yen-invoiced trade contracts with East Asia fell in 1994 and 1995 but remained higher than those with the world as a whole.

Table 3.15 **Yen versus Dollar Invoice Ratios in Japan's Exports and Imports, 1970–91**

	Exports (%)		Imports (%)	
Year	In Yen	In Dollars	In Yen	In Dollars
1970	0.9	90.4	0.3	80.0
1975	17.5	78.0	0.9	89.9
1980	28.9	66.3	2.4	93.1
1981	31.8	62.8	–	–
1982	33.8	60.9	–	–
1983	42.0	50.2	3.0	–
1984	39.5	53.1	–	–
1985	39.3	52.2	7.3[a]	–
1986	36.5	53.5	9.7[a]	–
1987	33.4	55.2	10.6	81.7
1988	34.3	53.2	13.3	78.5
1989	34.7	52.4	14.1	77.3
1990	37.5	48.8	14.5	75.5
1991	39.4	46.7	15.6	75.4

Source: Tavlas and Ozeki (1992). Original data on exports until 1982 from BOJ, *Yushutsu Shin-yojyo Toukei;* after 1982, MITI, Export Confirmation Statistics. Original data on imports until 1980 from MITI, Yushutsu Shyonin, Todokede Houkokusho; 1981–85, MOF, Houkokushyorei ni Motoduku Houkoku; after 1986, MITI, Import Reporting Statistics.

Note: Entries are percentages of Japanese trade contracts denominated in yen and dollars. Percentages are the average over the calendar year, except where otherwise noted.

[a]Fiscal year average.

Beyond reporting aggregate statistics on currency invoice ratios, it is difficult to characterize fully the differences between Japanese behavior and that of firms elsewhere. However, a number of recent empirical studies of Japanese manufacturing firms found evidence of pricing-to-market behavior (Marston 1990; Fukuda and Ji 1994; Gagnon and Knetter 1995). Although this evidence helps to explain why dollar prices of Japanese goods have not changed one for one with the recent movements of the yen against the dollar, it does not explain the proclivity of Japanese firms toward invoicing in dollars. As long as Japanese firms hedge the exchange rate risk that arises when trade is invoiced in a foreign currency, pricing-to-market behavior does not depend on the use of a particular currency of invoice. In other words, Japanese firms could invoice in yen (or any other currency) and simply vary the yen price so that relevant exchange rate changes do not affect final destination prices. The fact that firms are able to hedge against adverse movements in the exchange rate effectively decouples the relationship between profits and the exchange rate and, in turn, weakens the relationship between profits and the invoicing currency. There remains a puzzle as to why Japan is an outlier among the G-6 in its trade invoicing practices.

Table 3.16 **Yen Invoice Ratios in Japan's Exports and Imports to the World and East Asia, 1969–96**

	Exports (%)		Imports (%)	
Year	World	East Asia	World	East Asia
1969	0.6	–	–	–
1979	24.9	–	–	–
1981	31.8	29.8	–	–
1985	39.3	47.3	7.3[a]	–
1986	36.5	37.5	9.7[a]	9.2[a]
1987	33.4	41.1	10.6	11.5
1988	34.3	41.2	13.3	17.5
1989	34.7	43.5	14.1	19.5
1990	37.5	48.9	14.5	19.4
1991	39.4	50.8	15.6	21.6
1992	40.1[b]	–	17.0[b]	–
1993	39.9[b]	52.5[b]	20.9[b]	25.7[b]
1994	39.7[b]	49.0[b]	19.2[b]	23.6[b]
1995	36.0[b]	44.3[b]	22.7[b]	–
1996	35.9[c]	–	20.5[c]	–

Source: Fukuda (1996). Original data on exports for 1969–82 from BOJ, Statistics of Export Credit; 1983–91, MITI, Export Confirmation Statistics; 1992, Report of Settlement Currency; 1993, Report on Export Currency Movement; 1994–96, Report of Export Settlement Movement. Original data on imports for 1969–80 from MITI, Reporting of Import Permit; 1985, MOF, Report; 1986–91, MITI, Import Reporting Statistics; 1992, MITI, Report on Settlement Currency Movement; 1993, MITI, Import Reporting Currency Movement; 1994–96, MITI, Report on Import Settlement Currency Movement.

Note: Entries are percentages of Japanese trade contracts with the world and with selected Asian countries denominated in yen. Percentages are averages over calendar years, except where otherwise noted.

[a]Fiscal year average.

[b]September only average.

[c]March only average.

Survey Evidence on Invoicing Practices from Japanese Subsidiaries in the United States

In order to investigate the reasons why Japanese companies often prefer to invoice exports in dollars rather than yen, Hidetoshi Fukuda, an NBER researcher and former MOF official, conducted a survey of Japanese subsidiaries in the United States. Fukuda interviewed the vice-president or head of finance of each of twenty-one Japanese companies located in the United States. Although the scope of each interview varied, each consisted in part of a set of standard questions reproduced in the appendix to this paper. In all cases the companies agreed to be interviewed under the condition of confidentiality. Fifteen of the companies included in the survey are in the manufacturing sector, three are general trading companies, one is a special trading company, one is a financial services company, and one is an accounting firm.[10] The sample of

10. Eight of the companies are located in New York, three in Houston, and ten in Los Angeles.

firms surveyed was not selected randomly, and the responses are intended to provide suggestive, not statistical, evidence.

One of the goals of the survey is to learn whether there are particular circumstances in which Japanese companies are more likely to invoice exports in yen. Although the majority of the companies surveyed generally invoice their U.S. sales in dollars, those interviewed suggested a number of situations in which yen invoicing is likely to arise. Such situations include circumstances with unusually long production runs, such as when an export contract is signed at the R&D stage of production. Yen-denominated contracts are also more likely if (1) production requires a majority of inputs acquired from other Japanese companies under contracts denominated in yen, (2) the yen-dollar exchange rate is unusually volatile, (3) the U.S. importer requests invoicing in yen, (4) the exports are going to Asian countries rather than the United States, and (5) the exports are beef products.

When asked why their companies invoice in dollars, rather than in an alternative currency, most of the companies surveyed cited the competitive nature of U.S. markets. A typical response was that in order to maintain product price competitiveness it is necessary to price U.S. exports in dollars. Further, respondents indicated that management of exchange rate risk is in all cases left to the parent company in Japan. For most subsidiaries, exchange rate hedging is handled by the finance department of the Japanese parent company on an overall company-wide basis (as opposed to a transaction-by-transaction basis). Futures markets are heavily used for exchange rate hedging, and in some companies, options are also used.

In all of the companies surveyed the invoicing currency decision is made by the parent company, and there have been no changes in corporate invoicing policy in recent memory. A few of those surveyed indicated that there was some discussion of switching to yen invoicing in the early 1980s, when the yen was weak relative to the dollar. But since the major swing in the yen-dollar exchange rate in 1985 there has been no further discussion of changes in invoicing policies. When asked how companies have dealt with the recent wide swings in the yen-dollar exchange rate, some of the companies revealed that they include provisions in their trade contracts that allow adjustment of dollar prices during periods of "excessive" exchange rate volatility.

None of the companies anticipated increased use of yen invoicing in the near future. They suggested that a more likely change would be higher production levels and purchase of production inputs in the U.S. market. Interviewees also cited recent changes in the U.S. tax treatment of foreign exchange gains and losses that makes "netting" easier and, in turn, provides greater incentives to invoice in dollars.[11] One of the impediments to yen invoicing cited by a few of

11. "Netting" entails offsetting gains on one side of a transaction against losses in another. IRS regulations for 1996 permit netting within consolidated groups, thereby making it possible for hedging transactions undertaken by one subsidiary to offset risks undertaken by another subsidiary (or parent), with tax liabilities generated only by the net position.

the companies is the difficulty foreigners face in borrowing and investing yen assets in Japanese financial markets.

3.2.4 Hedging Yen Exchange Rate Risk

The data presented in section 3.2.3 show that the majority of Japan's trade contracts are denominated in U.S. dollars rather than yen. From a typical Japanese exporter's perspective this means that the firm receives dollar revenues but incurs most costs in yen. Likewise, Japanese importers need to make payments in dollars, although sales are likely to be denominated in yen. In both these situations Japanese firms face exchange rate risk. Over the past twenty-five years markets in numerous hedging instruments have been created in order to provide firms with opportunities to hedge against losses due to adverse exchange rate movements. This section examines the theory and practice of yen exchange rate risk management.

An Overview of Yen Exchange Rate Behavior

The yen appreciated by 250 percent against the dollar from 1970 to 1994. Among other major currencies, only the Swiss franc and the deutsche mark appreciated strongly against the dollar (by 225 and 125 percent, respectively) over the same period. The rise in the value of the yen relative to the dollar occurred in two stages. First, in the 1970s after the breakdown of the Bretton Woods system and in the wake of the 1973 oil shock, the yen strengthened from 360 per dollar to just under 200 per dollar. The dollar then strengthened considerably in the early 1980s (largely as a consequence of Volcker's tight money regime and Reagan's fiscal expansion), with the exchange rate above 200 yen per dollar until late 1985. In the fall of 1985, and in concert with G-5 intervention efforts to weaken the dollar, the yen began its second dramatic appreciation against the dollar, peaking in April 1995 at 80 to the dollar.

Dramatic movements in the yen-dollar exchange rate over the past twenty-five years leave no doubt that Japanese firms invoicing in dollars face substantial exchange rate risks. However, reports in the financial press in 1993 and 1994, before the yen had actually peaked against the dollar, suggested that Japanese firms anticipated yen weakening. The possibly widely held expectation that the yen appreciation against the dollar was temporary may explain accompanying reports that many Japanese firms were not adequately hedged against exchange rate risk in the early 1990s. After the volatility in the yen-dollar rate in 1995, however, it seems unlikely that Japanese firms exposed to exchange rate risk would choose to remain unhedged.

Exchange Rate Hedging Instruments

An exchange rate hedge provides insurance against adverse currency movements. A Japanese exporter invoicing in dollars is "completely hedged" if changes in the value of the yen relative to the dollar do not influence its yen

profits. Such a hedge provides an offsetting cash receipt if the value of the dollar falls relative to the yen and requires an offsetting cash payment if the dollar rises relative to the yen.

The market for hedging instruments has grown dramatically in the past twenty years. There are many ways to manage exchange rate risk (and other forms of risk). The most basic exchange rate hedge involves a forward or futures contract that simply fixes the future price of a foreign currency. A slightly more sophisticated hedge involves an option contract that is left unexercised if currency movements are favorable. Further, many swap instruments allow firms to take advantage of differences in financing opportunities over time, geographic regions, and currency markets.

Exchange rate risk management can involve simple transaction-by-transaction hedging, overall balance sheet hedging, and more sophisticated hedging techniques that take into account the exchange rate risks that competitors face. Likewise, the instruments used to hedge exchange rate risks range from "plain vanilla" contracts to exotic derivative structures. However, the growth of derivative markets and the use of exotic products slowed dramatically in 1995 as a consequence of major losses experienced by some financial and nonfinancial firms.[12] The notional principal outstanding of exchange-traded derivatives rose by less than 4 percent in 1995, compared with an average annual growth rate of 40 percent during the past decade.

The Practice of Yen Exchange Rate Risk Management

Firms are not obliged to disclose the details of their hedging practices, and most hedges appear as off-balance-sheet items in company accounts.[13] Further, as Garber (chap. 7.2 of this volume) discusses, the use of derivative products does not necessarily imply that firms are attempting to reduce risks. Derivative products can be used to speculate as well as to hedge (or to enhance) risk. The existing anecdotal evidence on the hedging practices of Japanese firms suggests that, rather than using financial instruments to hedge exchange rate risks, firms have shifted production from Japan during periods of yen appreciation. For example, on 9 June 1993 when the dollar had fallen to the 113–114 yen per dollar range, the headline on the *Asian Wall Street Journal* read "Most Japanese Firms Hold Off Hedging Their Currency Needs." Numerous articles in the popular press in the past few years report that Japanese manufacturers

12. Procter and Gamble and Orange County, California, are two prominent examples.

13. In April 1994 MOF banned the use of a device known as "historic rate rollovers." These allowed Japanese companies to delay taking a hit on loss-making forward currency contracts—agreements to buy or sell a currency at a fixed rate in the future—by selling them to friendly banks before they expired. The banks avoided making a loss themselves by immediately selling the companies new forward contracts at the same rate. This accounting trick allowed some companies to disguise heavy losses. In 1993, e.g., Showa Shell Sekiyu, a Japanese affiliate of Royal Dutch/Shell, said it had discovered that its treasury department had covered up losses of ¥166 billion using this technique. The affiliate's chairman and president subsequently resigned (*Economist,* 26 March 1994, 96–97).

have shifted production to lower cost countries, including the United States.[14] On the other hand, many explain the fact that a majority of Japanese trade is handled by a small number of large trading companies by the greater ability of the trading companies to manage exchange rate risks effectively. Trading companies have the advantage of economies of scale, and they may be able to offset risk exposure from their export business with that from imports. Moreover, most of the respondents to Fukuda's survey of Japanese subsidiaries in the United States indicated that their parent companies engage in some form of exchange rate risk management.

Unfortunately, there are no aggregate data on the proportion of Japanese firms engaging in exchange rate risk management. But a 1996 survey of the use of derivatives by Japanese corporations by Nippon Life Insurance found that about 41 percent of the 493 corporations polled used derivative products. Dominguez (1998) examined the degree to which Japanese companies hedge by estimating their exposure to movements in the dollar using Japanese stock market data and an international version of the capital asset pricing model. The results suggest that approximately half of all publicly traded Japanese companies are hedged against dollar exposure.

The BIS provides survey data on the currency composition of derivative products typically used to manage risk. There is not necessarily a strong correlation between hedging practices and the use of a currency in derivative markets, but information on the size of the yen derivative market indicates something about the hedging opportunities available to Japanese firms.

The first systematic survey of over-the-counter (OTC) and exchange-traded derivative markets was performed in 1995 by the BIS. Table 3.17 presents BIS data on the currency composition of the four main categories of OTC exchange rate derivative contracts: outright forwards, foreign exchange swaps, currency swaps, and options.[15] Outright forward transactions are defined as the exchange of two currencies for settlement more than two business days after the conclusion of the deal. Foreign exchange swaps are transactions involving the exchange of two currency amounts on a specific date and a reverse exchange of the same amounts at a later date. A currency swap is a contract committing two parties to exchange streams of interest payments in different currencies for an agreed period of time and to exchange principal amounts in different currencies at a preagreed exchange rate at maturity. Finally, an exchange rate option gives the holder the right to purchase (in the case of a call) or sell (in the case of a put) a currency at a specified exchange rate during a specified period. The

14. See, e.g., the article in the *New York Times* on 29 August 1993 with the headline "Japanese Moving Production Abroad."

15. Only OTC data are presented in the tables because of the low quality of the BIS exchange-traded data. Data from exchange-traded derivative markets were collected from OTC firms dealing on exchanges (rather than from the exchanges themselves) only in notional values. Total reported notional values outstanding on exchanges came to roughly one-quarter of the comparable OTC figures.

Table 3.17 Currency Composition of Transactions in Over-the-Counter Foreign Exchange Derivative Contracts, 1995

Currency Pair	All Instruments (daily average, billion US$)	Composition (%)			
		Outright Forwards	Foreign Exchange Swaps	Currency Swaps	Options
U.S. dollar against					
Total other currencies	630	12	82	0	5
Deutsche mark	122	15	76	0	8
Japanese yen	169	13	78	1	8
Pound sterling	53	10	87	0	2
French franc	44	10	85	0	4
Swiss franc	39	13	84	0	3
Canadian dollar	27	16	80	0	4
Australian dollar	21	9	86	1	4
ECU	16	8	92	0	0
Other	139	10	88	1	1
Deutsche mark against					
Total other currencies other than U.S. dollar	39	30	48	1	21
Japanese yen	7	41	31	1	27
Pound sterling	5	27	44	0	29
French franc	7	23	48	1	28
Swiss franc	3	36	40	0	24
ECU	1	40	54	6	0
Other	16	28	58	1	13
Other currency pairs	19	43	45	2	8
Total turnover	688	14	79	1	6

Source: BIS (1995, table D-8).

Note: Data are incomplete because they do not include outstanding positions of market participants in the United Kingdom.

main foreign exchange hedging instrument not available in the OTC markets are futures contracts (and options on futures contracts), which are exclusively exchange traded. A futures contract is essentially the same as a forward contract, except that one party to the transaction is always the exchange, and cash flows are settled daily (marked to market) rather than settled at the maturity of the contract.

Table 3.17 indicates that in OTC derivative contracts involving foreign exchange, the yen has the second highest volume, well below that of the U.S. dollar, but greater than deutsche mark volume. The U.S. dollar is involved on one side of 92 percent of all foreign currency derivative contracts. The comparable figures for the yen and deutsche mark are 26 and 23 percent, respectively (BIS 1995, 30). In the exchange rate futures markets, dollar-yen contracts make up 31 percent of the market. However, OTC contracts on dollar interest rates represent only 27 percent of the market, followed closely by those on yen rates (23 percent). Moreover, yen interest rate contracts make up a relatively large proportion of swaps and options compared with interest rate contracts on other currencies.

The geographical distribution of OTC derivative trading is similar to the distribution of overall foreign exchange trading. Table 3.18 shows that the United Kingdom was the most active center, with about 30 percent of total market activity, and the United States and Japan the second and third most active. Further, the United Kingdom, the United States, and Japan accounted together for 56 percent of total trading. While Japan's share of the derivative market vastly exceeds that of Germany, yen-denominated instruments account for roughly the same share of the market as do mark-denominated instruments. As in the foreign exchange market, the two centers outside of Japan in which the yen is relatively heavily used to denominate derivative contracts are Singapore and Hong Kong.

The BIS data indicate that the market in yen-denominated derivative products is substantial and that foreign exchange swaps are the most heavily traded of the four categories of OTC foreign exchange derivative products. This, in turn, suggests that Japanese firms interested in hedging dollar-yen exchange rate risk have ample opportunity to do so.

One issue related to hedging opportunities is the available maturity structure of instruments. If trade contracts are set long in advance, then effective hedges may require hedging instruments with long maturities. For the OTC derivative products, 89 percent of forwards, foreign exchange swaps, and options are for products with maturities of up to one year. And among derivative products sold on futures exchanges, the most liquid contracts tend to be ones with maturities of less than six months. On the other hand, over 50 percent of currency swaps have maturities of one to five years, and roughly 24 percent of these contracts exceed five years.

These findings raise the question of why many Japanese companies choose not to hedge using derivative products. Their reluctance to hedge may have

Table 3.18 **Currency Composition of Over-the-Counter Foreign Exchange Derivative Activity by Country and Currency, 1995**

Country	Total	Specified Currency against All Other Currencies				
		U.S. Dollar	Deutsche Mark	Japanese Yen	Pound Sterling	ECU
United Kingdom	292,422	272,858	61,818	60,909	46,855	13,521
United States	131,835	122,146	40,318	32,987	11,701	1,454
Japan	112,202	107,265	13,324	93,730	2,138	307
Singapore	62,994	61,518	13,210	18,468	5,014	402
Hong Kong	56,391	55,808	10,868	19,989	4,204	–
Switzerland	44,246	39,245	12,990	4,000	1,605	658
Germany	45,104	35,422	30,416	3,947	2,306	866
France	36,070	31,613	8,105	4,739	1,323	2,503
Australia	22,902	22,349	4,225	2,678	2,029	–
Denmark	22,937	19,728	5,073	531	444	253
Canada	18,681	18,548	1,785	931	633	–
Belgium	22,407	20,562	4,137	1,714	1,454	2,073
Netherlands	15,501	13,292	3,695	728	1,760	436
Italy	10,755	9,180	1,604	250	92	701
Sweden	11,800	10,497	2,614	266	171	46
Luxembourg	11,700	10,495	5,361	461	338	663
Spain	11,214	10,336	2,118	161	46	116
Austria	4,488	3,510	1,781	59	36	34
Norway	4,193	3,705	665	89	115	36
New Zealand	4,069	3,917	279	324	125	–
Finland	2,898	2,241	705	20	43	168
South Africa	2,829	2,679	270	104	77	12
Ireland	1,726	1,276	479	49	346	36
Greece	1,272	955	300	413	7	38
Bahrain	1,337	1,283	283	320	67	2
Portugal	1,018	893	44	103	4	51
Total[a]	952,993	881,319	226,466	247,972	82,935	24,375

Source: BIS (1995, table 9-D).

Note: Entries are dollar-denominated volumes of derivative activity by country and currency.

[a]Because two currencies are involved in each transaction, the sum of transactions in individual currencies comes to twice total reported turnover.

several explanations. The first is that, while hedging opportunities exist, they are costly and may be perceived by company managers as too costly to justify the benefits. Even if managers are convinced of the value of hedging, they may find it difficult to justify to outsiders the purchase of derivatives in states of the world in which, ex post, such hedges lose money. A second reason may be that a company's ability to compete in domestic markets depends in part on what its domestic competitors do. If other Japanese firms do not hedge and the value of the yen changes in a way that greatly reduces the value of hedge positions, firms that hedge may not have the financial resources to remain competitive in domestic markets.

3.2.5 The Relation between Yen Exchange Rates and the Japanese Balance of Payments

Balance-of-payments accounts provide a detailed record of the composition of a country's current account balance (a country's net exports of goods and services) and the transactions that finance it. There is a well-documented tendency for a country's current account first to deteriorate and then improve, in a J-curve pattern, in response to a currency depreciation. The usual explanation for this phenomenon is that the majority of trade is contractual and contracts are often set long in advance of actual transfers of goods. It takes time for importers to adjust their orders in reaction to changes in relative prices, and in the interim, import values (as measured in domestic currency units) rise, thereby eroding the current account. In the case of an appreciation of the domestic currency, the reverse is true, with the current account initially improving and then deteriorating. Further, the J-curve dynamics of the current account in response to a change in the exchange rate are consistent with the use of the exporter's currency to denominate trade contracts (Grassman's law). For example, from the perspective of Germany, if most German exports are denominated in deutsche marks and a significant fraction of German imports are denominated in foreign currencies, then when the deutsche mark appreciates, the deutsche mark value of export earnings is not affected whereas the deutsche mark price of imports falls. Consequently, even if the real value of trade is fixed by preset contracts,[16] the German current account improves in the short term when the deutsche mark strengthens.

Japanese invoicing conventions are different. Japanese exports and imports are more likely to be invoiced in foreign currencies (specifically the dollar) than in yen, and pricing-to-market conventions are likely to lead to the maintenance of relative prices. Consequently, if the yen appreciates against the dollar, trade contracts are preset, and relative prices are left unchanged, the yen value of both exports and imports will fall. And if Japanese firms continue to maintain relative prices (rather than passing through the yen appreciation), trade volumes are unlikely to change, further delaying the expected negative influence of the yen appreciation on the Japanese current account. Hence, Japanese invoicing and pricing-to-market practices are likely to prolong the J-curve effect.

An Overview of Japan's Current and Capital Accounts

Japan has run current account surpluses since 1981. The ratio of Japan's current account surplus to GDP reached a peak of 4.4 percent in 1986, declined to 1.3 percent in 1990, rose again during the economic recession of 1991–93, and has declined as a share of GDP since that period. Table 3.19 presents data on

16. International trade contracts are generally negotiated three to six months before goods are delivered and nine to twelve months before invoices are paid.

Table 3.19 **Japanese Current Accounts and Capital Flows (billions of U.S. dollars)**

Item	1987	1989	1991	1994[a]
1. Current accounts	87.0	57.2	72.9	129.1
Trade balance	96.4	76.9	103.0	145.9
Exports	224.6	269.6	306.6	384.2
Imports	128.2	192.7	203.5	238.2
Service balance	−5.7	−15.5	−17.7	−9.3
Transportation	−6.1	−7.7	−10.5	−12.6
Travel	−8.7	−19.3	−20.5	−27.2
Investment income	16.7	23.4	26.7	41.0
Other	−7.6	−11.9	−13.9	−10.5
Transfers	−3.7	−4.2	−12.5	−7.5
2. Long-term capital	−136.5	−89.2	37.1	−82.0
Assets (Japanese capital)	−132.8	−192.1	−121.4	−110.2
Securities	−87.8	−113.2	−74.3	−83.6
Stocks	−16.9	−17.9	−3.6	−14.1
Bonds	−72.9	−94.1	−68.2	−64.1
Yen-denominated bonds	2.0	−1.2	−2.5	−5.5
Direct investment	−19.5	−44.1	−30.7	−17.9
Trade credits and loans extended	−16.7	−26.5	−9.2	−3.9
Other	−8.8	−8.3	−7.2	−4.7
Liabilities (foreign capital)	−3.7	102.9	158.5	28.2
Securities investment	−6.1	85.1	115.3	34.7
Stocks	−42.8	7.0	46.8	48.9
Bonds	6.7	2.4	21.2	0.5
External bonds	30.1	75.7	47.3	−14.9
Direct investment	1.2	−1.1	1.4	0.9
Trade credits and loans received	−0.1	17.8	38.1	−9.6
Other	1.3	1.0	3.7	2.3
3. Short-term capital	23.9	20.8	−25.8	−8.9
4. Monetary movement balances	29.5	33.3	−76.4	−20.4
Private bank sector	71.8	8.6	−93.5	−22.7
Official sector	−42.3	24.7	17.1	2.3
Foreign reserves	−39.2	12.8	8.1	−27.3
5. Errors and omissions[b]	−3.9	−22.0	−7.8	−17.8

Source: BOJ, *Economic Statistics Annual* (Tokyo, various issues).

Note: Negative entries in capital and monetary movement denote outflow of capital from Japan.

[a]Starting in 1995 Japan's balance-of-payments data were no longer provided in U.S. dollars.

[b]Errors and omissions are defined by line 5 = −(line 1 + line 2 + line 3 + line 4).

Japanese current account and capital account flows since 1987. Starting in 1995 the BOJ stopped reporting these statistics in billions of dollars, but trends in these accounts have been stable since 1994. The largest component of the current account is the trade balance, and the figures reported in table 3.19 show that import growth has outstripped export growth, explaining the slower growth of the Japanese current account surplus in recent years.

In the late 1980s Japan's imports of long-term net assets (line 2 in table 3.19)

exceeded the current account surplus, the difference being made up by short-term capital (line 3). In other words, Japan financed long-term investment by borrowing short-term capital. In 1991, despite continued current account surpluses, there was an outflow of long-term and short-term capital. Ito (1994) describes this as the "unwinding" of capital; basically Japan repaid the short-term debt it had accumulated in the second half of the 1980s. By 1994 long-term capital was again flowing into Japan, but these assets no longer exceeded the current account surplus, so that Japan exported short-term capital. Further, the switch in the long-term capital account to outflow in 1991 seems to have been mainly caused by the investment decisions of foreigners. Foreign capital liabilities exceeded Japanese capital assets in 1991, but by 1994 this pattern had reversed itself. Looking further at the cause of the capital outflows in the early 1990s, it appears that foreign investment was concentrated in Japanese securities. In 1994 foreign investment in stocks rose marginally from their 1991 levels, but net foreign investment in Japanese bonds fell dramatically, presumably due to the low yields on Japanese bonds.

Implications of Yen Invoicing Practices for the J-Curve

It is difficult to reconcile the persistent Japanese current account surpluses documented in table 3.19 with the dramatic appreciation of the yen relative to the dollar (and most other major currencies) in the past decade. An increase in the value of a currency does not guarantee that the current account balance of the issuing country will deteriorate, but the expectation is that, over time, its export goods will become less competitive on world markets. There are, however, at least three reasons why export prices denominated in yen may take longer to rise in reaction to a yen strengthening. The first reason is the pricing-to-market behavior of Japanese manufacturing firms. The second reason is the foreign currency invoicing practices of Japanese firms. As described earlier, pricing-to-market behavior does not explain Japanese invoicing conventions, but in combination with invoicing conventions, this practice is likely to dampen the effect of any yen appreciation on Japanese export prices. The third reason is that, if Japanese firms hedge against yen appreciation, the costs of exports and imports will not be influenced by changes in the value of the yen.

When domestic firms attempt to maintain foreign market shares and trade invoices are denominated in foreign currencies, an appreciation of the domestic currency is likely to influence export prices even more slowly than in the standard J-curve dynamic. Of course, eventually, if domestic firms are to stay in business and the currency appreciation continues, export prices must rise. Consequently, any effect of pricing-to-market, currency invoicing, and hedging is inherently short run. In the long run we should expect the Japanese current account surplus to fall in reaction to any yen appreciation, and the Japanese balance-of-payments statistics suggest that this process has begun.

Long-Term versus Short-Term Capital Outflows from Japan

The large Japanese current account surpluses should foster the internationalization of the yen. Japanese financial institutions benefit from opportunities to invest the large accumulated surplus. However, the extent to which the current account surpluses have enhanced the role of the yen depends on how short- and long-term capital outflows have been invested. This section examines the portfolio preferences of Japanese institutional investors, the role of the Japanese banks in providing yen denominated liquidity, and the destination of Japanese foreign direct investment.

The Portfolio Preferences of Japanese Institutional Investors

The data in table 3.19 indicate that long-term capital outflows from Japan have been concentrated in securities, and most of these foreign securities are held by Japanese institutional investors (banks, insurance companies, and investment trusts). Table 3.20 presents data on the shares of foreign security holdings of institutional investors in Japan as compared to institutional investors in other countries. The portfolios of institutional investors in Japan, along with those of investors in the United Kingdom and the Netherlands, are far more internationally diversified than U.S. portfolios.[17] The currency composition of Japanese foreign security holdings are not available, but Fukao and Okina (1989) present data from the late 1980s showing that 57 percent of life insurance portfolios (which account for 33 percent of Japanese foreign security investments) were denominated in U.S. dollars and 22 percent were denominated in Canadian dollars. Further, according to Fukao and Okina (1989, 202), as of the late 1980s only about one-third of foreign security investment by Japanese institutional investors was covered by forward transactions or matching foreign currency liabilities. Consequently, institutional investors were an important channel of uncovered capital outflows from Japan.

The Role of Japanese Banks

What role do Japanese banks play in recycling Japanese current account surpluses? Tavlas and Ozeki (1992) argued that Japanese banks have not acted like world bankers, transforming liquid yen-denominated deposits into longer term yen-denominated loans and investments. Instead, Japanese banks have been involved mainly in maturity transformation, borrowing short-term funds overseas in foreign currencies and investing funds in long-term foreign-currency-denominated instruments. Prudential regulations limit the net foreign exchange exposure of Japanese banks. So that, while Japanese banks hold a

17. Japan conducted a series of deregulations of foreign investment by financial institutions in the 1980s. A brief chronology of these is provided in Fukao and Okina (1989, app. b). Although this deregulation clearly provided Japanese institutional investors greater opportunities to invest abroad, it is likely that the large scale of investment was due in large part to the high real interest rates in the United States in the 1980s.

Table 3.20 **Foreign Security Investments by Institutional Investors across Countries (percent)**

Country	1980	1985	1990	1991
United States				
Private pension funds[a]	1.0	3.0	4.2	5.2
Japan				
Life insurance companies	9.0	26.4	30.0	28.4
Non–life insurance companies	7.4	19.4	29.1	28.5
Trust accounts of banks	2.2	14.0	19.4	22.1
Postal Life Insurance	0.0	6.7	14.0	12.1
Norinchukin Bank	4.3	10.3	22.7	32.6
Canada				
Life insurance companies	2.1	2.2	2.3	2.7
Pension funds	6.1	6.6	6.0	7.6
Italy				
Life insurance companies	11.7	10.1	11.6	9.7
United Kingdom[b]				
Life insurance companies	6.9	17.3	20.7	–
Pension funds	6.1	17.8	23.6	–
Belgium				
Insurance companies and pension funds	1.7	3.3	3.3	–
Netherlands				
Insurance companies	5.2[c]	10.3	9.3	10.3
Private pension funds	10.6[c]	13.8	21.1	23.5
Public pension funds	1.7[c]	2.8	5.2	5.7
Sweden				
Insurance companies	–	1.5[d]	10.4	12.5

Source: Takeda and Turner (1992).

Note: Entries are percentages of institutional capital invested in foreign securities.

[a]Tax-exempt funded schemes (excluding individual retirement accounts).

[b]Pension funds exclude central government sector but include other public sector. Unit trust investment is allocated as follows: 50 percent at the end of 1989 (on the basis of partial survey results), other years calculated in proportion to changes in the measured share of foreign assets.

[c]1983 figure.

[d]1987 figure.

large number of foreign securities, these tend to be financed by foreign currency liabilities to avoid currency risks.

The data reported in table 3.21 show that prior to 1991 external assets of authorized foreign exchange banks were predominantly in foreign currencies (mostly U.S. dollars) rather than in yen. Starting in 1992 external yen-denominated assets exceeded those denominated in foreign currencies. Nevertheless, the fact that Japanese banks heavily borrow and lend in foreign currencies means that they provide limited yen-denominated liquidity to the financial markets. The combined evidence in tables 3.20 and 3.21 suggests that it is

Table 3.21 External Assets of Authorized Foreign Exchange Banks

	Level (billion US$)			Composition (%)		
	1985	1990	1996	1985	1990	1996
Foreign currency denominated	77.9	344.8	400.2	78	56	44
Yen denominated	21.7	268.4	500.9	22	44	56
Total	99.6	613.2	901.1	100	100	100

Source: MOF, *Economic Statistics Monthly* (various issues).

Note: The 1996 figures, reported in millions of yen, are translated into dollars at the average 1996 exchange rate: 115.98 yen per dollar.

Table 3.22 Japanese Foreign Direct Investment by Region (percent)

Country/Region	1985	1990	1992	1993	1994	1996[a]
Asia	11.7	12.4	18.8	18.4	23.1	19.9
(billion US$)	(1.4)	(7.1)	(6.4)	(6.6)	(9.7)	n.a.
Europe[b]	15.8	25.1	20.7	22.0	15.2	n.a.
United States	44.2	45.9	40.5	40.8	42.2	45.2
Other[c]	28.3	16.6	20.0	18.8	19.0	n.a.
Total	100.0	100.0	100.0	100.0	100.0	

Source: Nihon Statistical Association, *Japan Statistical Yearbook* (various issues). Original data are from MOF, International Finance Bureau; 1996 data are from Nihon Keizai Shinbusha, *Japan Economic Almanac* (1997).

[a]Fiscal year through March 1996; Japanese foreign direct investment in Asia totaled ¥1.19 trillion in March 1996.

[b]Excluding Luxembourg.

[c]Includes the following tax havens: the Bahamas, Bermuda, the Cayman Islands, the Netherlands Antilles, Luxembourg, and Panama.

Japanese institutional investors, rather than Japanese banks, who have played the largest role in recycling Japanese current account surpluses and facilitating the international use of the yen.

Japanese Foreign Direct Investment

Japan's foreign direct investment (line 2 in table 3.19) is a substantial component of long-term capital flows. Japanese foreign investments are defined as "direct" if Japanese owners control 10 percent or more of the foreign firm in which investment is located.[18] In 1994 direct investment was 16 percent of Japanese long-term capital. Table 3.22 presents data on the destinations of Japanese direct investments.[19] The share of Japanese investment in the United

18. Prior to 1 December 1979 Japanese foreign investment was considered "direct" if Japanese owners controlled 25 percent or more of the foreign firms.

19. Japanese foreign direct investment data are notoriously unreliable. Weinstein (1997) pointed out that foreign direct investment entries are recorded not on the date of investment but on the date

States has been remarkably stable over the years; just under half of Japanese foreign direct investment each year goes to the United States. A significant fraction of Japanese direct investment goes to Asia, and starting in 1994 investments in Asia surpassed funds bound for Europe. The yen appreciation against the dollar in the mid-1990s heightened the attractiveness of foreign direct investment for Japanese firms. Japanese manufacturing firms, in particular, have been strengthening production networks in countries with cheaper labor and procurement costs.

History suggests that direct investment, especially in developing countries, can enhance the international role of a currency. British direct investment in developing countries in the second half of the nineteenth century and U.S. direct investment in reconstructing countries after World War II led to the buildup of large external pound- and dollar-denominated balances. In the case of Japan, direct investment in Asia, and especially China in the past few years,[20] is substantial, but direct investment to developing countries overall makes up a relatively small share of net capital outflows. So that, with the possible exception of Asia, Japanese foreign direct investment is unlikely to lead to significant external yen-denominated balances.

The Role of Bank of Japan Foreign Exchange Rate Intervention Operations

A final measure of a currency's international role is its use by central banks to intervene in foreign exchange markets. Foreign exchange interventions are typically defined as official sales or purchases of foreign assets against domestic assets in the foreign exchange market for the purpose of influencing relative currency values. The BOJ actively intervenes in the foreign exchange market, and most BOJ operations involve the yen. Other than the BOJ, however, the only central bank that regularly intervenes using the yen is the Fed. In recent years the Fed has typically divided its interventions equally between the yen and the mark. Although, on some occasions, especially in 1995 when the yen-dollar rate was the focus of intervention operations, Fed interventions were exclusively against the yen. The dollar is the predominant intervention currency used by developing country central banks. Intervention within the EMS is carried out exclusively in European currencies. And non-EMS-related interventions by the German Bundesbank typically involve the dollar.

Although no data exist on the relative use of currencies in official interventions, the yen is likely to rank well behind the dollar, and perhaps the deutsche mark. Moreover, daily foreign exchange intervention operations by the G-3 countries are typically under $200 million. Therefore, even were the use of the

of acceptance by MOF (the 1980 Foreign Exchange and Foreign Trade Control Law requires firms to notify MOF prior to the investment). There is often a time lag between time of MOF acceptance and the cash disbursement. Further, the entire value of multiple-year investments are recorded on the MOF acceptance date.

20. Japanese direct investment in China jumped 61 percent in 1995 to ¥431.9 billion.

yen in intervention operations to increase dramatically, such operations are unlikely to have much impact on the international role of the yen.

3.2.6 Summary and Conclusions

The role of the yen in international financial markets has greatly expanded in the past two decades. International use of yen was tightly controlled by Japanese authorities prior to the mid-1970s, but since that time Japanese financial markets and institutions have been significantly deregulated. Likewise, the yen's purchasing power has remained strong and relatively stable over the past two decades.

Although use of the yen as a medium of exchange, a reserve currency, and an investment currency has grown substantially since the early 1980s, the U.S. dollar and the German mark remain the dominant international currencies. Moreover, few trade contracts are denominated in yen, in spite of rising Japanese economic power in world trade. This paper explored a number of possible explanations for low yen invoice ratios, including Japanese pricing-to-market behavior. But as long as Japanese firms hedge exchange rate risks that arise when trade is invoiced in foreign currencies, pricing-to-market behavior does not rely on the use of particular invoice currencies. Further, BIS data indicate that the market for yen-denominated derivative products is substantial, suggesting that Japanese firms interested in hedging yen-dollar exchange rate risk have ample opportunity to do so. Hence, there remains a puzzle as to why Japan is an outlier among the G-6 in its trade invoicing practices.

Japanese invoicing practices may be partly responsible for observed J-curves. If the yen appreciates against the dollar, trade contracts are preset, and relative prices are left unchanged, then the yen value of both Japanese exports and imports will fall. And if the fall in the value of imports outweighs that in exports, the yen appreciation will lead to an improvement in the Japanese current account. However, the influence of currency invoicing on the J-curve is inherently short run; over time, if Japanese firms are to stay in business, and the currency appreciation continues, export prices must rise. Over the long run, Japanese current account surpluses will fall in reaction to a yen appreciation—and Japanese balance-of-payments statistics suggest that this process has begun.

Large and persistent Japanese current account surpluses serve to enhance the internationalization of the yen. Interestingly, it appears to be Japanese institutional investors, rather than Japanese banks, who have played the largest role in recycling Japanese current account surpluses and facilitating the international use of the yen. However, foreign investments by Japanese institutional investors, as well as Japanese foreign direct investments, have predominantly gone to the United States, where the share of yen balances remains relatively small. The only region in which large external yen-denominated balances have begun to build is Asia.

The evidence suggests that there is little reason to expect international use of the yen to increase substantially from current levels. The United States and Germany have, over the past decade, established records of low inflation and deregulated their financial markets, thereby strengthening the positions of their currencies. The U.S. dollar, in particular, appears to be widely used in part due to its history as a vehicle currency. Moreover, introduction of the euro at the end of the decade is likely to establish a competitor to the yen even stronger than the current deutsche mark. Consequently, to the extent that the limited international role of the yen may be puzzling, this puzzle is unlikely to disappear any time soon.

Appendix

Survey Questions: The Currency Invoicing Practices of Japanese Corporations

I. Corporate Policy on Invoicing

In your firm, how is it decided in which currency to invoice exports and imports?

- Is there a concrete policy (decision rules)?
- Is there any Japanese government, central bank, or MITI policy on this subject? If so, what are they? Are they mandatory? Discretionary?
- Who is responsible for this policy, your firm or your headquarters? (level within the company/name)
- Is there any management discretion in making the determination? At what level in the company?

II. Factors That Determine Currency Denomination of Invoicing

In your firm, on what basis is the invoicing currency determined?

- Does the determination depend on countries on the other side, type of product, timing, or other condition(s) in making the choice?
- As for imports you may handle as a trading company, how is the invoicing currency determined? Which currency is your firm in the United States using to invoice exports and imports to and from headquarters or Japanese firms?
- If U.S. dollar denomination is being used instead of yen, what is the reason? Why isn't the yen used? Which currency is your headquarters in Japan using to deal with U.S. firms? If it is using U.S. dollar denominations, what is the reason?
- Must the billed and billing party agree in advance on the invoicing currency?

A. Inflation and Currency Fluctuations

Does the relative inflation performance of alternative currencies enter into the invoicing decision process?
- If so, are there minimums, baselines, or floors?
- Who determines them and what are they?

Is past or prospective exchange rate volatility a factor in the invoicing decision?

B. Price Competition

Does your firm attempt to stabilize the price of your export products measured in the buyer's currency?

Does your firm invoice in foreign currency in order to maintain a constant markup over invoice price?

C. Taxation

Are there tax reasons to prefer one invoicing currency to another?
- Are these tax reasons unique to the business or trading company?
- Does the type of product have a bearing (special tax treatment)?
- Does the paired company or nation for billing have an effect?

Do you have an advanced pricing agreement on transfer prices (between your firm and headquarters) with the U.S. Internal Revenue Service? If so, why? If not, why not?

Is some of the ownership of your company located in a tax haven (low tax) country? Or does your parent company in Japan hold 100 percent ownership?

What determines whether you reinvest your profits or remit them as dividends? How important are tax considerations in that decision?

III. Hedging Foreign Exchange Risk

When you do invoice in foreign currencies, do you hedge the consequent foreign exchange risk?
- Does your company participate in currency hedging operations? Is this your responsibility or is it done elsewhere in the company?
- How does your company decide if currency hedging is necessary?
- Are there time limits associated with hedging—out 30, 60, 90 days? More?
- If you hedge, do you hedge on an individual transaction (or contract) basis or for a bulk value of sales over a particular period?
- Do you use derivative products for hedging or only forward currency contracts? If you use derivative products, what kind of products do you generally use? For 100 percent of the risk? How and who decides?

Do you generally borrow from your parent company or from foreign lenders? Does the currency in which you borrow influence your invoicing preferences?

IV. Factors That Might Lead to Changes in Current Invoicing Policy

What factors would lead your firm to change the invoicing currency denomination of your products?

What factors might lead you to invoice more in yen?

What factors might lead you to invoice more in foreign currency?

Has your company's invoicing policy for exports or imports changed recently?

Do you foresee any changes to the current invoicing policies in the near future?

References

Alterman, William. 1989. International economic transactions: Issues in measurement and empirical research. Paper presented at the Conference on Research in Income and Wealth, Washington, D.C., November.

Bilson, J. 1983. The choice of an invoice currency in international transactions. In *Economic interdependence and flexible exchange rates*, ed. J. Bhandari and B. Putnam, 384–401. Cambridge, Mass.: MIT Press.

BIS (Bank for International Settlements). 1995. Central bank survey of foreign exchange and derivatives market activity. Basel: Bank for International Settlements.

———. 1997. International banking and financial market developments. Basel: Bank for International Settlements, May.

Black, S. 1991. Transactions costs and vehicle currencies. *Journal of International Money and Finance* 10:512–26.

———. 1993. The international use of currencies. In *International finance: Contemporary issues*, ed. Dilip Das, 553–65. London: Routledge.

Cohen, B. J. 1971. *The future of sterling as an international currency.* London: Macmillan.

Dominguez, K. M. 1998. The dollar exposure of Japanese companies. *Journal of Japanese and International Economies* 12:388–405.

Eken, S. 1984. Integration of domestic and international financial markets: The Japanese experience. *IMF Staff Papers* 31:499–548.

Frankel, J. 1984. The yen/dollar agreement: Liberalizing Japanese capital markets. Policy Analyses in International Economics, no. 9. Washington, D.C.: Institute for International Economics.

Fukao, M. 1990. Liberalization of Japan's foreign exchange controls and structural changes in balance of payments. *Monetary and Economic Studies* (Bank of Japan) 8:101–65.

Fukao, M., and K. Okina. 1989. Internationalization of financial markets and balance of payments imbalances: A Japanese perspective. *Carnegie-Rochester Conference Series on Public Policy* 30:167–220.

Fukuda, S. 1996. The structural determinants of invoice currencies in Japan: The case of foreign trade with East Asian countries. In *Financial deregulation and integration in East Asia*, ed. T. Ito and A. O. Krueger, 147–63. Chicago: University of Chicago Press.

Fukuda, S., and C. Ji. 1994. On the choice of invoice currency by Japanese exporters: The PTM approach. *Japanese and International Economies* 8 (4): 511–29.

Gagnon, J., and M. Knetter. 1995. Markup adjustment and exchange rate fluctuations: Evidence from panel data on automobile exports. *Journal of International Money and Finance* 14 (2): 289–310.

Garber, P. 1996. The use of the yen as a reserve currency. *Monetary and Economic Studies* (Bank of Japan) 14:1–21.

Giovannini, A. 1988. Exchange rates and traded goods prices. *Journal of International Economics* 24:45–68.

Grassman, S. 1973. A fundamental symmetry in international payment patterns. *Journal of International Economics* 3:105–16.

———. 1976. Currency distribution and forward cover in foreign trade. *Journal of International Economics* 6:215–21.

Ito, T. 1994. On recent movements of Japanese current accounts and capital flows. In *Macroeconomic linkage: Savings, exchange rates, and capital flows,* ed. T. Ito and A. Krueger, 31–52. Chicago: University of Chicago Press.

Ito, T., and D. Folkerts-Landau. 1996. *International capital markets: Developments, prospects, and key policy issues.* Washington, D.C.: International Monetary Fund, September.

Krugman, P. 1980. Vehicle currencies and the structure of international exchange. *Journal of Money, Credit and Banking* 12:513–26.

———. 1984. The international role of the dollar: Theory and prospect. In *Exchange rate theory and practice,* ed. J. Bilson and R. Marston, 261–78. Chicago: University of Chicago Press.

———. 1987. Pricing to market when the exchange rate changes. In *Real financial linkages among open economies,* ed. S. W. Arndt and J. D. Richardson, 49–70. Cambridge, Mass.: MIT Press.

Magree, S. 1974. U.S. import prices in the currency-contract period. *Brookings Papers on Economic Activity,* no. 1:117–68.

Magree, S., and R. Rao. 1980. Vehicle and nonvehicle currencies in international trade. *American Economic Review* 70 (May): 368–73.

Marston, R. 1990. Pricing to market in Japanese manufacturing. *Journal of International Economics* 29:217–36.

McKinnon, R. I. 1979. *Money in international exchange.* New York: Oxford University Press.

Page, S. A. B. 1981. The choice of invoicing currency in merchandise trade. *National Institute Economic Review* 98 (November): 60–72.

Swoboda, A. K. 1968. The Euro-dollar market: An interpretation. Princeton Essays in International Finance, no. 64. Princeton, N.J.: Princeton University, International Finance Section.

Taguchi, H. 1994. On the internationalization of the Japanese yen. In *Macroeconomic linkage: Savings, exchange rates, and capital flows,* ed. T. Ito and A. Krueger, 335–55. Chicago: University of Chicago Press.

Takeda, M., and P. Turner. 1992. The liberalization of Japan's financial markets: Some major themes. BIS Economic Paper no. 34. Basel: Bank for International Settlements, November.

Tavlas, G. 1991. The internationalization of the yen. *Finance and Development* 28, no. 2 (June): 2–5.

Tavlas, G., and Y. Ozeki. 1992. The internationalization of currencies: An appraisal of the Japanese yen. Occasional Paper no. 90. Washington, D.C.: International Monetary Fund.

Weinstein, D. E. 1997. Foreign direct investment and keiretsu: Rethinking U.S. and Japanese policy. In *The effects of U.S. trade protection and promotion policies,* ed. R. Feenstra. Chicago: University of Chicago Press.

3. *Moeen Qureshi*

Capital Flows and the East Asian Financial Crisis

Let me try to follow in Michael Blumenthal's (chap. 2.2) footsteps by saying that what I am going to give you is the perspective of someone who, at least these days, is a practical operator. I remember Keynes's dictum that all practical men are the slaves of some defunct economist. With apologies to that unknown defunct economist, let me start with a thumbnail sketch of what has happened in terms of capital flows to East Asia, and in that connection, I want to thank Takatoshi Ito for providing an excellent background paper. It encompasses most of the major problems, as well as most of the data that one really needs.

In very brief terms, there has been a sixfold increase in total capital flows to the emerging markets in the 1990s. All of the increase has been in private capital flows. In 1996 these amounted to $265 billion, if you include Korea. Official capital flows dwindled to less than $10 billion last year. East Asia has absorbed more than one-half of total private capital flows. East Asia and, within East Asia, China have had the lion's share of these resources.

The next important point is that there has been a major change in the structure of capital flows, with foreign direct investment now accounting for almost one-half of total private capital flows (prior to 1990, about two-thirds of private capital flows were essentially commercial bank lending). East Asia has been receiving, therefore, a great deal more than its proportionate share. This growing share of foreign direct investment has helped bring in new technology and modernization.

Why has East Asia been so favored? My own, perhaps simplistic, answer to that is the following:

First, East Asia has enjoyed political stability for almost the past two decades. Whenever new governments have come in—and some new governments have come in—they have not reneged on the promises of previous governments, and therefore, essentially all contractual agreements reached with foreign investors have been maintained and continued.

Second, over the past two decades, the region has had macroeconomic stability.

Third, the environment has been very investor friendly.

Fourth, and in my view perhaps most important, the governments of this region have been totally dedicated to economic development as a primary objective of policy. And they have recognized that they could only achieve this objective by liberalizing their economies and integrating them with the global economy. And they have actively pursued this goal.

I recall talking with the leaders of China, in fact with the prime minister of China, about eight or nine years ago. He told me that they had reached a collective decision to assign the highest priority to the task of economic growth, with

the objective of achieving a standard of living comparable to that of the Japanese within a space of perhaps a quarter-century. And in order not to be distracted from achieving that objective, they intended to move swiftly to resolve their outstanding territorial disputes with the then Soviet Union and with India. And they proceeded to do so. In the process, they gave up an enormous amount of territory that had been in dispute with the Soviet Union for nearly a quarter-century. Similarly, their forces withdrew from the border with India, and they tried to settle that dispute as well.

If you look at the history of Southeast Asia, a similar sense of dedication to development can be observed in the other countries. I have had a modest role in trying to contribute to that objective—a very modest role—basically by organizing a fund that provides direct investment for infrastructure projects in Asia.

But how has this favorable picture changed? Over the past two months, East Asia has changed from the preferred destination for private foreign capital to the epicenter of a major financial and currency crisis. The East Asian countries have recently experienced a precipitous decline in currency values. I was just told that the Malaysian market fell further because of some of the steps the authorities have taken to restrict the freedom of market transactions. They have also seen a massive reversal of capital flows during this period. Why has this occurred?

Except in Thailand, the reason is not really a failure of macroeconomic policy. In a recent World Bank study of private capital flows that examined the impact of the Mexican crisis on other emerging markets, the authors extolled the virtues of the macroeconomic policies of the Asian tigers. The report pointed to the rapid rate of economic growth achieved together with overall monetary and fiscal stability and explained that this was the reason these economies were not much affected by the Mexican crisis.

More recently, attention has gravitated—some of the background papers make this very clear—to problems in the financial sector as the central issue. They seem to have triggered the crisis. These problems include, of course, the poor regulatory framework. They also include the excessive, and often speculative, involvement of financial institutions in intermediating capital flows.

In my view, while financial sector deficiencies have certainly contributed to—and aggravated—the financial crisis in East Asia, these deficiencies have existed for a long time. They have been known for a very long time, and the markets have happily ignored them, also for a very long time. I lean toward Paul Krugman's view, expressed in his excellent paper on currency crises (chap. 8.1), that foreign exchange crises typically occur, at least in today's environment of massive capital movements, not when economic fundamentals suddenly change, but when for one reason or another—whether it be an economic reason or a political reason, such as the issue of succession in Indonesia or of leadership in Malaysia—currencies suddenly look vulnerable. That is when crises most often occur.

Like others here, I was at the recent annual meetings of the IMF and the World Bank in Hong Kong. The issue of Southeast Asia's currency crisis was clearly in the forefront of discussions there. What really dominated the talk on the cocktail circuit—where most of the business gets done at these meetings—was the confrontation between Mahathir and George Soros. On one side, Mahathir blamed all Malaysia's troubles on Western speculators and manipulators and alleged that Western governments are behind their machinations. He identified George Soros as the real devil who had manipulated the market. On the other side, most Western observers claimed that the source of Asia's problem lay squarely at home. Soros put it bluntly: he said Mahathir was a menace to his country, and all Malaysia's problems were entirely due to Mahathir and his policies. What certainly is true is that Mahathir's pronouncements have not helped. Every time he makes a speech, the ringgit falls.

However, if this was all there was to the debate, it could be characterized as a confrontation between two very flamboyant and rather egocentric people. But there is more important fallout from this crisis. This crisis has substantial political and economic implications for the region, and it has already seriously damaged the growth and economic prospects of some Asian countries. If you look at the opportunity costs in terms of economic growth foregone, it runs to trillions of dollars. Therefore, we must understand the issues involved and their judicious management if we are going to continue to move toward globalization and liberalization of capital flows—the kind of liberalization that the IMF would like to achieve by modifying its Articles of Agreement.

Unfortunately, the debate has become polarized, between those who, to use Camdessus's phrase, are seeking to demonize free capital and currency markets and those who are seeking to portray them as the epitome of perfection. Of course, neither of these perspectives is correct. As Paul Krugman says in his paper, there have been, in the past six or seven years, three crises, in Europe, in Latin America, and in Asia; and prior to each crisis, it was well known that there were latent financial problems in the particular countries affected. But when the crisis came, it came very suddenly, and it came with herdlike behavior among investors.

There is also the issue of contagion. It is hard to see why, during the Mexican crisis, Thailand's stock market should be affected. It is equally hard to see why Indonesia should be so greatly affected by the Thai crisis. No country is perfect, but Indonesia's economic fundamentals are about the strongest you can find in a developing country today.

All this is to say that foreign exchange markets are really not as efficient as they are presumed to be, and if this is the point that Mahathir is trying to make, then he's absolutely right: there are indeed imperfections in market behavior. However, the fact forgotten in the East Asian context is that whether markets are efficient or not, it is precisely by tapping the vast resources of global capital, and the associated technology, that a country such as Malaysia advances to

its current stage of economic development and modernization. And the same is true of the other East Asian countries. In this context Mahathir's inclination to go back to a system of capital and currency controls is tantamount to giving up the source from which the international community and the East Asian region have derived such great benefits.

I think Mahathir is right, though, that capital flows today are so large, and the contagion effects can be so rapid and so overwhelming, that even countries with sound policies can see much of their good work go down the drain when a crisis comes. He is also right when he says that small countries are particularly vulnerable to this type of economic disruption, and to use his phrase, it is difficult to establish a level playing field when you have a fight between a giant and a midget.

Moreover, it would be wrong to dismiss the political import of Mahathir's statement. Asia, too, has its protectionist lobby, which harbors a sneaking admiration for the David and Goliath type of confrontation at which Mahathir excels. It was no accident that despite his support for free markets, Li Peng, the Chinese prime minister, found it necessary to express some sympathy with Mahathir's position.

Now what can be done about managing these currency crises and, in the future, perhaps preventing them? The economist's answer is to go to freely floating rates. I am in no sense an advocate of fixed exchange rates, but having had some experience in managing a country for a certain period of time, I can tell you that giving total primacy to a policy of freely floating exchange rates creates such conflicts with domestic economic objectives that, politically, most governments cannot sustain such policies for any length of time.

Others have asserted that Asian markets should develop shock absorbers and mechanisms to respond to instability. But the remedies suggested are the same ones: financial sector reforms and fiscal flexibility. While these are obviously desirable, it is difficult to see how they would prevent, or even substantially mitigate, the kind of crises that currently affect the Asian countries. Selective capital controls are slightly more effective; but they're controversial, and they raise the specter of governments all too easily retreating into a world of controls.

At the recent IMF/World Bank meetings, a proposal that I thought very constructive was unfortunately sidelined, if not completely torpedoed: that of trying to put together a regional fund. It was torpedoed by fears that the IMF's turf was being invaded. Unfortunately also, this proposal was handled extremely clumsily by its promoters. However, I can tell you that no Asian leader whom I talked with—and I talked with several—intended to exclude the IMF, or the United States, from such a regional fund. Quite the contrary. Nor was there any intention, especially on the part of Japan, which was one of the leaders of this particular proposal, to make it into an "unconditional" facility.

The United States and the Chinese, in particular, were scared by this pro-

posal because they thought the Japanese were trying to create a yen-denominated zone in which they could rule the roost. The Asian proponents of the proposal felt that the decisions of the fund would tend to be dominated by two or three countries. Since the Asians would be contributing the bulk of the resources, they should have a bigger say in the way the fund is operated. There are precedents to establishing such facilities; it has been done in Europe in the form of the General Agreement to Borrow. In any event, the Asian countries do wish to work closely with the IMF. Perhaps the best thing would be to have the IMF manage such a facility, and perhaps APEC could also be given some role in it because it has little else to do that is substantive.

My personal preference—and it would be delightful to organize it—would be for the private sector to try to put together an insurance fund. Indeed, I'd like to fly this kite a little bit higher: It is about time that we get the governments to move out of the way on some of these major financial issues and let the private sector handle them. Of course, the governments would have to cooperate. If you look at the East Asian region, you've got $500 to $600 billion in reserves among the Southeast Asian countries. You could easily pledge 10 percent of these reserves to provide collateral for such a fund. With that kind of financial support, it would not be difficult to get some business leaders to put together a fund that would be available to foreign investors in times of financial crisis. This is just one additional idea to titillate the imagination of some of my friends here, particularly those from official circles.

I think that the current situation, in which it is virtually impossible for a country to restore confidence and get out of a crisis without the IMF stepping in and putting its seal of good housekeeping on it, is very dangerous. Since the markets have only a vague, or somewhat confused, idea as to what is wrong with the country to begin with, everything now depends on the IMF's coming in and pouring its holy water over the country. Thus the country gets religion—and unless this happens, it is impossible to put Humpty Dumpty together again.

In a broader context, we must recognize that today more financial transactions are done outside the framework of national regulatory standards than within. Therefore, we should not be surprised if the excessive volatility that characterizes the system is often disruptive, rather than constructive. Accordingly, I think that there is a very important, more activist role for the IMF, and possibly for the International Trade Organization: to begin to evolve international standards and procedures for banks and financial institutions that operate in the international arena. I believe this process has already begun.

Reverting to Southeast Asia, my conclusion is that, like most issues that create conflict, the Asian issue is a combination of money, real estate, and politics. If you focus on the first, strictly limit the second, and completely avoid the third—that is, avoid politicizing the issue—you should do all right.

4. *Zhang Shengman*

As globalization continues, the world's production and trading patterns will undergo fundamental change. In this inevitable process, capital flows will play a central role. Indeed, looking ahead, if there are constraints to further rapid growth of such flows, they are not likely to be found on the supply side due to the likelihood of continued moderate interest rates in the industrial countries, the increasing competitive pressures limiting the margin of potential return to capital, and the small share of portfolios that emerging markets still represent. Constraints are more likely to be found on the demand side, where there is a question about the capacity of developing countries to attract, absorb, and manage these flows.

In this context, given the crisis in Thailand and its contagion effect on other Southeast Asian economies, it would be highly relevant to continue thinking about some of the questions raised, such as why the crisis was not avoided, since it was largely foreseen; how a crisis like this could happen in one of the world's most dynamic centers of investment and growth; and why the crisis was as contagious as it was in countries with some of the strongest fundamentals. Of course, there is no shortage of suspects—as already cited by various parties. These include a significant currency appreciation, a large current account deficit, increasing reliance on short-term borrowings, the authorities' delay in responding, and so on.

These possible causes are, of course, all relevant, interconnected, and cumulative in the sense they all contributed in some way to the collapse in confidence that is the stark characteristic of the crisis. What is sobering, however, is the fact that many of the same factors played a role in the Mexican crisis some two and a half years earlier. Indeed, one could say with reasonable certainty that the crisis in Thailand was due to a combination of cyclical and structural factors, three of them being particularly noteworthy.

The first factor is the remarkable deceleration of exports during the twenty months prior to the onset of the crisis. The deceleration appears to be at least in part a reflection of more deep-seated problems of competitiveness than just the exchange rate appreciation. One could argue that a very large current account deficit, which implies very rapid growth in net foreign liabilities, need not worry the markets if exports are growing just as rapidly, but the markets would worry if exports are not keeping pace. Clearly, the coupling of unexpectedly weak export performance and a large current account deficit raised basic questions about the sustainability of the country's external position, especially when much of the buildup in liabilities took the form of short-term borrowing.

A second factor is the precarious state of the financial system linked to the political economy of the country. According to Goldman, Sachs, the Thai system scored worst on a set of factors believed to contribute to banking crises in the region. In particular, credit expanded very rapidly in relation to GDP, and

the size of bank loans relative to GDP in the country is one of the highest in a large sample of countries—suggesting that problems in the banking system could have especially severe repercussions. In fact, from 1993 to 1996, domestic credit to the private sector grew by more than 20 percent annually. According to Lewis Preston, the former president of J. P. Morgan and of the World Bank, continued annual growth of more than 15 percent for a financial institution is a recipe for disaster.

The third factor I would like to cite is the perception in the markets that the determination, urgency, and sophistication needed for a quick and adequate policy response was lacking on the part of the government, resulting in greater loss of market confidence. Indeed, by some accounts, there was a lag of more than six months between the onset of the confidence problems and the initiation of policy actions. This then may be one area where market perceptions differ from those that followed the crisis in Latin America several years ago.

When one analyzes the Thai and Mexican crises, one common conclusion is that continuous large capital inflows place enormous demands on the capacity of regulatory institutions and the soundness of macroeconomic policies. Even if some aspects of the system are solid (in Thailand, a very high rate of domestic saving and investment), a crisis can still be precipitated by the weaker links of the chain. As is said, the team is only as strong as the weakest member.

While it is too early to provide a certain set of prescriptive answers to the Thai crisis, it is, nevertheless, clear that notwithstanding the growing complexity associated with economic development in an increasingly integrated world economy, fundamentals remain of fundamental importance. Indeed, if anything, more so than ever before. To successfully manage the size, composition, and probably the direction of capital flows, appropriate and sound macroeconomic policies are indispensable.

With this backdrop, let me now turn to China, the largest recipient of capital flows in the developing world during the past four years. I will talk briefly about three aspects in this regard: the path China has traveled so far, how China has managed the large flows, and the challenges China still faces.

The Path China Has Traveled So Far

China formally adopted the open-door policy in 1979, and the first joint venture with foreign partners was set up in 1980, that is, seventeen years ago. Since then, the country has gone through basically three phases in the way it attracts capital flows.

The "mutual learning" period took place from 1979 to 1986. Just as China was ignorant, so investors were afraid. It was a period of getting to know each other and learning from each other. It is no wonder that practically all flows were from Hong Kong and Macao going largely to adjacent southern China. Furthermore, these limited flows financed mostly simple processing ventures.

The "getting ready" phase took place from 1987 to 1991. During this period,

essential laws and regulations were enacted and attractive incentive measures adopted. The result was a fair, but gradual, expansion both in the number of economic sectors and of geographic locations into which flows were directed. However, the amount remained small; the scale of individual ventures was not large, nor was the level of technology transferred high.

The "rapid increase" period started in 1992 and continues, partly accompanying the rapid transformation of China's planned economy to increasingly a market economy and partly benefiting from the worldwide surge in private sector investment in emerging markets. The achievement in this period has been remarkable, as we all know. Suffice it to say that as much as 85 percent of total capital inflows have occurred during this period. Indeed, as of now there are more than 300,000 ventures involving foreign flows, close to the number of existing state-owned enterprises, with more than 140,000 already in operation. Almost $500 billion has been committed, with over $200 billion actually used—$53 billion in 1995 and $42 billion in 1996 alone—coming from over 160 countries and areas. Foreign direct investment (FDI) ventures—which employ 18 million people—now account for almost half of China's merchandise foreign trade and 10 percent of government tax revenue. Finally, of the 500 largest multinational corporations (MNCs), about 300 have ventures of various kinds in China, producing everything from consumer goods to durables to high-tech products.

By any measure, China's record in attracting capital flows is impressive. Here it is necessary to look further at some of the characteristics underlying these flows. One such characteristic is the large absolute amount of flows, up to $57 billion in 1995 alone and $43 billion in 1996, of which private flows accounted for 86.1 and 95.8 percent, respectively. Capital flows are primarily FDI. Portfolio flows (5.7 percent in 1995 and 9.6 percent in 1996) are a small share of the total, as are official flows, which accounted for less than $8 billion in 1995 and less than $2 billion in 1996. Another characteristic of China's capital flows is their high concentration, both in terms of investor origin and geographic destination. Twelve coastal areas accounted for over 90 percent, some 60 percent came from Hong Kong, and the top ten sources provided over 95 percent of all flows to China. And, finally, there was a gradual opening-up. This cautious approach applies to both economic sectors and geographic regions. China conducted a localized experiment before extending nationwide.

How China Managed These Large Flows

Normally, we know that with sustained large inflows, one tends to experience several macroeconomic effects, for example, expansion of the domestic money supply, upward pressure on prices and exchange rates, and widening of current account imbalances.

When looking at China since 1990, however, it appears that except for 1993 current accounts have remained positive throughout; price increases have been

moderate (apart from the period 1993–94) or lately decelerating. Indeed, the latest figures for September 1997 showed practically zero inflation, and the economic growth rate, on average, was high, ranging from 9.5 to over 12 percent.

In short, there was little sign of the kind of instability in the domestic financial system commonly associated with large inflows. The question to ask, therefore, is why. A quick answer is that the Chinese have managed well under the circumstances. Among others, the following examples are noteworthy.

The Chinese pursued parallel policies of domestic monetary contraction, primarily through controls on aggregate credit. Specifically, the central bank managed to offset the increase in domestic money supply needed to absorb the inflows by reducing the credit available to domestic financial institutions and the government. Although nominal exchange rates remained more or less unchanged during the period, real effective exchange rates did appreciate substantially—by some accounts, over 25 percent from 1992. This appreciation, one would argue, helped to bring the trade balance to a more sustainable level in face of the large capital inflows.

In contrast to monetary policy, fiscal policy was not actively used; the government deficit level remained fairly stable. However, by controlling or constraining fixed capital investments, indeed by not increasing the deficit, fiscal policy played an effective supportive role in not putting additional pressure on the money supply.

Furthermore, China kept the domestic financial system insulated from these inflows by various means. A limitation was set on the entry of foreign banks and their engagement in local currency transactions both in nature and volume. China established surrender requirements and convertibility restrictions on the foreign currency transactions of domestic financial institutions. It also established separate categories of ordinary shares for foreign and domestic investors, and restrictions against foreign participation in domestic fixed income security markets. Unlike for current account transactions, all income from capital account transactions must be maintained in foreign-currency-denominated accounts and cannot be converted into domestic currency without permission. Hence, the related impact on the domestic money supply is thereby minimized. Of course, these restrictions had a cost in terms of economic efficiency: the point is that their intended purpose seemed to have been well achieved.

China adopted targeted incentive policies for FDI, putting the country's advantages to effective use. Incentives include a large market size, high economic growth, low production cost, competitive skilled labor, continued social stability, and a strong government with clear development objectives.

The result is that four out of every five dollars that flowed into China were in the form of FDI, and a large part of them were in turn spent on buying foreign rather than domestic goods, mainly machinery. This perhaps explains why, although from 1992 to 1996 cumulative inflows totaled some $165 billion, net foreign assets in the central bank and deposit money banks increased only by $70 billion.

The Challenges China Still Faces

The fact that you have done well does not guarantee that you will continue to do well, although admittedly it does help in terms of having had a successful experience and laid a necessary foundation. In China, while there is certainly no more debate about the necessity and usefulness of capital inflows, success itself has created its own problems and led to debate about them. A typical debate relates to the emerging dominance of foreign products in an increasing number of industries or sectors. As I and my colleagues in the World Bank see it, China will have to handle several important issues well if it is to continue to be successful in attracting capital flows and putting them to good use.

First, China will have to sustain strong macroeconomic performance through necessary reforms. One such reform would ensure continuation of balanced macropolicies by proceeding with effective state-owned enterprise reforms and financial sector reforms consistent with the government's regulatory and institutional capacities. The government will need to move to the right and strengthen its appropriate role in a growing market economy. China must achieve full convertibility of the domestic currency and create a level playing field for all, including foreign investors. In a way, China will have to place less emphasis on granting financial incentives to individual ventures and more on providing opportunities for global integration.

Second, China must strive for a more desirable distribution of capital flows, both geographically (more to the interior) and sectorally (more to some service sectors, retailing, banking, insurance, etc.). Here more innovative and original ideas will be needed concerning financial incentives, market access, majority ownership, and so forth. The issues of cascading from coastal to internal regions should also be investigated further given the complementary advantages of existing endowments and differential levels of development.

Third, China must increase the diversity of FDI sources—not so much to reduce flows from Hong Kong, Macau, and other Chinese-based sources as to increase flows from other sources. The result would be that as China integrates more with the world, capital flows would be on a more sustainable path and generate more of the expected benefits, such as global production, marketing links, and introduction of advanced technologies, as well as managerial practices.

To conclude, China has done extremely well in attracting and managing capital inflows, even allowing for its unique and distinct advantages. However, to continue to do well China faces challenges, not the least of which is the need to learn how to manage in an increasingly open and volatile environment, both in terms of regulatory infrastructure and institutional capacity. But prospects are encouraging, judging both from the government's recent policy indications and the evolving economic generation of educated Chinese who have come back from abroad or are expected to come back.

5. *Masaru Yoshitomi*

I am not a practitioner, or an academic expert, but I am somewhat concerned with the Asian financial crisis. I am now teaching at the Wharton School at the University of Pennsylvania. At the same time, however, I wear another hat, that of the Long Term Credit Bank of Japan. My bank is in trouble not only because of its large domestic nonperforming assets but also because of its heavier involvement in the banking crisis in Asia.

First, in discussing the banking and currency crises in Asia, many commentators stress that the engine of growth behind the Asian miracle has suddenly stopped. That is, in 1996 the growth rate of exports in many Asian countries, including China, slowed to just around 2 percent, and in the case of Thailand, down to −1.5 percent or so. Until 1995, export growth had been around 15 to 20 percent for most Asian countries. What, then, initiated this decline in exports? There are two schools of thought.

One school emphasizes the adverse effects of the Chinese currency devaluation in early 1994, up to 35 percent with regard to its official exchange rate. Because Thai exports compete with exports from China and other Asian countries in the same category of products, Thailand's failure to upgrade its export structure is a basic reason its engine of growth stopped, this school claims.

The other school of thought claims that the loss of international competitiveness is due to the maintenance of a fixed exchange rate with the U.S. dollar, despite the strong appreciation of the U.S. dollar in 1996–97 on top of high inflation in Asian countries. Asian currencies became overvalued, depressing exports and encouraging imports.

In this context, however, I cannot erase my memory of April 1995, just after the peso crisis, when my bank organized a seminar at Pataya Beach near Bangkok, inviting central bankers and officers from the treasury to discuss currency issues. The main concern at that time was the extraordinary appreciation of the yen against the U.S. dollar (up to 80 yen per dollar) and the weak dollar. The major complaint was the wide fluctuations of the exchange rate between these two major currencies. The Thai authorities didn't like seeing the two elephants dancing on their delicate grass.

Today in 1997, in sharp contrast, we hear that the fixing of the Thai baht to a strong U.S. dollar resulted in a large overvaluation that hurt Thai exports. But in 1996, the annual average exchange rate of the yen was 108 yen per dollar. Exchange rates of 100 to 110 yen per dollar are a reasonable zone for purchasing power parity in the tradable sector in Japan. Only in 1997 has the yen deviated from that sort of equilibrium exchange rate. In other words, though the yen depreciated sharply against the U.S. dollar in 1996, it was from the extraordinary overvaluation of the yen in 1995, and the *level* of the yen-dollar exchange rate in 1996 was quite normal. Nevertheless, Thai exports performed very poorly that year. Therefore, I cannot figure out how in such a short time

Thailand and other Asian countries suffered from the stalling of their engine of growth. At the same time, if Thailand had adopted a floating exchange rate in the context of its excessive capital inflows, which substantially exceeded the current account deficits in preceding years, then the Thai baht would have appreciated considerably. Such an appreciation could be interpreted as short-run overshooting, but in light of the excessive capital inflows for several years, the consequence could have been a prolonged misalignment in the exchange rate. Such a misaligned exchange rate could have imposed another difficult problem on the Thai authorities.

Furthermore, as you know, the Thai economy is still in an early stage of development, and therefore, its financial markets are not well developed. A floating regime under massive international capital movements can result in extreme gyrations in the exchange rate. The shallowness of the Thai financial market could not have coped with the volatility of international capital flows.

In 1994–95, when the Mexican peso crisis took place, we all discussed whether a contagious run could hit the Thai baht. Many people, including those at the IMF and the World Bank, concluded that all Thailand's macroeconomic fundamentals were quite good: low inflation, a balanced budget, a high saving rate, and a high potential growth rate. Inflation may have been accelerating, but from 5 percent to at most 7 percent. So we were satisfied with the stability of the baht.

Only two years later, we confront a banking crisis and currency crisis in Thailand and other Asian economies. Something new must have happened after early 1995, or must have already been happening around 1995, when we got together at Pataya Beach.

One such change occurred in the composition of international capital inflows to Thailand, which shifted from foreign direct investment to international bank credit. That is, short-term international bank loans became dominant in capital inflows. This shift was related to the fixed exchange rate, which had been maintained more than a decade, long enough for investors to forget the foreign exchange risk. Very few people were actually skeptical about the fixity of the exchange rate between the Thai baht and the U.S. dollar. The dollar interest rate was around 5 to 6 percent, and the baht interest rate was around 12 to 13 percent. Local financial institutions enjoyed this large interest rate differential, given the fixed exchange rate.

The other such change, one we did not recognize at the time, occurred in how and where international bank loans were being used. We only looked at the macroeconomic fundamentals and paid less attention to the sectoral allocation of domestic credit, the aggregate of which was increasing rapidly because of the massive inflow of international bank loans. Much more important, however, domestic credit to the real estate sector was expanding most rapidly. (This was also the case in Japan in the 1980s. I was in charge of macroeconomic policy in the Japanese government, and we paid a lot of attention to the fundamentals. The growth rate of the Japanese economy was 5.5 percent. The infla-

tion rate was only 1.5 percent. Innovation was going on in microelectronics. The key policy issue was how to reduce Japan's external surplus. The continued good macroeconomic fundamentals may have produced a sort of euphoria. But in the midst of it, very few people could recognize that it *was* euphoria and a bubble. There were available many theoretical and empirical justifications for such optimism during the bubble period.)

At the same time, the Thai external deficit was widening in 1995–96. I had already warned at the Pataya Beach meeting that the external deficit was approaching 6 to 7 percent of GDP, more half of which was financed by international bank loans. Earlier in the 1990s, however, net capital inflows substantially exceeded the current account deficits. The resultant increases in foreign reserves and hence in the money supply—that is, excess domestic demand—produced increasing external deficits rather than higher domestic inflation, since the latter did not accelerate much. In other words, the excess net capital inflows *caused* the current account deficit to increase, rather than simply financing the increased external deficit. This issue requires deeper analysis.

The next question is whether the current account deficit mattered or not. The Thai current account deficit eventually accounted for 8 percent of GDP in 1995–96. Malaysia had an external deficit of similar magnitude, but it did not trigger a crisis. The Indonesian current account deficit was less than 4 percent of GDP, just half of the level in Thailand, but similar to the level in the Philippines. The current account deficit may not have mattered much, but what did matter was how the deficit was financed. This is because what made possible the sudden reversal from capital inflow to outflow, which should account for the suddenness of the currency depreciation, must depend on the characteristics of the capital inflow. Another important question is, What triggered such a reversal? A domestic banking crisis apparently triggered it.

Thus we come to the need to analyze the nature of banking crises. Over the past 10 to 15 years we have had banking crises in every country in the world. I was talking with George Kaufman in Chicago just a few weeks ago. When I said, "Every country has experienced a banking crisis these days," he said, no. He showed me a map produced by the IMF, published in 1996. Kaufman continued, "Here in these areas we have not had a banking crisis yet." Such areas were colored white on the map. "In the white colored areas, they don't have banks yet," he laughed.

Every country that has implemented financial liberalization has experienced a banking crisis, so that many analysts now claim that banking crises must be related to financial liberalization. In Thailand, the offshore market opened in 1993. Japanese banks, including my bank, were attracted to the offshore market because the Thai authorities promised to give foreign banks full banking licenses if they showed good performance, that is, extended a large amount of international credit in the offshore market. The offshore market in turn lent to local banks and finance companies, which were heavily engaged in lending to the real estate market.

The excess supply of domestic bank credit did not seriously accelerate domestic inflation in the general market of goods and services but instead fueled inflation mainly in the asset markets, particularly in real estate. This indicates that the sectoral allocation of bank credit is much more important than the monetary aggregate of either total bank credit or the money supply. (This problem happened in Japan in the 1980s. The aggregate money supply was indeed somewhat excessive, but the magnitude of that excess could not account for the tripling or quadrupling of asset prices in the decade.) What accounts for this kind of sectoral concentration of the extension of bank loans? That is a difficult question. In general, we can say that their declining franchise, in the face of financial liberalization and tougher competition from nonbanks, forced the banks to find new outlets. For example, demand for bank credit declined on the part of large borrowers, who could rely on the liberalized capital market in addition to greater self-financing of their business investment through retained income.

In particular, in the case of Thailand, banking behavior in the 1990s should be analyzed more carefully. The key issues are whether ex ante monitoring was done well by the banks, particularly in order to avoid adverse selection, and whether the banks monitored borrowers once loans were extended, in order to avoid moral hazard on the part of the borrowers.

We often emphasize that when we liberalize financial markets, we should at the same time improve prudential measures and supervision of banks, that is, improve the regulatory framework within which financial institutions operate. Prompt corrective action (PCA) centering on capital ratio regulations is a key.

Here we have some difficulty, however. Why do we need rule-based rather than discretion-based bank regulations? PCA can avoid the moral hazard of near insolvent banks, but only after the bursting of a bubble. Such moral hazard takes the form of offering higher interest rates on deposits to invest in riskier projects, to gain extra profits for writing off nonperforming assets, given the deposit insurance scheme. Also, the authorities are engaged in "forbearance policy." To avoid those two serious problems, moral hazard and forbearance policy, we should introduce PCA. The purpose of this rule-based measure is to close down potentially insolvent institutions as early as possible while they still hold positive capital, so as to minimize the expenditure of public money, which after all comes from taxes levied on the public. Public money must be used if necessary to bail out depositors but not to support insolvent institutions. However, a big question is whether PCA can prevent a bubble from taking place rather than simply preventing moral hazard and forbearance policy after the bursting of the bubble. It may be very difficult to prevent a bubble from being generated using the bank's capital ratios, because capital ratios move in a procyclical manner.

To sum up, the currency and banking crises in Asia should be analyzed from the following three economic policy angles:

1. How can we get exchange rate policy right in the face of massive capital

flows? Asian countries wanted to keep international price competitiveness, by fixing their exchange rates with the dollar. Over the past ten, fifteen, or twenty years, the dollar has continued to depreciate against the yen; therefore, by fixing to the dollar, the Asian economies were able to maintain reasonably good competitiveness. So it must have been very difficult for them to switch the currency basket by changing the weight between the U.S. dollar and yen or to switch from a fixed to a floating regime. The question is when they could have switched in an orderly manner, particularly in the context of shifts in the composition, size, and speed of international capital movements.

2. How can we get banking behavior right under the protection of deposits? We can talk about prudential measures and regulatory frameworks, but after all, it is very difficult to classify bank loans according to credit risk due to the nature of bank credit. It remains very difficult to evaluate bank credit risks and hence to securitize bank credit. It could be done by using credit derivatives, but that is still limited.

3. How can we counteract the financial–cum–real estate cycle? This is the hardest area to analyze. We do not have enough knowledge about what causes this cycle and how to stem such a cycle in the future. Moreover, it remains very difficult, in the midst of euphoria, to identify a bubble as such.

Finally, the critical question is what kind of policy package can cope with "twin" financial crises—for example, the currency crisis and banking crisis that have been reinforcing each other in the Asian countries. Current IMF packages may not be sufficient, as indicated by the continued depreciation of the Asian currencies, even after the packages were announced. We have to see whether the IMF packages can take care of both banking and currency crises effectively and simultaneously, without high cost to Asian economies.

Discussion Summary

Takatoshi Ito observed that China is generating both a sizable current account surplus and sizable capital inflows resulting in the rapid accumulation of foreign reserves. He wondered whether this is a conscious strategy and if the currency would be allowed to appreciate ultimately. *Paul Krugman* concurred, suggesting that this combination results in the recycling of capital inflows and, consequently, these flows are not financing domestic economic growth. Krugman characterized this as a precautionary macroeconomic policy but a curious developmental policy.

Zhang Shengman said this policy of accumulating reserves reflects an overall conservative economic approach by the Chinese. He suggested that reserves would reach approximately $140 billion by the end of the year, and he forecast a continued increase, although at a less dramatic pace. This reduced pace would be a function of reduced inflows following the removal of import duties,

a slight loosening of monetary policy, policy changes required prior to membership in the World Trade Organization, and some signs of increasing outflows. He also noted that existing debt of $130 billion reduces the magnitude of the reserves.

Ito inquired about the health of the Chinese banking system. Some indicators seem stable while others show possible trouble ahead. Given the centrality of the banking sector to other crises, he asked about the specifics of the Chinese situation.

Zhang replied that this question is related to the overall issue of how to handle state-owned enterprises. While the economics of this situation are well understood, the implementation issues regarding employment and social implications provide a number of difficulties. He noted that four of the largest state-owned banks have nonperforming loan ratios of approximately 20 percent. The current policy response is to strengthen prudential discipline and to address the quality of state-owned enterprises directly. While there are over 350,000 state-owned enterprises in China, 1,000 enterprises account for 70 percent of their combined asset value. Focusing on the largest state-owned enterprises will allow for a gradual resolution of these difficulties.

James Hines asked why the Chinese government is worried about the geographic and sectoral concentration of foreign direct investment. Furthermore, he noted that any fiscal incentives to stimulate diversification may have significant efficiency consequences. *Robert Lipsey* inquired about the character of the huge foreign direct investment flows to China. In particular, given the importance of Hong Kong as a source, he asked about the magnitude of roundtripping flows that actually originate in China. More generally, he inquired about the nature of the flows from Hong Kong given their large size.

Zhang replied that the effort to guide foreign direct investment is equivalent to leveling the playing field. He noted that coastal areas had initially attracted flows through preferential treatment. Furthermore, transportation costs are extremely high for the westernmost parts of China, suggesting that incentives and infrastructure will be needed to guide foreign direct investment there. *Martin Feldstein* suggested that guidance to such regions may introduce the distortions alluded to by Hines. *Zhang* also noted that current estimates of the magnitude of roundtripping are at approximately 15 percent of inflows. Furthermore, the fact that Hong Kong provides 60 percent of all inflows reflects investment channeled through foreign subsidiaries based in Hong Kong and investment originating in Taiwan.

Kathryn Dominguez questioned the rationale for an Asian regional fund. Noting that Argentina had not averted a crisis with its currency board system of fully backed reserves, she suggested that the ability to resist a crisis is not a function of the amount of reserves a country has access to. *Stanley Fischer* further noted that the IMF has sufficient reserves and that a regional fund may not be able to enforce the same level of conditionality rendered by the IMF.

Moeen Qureshi replied that the rationale for a regional fund is twofold. First, a regional fund would allow access to more reserves. Second, a regional fund

would address the perception that the political decision-making process of the IMF is still dominated by two or three countries and, consequently, does not reflect the fact that some Asian countries have come of age. Furthermore, he suggested that Japan, within the context of an Asian regional fund, would enforce conditionality terms that are as stringent as those of the IMF.

Ito emphasized the moral hazard lessons of these currency crises. In particular, he inquired about the potential consequences if the Mexican government had forced involuntary rollover of the Tesobonos or if the Thai government had forced finance companies to default on their obligations. Such punishment of investors that search for yield may serve to avert such crises in the future.

Masaru Yoshitomi responded that these questions are related to the validity of the too-big-to-fail doctrine. While punishing selective investors may be attractive, the systemic nature of these financial–real estate crises makes selective punishment difficult and introduces systemic risks. Moreover, given the euphoria and irrationality associated with these bubbles, he was sympathetic with the use of the too-big-to-fail doctrine.

Krugman noted that the absence of a forward discount on the Thai baht until May suggested that there was a great deal of irrationality as investors entered the market. As such, the irrationality was more pronounced during the entry of these investors in markets rather than on their departure. Krugman further noted that the real consequences of these bubbles present a significant challenge to the economics profession because no good macroeconomic models exist of the implications of a financial bubble on the real economy.

Arminio Fraga concurred that irrational behavior characterizes entry into a bubble and that such financial bubbles have real consequences. Furthermore, he noted that in many cases adjustment to reality happens in an instant with the arrival of information on government policy responses. For example, the Thai policy response to the growing crisis disturbed many investors and led to the disorderly depreciation. Fraga further noted that the Indonesian case was interesting in this vein because it felt like a real run. *Feldstein* responded that the high level of external debt may have accounted for the actions of investors. *Fraga* noted that the composition of the debt was weighted toward exporters and that much of the economy was still relatively healthy.

Ito suggested that the Thai and Mexican crises were distinct in an important way. In the case of Mexico, he argued, many investors were surprised by the devaluation and the banking crisis followed the currency crisis. In contrast, Ito characterized the Thai situation as one where the devaluation was expected and the financial sector crisis precipitated the currency crisis.

Sebastian Edwards disagreed with this characterization, suggesting that weakness in the banking sector in Mexico was apparent as early as 1992. Moreover, weakness in the domestic financial sector led to the issuance of the Tesobonos, which aggravated the situation and ultimate crisis. *Francisco Gil Diaz* concurred with Edwards and noted that the banking crisis was apparent prior to the exchange rate crisis. He noted that the distinction between which

investors—Mexican or foreign—took money out during the crisis was a dubious one. In fact, many nationals were holders of Brady bonds, making any study of which investors deepened the crisis inconclusive. *Feldstein* noted, however, that the evidence is that the Mexican equity markets moved before the New York markets, suggesting that Mexican investors may have moved first.

Qureshi reiterated his conclusion that floating exchange rates create domestic pressures on politicians that can, in turn, create other distortions. For example, floating exchange rates create demand for subsidies from exposed sectors and employees who are not protected by the exchange rate regime. He also noted that the emphasis on the financial sector in these crises may not always be appropriate or distinct from sound macroeconomic policy. *Krugman* concurred, noting that both the U.S. savings and loan crisis and the Thai experience with finance companies can be characterized as covert fiscal expansions rather than as examples of poor oversight of financial systems. *Qureshi* also distinguished the experience of Thailand, which was a classic IMF case, from the experience of Indonesia and Malaysia, where political dimensions were magnifying smaller macroeconomic problems.

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