Stanford
Center for International Development

Working Paper No. 44

The East Asian Dollar Standard, Life After Death?

By

Ronald McKinnon

July 1999

Stanford University
John A. and Cynthia Fry Gunn Building
366 Galvez Street | Stanford, CA | 94305-6015

Economic Notes by Banca Monte dei Paschi di Siena SpA, vol. 29, no. 1-2000, pp. 31–82

The East Asian Dollar Standard, Life After Death?

R. I. McKinnon*[1]

1. Introduction and Summary

With the important exception of Japan, a common East Asian monetary standard existed before the crises of 1997. By keying on the dollar, the macroeconomic policies of the crisis economies – Indonesia, Korea, Malaysia, Philippines and Thailand were (loosely) tied to each other – and to those of the non-crisis economies of Hong Kong, Singapore and Taiwan. Their dollar exchange rates had been fairly stable for more than a decade and, by the purchasing power parity criterion, were more or less correctly aligned with each other and with the US price level. Besides insulating each other from beggar-thy-neighbour devaluations, these informal dollar pegs had successfully anchored their domestic (wholesale) price levels during their remarkably rapid economic growth in the 1980s through 1996. (Similarly, a credible peg of 360 yen to the dollar was the monetary anchor in Japan's own great era of high growth and rapid financial transformation in the 1950s and 1960s.)

Curiously, the World Bank's assessment volume, *The East Asian Miracle: Economic Growth and Public Policy* (1993), omitted any reference to this common monetary standard. Macroeconomic analysis proceeded on a country-by-country basis where fiscal rectitude and price-level stability were praised, and rightly so. However, the volume said nothing about the details of how monetary policies were actually conducted in terms of monetary targeting, open-market operations versus discounting, interest rate variations versus aggregate credit ceilings, and so on. Instead, authors just took price level stability as given – and went on to analyse how credit was allocated. They focused on how interest ceilings could generate economic rents for promoting exports, increasing the franchise value of banks, and so on.

* Economics Department, Stanford University, Stanford, CA. 94305. e-mail: mckinnon@leland.stanford.edu

[1] Workshop on "Rethinking the East Asian Miracle" for Economic Development Institute (EDI), World Bank at the Asia Foundation, San Francisco, California, February 16–17, 1999. Revised July 1999. This paper is synthetic in shamelessly drawing on the work of colleagues. I would particularly like to thank C. H. Kwan of the Nomura Research Institute, and Kenichi Ohno of the ADB Research Institute in Tokyo, and Huw Pill of Harvard University for allowing me to draw on their empirical work and conceptual support.

The complexities of monetary control in each East Asian country can, to some useful extent, be finessed by focusing on exchange rate targeting. Because of the widespread use of dollar invoicing in Asian foreign trade and stability in the US price level, a central bank could key on its dollar exchange rate as a monetary indicator. In so far as neighbouring countries were also pegged to the dollar, the dollar peg of any one country became stronger for anchoring its national price level. With the benefit of hindsight, the pre-1997 dollar-based regime also served to protect against competitive devaluations. In the crisis of 1997–98, the sudden forced abandonment of dollar pegs by some countries upset the others.

Before 1997, however, the East Asian dollar standard had two major problems.

First, in the five debtor economies, banks and other financial institutions were poorly regulated but their depositors were nevertheless insured – explicitly or implicitly – against bankruptcy by their national governments. The resulting moral hazard,[2] which was responsible for the excessive build-up of short-term foreign-currency indebtedness throughout the region, was exacerbated by the absence of capital controls in the balance of payments. In the case of Korea, capital controls had been weakened three years before as a condition for Korea joining the OECD. In the case of Thailand, the attempt to set up an offshore unregulated banking centre undermined regulations governing onshore banks and finance companies.

If prudential regulations requiring banks and corporations to cover their foreign-currency and term-structure risks are ineffective, then capital controls can serve as a brake on the build-up of short-term indebtedness in foreign currencies. Indeed, it had been virtually textbook wisdom that, in the optimum order of economic liberalization, capital controls should be removed only after everything else in the domestic economy was 'right' (McKinnon, 1993).

Second, the loose cannon in the pre-1997 East-Asian exchange rate regime was the yen/dollar exchange rate. For decades before the 1997 crisis, cyclical variations in the real yen/dollar rate had upset the competitive positions of the dollar-bloc countries, and destabilized flows of direct investment from Japan to the others. For example, the yen came down from its high of 80 to the dollar in April 1995 to 114 to the dollar in June 1997 – a period when the East Asian Five's bilateral real exchange rates against the dollar, and against each other, had been quite stable. However, when the yen fell, their *effective* real exchange rates appreciated before the currency attacks began in July 1997. This loss of competitiveness was compounded by Japanese corporations reducing direct investment in, and outsourcing from, the East Asian Five. Thus, before the crash, East Asian economic growth had already slowed.

Moreover, the untethered yen/dollar exchange rate had a further, more

[2] For a representation of the moral hazard problem in international overborrowing, see McKinnon and Pill (1998); and for regulatory issues *per se*, see Goodhart *et al.* (1998).

subtle, impact on the Asian debtor economies. Since 1971, the long-term upward drift in the nominal dollar value of the yen eventually became built into market expectations – which exist to the present day. This expectation of an ever-higher yen drove (and still drives) nominal interest rates on yen assets far below those prevailing on dollar assets – and those in other industrial countries and other parts of Asia (McKinnon and Ohno, 1997; forthcoming). In the Asian debtor economies, unusually low interest rates in Japan further tempted banks with moral hazard to overborrow by accepting cheap yen deposits without covering the foreign exchange risk.

The moral hazard problem was two-sided. In Japan, the largest creditor economy, banks and other financial institutions were tempted to overlend by purchasing foreign-currency assets with higher nominal yields. US and European hedge funds became involved in the so-called Asian carry trade: they borrowed cheaply in Tokyo or Osaka at short-term, and on-lent almost anywhere else to Russia, Brazil, and to the East Asian debtor economies without capital controls. (China prudently limited overborrowing by keeping capital controls in place.)

I shall argue that the overborrowing in the pre-1997 regime by Thailand, Korea, Indonesia, Philippines, Malaysia, and Indonesia, was primarily a regulatory problem compounded by unnatural interest disparities. It was not due to exchange rate mismangement *per se*. Whether the countries were on fixed or floating exchange rates, the margin of temptation to overborrow by banks with moral hazard would still be there. Thus, to secure a common monetary anchor, the advantages of returning to virtually stable dollar exchange rates in Asia greatly outweigh the disadvantages. In the late 1990s, the dollar's position as the invoice currency of choice in East Asian trade remains robust and could even be strengthening.

In the absence of capital controls, managing each national monetary policy to sustain the return to fixed exchange rates means that short-term interest rates must remain flexible. However, such flexibility requires that the term structure of finance within each Asian country be lengthened. Each national monetary authority would then have more elbow room for open-market operations to gear short-term interest rates toward maintaining exchange-rate and price-level stability. Otherwise, if industry finance is short-term, governments are loathe to change short-term interest rates to defend the national currency because such changes impose undue stress on commercial banks and enterprises.

These domestic financial reforms are complementary. The successful development of national bond markets for longer-term enterprise finance can only happen in parallel with a credible commitment to maintain exchange stability in the long run: the concept of 'virtual exchange rate stability' (section 7 below). A 'good fix' for the exchange rate is one where, after a successful attack, the markets anticipate that the government will nudge the exchange rate up to its pre-attack level.

Although these financial reforms are all well and good, the loose cannon in the system as a whole – the yen/dollar exchange rate – must be tethered. Clearly, if Japan and the US succeed in stabilizing the yen/dollar rate and so end ongoing deflation in Japan, the smaller East Asian economies will quickly come around to restoring their own, formal or informal, dollar parities. For those countries opting to keep capital controls, China could be the model. The renminbi has been successfully pegged at about 8.3 yuan to the dollar for almost five years, inflation has come down to US levels, and China's output growth remains robust.

With proper bank regulation or capital controls in place, a restored dollar-based exchange rate regime would protect the smaller East Asian economies from competitive devaluations. By being formally part of such an arrangement, Japan could be better protected politically against future US demands to appreciate the yen – and such protection is necessary for Japan's economy to recover from its decade-long slump of the 1990s. With a stable yen/dollar rate, Japanese nominal interest rates would increase toward US levels – thus reducing future pressure for hot money flows from Japan to the smaller East Asian countries.

2. Bilateral Dollar Exchange Rates before the 1997 Crisis

How stable were the dollar exchange rates of the smaller East Asian economies before 1997?

If one takes a long view of quarter-to-quarter or year-to-year, the smaller Asian countries persistently pegged to the dollar as the focal point of their foreign exchange policies. However, there existed a variety of exchange rate patterns, some with sliding pegs and the occasional moderate devaluation. Except for Hong Kong, the various East Asian governments did not admit to any firm commitment to fix their currencies to the dollar. Somewhat deceptively, most talked vaguely about pegging to a basket of foreign currencies including the yen.

In contrast, if official intervention in the foreign exchanges in the short-term is the criterion, then the dollar zone was remarkably hard. Day to day, the monetary authorities in each East Asian country actively undertook to fix their dollar exchange rates within a very narrow range. Unlike the great short-run volatility between the dollar and the yen, or the dollar and the mark (euro), where these floating international monies can easily move against each other 1 per cent in a day, the Asian dollar exchange rates hardly ever moved more than 10 basis points.

To show long-run movements first, Figure 1 (Ohno, 1999) provides quarterly plots for the nominal dollar exchange rates of 10 Asian countries from 1989 through early 1997. Hong Kong is the benchmark because it was formally pegged at HK$ 7.8 to US$1 – even though the interbank rate varied

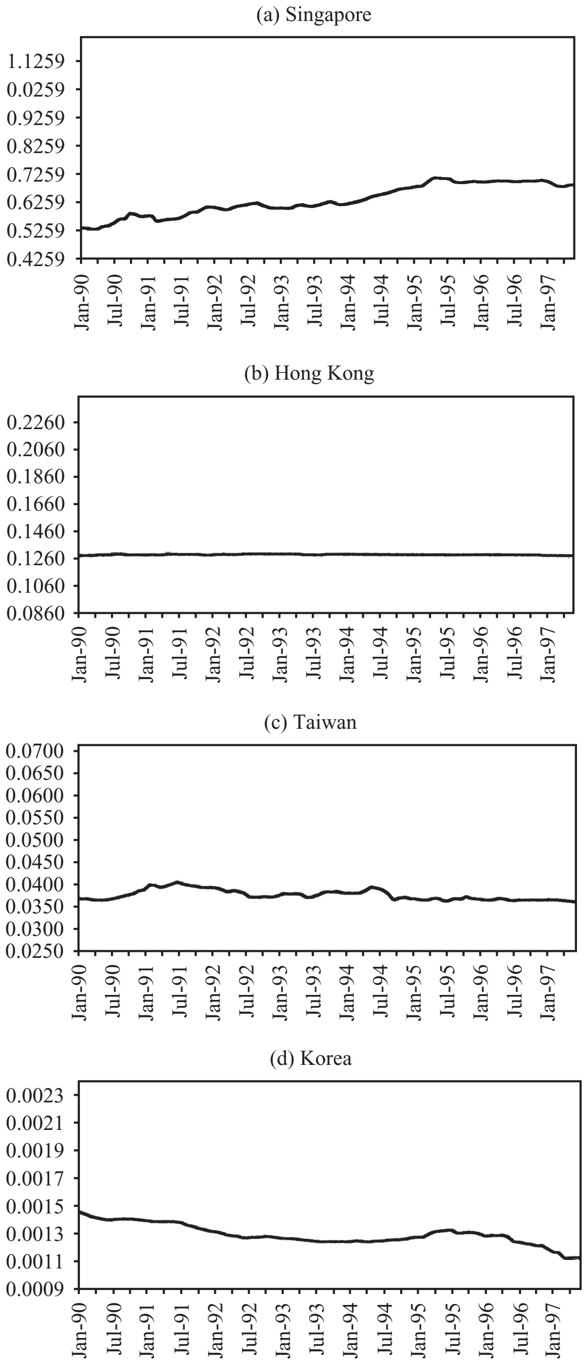


Figure 1: Nominal Dollar Exchange Rate

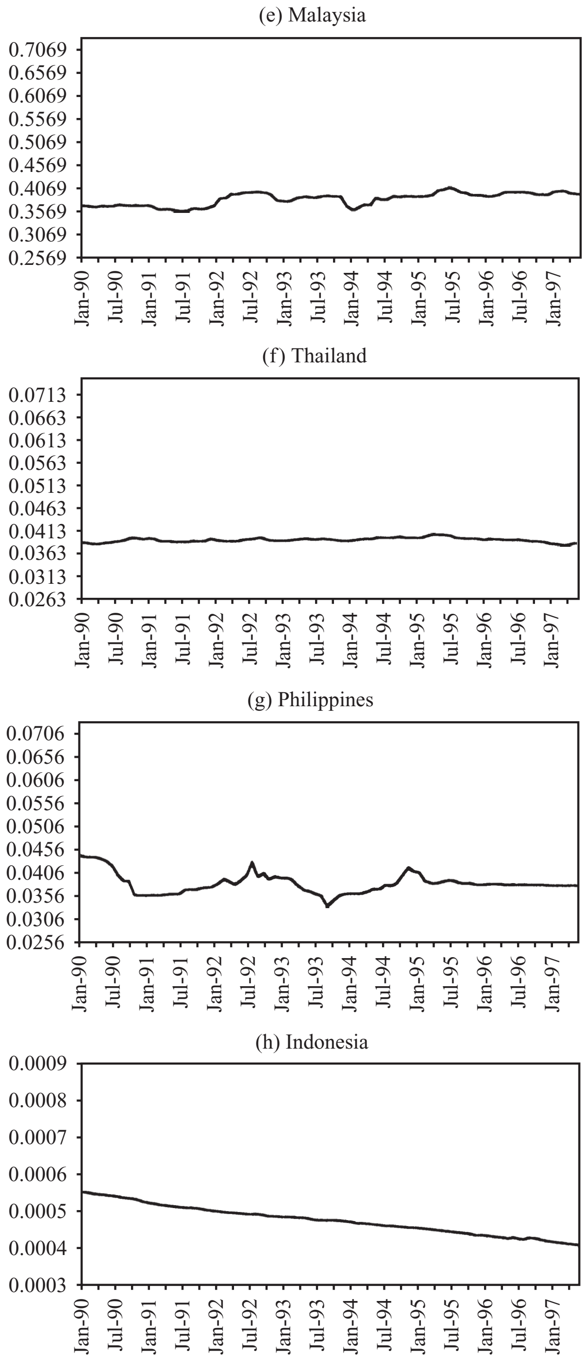
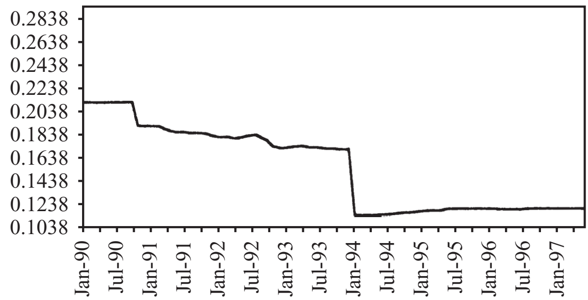
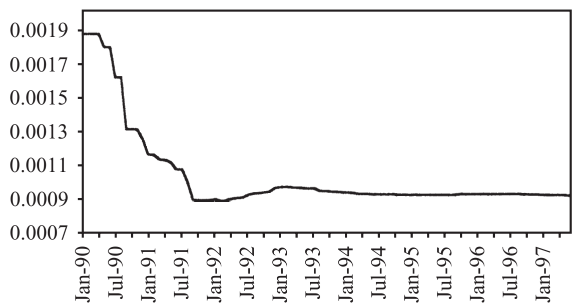


Figure 1 (*continued*)

(i) China



(j) Vietnam



Note: The unit is US dollar per home currency. Each graph is presented on a proportionally identical vertical scale. A rise signifies nominal appreciation of the home currency against the dollar.

Source: Ohno, 1999

Figure 1 (*continued*)

between 7.7 and 7.9. Each graph is arranged on a proportionately identical vertical scale so that the eye can compare across countries. Thailand, Taiwan, and Malaysia show very little net exchange rate movement against the dollar over the period, Korea and the Philippines, a bit more. Indonesia exhibited a highly predictable downward crawl of 4–5 per cent per year – while Singapore showed a slower upward drift. (Clearly, China and Vietnam only managed to stabilize their dollar exchange rates after 1993 – and China has been very stable even through the 1997–98 crisis. Even so, I am not including China and Vietnam in the pre-crisis dollar standard, although they are important potential post-crisis members.)

What about occasional public statements by Asian governments (other than Hong Kong's) that they were really pegging to a basket of convertible currencies from industrial countries – in which the yen was represented as well as the dollar? Indeed, the IMF's standard system for classifying exchange rate regimes (IMF, 1996) had it that none of these Asian countries (save Hong

Kong) were pegged to the dollar. Perhaps for diplomatic reasons, they were variously classified 'pegged to a currency composite', 'managed floating', or even 'independently floating'. Apparently, it was not politic to classify the Asian economies as being on a dollar standard.

Their other natural choice of an exchange rate target could be the yen because Japan is the largest trading country in the region. Using daily data, we can test for the weight of the yen versus the dollar using a statistical technique pioneered by Frankel (1992) and Frankel and Wei (1994), and then updated to mid-1997 by Ohno (1999). Figure 2 reports the results. Using the Swiss franc as an arbitrarily chosen outside numéraire for all exchange rates, Ohno regresses the logarithmic change in the value of each Asian currency on changes in the values of the dollar and yen – the explanatory variables:

$$\frac{\Delta \text{baht}}{\text{sw}} = \text{constant} + \alpha\left(\frac{\Delta \text{dollars}}{\text{sw}}\right) + \beta\left(\frac{\Delta \text{yen}}{\text{sw}}\right) \tag{1}$$

For nine Asian countries for the period January 1980 to August 1997, Figure 2 plots the estimated α and β coefficients. Each plotted point represents one month's regression result from the daily data for that month. It exploits the high variance between the dollar or yen and the Swiss franc (any other pre-1997 European currency would do just as well) to show that the East Asian monetary authorities were all keying tightly against the dollar.

On average for all nine Asian currencies, Figure 2 shows that the α coefficient is close to one, whereas the β coefficient is either mildly positive or centred around zero. That is, each Asian country was closely pegged to the dollar on a daily basis, and thus varied closely with the dollar against third currencies. If there was a basket peg, the yen and other currencies were given negligible weights. As Ohno (1999 pp. 2–3) notes: 'there were months in which the dollar peg was temporarily suspended, but the timing and frequency of such deviations depended on each country – deviations were not correlated across countries ... This analysis based on high frequency data corroborates the existence of the dollar zone in East Asia through mid-1997.'

Given that exchange rates were more or less pegged before 1997, how successful was the Asian dollar bloc for its membership? The most common criterion looks at variance in that country's real effective exchange rate (REER), i.e., that measured multilaterally against trading partners – mainly those with major convertible currencies. This approach is pursued in section 4.

Here, let us focus more narrowly on the bilateral real exchange rate of each dollar zone member with the USA. From 1985 to mid-1997, the upper panels of Figure 3 plots the nominal and real exchange rates of the five economies whose currencies were attacked in mid-1997 – plus Singapore, Hong Kong, and Taiwan in the lower panels. On this limited bilateral basis, the 'real' exchange rates (double deflated by CPIs) of the crisis economies were remarkably constant against the dollar – and thus against each other. Only the Philippine peso shows a slight tendency to appreciate in real terms, but by

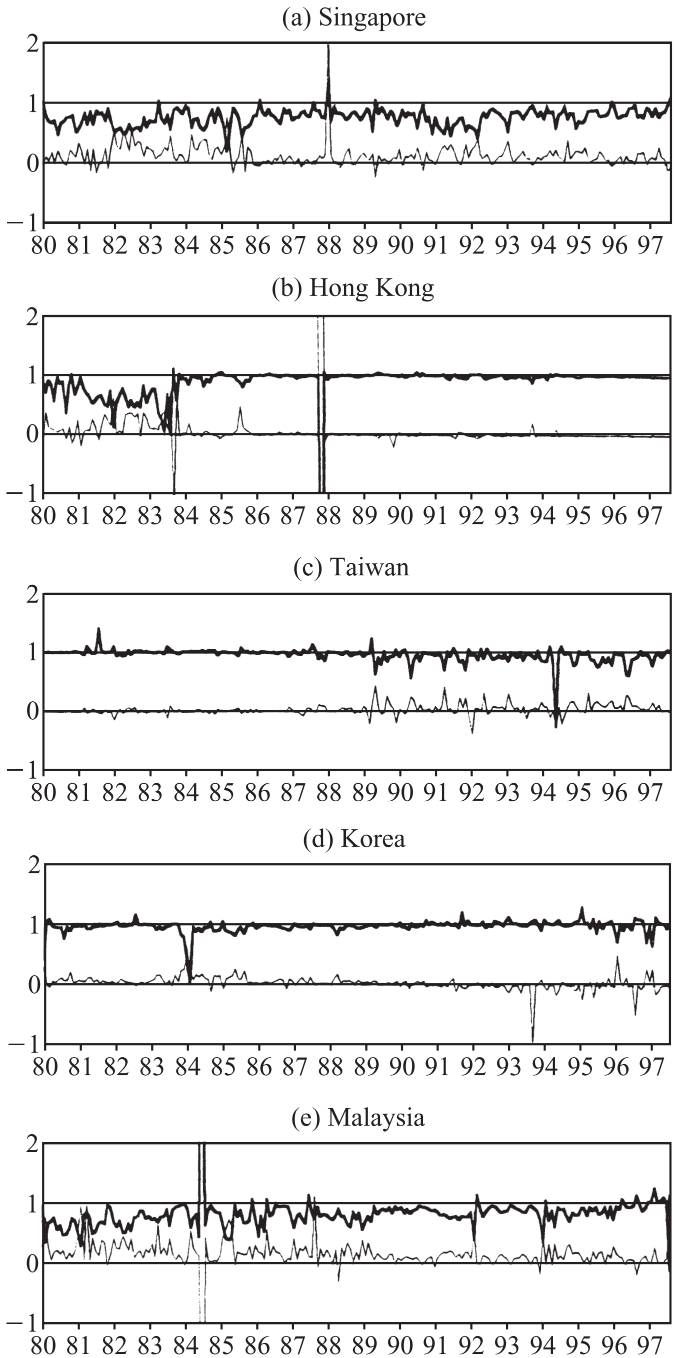
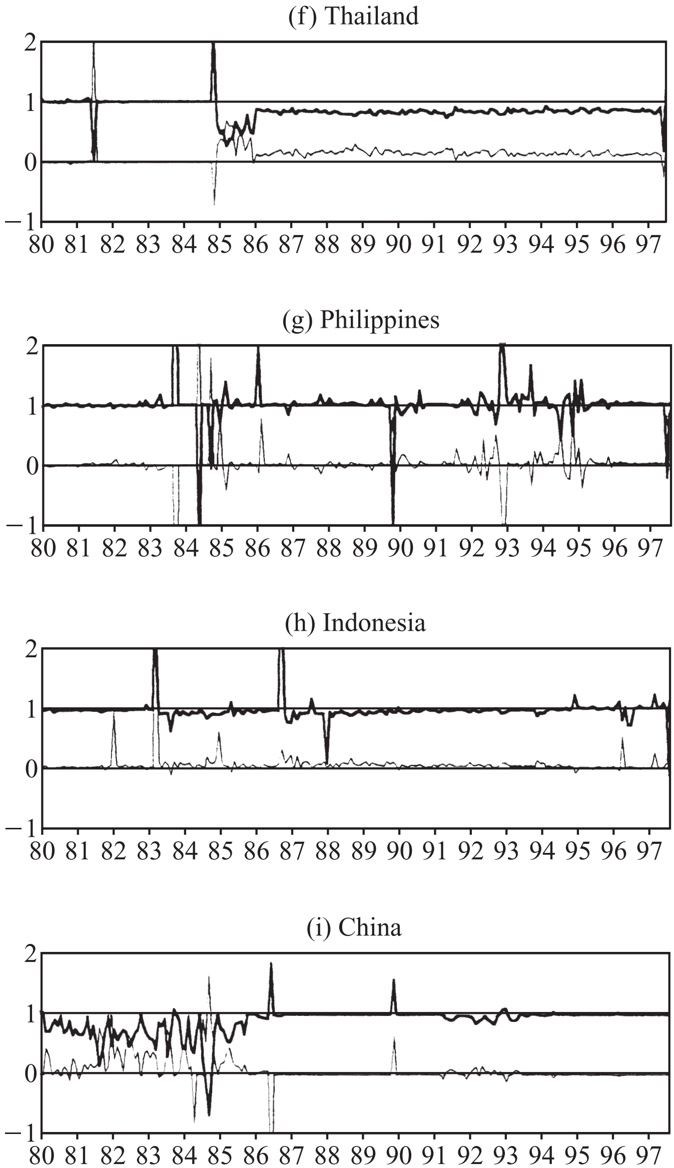


Figure 2: Daily Exchange Rate Management: Weights on Dollar and Yen



Note: These graphs show estimated coefficients on the dollar (bold line) and yen (solid line) in monthly regression of the daily exchange rate change of each Asian currency. Vietnam is omitted due to lack of daily exchange rate data.

Source: Ohno, 1999

Figure 2 (*continued*)

Latin American standards, these exchange movements were very small (Glick, 1998). (The non-crisis economy, Hong Kong, seems to be the most overvalued before the 1997 attacks – but this may well be simply a defect in using the CPI as deflator, as discussed below.)

On this bilateral comparison of relative exchange rate and commodity price movements against the dollar and each other, there was no evidence of any significant exchange rate overvaluation before the 1997 attacks began. In so far as the smaller Asian economies were competitors in third markets, no one had a significant real exchange rate advantage, or disadvantage, over the others. (Of course, this criterion ignores potential disequilibria in asset markets such as debt overhangs – but these cannot be corrected by exchange rate changes anyway.)

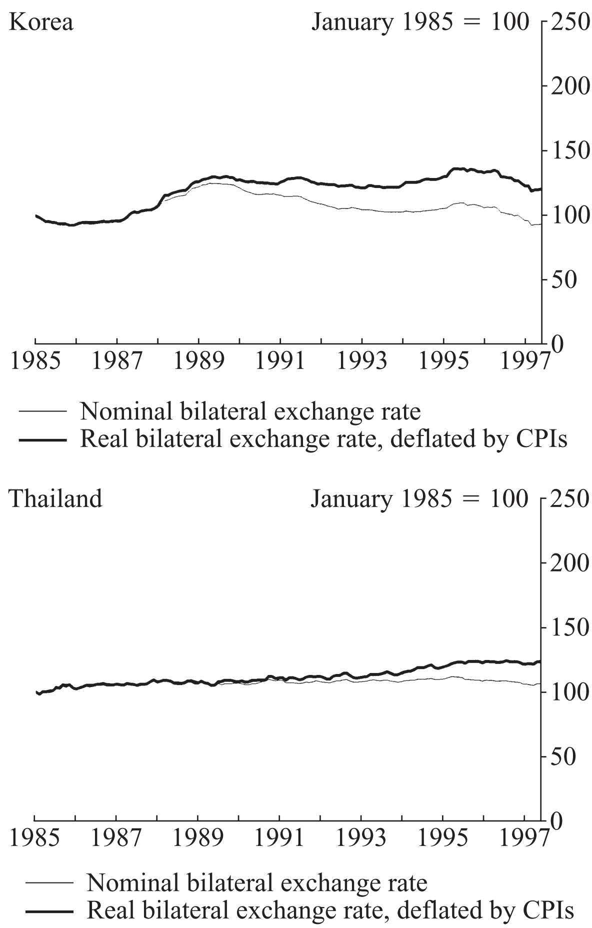


Figure 3: Real and Nominal Bilateral Exchange Rate Indices before the Crash (January 1985 to June 1997)

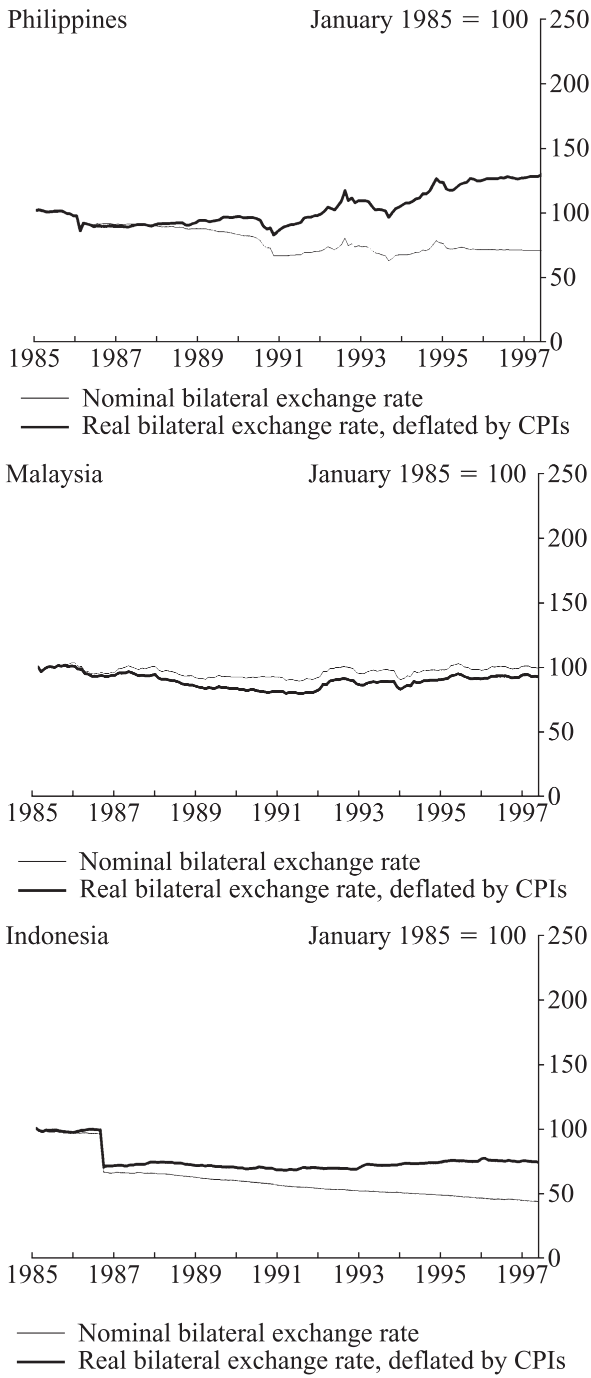
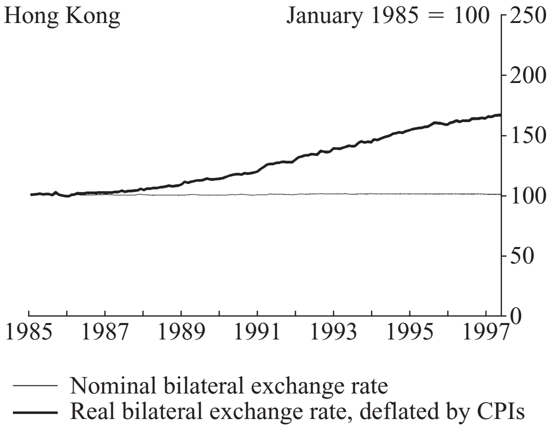
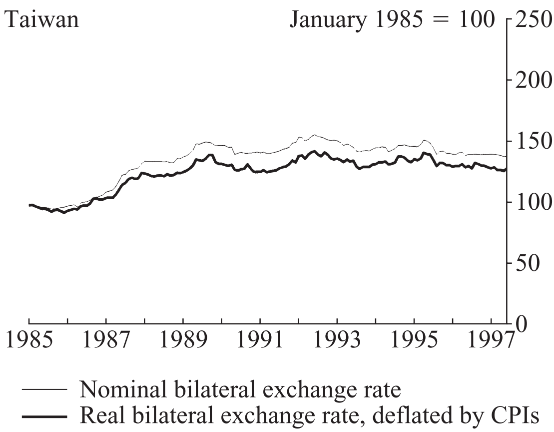
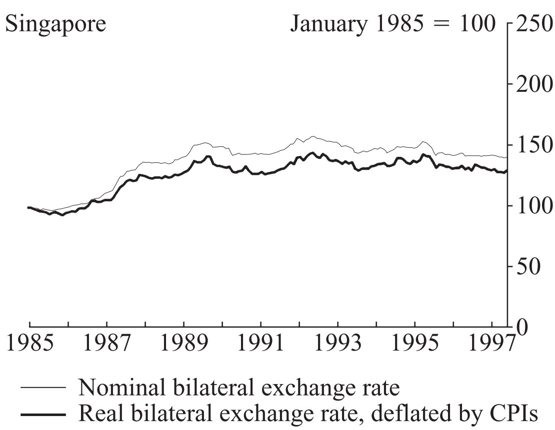


Figure 3 (*continued*)







Source: IMF

Figure 3 (*continued*)

3. The East Asian Dollar Standard as Nominal Anchor

Taking the perspective of a monetary economist for whom price level stability is an important objective in its own right, how well did the Asian dollar zone serve its membership? Figure 4 plots each country's CPI against the US from 1980 to mid-1997. As might be expected, those countries, such as Indonesia and the Philippines, that allowed significant cumulative devaluation in their nominal exchange rates had higher inflation than the USA, but, as was also true of all the other countries in the sample, variability in rates of inflation was low. Singapore, with a smoothly appreciating currency, experienced significantly less inflation than the USA itself. Apparently, the dollar zone standard served fairly well as a nominal anchor for each participating country.

Hong Kong is the outlier. Figure 4 shows that, from 1985 to 1997, its CPI grew three times as fast as the US despite the fact that its exchange rate had been firmly fixed to the dollar since 1983. In high-growth economies, sometimes (but not always) the price of retail services rises rapidly relative to the price of internationally tradeable goods, where productivity growth is higher.

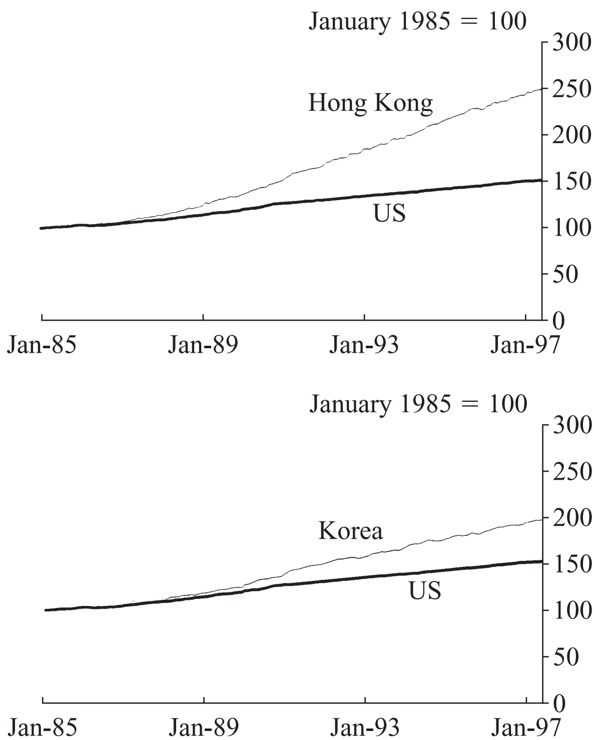
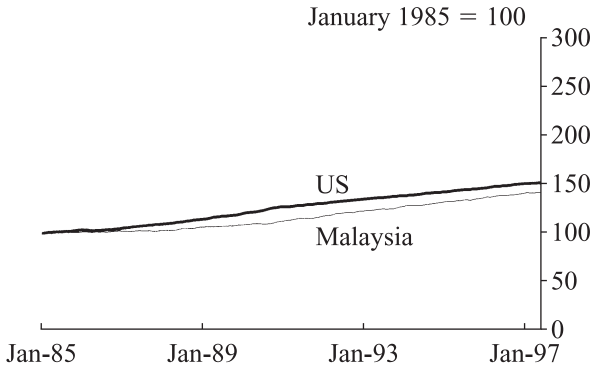
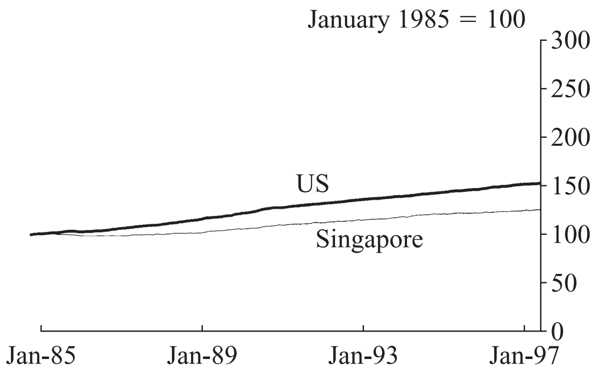


Figure 4: The US Nominal Anchor I–Inflation in Consumer Prices Indices before Currency Crises (Jan 1985 to June 1997)





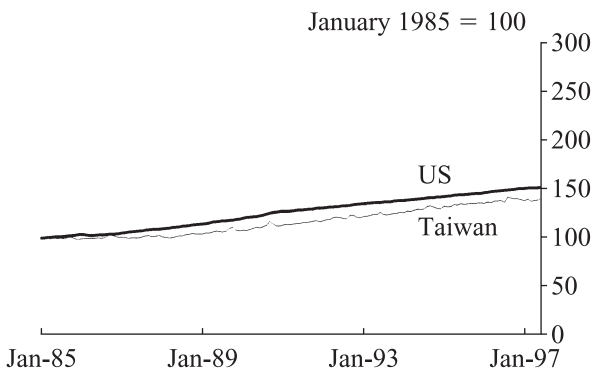
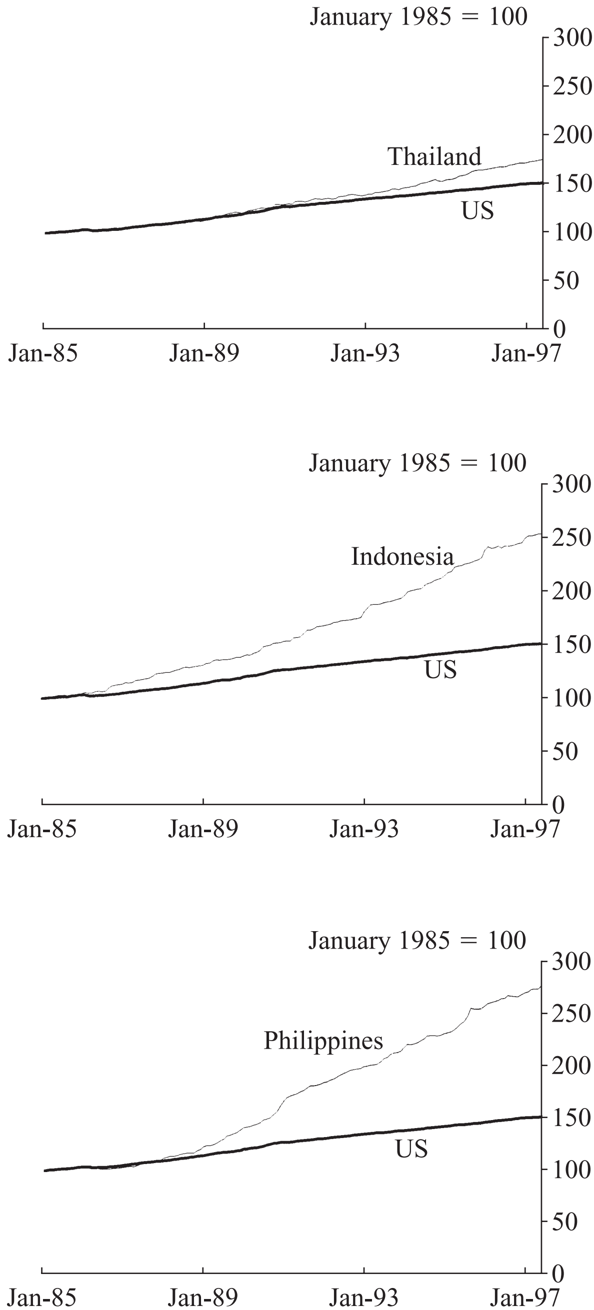


Figure 4 (*continued*)



Source: Datastream and IMF.

Figure 4 (*continued*)

In the case of Hong Kong, this traditional Balassa–Samuelson effect was exaggerated because of labour-shedding in Hong Kong manufacturing as it relocated to mainland China (Chai, 1998a). Also putting further upward pressure on wage growth, land rents soared because of restrictive government land management policies. Thus Hong Kong's CPI continued to increase at 5–6 per cent per year even when its WPI was closely aligned with the US – rising at about 2 per cent per year over 1985–97 (Figure 5). So the dollar peg successfully anchored prices in a rapidly shrinking tradeable goods sector but not in expanding nontradable (retail) services.

Chai (1998b) goes on to show that these Balassa–Samuelson effects, which tend to confound the relationship between the CPI and WPI as a measure of inflation, were much more muted in the other Asian countries – with the possible exception of Korea's heavily protected domestic service sector. Some of the upward drift in Korea's price level in Figure 4 represents the rising costs of services relative to goods. The other Asian economies in their pre-1997 high growth periods had service sectors that were more open to domestic and foreign competition – and so disparities between the growth of

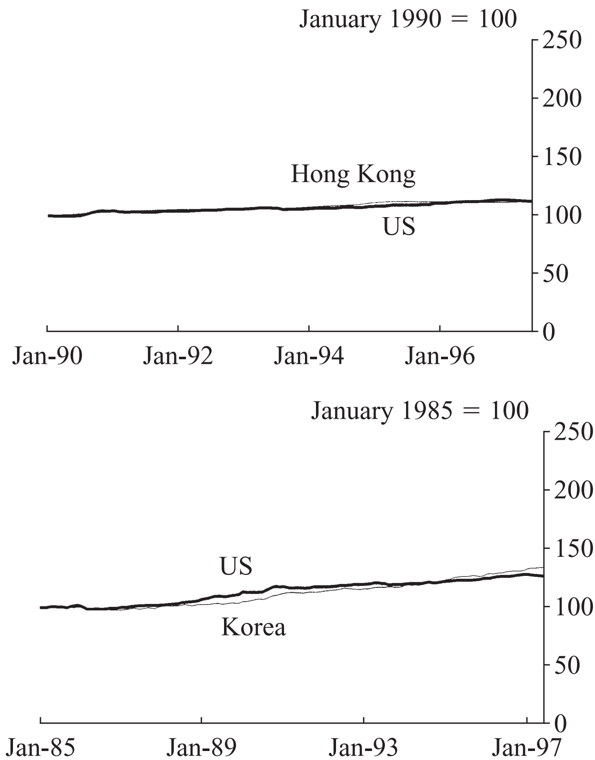
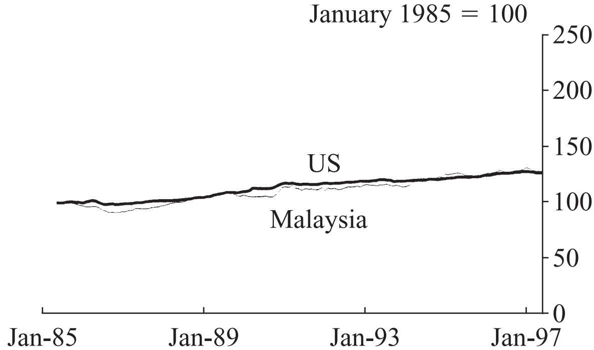
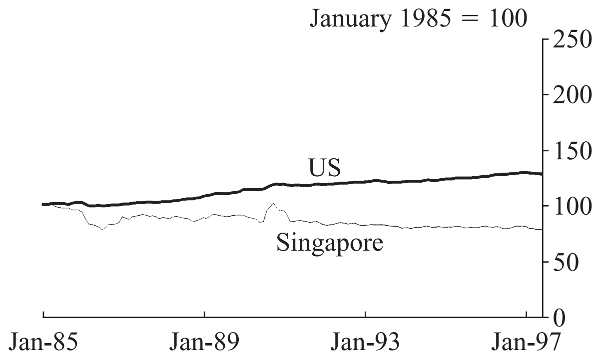


Figure 5: The US Nominal Anchor II–Inflation in Wholesale Prices Indices before Currency Crises (Jan 1985 to June 1997)





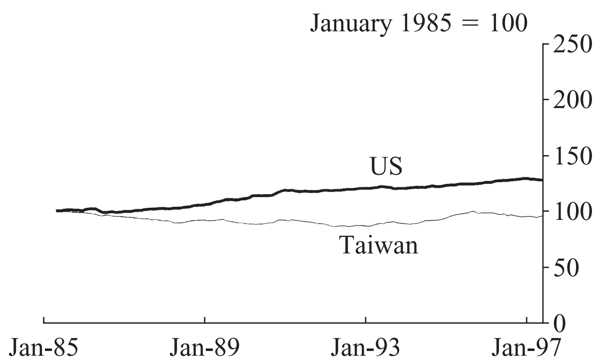
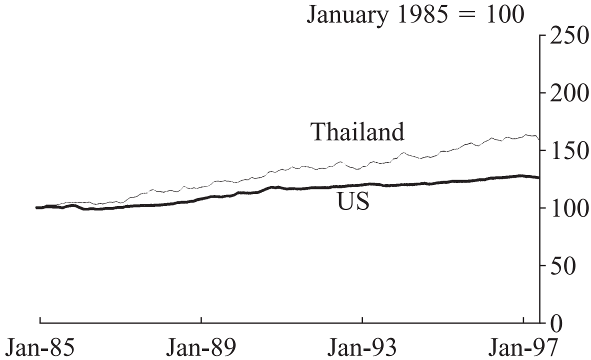
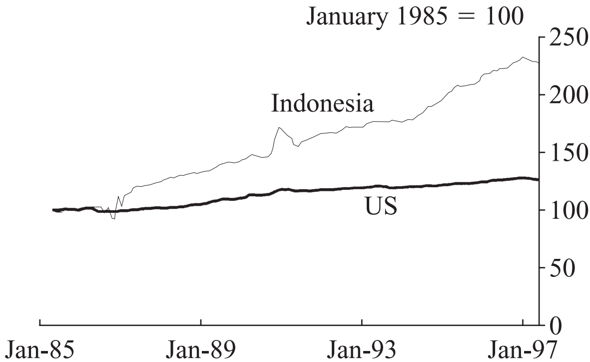
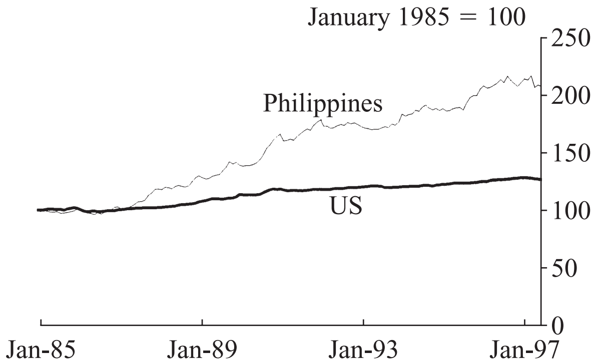


Figure 5 (*continued*)







Note: The US producer price index PPI is the counterpart of the WPIs in the Asian countries.

Source: Datastream and IMF.

Figure 5 (*continued*)

WPIs and CPIs were more modest, about the same order of magnitude as the differential prevailing in the USA itself.

To abstract from these Balassa–Samuelson effects in CPIs, Figure 5 presents comparisons of movements in WPIs in the Asian economies relative to the US Producer Price Index (PPI), which replaced the old US WPI. Because of more direct commodity arbitrage, price levels are more closely aligned (save for exchange rate drift) using the US PPI as the measure of the group's nominal anchor than if the US CPI was used.

Two Hypotheses

Stability in dollar exchange rates and coincident rates of inflation establishes a presumption that this dollar standard was the dominant nominal anchor for the group of smaller, highly open Asian economies. Call monetary policy based on exchange rate targeting Hypothesis I.

There is an alternative hypothesis: each Asian monetary authority may have simply targeted its domestic price level independently of its exchange rate. Call this Hypothesis II.

Hypotheses 1 and II need not be mutually exclusive. As long as the US price level itself was stable, either hypothesis would lead to medium-term stability in dollar exchange rates. However, Hypothesis I is more consistent with the rigid short-term fix to the dollar actually observed.

Against this, Hypothesis II seems less implausible when one realizes that the USA while very important, was not the dominant trading country within the East Asian region. Table 1 (Ohno and Shirono, 1997) shows the regional distribution of East Asian trade for 1995. Although the USA is the largest importer – taking about 20 per cent of East Asian exports – Japan was the most important exporter – accounting for 22.5 per cent of exports to other East Asian economies. Japan was also the most important source of direct investment into the region. So, for any smaller Asian country, why should the Japanese yen not be given more weight in an optimal basket peg?

Consider how the institutions of the world dollar standard influence the currency of denomination of exports and imports. Table 2 shows that all trade with the USA itself, from anywhere in the world including East Asia, is mainly dollar invoiced: 98 per cent of US exports, and almost 90 per cent of imports, are invoiced in dollars. Apart from trade with the centre country, however, invoicing patterns are more symmetrical. On a worldwide basis, manufactured and brand name goods tend to be invoiced in the home currency of the exporting country even though primary commodities remain overwhelmingly dollar invoiced (McKinnon, 1979). So Table 2 also shows that major industrial countries tend to invoice exports in their home currencies.

Here, Japan is an outlier. For complex historical reasons, the yen is used much less in invoicing foreign trade than one might project from the world's

Table 1: Regional Distribution of East Asian Trade: 1995 (Percentages)

	Exports					Imports				
	Intra-region	Japan	USA	Other	Total	Intra-region	Japan	USA	Other	Total
Singapore	46.6	7.8	18.3	27.3	100.0	38.4	21.1	15.1	25.4	100.0
Hong Kong	44.4	6.1	21.8	27.7	100.0	59.7	14.8	7.7	17.7	100.0
Taiwan	37.1	11.0	26.2	25.8	100.0	15.4	29.0	21.1	34.4	100.0
Korea	29.0	13.6	19.3	38.1	100.0	15.2	24.1	22.5	38.2	100.0
Malaysia	41.3	12.9	21.0	24.9	100.0	30.9	27.3	16.3	25.4	100.0
Thailand	30.1	16.7	17.8	35.4	100.0	23.6	29.2	11.5	35.7	100.0
Philippines	25.3	16.0	35.8	22.9	100.0	28.4	22.4	18.4	30.9	100.0
Indonesia	29.2	29.8	16.7	24.3	100.0	28.2	27.8	9.5	34.5	100.0
China	37.3	19.1	16.6	27.0	100.0	32.9	22.0	12.2	32.9	100.0
Vietnam	26.9	28.5	3.5	41.1	100.0	60.9	8.8	2.4	28.0	100.0
East Asia	37.9	13.1	20.1	28.9	100.0	34.2	22.5	14.3	29.1	100.0

Note: Taiwan data are for 1994. Compiled by Ohno and Shirono, (Ohno and Shirono, 1997).
Sources: IMF, Direction of Trade Yearbook, 1996 and Statistical Yearbook of the Republic of China, 1995.

Table 2: Currency Denomination of Exports and Imports of Selected Industrial Countries, 1992–6 (Percentages)

	US dollar	Deutsche mark	Japanese yen	Pound sterling	French franc	Italian lira	Netherlands guilder
Exports							
USA	98.0	0.4	0.4	0.3			
Germany	9.8	76.4	0.6	2.4	2.8		
Japan	52.7		35.7				
UK	22.0	5.0	0.7	62.0	3.5	1.7	2.3
France	18.6	10.6	1.0	4.2	51.7	3.1	1.5
Italy	23.0	18.0			7.0	40.0	
Netherlands	20.7	18.5	0.7	4.1	4.5	1.5	43.8
Imports							
USA	88.0	3.2	3.1				
Germany	18.1	53.3	1.5	1.9	4.4		
Japan	70.4	2.8	22.5				
UK	22.0	11.9	2.4	51.7	5.3	2.2	3.2
France	23.1	10.1	1.0	2.9	48.4	3.7	1.4
Italy	28.0	13.0			8.0	37.0	
Netherlands	25.5	17.4	1.3	3.4	0.8	0.7	42.8

Source: George S. Tavlas (1997)

second largest economy. Table 2 shows that, on a worldwide basis, only 35.7 per cent of Japan's exports were invoiced in yen, whereas about 52.7 per cent of its exports continue to be dollar invoiced. On the import side, over 70 per cent of Japan's imports remain dollar-denominated, and only 22.5 per cent are in yen.

These discrepancies in the use of the yen carry over into East Asian trade with some slight differences. Table 3, courtesy of Shin-ichi Fukuda (1996), shows that, for 1991, about 50.8 per cent of Japan's exports to East Asian countries were denominated in yen, and 45.9 per cent in dollars, but 76.5 per cent of Japanese imports from East Asia were dollar-denominated with only 21.6 per cent in yen. So, Japan trades heavily with East Asia – but dollar invoicing still dominates that trade, and East Asian trade with the USA itself is almost all dollar-denominated. Within East Asia apart from Japan and the USA, anecdotal evidence suggests that the dollar is used overwhelmingly. The currencies of developing countries, particularly when they have some form of capital controls, are not much used for international purposes.

What then are the implications for national monetary policies in the Asian region? When a central bank in a typical East Asian country opts to peg to the dollar and adjusts its domestic monetary policy accordingly, that country's price level is pegged to a great mass of dollar-invoiced tradeable goods and services – which extend far beyond that narrowly associated with trade with the USA itself. These dollar prices remain quite invariant to fluctuations in the yen/dollar exchange rate, the euro/dollar exchange rate, or some internal monetary breakdown in a country within the region. Thus, before 1997, all the

Table 3: Invoice Currency Ratios in Japanese Exports and Imports by Commodity, 1991 (%)

Commodity	USA		East Asia		World	
	US dollar	Yen	US dollar	Yen	US dollar	Yen
Exports						
All commodities	83.4	16.5	45.9	50.8	46.8	39.4
Foodstuffs	76.3	23.6	55.7	42.5	55.6	41.2
Textiles	80.1	19.2	71.0	28.5	63.0	32.5
Chemicals	74.8	5.05	78.6	20.1	63.0	26.2
Non-metal mineral	78.8	21.1	61.3	36.7	53.5	40.5
Metal products	89.3	10.6	78.8	19.9	76.8	19.5
Steel	99.1	0.9	88.6	10.9	87.7	9.4
Machines	83.3	16.6	33.2	62.6	42.2	42.8
Generators	83.2	16.6	25.9	67.5	40.7	48.8
TVs	91.4	8.3	19.9	74.8	35.0	56.6
VCRs	91.4	8.6	27.7	62.3	42.1	39.7
Automobiles	86.1	13.9	19.1	69.8	44.2	35.3
Ships	97.6	2.4	22.8	77.2	13.7	86.2
Heavy electric	73.3	26.6	45.4	51.7	41.0	51.5
Other	86.5	13.3	58.7	39.4	52.7	30.4
Imports						
All commodities	88.7	11.2	76.5	21.6	75.4	15.6
Foodstuffs	85.1	14.8	73.1	26.3	72.4	22.2
Raw material & fuel	98.5	1.6	97.4	2.4	97.2	1.9
Textiles	99.9	0.1	79.9	19.4	77.4	12.5
Ore & scrap metal	99.0	1.0	97.1	2.4	98.1	1.2
Other raw material	97.8	2.2	90.5	8.9	91.8	5.9
Mineral & fuel	99.9	0.1	99.7	0.3	99.5	0.3
Crude oil	100.0	0.0	100.0	0.0	100.0	0.0
Manufactured	87.2	12.6	63.8	32.8	60.0	23.7
Chemicals	84.6	15.1	69.8	28.0	51.7	32.5
Machines	87.4	12.4	49.5	43.9	52.5	22.5
Other	88.1	11.6	68.5	29.0	66.9	21.9

Source: Shin-ichi Fukuda (1996)

East Asian monetary authorities opted to peg to the dollar – which could again be optimal if the Asian dollar standard is restored.

So how well has the US Federal Reserve Bank performed to safeguard the common nominal anchor? In the 1950s and 1960s, extremely rapidly growing economies like Japan's could and did use the stable-valued dollar to anchor their own price level (WPI). Then the dollar anchor slipped badly in the 1970s into the early 1980s with high and variable inflation in the USA – leading to a breakdown of the Bretton Woods regime based on stable dollar parities for exchange rates.

However, by the 1990s, the US Fed has recovered its monetary equilibrium. After a further blip of inflation in the late 1980s, the trend line in Figure 6 shows the US PPI increasing fairly smoothly at just 0.8 per cent annually from 1991 through 1998 – with approximately zero inflation in the offing for

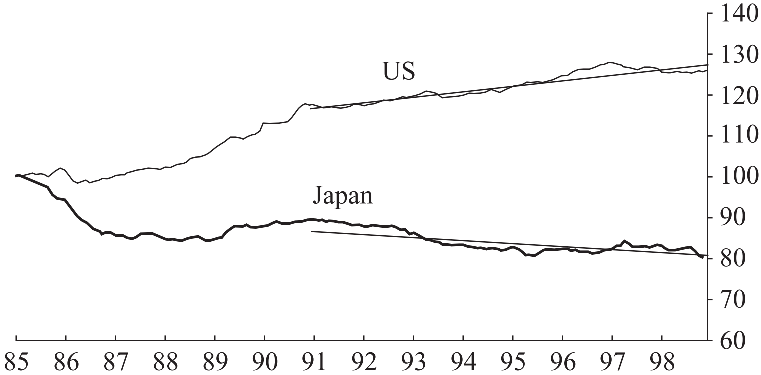


Figure 6: US and Japan Wholesale Price Indices (January 1985 = 100)

1999. So this US nominal anchor now looks even more stable than it was before the crisis of 1997 for securing a return to fixed exchange rates in Asia.

In contrast, Japan is mired in ongoing deflation associated with an appreciating yen that it cannot seem to stop. Figure 6 shows the sharp fall in Japan's WPI from 1985–7 mirroring a sharp appreciation of the yen against the dollar, a rise in Japan's WPI in 1988–90 (some depreciation). From 1991 through 1998, Japan's WPI has fallen 1.4 per cent annually (the trend line in Figure 6) – with the deflationary momentum building up to 2–3 per cent per year by the end of 1998 into 1999. As discussed below, this downward drift in the WPI forces nominal interest rates on yen assets toward zero – and makes monetary management very difficult (McKinnon and Ohno, 1997). In addition, if an Asian central bank chose to peg to the yen, its currency's international purchasing power would fluctuate with the yen/dollar exchange rate.

Consequently, there is no trend away from predominant dollar invoicing of Japanese trade in general, and Japanese trade with East Asia in particular. Indeed, Table 4 (Sato 1999) shows that the use of the dollar as an invoice currency in East Asian trade may have strengthened somewhat in the mid- to late-1990s; see also Dominguez (1998). Clearly, at this historical juncture, pegging to the yen would not be a satisfactory alternative to pegging to the dollar to secure exchange rates and anchor price levels in East Asia.

4. The Yen/Dollar Rate: The Loose Cannon (Part I)

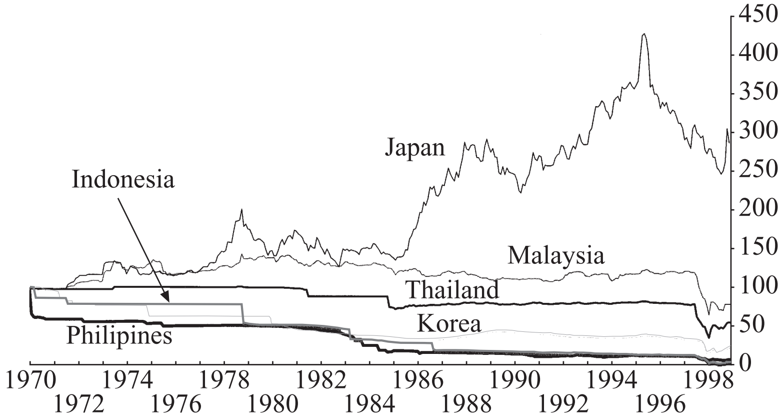
Even though a peg to the dollar could anchor the national price level itself (Hypothesis I), or a stable dollar exchange rate simply reflect a successful policy of stabilizing the national price level independently (Hypothesis II), exchange rate fluctuations in neighbouring countries could still undermine a dollar-zone country's international competitiveness. Figure 7 illustrates (per-

Table 4: Trends in Invoice Currency Ratios for Japan's Exports and Imports, 1987–98 (%)

	World		USA		EU (EC)		South-East Asia	
Year	Yen	Dollar	Yen	Dollar	Yen	Dollar	Yen	Dollar
Exports to								
1987	33.4	55.2	15.0	84.9	44.0	8.2	41.1	56.5
1988	34.3	53.2	16.4	83.5	43.9	7.6	41.2	56.0
1989	34.7	52.4	16.4	83.5	42.2	7.0	43.5	53.6
1990	37.5	48.8	16.2	83.7	42.1	6.4	48.9	48.1
1991	39.4	46.8	16.5	83.4	42.0	6.8	50.8	45.9
S1992	40.1	46.6	16.6	83.2	40.3	11.1	52.3	41.6
M1993	42.8	45.6	18.0	81.6	42.7	7.2	52.4	44.4
S1993	39.9	48.4	16.5	83.3	41.0	7.5	52.5	44.3
M1994	40.7	48.6	19.4	80.5	40.9	8.5	52.0	45.1
S1994	39.7	48.3	19.0	80.8	36.6	9.0	49.0	47.9
M1995	37.6	51.5	17.5	82.3	37.2	11.3	47.2	49.9
S1995	36.0	52.5	17.0	82.9	34.9	12.2	44.3	53.4
M1996	35.9	53.1	15.9	83.9	36.1	12.5	44.1	53.5
S1996	35.2	53.3	14.5	85.4	33.3	12.4	46.3	51.3
M1997	35.8	52.8	16.6	83.2	34.3	13.4	45.5	51.7
S1997	35.8	52.1	15.3	84.5	34.2	12.3	47.0	50.2
M1998	36.0	51.2	15.7	84.1	34.9	13.2	48.4	48.7
Imports from								
1987	10.6	81.7	9.2	90.6	27.3	19.5	11.5	87.6
1988	13.3	78.5	10.0	89.9	26.9	21.0	17.5	81.2
1989	14.1	77.3	10.2	89.5	27.7	19.5	19.5	79.0
1990	14.6	75.5	11.6	88.2	26.9	616.3	19.4	78.8
1991	15.6	75.4	11.2	88.7	31.4	15.9	21.6	76.5
S1992	17.0	74.5	13.8	86.6	31.7	17.9	23.8	73.9
M1993	18.2	75.0	16.2	83.6	35.7	24.2	23.4	74.8
S1993	20.9	72.4	13.8	86.1	45.0	18.2	25.7	72.0
M1994	21.6	72.1	12.4	87.5	44.1	19.4	30.1	67.4
S1994	19.2	73.9	13.3	86.4	38.6	21.9	23.6	74.2
M1995	24.3	68.9	18.4	80.9	40.6	20.2	34.1	64.2
S1995	22.7	70.2	21.5	78.4	44.8	16.1	26.2	71.9
M1996	20.5	72.2	17.5	82.7	40.9	15.3	23.9	74.1
S1996	20.6	72.4	16.4	83.2	46.1	12.5	24.0	73.8
M1997	18.9	74.0	14.2	85.6	41.3	17.0	23.3	74.9
S1997	22.6	70.8	22.0	77.8	49.3	13.1	25.0	73.0
M1998	21.8	71.5	16.9	83.0	44.3	14.3	26.7	71.6

Note: S refers to September and M refers to March
Source: Kiyotaka Sato (1999)

haps over-dramatically because of its vertical linear scale) the wide fluctuations in the yen/dollar rate from 1971 through 1998. Cyclical fluctuations over one-our-year intervals continually drove the yen away from its purchasing power parity with the dollar – and thus away from PPP with the smaller Asian countries pegged to the dollar. This section focuses on the consequences of these real exchange rate changes. (The upward drift of the yen against the dollar in nominal terms further undermined the efficiency of capital markets in the East Asian region – an important issue to be taken up in section 5.)



Source: IMF.

Figure 7: Exchange Rates Against the US$ ($/domestic currency) (January 1970 = 100)

However, there is a measurement problem. The ordinary method of measuring REERs multilaterally simply weights the nominal exchange rates of neighbouring countries by their trade shares, and then double-deflates by domestic price indices (usually the commonly available CPI). The importance of dollar invoicing throughout the East Asian region suggests that using trade weights may overstate the relative price effects from fluctuations in nominal exchange rates against third countries, i.e., not the USA.

Take Japan and the fluctuations of the yen's value against the currencies of the dollar zone countries. To some considerable degree, Japanese companies 'price to market' by fixing the dollar prices of the goods they sell. Even though the yen/dollar rate may fluctuate, many companies do not, at least not immediately, change their dollar invoice prices. So, the use of trade weights in calculating variance in REERs exaggerates the relative price effects of these changes. Indeed, this price invariance is what makes a peg to the dollar such a useful nominal anchor for the smaller Asian economies.

On the other hand, although Japanese dollar export (and import) prices are sticky as the yen/dollar rate fluctuates, the profit margins seen by Japanese exporters (and importers) will fluctuate correspondingly. So, there could be substantial competitive quantity and investment effects from such fluctuations, even though the immediate dollar price effects are muted. So, it is also important to check whether these quantity effects exist and if they are important.

First, however, let us employ the conventional method of trade weights to look at REER variations – keeping in mind that they are necessarily somewhat exaggerated. Courtesy of Ohno and Shirono (1997), Table 5 shows the monthly percentage variability in REERs for Asian countries under alternative assump-

Table 5: Variability of Real Effective Exchange Rates (January 1991–June 1996; Monthly standard deviation of percentage)

	(1) Actual	(2) Individual dollar peg	(3) Individual yen peg	(4) Regional dollar peg	(5) Regional yen peg
Singapore	0.86	0.88	2.55	0.68	1.09
Hong Kong	1.12	1.12	2.88	0.79	1.10
Taiwan	1.56	1.23	2.60	1.19	1.80
Korea	1.13	1.17	2.37	1.05	1.52
Malaysia	1.37	1.20	2.25	0.96	1.14
Thailand	0.88	1.27	2.12	1.12	1.14
Philippines	2.64	1.20	2.37	1.08	1.51
Indonesia	1.34	1.35	2.19	1.24	1.25
China	1.99	1.64	2.42	1.60	1.50
Vietnam	1.49	1.33	2.82	0.99	0.98
Japan	3.14	0.78		3.18	1.76

Source: Ohno and Shirono (1997)

tions about how their nominal exchange rates are set. (CPIs are used as deflators.) Using total trade weights (exports plus imports), column 1 shows actual variability in 10 East Asian countries including Japan.

In Table 5, column 2 shows the reduction in this variability if, individually, any one country had sustained a pure dollar peg while the others followed their historically given policies. Because most of these countries were already pegged to the dollar, the reduction in monthly variability is not very much except for Japan itself – where it falls enormously by three quarters from 3.14 to 0.78. This is nothing more than a reflection of the fact that the big source of variability in REERs in the system emanated from fluctuations in the yen/dollar exchange rate. Columns (3) and (5) give ‘what if?’ calculations. If the smaller Asian economies tied either individually or collectively to the yen, they do less well in minimizing REER variability than if they tie individually or collectively to the dollar.

Minimizing variability in REERs could be a criterion for selecting optimal weights in a currency basket. Even if the smaller East Asian economies continued to use the dollar as their intervention currency, they could still target a currency basket as their numéraire for the medium term. However, the weights would be sensitive to the time period chosen – one month, one quarter, one year – over which percentage variability in REERs is to be minimized.

More importantly, a basket peg could well be inconsistent with the idea of using the exchange rate as a *nominal anchor*. Even though they were subject to some changes in international competitiveness from fluctuations in the yen/dollar rate, the East Asian monetary authorities were keying on the dollar as the most efficient way of stabilizing their domestic price levels.

Thus Ohno (1999, p. 16) concludes

> Counterfactual simulations over the pre-crisis period indicate that a shift to multiple currency baskets does not improve stability of competitiveness unless it is accompanied by inflation adjustments. Exchange rate management can be improved operationally without a radical reform of the (pre)existing system. The case for a common basket in Asia is weak for the foreseeable future.

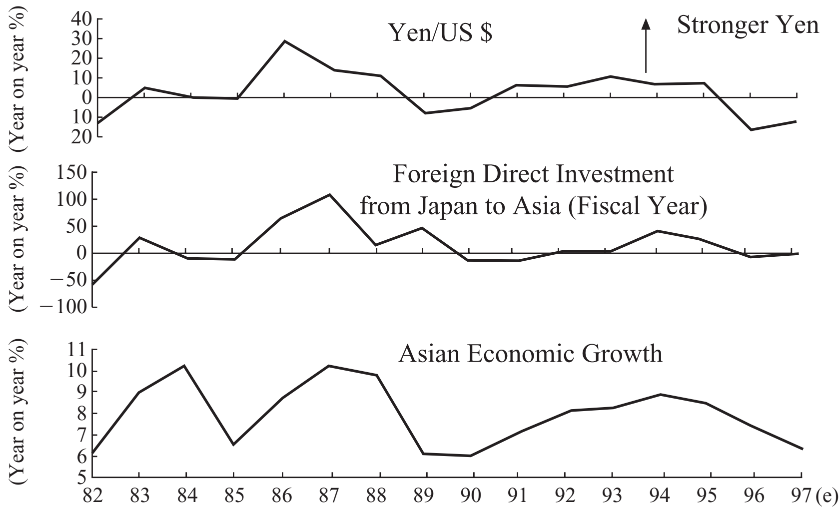
However efficient as a nominal anchor, the dollar zone was still buffeted by fluctuations in the yen/dollar exchange rate. C. H. Kwan (1998) shows how aggregate output within the East Asian dollar zone–the NIEs, the Asean 4, and China (the countries appearing in Figure 1 except for Vietnam) – fluctuated with the yen/dollar exchange rate. Table 6 shows Kwan's results for 1982 to 1997. He regressed aggregate output growth of these nine Asian economies on US GNP growth and percentage changes in the yen/dollar exchange rate. The exchange rate effect enters significantly and strongly: output growth in the Asian nine slowed down when the yen was weaker, and speeded up when the yen became strong.

Kwan shows this effect graphically in Figure 8. How does he explain it? When the yen rose against the dollar, the smaller Asian countries gained net international competitiveness in markets where they compete against Japan, as well as in the Japanese market itself. This 'net-export effect' was not wholly offset by the fact that intermediate products from Japan had become more expensive.

Table 6: Estimation of Asian GDP Growth

Dependent variables	Independent Variables Yen/Dollar Rate			Adjusted R^2	DW
	Current	Lagged One Year	US GDP Growth		
GDP Growth			0.39 (2.24)	0.245	1.576
GDP Growth	0.077 (−3.00)			0.347	1.799
GDP Growth	−0.066 (−2.61)	−0.043 (−1.60)		0.413	1.668
GDP Growth	−0.069 (−3.15)		0.33 (2.60)	0.539	1.822
GDP Growth	−0.059 (−2.82)	−0.040 (−1.80)	0.32 (2.71)	0.606	1.691

Notes: Asia = ASEAN + NIEs + China. Sample period: 1982–97.
Figures in () denote t-values.
Both dependent and independent variables are measured in terms of rate of change so that the coefficients correspond to elasticities.
Since a larger number for the yen–dollar rate denotes a weaker yen, the negative coefficients show the negative impact of a weaker yen (or the positive impact of a stronger yen) on Asian economic growth.
Source: C. H. Kwan (1998).



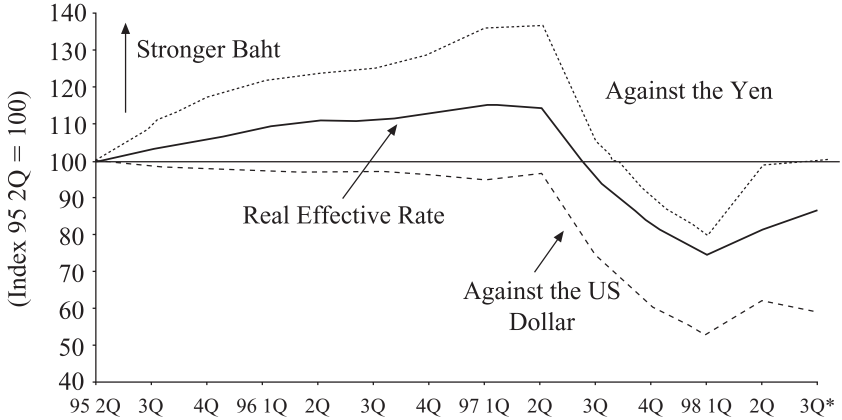
Notes: Asia = NIEs + Asean + China.
Source: C. H. Kwan (1998).

Figure 8: The Yen–Dollar Rate and Asian Economic Growth

However, Kwan also identifies a direct-investment effect. When the yen rose, the surrounding dollar-zone countries looked like a cheaper place where Japanese firms could invest and produce. Thus, direct investment from Japan increased: the middle panel of Figure 8 shows Japanese direct investment to the rest of Asia increasing as the yen became stronger. (Any increase in the cost of servicing yen-denominated debt appeared to be small relative to this direct-investment effect.)

The upshot was that, as the yen/dollar exchange rate fluctuated, the net-export and direct-investment effects generated a substantial business cycle in dollar-zone Asia. For example, the fall in the yen from about 80 to the dollar in mid-1995 to about 114 to the dollar in mid-1997 caused dollar-zone Asia's economic growth to fall sharply (Figure 8) just before the currency attacks began in July 1997. I am not claiming, nor would Kwan, that this was the sole reason for these attacks – but it was a destabilizing factor.

For the specific case of Thailand, Kwan illustrates this loss of competitiveness by calculating the bilateral real exchange rates of the baht against the dollar and against the yen, and the baht's REER overall. From mid-1995 to mid-1997, Figure 9 shows the baht growing much stronger against the yen – but without significant change against the dollar. The net result was to cause Thailand's REER to drift upward before the currency attacks began in mid-1997 – attacks which drove the baht down sharply.



Note: * July and August only.
Source: C. H. Kwan (1998)

Figure 9: Overvaluation of Thai Baht Reflected Appreciation against the Yen

5. The Yen/Dollar Rate: The Loose Cannon (Part II)

Before the currency attacks of 1997, there were enormous private capital inflows into the five crisis economies. For perspective, Table 7 shows the build up of private capital inflows into Asia as a whole from 1990 through 1996, and their sudden reversal in 1997. Aggregate capital flows into the five affected economies – Indonesia, Korea, Malaysia, Philippines, and Thailand – are broken out separately. In these five economies, the IMF's 'other' category, which is dominated by short-term bank loans, peaked out at inflows of $40.6 billion in 1996 and then reversed to −$32.3 billion in 1997. However, before the crash, there was a surge in other forms of portfolio investment as well.

Thus, with benefit of hindsight, the proximate cause of the crisis in these five Asian economies is well understood: they simply borrowed too much at short-term, much of it denominated in foreign exchange. Much of this was intermediated by banks and finance companies that had, for many years, simmering bad loan problems which eroded their net worth. Nevertheless, they and their depositors believed that they were insured by their national governments. The resulting moral hazard encouraged them to take on even more risky lending, and finance it in very risky ways with foreign currency deposits and loans. For more than a decade before the crash, the remarkably high growth in these Asian 'miracle' economies made it difficult to restrain overoptimism (irrational exuberance?) that this mode of finance could continue and that the underlying investments would indeed pay off. This international overborrowing

Table 7: Private Capital Flows to Asia (Billions of dollars)

	1990	1991	1992	1993	1994	1995	1996	1997
Total net private capital inflows	19.1	35.8	21.7	57.6	66.2	95.8	110.4	13.9
Net foreign direct investment	8.9	14.5	16.5	35.9	46.8	49.5	57.0	57.8
Net portfolio investment	−1.4	1.8	9.3	21.6	9.5	10.5	13.4	−8.6
Other	11.6	19.5	−4.1	0.1	9.9	35.8	39.9	−35.4
Net external borrowing from official creditors	5.6	11.0	10.3	8.7	5.9	4.5	8.8	28.6
Affected countries' net private capital inflows[1]	24.9	29.0	30.3	32.6	35.1	62.9	72.9	−11.0
Net foreign direct investment	6.2	7.2	8.6	8.6	7.4	9.5	12.0	9.6
Net portfolio investment	1.3	3.3	6.3	17.9	10.6	14.4	20.3	11.8
Other (bank loans)	17.4	18.5	15.4	6.1	17.1	39.0	40.6	−32.3
Affected countries' net borrowing from official creditors	0.3	4.4	2.0	0.8	0.7	1.0	4.6	25.6

Note: [1] Indonesia, Korea, Malaysia, the Philippines and Thailand
Source: IMF (1998)

syndrome, including earlier Latin American episodes, has been formally modelled by McKinnon and Pill (1996, 1997, 1998, 1999).

To better understand this moral hazard in banks in East Asia, here I focus more narrowly on the behaviour of exchange rates, and exchange rate policies. First, in what ways did the erratic behaviour of the yen/dollar exchange rate (Figure 7) aggravate this overborrowing syndrome in the Asian debtor economies? Second, given that they were all anchoring their national monetary policies by pegging to the dollar, did these pegged exchange rates themselves increase the incentive not to cover exchange risks on foreign borrowing? Let us consider each in turn.

In section 4, cyclical fluctuations in the real yen/dollar exchange rate were shown to impart a substantial business cycle (Figure 8) to the smaller East Asian economies in parallel with variation in their REERs. This macroeconomic risk increased the dispersion, i.e., the degree of unpredictability, in returns to new investments in these economies. In undercapitalized financial institutions with potential moral hazard, McKinnon and Pill show that such an increase in macroeconomic risk will lead them to disregard bad potential outcomes in their loan pool. Banks imagine (probably correctly) that a collective downturn will lead to collective bail-outs by the national government. Thus, when dispersion in rates of return on the loan portfolios of individual banks with moral hazard increases, they become more aggressive domestic lenders and more aggressive international borrowers. So, in this indirect way, fluctuations in the real yen/dollar exchange rate contributed to the pre-1997 borrowing frenzy in the Asian debtor economies.

However, the untethered yen/dollar exchange rate had a further, more subtle, impact on the smaller Asian economies. Because of recurrent trade disputes between Japan and the USA coupled with the mistaken belief that yen appreciation would reduce Japan's trade surpluses, the *nominal* dollar value of the yen has drifted upward from 360 yen to the dollar in 1971 to 120 yen per dollar in mid-1999 (upper panel of Figure 10). Thus, McKinnon and Ohno (1997) claim that a pervasive fear exists in Japan itself, to insiders more than outsiders, that, *on average* (including surprise upward and downward jumps, and periods of quiescence), the yen will go ever-higher in the long run.

This long upward march of the yen was accompanied by a relative fall in Japan's WPI compared to the US (Figure 6). Thus, double-deflating by WPIs, the real bilateral yen/dollar exchange rate has changed little in this very long-run sense despite sharp fluctuations in the short and medium terms. PPP in 1998–9 is about 120–130 yen/dollar.

What evidence do we have that long-term yen appreciation is now embedded in market expectations? The expectation is not new, nor is it fleeting. It has existed for more than 20 years. Since the late 1970s, international arbitrage on the principle of open interest parity has kept nominal interest rates on yen bonds averaging about 3–5 percentage points less than those on dollar bonds at every term to maturity. The lower panel of Figure 10 shows this interest

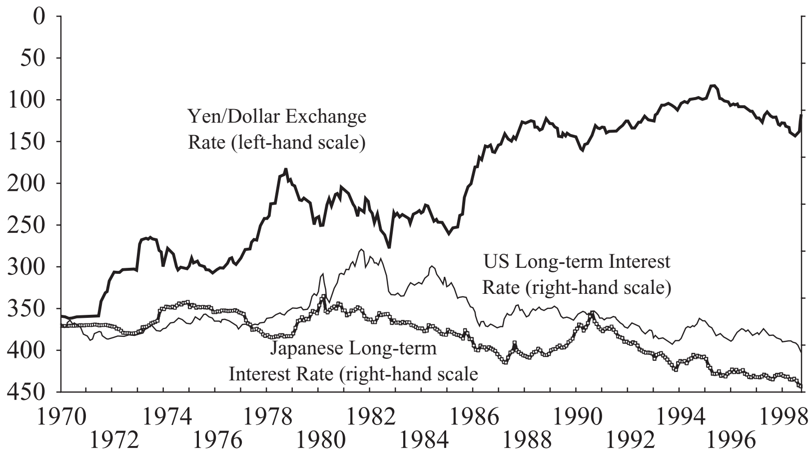


Figure 10: The Yen–Dollar Exchange Rate and Long-term Interest Rates

differential for 10-year bonds. Because people expect the yen's average rise to continue, in mid-1999, they were willing to hold Japanese government bonds (JGBs) bearing just 1.7 per cent in portfolio balance with US Treasury bonds bearing 5.7 per cent – the quoted 10-year rates. At the short-end of the maturity structure, Japan's interbank lending rate was just 0.01 per cent when the US Federal Funds interest rate was 5 per cent.

When the yen first jumped upward in 1971–3, this interest differential did not open immediately. At that time, the markets considered this jump to be a one-time event associated with the end of the Bretton Woods system of fixed dollar parities. Not until the yen's second great upward ratchet, in 1977–8, did Japanese interest rates fall below US (Figure 10); and long-term yen interest rates have stayed persistently below, as if portfolio managers holding yen or dollar bonds expected the yen to continue appreciating at about 4 per cent per year. This expectation has not been undermined by the downs and ups of the yen since 1995.

From the inflationary 1970s well into the 1980s, Japan was not hurt by having interest rates on yen bonds 4 percentage points or so less than the then very high rates prevailing on dollar bonds. Nor was it hurt by having correspondingly lower price inflation than the USA. In the 1990s, however, the US price level stabilized and US inflationary fears subsided. Thus, today's interest rates on US Treasuries have fallen to between 5.0 and 6.0 per cent at different terms to maturity. Now, arbitrage based on the belief that the yen will rise about 4 per cent per year, with the allied belief that Japan's price level will fall correspondingly, has forced Japanese nominal interest rates toward zero: the so-called liquidity trap. (But international arbitrage keeps Japan's 'real' interest rate close to that prevailing in the USA – probably of the order of 3 to 4 per cent.)

This externally imposed liquidity trap and associated deflationary slump in the huge Japanese economy, because of the fear that US mercantile pressure will return, has been analysed elsewhere (McKinnon and Ohno, 1997, forthcoming). Here I simply note the consequences for the smaller East Asian economies – both pre- and post-crisis. Figure 11 shows the great dispersion in nominal interest rates in East Asia even before the currency attacks of 1997. (Indonesia, which had the highest interest rates, is not shown because of problems with the vertical scale.) Taking US short rates (euro dollar) as being a benchmark 5 per cent before the attacks began in July 1997, we see rates for Malaysia, Thailand, Philippines, and Korea ranging between 7 per cent and 15 per cent, respectively, but then the euro yen rate is 'off the bottom' at less than 1 per cent.

These interest rates in Figure 11 are not risk adjusted, and I am not claiming that banks in the Asian debtor economies could actually borrow at these euro dollar and euro yen rates. The nominal interest differential between yen or dollar deposits and won or baht deposits of 10 or more percentage points largely reflects expected exchange rate changes – either an appreciation of the yen against the dollar, or a depreciation of the won or baht against the dollar. Nevertheless, as long as these exchange rates were not expected to change *immediately*, banks with moral hazard in the debtor economies could gamble that exchange rates would not change in the near future. Because of these disparities in nominal interest rates, they would then borrow uncovered in dollars or yen at very low interest rates and on-lend at much higher interest rates in baht or won.

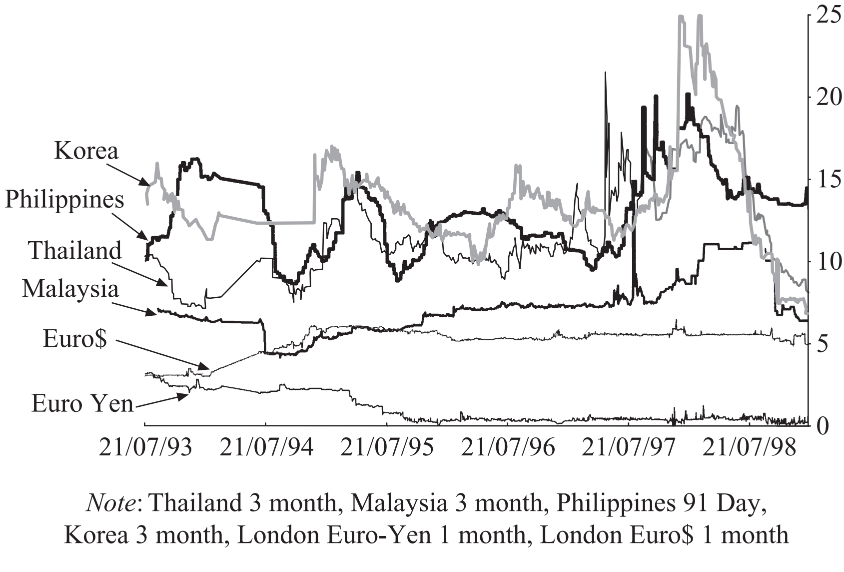


Figure 11: Short-term Interest Rates

To some difficult-to-measure extent, this moral hazard was two-sided. In Japan, the largest creditor economy, banks and other financial institutions were tempted to overlend by purchasing foreign-currency assets – dollars or some other Asian currency – with higher nominal yields, and without fully covering the foreign exchange risks. US and European hedge funds became involved in the so-called Asian carry trade: they borrowed cheaply in Tokyo or Osaka at short-term and on-lent almost anywhere else – Russia, Brazil, and to the East Asian debtor economies without capital controls. (China prudently prevented overborrowing by keeping capital controls in place.)

For the last two quarters of 1996 into early 1997, when capital inflows into the Asian debtor economies peaked, Table 8 (courtesy of the IMF) estimates the profits from the Asian carry trade. It supposes that unhedged investors borrowed in yen or dollars to on-lend in Thai baht. The profits from borrowing in yen were particularly high, not only because nominal interest rates in Tokyo were low but because the yen was in one of its unusual phases of depreciating against the dollar. With the great crisis and the forced devaluation of the baht, Table 8 shows these profits turning sharply negative in the third quarter of 1997.

What might we conclude? Trapped in a deflationary slump for almost a decade, the economy hurt worst of all by this expectation of an ever-higher yen was (and is) Japan itself. In addition, the resulting disparities in nominal interest rates aggravated moral hazard in banks and other financial institutions intermediating cross-currency capital flows. Before the great crash, the failure to tether the yen/dollar exchange rate properly had already seriously undermined the efficiency of the East Asian capital market – and could continue to be a problem in orchestrating a recovery.

However unfortunate, continued fluctuations in the yen/dollar rate need not undermine the case for other East Asian countries working toward restoring exchange rate stability among themselves with the dollar as the nominal anchor. China could be the model. The renminbi has been successfully pegged at about 8.3 yuan to the dollar for almost five years. China's inflation rates and interest rates have come down to US levels (or slightly below), and her output growth remains robust by the standards of other countries in the region. True, if nominal interest rates on yen assets remain unnaturally low, this heightens the need for all countries in the region to guard against moral hazard in their banks – perhaps supplemented by exchange controls to help to restrain capital inflows, as in China.

6. Pegged Versus Floating Exchange Rates: The Super Risk Premium and Moral Hazard

In more open financial systems without exchange controls on capital account, is moral hazard from using the dollar exchange rate as a nominal anchor too high? Faced with substantial interest rate differentials between

Table 8: The Asian Carry Trade (Yields on US dollar and Japanese yen carry trades in the Thai baht)

Quarter	Index returns in yen[2]	Japanese yen LIBOR (three-month)	Profit from yen carry trade	Index returns in US dollars[2]	US dollar LIBOR (three-month)	Profit from US dollar carry trade
1996:Q3	15.66	0.52	15.09	8.88	5.63	3.13
1996:Q4	23.42	0.49	22.85	6.03	5.56	0.45
1997:Q1	36.24	0.58	35.52	3.97	5.77	−1.73
1997:Q2	−1.33	0.66	−1.98	34.47	5.78	27.54
1997:Q3	−64.90	0.56	−65.15	−71.32	5.77	−73.47

Notes: [1]All returns are annualized and based on money market quotations
[2]Computed by converting Thai money market index returns into US dollars and yen
Source: IMF (1998)

domestic and foreign currency assets, like those shown in Figure 11 even before the 1997 crisis, would banks not have greater incentive to borrow *unhedged* in foreign currencies if the domestic exchange rate was pegged rather than floating?

> The Asian experience shows that a potential problem with using a nominal exchange rate anchor is that while the private sector is supposed to base its wage and price decisions on the assumption of a fixed nominal exchange rate, the supervisory authorities may want the private sector to hedge its external liabilities just in case the exchange rate cannot be held fixed.
>
> Adams *et al.*, International Monetary Fund, Sept 1998. p. 79

The dilemma is a real one. Given that domestic interest rates in developing countries on the periphery are naturally higher than those in the centre country (the USA), then regulatory authorities must be ever-vigilant to prevent unhedged borrowing by individual banks (or even nonbank firms) in dollars and in other foreign currencies. Otherwise, as unhedged foreign currency liabilities cumulate in the aggregate, risk premia (to be defined below) in domestic interest rates may increase for the country as a whole. As domestic interest rates rise, further adverse selection is triggered as banks with moral hazard are tempted to borrow even more by attracting low interest foreign currency deposits. In effect, the international capital market breaks down because no interest rate can be found to price currency risk properly.

Nevertheless, I shall argue that floating the exchange rate does not 'solve' this regulatory dilemma. Under floating, the temptation to borrow unhedged would still be there, and could even be augmented. For the East Asian economies, giving up on the dollar as a collective nominal anchor, and the considerable benefits deriving from that, may yield no offsetting regulatory advantages to help to contain moral hazard in domestic banks and other institutions. A simple algebraic model can show this trade-off more precisely.

6.1. Modelling the Super-Risk Premium

Consider some interest rate identities. If we assume no government controls on international payments or domestic interest rates, then, by covered interest arbitrage, the (deposit) interest differential is equal to the forward premium, i.e.,

(2) $$i - i^* = f > 0$$

where

i = the domestic nominal (deposit) interest rate
i^* = the dollar (deposit) interest rate in the international capital market
f = the forward premium on dollars in domestic currency

If domestic banks accepting dollar deposits at the low interest rate i^* cover by buying dollars forward, the cost of the forward cover per dollar so borrowed is simply f. Thus, the effective interest rate on hedged dollar deposits is $i^* + f$.

$$i_{\text{hedged}} = i^* + f = i \tag{3}$$

So, with forward covering, there is no net interest gain from accepting dollar deposits over accepting higher interest deposits in domestic currency. Hedged borrowers in foreign exchange see the same cost of capital as domestic banks accepting deposits denominated in the domestic currency.

Banks without moral hazard would voluntarily cover the exchange risk. They may well have accepted dollar deposits simply for convenience in clearing international payments. In contrast, poorly capitalized banks prepared to gamble on the basis of government deposit insurance might well accept low-cost dollar deposits as an ongoing source of finance for loans denominated in the domestic currency – unless a vigilant regulatory authority forces them to hedge.

Now, how much of the interest differential in equation (2) represents a 'margin of temptation' where banks with (latent) moral hazard will try to avoid regulatory sanctions and borrow in dollars anyway? Let us partition the interest differential into

$$i - i^* = E\hat{e} + \rho_{\text{currency}} \tag{4}$$

ρ_{currency} is the currency risk premium as ordinarily defined. Apart from any unidirectional expected movement in the exchange rate, it represents the extra return required by investors to hold domestic rather than foreign currency assets. In the specific East Asian context, it represents domestic financial volatility – in interest rates or domestic price levels – measured against similar risk(s) prevailing in the markets of the centre county, i.e., the USA. Thus ρ_{currency} increases with that country's exchange rate volatility against the US dollar.

In the 'peripheral' Asian debtor countries, ρ_{currency} is (was before 1997) normally greater than zero, but it can be reduced toward zero if there is financial convergence with the USA, i.e., the dollar exchange rate has been credibly stabilized through proper price-level alignment (PPP) so that bond-market volatility also approaches US levels.

The other component of the interest differential – the expected depreciation of the domestic currency, $E\hat{e}$ – can be decomposed into two parts. First, within a managed exchange rate regime with a crawling or constant peg (typical of a few South East Asian countries, Mexico, Brazil, and several emerging-market economies), the exchange rate can change predictably and smoothly according to government's policy announcements and commitments – such as the downward crawl in the Indonesian rupiah before the 1997 crash

(Figure 1). Second, is the small probability of a ‘regime change’: a large, sudden devaluation whose timing is unpredictable.

$$E\hat{e} \equiv E\hat{e}_{\text{predictable}} + E\hat{e}_{\text{regime change}} \tag{5}$$

Although both types of expected change in the exchange rate in (5) widen the nominal interest differential in (4), it is plausible that $E\hat{e}_{\text{regime change}}$ is part of the margin of temptation for banks with moral hazard to overborrow, while $E\hat{e}_{\text{predictable}}$ is not. If the exchange rate was expected to depreciate smoothly through time, even banks with very short time horizons will account for the higher domestic currency costs of repaying short-term foreign currency deposits. Therefore, we exclude $E\hat{e}_{\text{predictable}}$ from our measure of the *super risk premium*:

$$\rho_{\text{super}} = \rho_{\text{currency}} + E\hat{e}_{\text{regime change}} = i - i^* - E\hat{e}_{\text{predictable}} \tag{6}$$

The super risk premium, ρ_{super}, represents the margin of temptation for banks to overborrow in foreign exchange beyond what they might do if forced to hedge. (Even if banks were required to hedge their foreign exchange exposure, McKinnon and Pill (1996, 1997) show that international overborrowing could still occur because banks with moral hazard assume too much domestic credit risk.) ρ_{super} has two components: the currency risk premium, as defined above; and the possibility that the regime could change through a discrete devaluation. The latter source of upward pressure on the interest rate on assets denominated in the domestic currency is sometimes called ‘the peso problem’.

By borrowing unhedged in foreign currency, the domestic banks with deposit insurance and other government guarantees ignore downside bankruptcy risks implied by large devaluations whose timing is uncertain. They also ignore ongoing volatility in the exchange rate as measured by ρ_{currency}. In setting domestic nominal lending rates, the banks will only cover the ‘predictable’ component of the expected depreciation within the currency regime. In the special case where the nominal exchange rate is fixed, unhedged banks on lend at the international *nominal* interest rate plus a normal profit margin. For ease of macroeconomic exposition in this paper, this profit margin between deposits and loans is simply set at zero.

The basic idea here is that the decision-making horizon of the bank with moral hazard is sufficiently short that it ignores unpredictable changes in the exchange rate. The managers of the bank simply hope that anything drastic, if it happens at all, will not happen ‘on their watch’. The super risk premium in the interest differential then defines their margin of temptation to gamble and accept foreign currency deposits unhedged.

This incentive to gamble by a poorly supervised bank also extends to incurring undue risks with its domestic loan portfolio. McKinnon and Pill (1998, 1999) show how this domestic credit risk interacts with foreign exchange risk to lead to (potentially) enormous overborrowing in international markets. Using a large cross-country data base, Kaminsky and Reinhart (1999) link the prevalence of domestic banking (credit) crises to foreign exchange crises, i.e., runs on the currency.

6.2. The Super-Risk Premium and the Exchange Rate Regime

The debate over fixed versus floating exchange rates has been going on since the end of World War II and has many dimensions – all of which cannot be covered here. For any emerging-market country where the dollar remains the safe-haven and reference currency as in Asia, Latin America, and elsewhere, the optimal choice of an exchange rate regime can be narrowed down to an exercise in minimizing the super-risk premium. Assuming that there is potential moral hazard in banks, what exchange rate regime would minimize the margin of temptation to overborrow?

Like almost all protagonists in the debate, we initially abstract from term-structure considerations. That is, we talk about interest rates, exchange rates, risk premia, and so on, as if there was only one term to maturity – as in the algebraic framework developed above. (In section 7, we relax this abstraction.) Under this ground rule, did the Asian-five crisis economies make a mistake in pegging to the dollar before 1997?

The $E\hat{e}_{\text{regime change}}$ component of the super-risk premium would seem to be higher under a pegged than under a floating exchange rate. Fixed exchange rates tend to break down on occasion. Even though the probability of a large discrete devaluation is small in any one decision interval, domestic interest rates can be driven up in the face of this possibility. Thus, at first glance, one might conclude that the margin of temptation, as measured by ρ_{super}, is higher when the exchange rate is being used as the nominal anchor; and for post-crisis East Asia, influential commentators, for example, the deputy managing director of the IMF, Stanley Fischer (1999), Barry Eichengreen (1999), Martin Wolf (1999), and George Soros (1999) have argued for greater exchange rate flexibility.

However, this line of argument overlooks ρ_{currency}, the other component of the super-risk premium. For any given peripheral country, ρ_{currency} depends on the stability of its exchange rate cum monetary regime which largely depends on the robustness of its link to the world dollar standard. In times of crisis, the dollar is viewed as the safe-haven currency or definitive money; and, correspondingly, the yields on US Treasury bonds define (in the argot of the finance literature) the 'risk-free' return. So, if a country on the periphery of the dollar standard credibly integrates monetary policy with that of the USA – convergence in rates of price inflation to secure the exchange rate without the threat of using exchange controls – such a 'good fix' will be rewarded with a lower ρ_{currency}, and a low $E\hat{e}_{\text{regime change}}$. Before 1997, Malaysia seems to have come closest to this nirvana of using a good fix to minimize ρ_{super}. Figure 11 shows its short-term interest rate was closest (within 1 or 2 per cent) of the US.

Not under duress, now suppose a country voluntarily decides to 'abandon' the dollar standard as the nominal anchor, and to float its exchange rate. As long as the great mass of internationally tradeable goods and services are dollar invoiced and stable valued, this experiment in monetary independence is somewhat difficult to define. Even where the central bank does not directly key on its dollar exchange rate but aims to stabilize the domestic price level by other means, success might still lead to a nearly stable exchange rate with the dollar – as per Hypothesis II.

Now, suppose our monetary authority is a more determined floater. Concerned with the potential moral hazard of a pegged rate that could change discretely, it arranges policy so that the exchange rate continually moves like a 'random walk' per month or even per quarter. Then, because random exchange rate movements increase volatility in domestic-currency prices and interest rates, ρ_{currency} also increases. In summary, moving from a 'good fix' to a floating exchange rate need not reduce the super-risk premium and the margin of temptation for international overborrowing. Under greater but uncertain exchange rate flexibility, ρ_{currency} will increase even if $E\hat{e}_{\text{regime change}}$ declines.

Of course, a 'bad fix', i.e., one which is obviously unsustainable because of, say, ongoing domestic fiscal deficits likely to be monetized (Russia early, Brazil late, in 1998), will make $E\hat{e}_{\text{regime change}}$ very large. Correspondingly high domestic interest rates, relative to those prevailing in safe-haven-currency countries, create a huge margin of temptation for unhedged international borrowing that could completely undermine the domestic system of prudential bank regulations (McKinnon and Pill, 1999). Here, a more flexible but controlled exchange rate, perhaps a downward crawl, coupled with controls over international capital flows seems more likely to be the best way of coping with an unfortunate situation.

However, before the 1997 currency attacks, the East Asian pegs to the dollar looked like good fixes with purchasing power parity, price level stability, and fiscal balance. The problem was not with their exchange rate policies but with the weak prudential regulation of their financial systems. In defence of the regulators, however, the resulting overborrowing was aggravated by the erratic behaviour of the yen/dollar exchange rate and the extemely low nominal interest rates on yen assets.

7. Virtual Exchange Rate Stability under a Reformed Dollar Standard

Although the case for re-establishing a dollar standard as the collective nominal anchor in East Asia is strong, the possibility of future speculative attacks on any exchange rate peg cannot be ruled out. Even if the monetary and fiscal fundamentals were more or less right (as in East Asia before 1997), and bank regulation is improved, attacks could occur for reasons – perhaps mainly exogenous to any individual country – that are almost impossible to identify beforehand. For example, the currency attacks that rocked the old European Exchange Rate (ERM) mechanism in 1992–3 were largely due to the 'accident' of German reunification in 1991. This led Germany, the centre country in the European system, to run with large fiscal deficits which the Bundesbank tried to offset by very tight monetary policy. The result was unmanageable capital flight from the other European countries, and attacks on their currencies.

After the fixed rate East Asian dollar standard had been restored, suppose there occurred an 'accidental', but nevertheless overwhelming, run on one country's currency. What shock absorbing mechanism can be put in place that limits the financial damage to the country in distress, and limits further spillover effects on neighbouring countries? The key idea is to establish *regressive expectations* for the future path of the exchange rate so that markets view any forced, precipitate devaluation to be temporary.

7.1. The Restoration Rule and the Confidence Problem

In comparing 'good' fixes to floating to 'bad' fixes, our analysis of the super-risk premium proceeded without specifying the term structure of interest rates and exchange rate expectations. In common with the literature on the subject, we focused on the incentives to overborrow *ex ante*, i.e., before any speculative attack. However, we did not specify the exchange rate obligations of the authorities after a (successful) attack had occurred. In a model that had only one term to maturity, we defined a good fix to be one where any peripheral country maintained nominal exchange rate stability and purchasing power parity against the centre country's currency.

However, implicit in the ideal of a good fix is that it is sustainable in the more distant future. Even if a surprise speculative attack upsets the fixed rate system in the short run, the macroeconomic fundamentals and the determination of the authorities would still allow the economy to recover its nominal exchange rate and price-level equilibrium in the long run. After a speculative attack, this favourable long-run expectation would then prevent – or at least limit – the kind of fundamental loss of confidence in their currencies that the five Asian countries actually experienced.

The behaviour of countries operating under the international gold standard before 1914 is instructive. In the face of a liquidity crisis, a country would sometimes resort to gold devices, i.e., it would raise the buying price for gold or interfere with its exportation. This amounted to a minor, albeit temporary, suspension of its traditional gold parity. In more major crises including wars, a few outright suspensions for some months or years occurred. After any suspension and devaluation, however, the gold standard succeeded in having countries return to their traditional mint parities. The resulting long-run stability in exchange rates helped to anchor the common price level and long-term interest rates. In early 1914, exchange rates, wholesale prices, and interest rates in the industrial countries were virtually the same as they had been in the late 1870s.

What gave the pre-1914 gold standard its long-run resilience? After any short-run crisis that forced the partial or complete suspension of a gold parity, the country in question was obliged to return to its traditional parity as soon as practicable (Bordo and Kydland, 1995). I have dubbed this unwritten obligation of the classical gold standard 'the restoration rule' (McKinnon, 1996, ch. 2). Even when a currency crisis undermined the government's ability to sustain convertibility in the near term, longer-term exchange-rate expectations remained regressive with respect to the country's traditional gold parity. Because of the restoration rule, long-term interest rates showed little volatility by modern standards (McKinnon and Ohno, 1997, ch. 8); and, without significant financial risk, their levels also remained low: about 3 per cent in the UK and 4 per cent in the USA.

For the pre-1914 gold standard, Charles Goodhart and P. J. R. Delargy (1998) studied how high-growth debtor countries on the periphery of Britain responded to speculative attacks. Their sample included Austria, Argentina, Australia, Italy and the USA (which experienced several attacks). They conclude:

> The onset and initial context of the Asian crisis, involving an interaction between a toppling investment boom and a febrile banking system, should not have been surprising. From an historical point of view, it was depressingly familiar. Moreover, it will happen again and again. Much of the pattern is, probably, an inherent feature of development.
>
> What, however, differed from our pre-1914 crises and the Asian crisis was the international monetary regime and the consequential implications for post-crisis monetary conditions in the affected countries. Confidence in the maintenance of the gold standard, pre-1914, led to stabilizing mean-reverting expectations, and hence a rapid restoration of gold reserves, liquidity, and low interest rates alongside the maintenance of continued price stability. In the main case in our pre-1914 sample where there was no such confidence (Argentina), pressures on the exchange rate were eased by a (debt) moratorium, allowing a sharply improving trade balance to bring about the needed monetary expansion.
>
> Goodhart and Delargy (1998, p. 285)

The parallel for a restored East Asian dollar standard is quite clear. Each central bank sets its long-run monetary policy to be consistent with maintaining a 'traditional' exchange rate against the dollar within a narrow band, which amounts to having the same long-run rate of price inflation (optimally zero) in its producer price index as in the USA. (This does not rule out slowly gliding bands as followed by Indonesia and Singapore before 1997.) Each central bank also announces that it will normally adjust short-run interest rates and intervene to keep its exchange rate within the band. Faced with a massive speculative attack, however, the central bank may well suspend the fixed rate temporarily – and not raise short-term interest rates to exorbitant levels to defend it.

This is not the end of the story. As soon as practicable after the speculative attack, the distressed country's central bank would begin nudging its exchange rate back up toward its traditional dollar parity. Allowing for temporary crisis-based suspensions of convertibility, followed by (gradual) restoration of the traditional parity, poses problems for speculators. They do not have any clear point at which to escape their short position in the domestic currency so as to realize speculative profits. In contrast, a more or less discrete devaluation in response to a speculative attack, with no attempt at restoration, makes it easy for speculators to escape safely. Paradoxically, even though speculators know that temporary suspensions of convertibility are possible, speculative attacks may well be less likely if they also know in advance that the restoration rule is in place.

In highly indebted economies, the worst possible crisis trade-off is sharply higher domestic interest rates and deep devaluations that cause massive bankruptcies throughout the economy. The forced suspension of the exchange rate peg is accompanied by such political and economic disarray that people see *no* future policy for the dollar value of their currencies, and lose confidence completely – as more or less happened in the Asian five.

To stem this loss of confidence, each affected Asian government should have announced their intention to restore their traditional dollar parities as soon the dust settled. To be sure, renegotiating the external debt to lengthen its term structure greatly while improving the prudential regulation of the banks would be an important part of the necessary reforms. So would keeping the lid on actual and prospective fiscal deficits. (Remember that Keynesian counter cyclical policies cannot work, or work perversely, in a confidence crisis.) All would contribute to the credibility of restoring the traditional exchange rate.

It would be even better to have the restoration rule in place before any speculative attack. It should be one of the 'normal' operating rules of the IMF. Once a group of neighbouring countries, as in East Asia, all have the same commitment to exchange stability in the long run, contagion would be better contained. Indeed, a speculative attack on any one of them becomes less likely to begin with.

By late 1998, Korea and Thailand had already made substantial progress in nudging their exchange rates back up and have been rewarded by interest rates coming back down to single digit levels (Figure 12). However, by delaying the implementation of this 'restoration rule', their currencies were left undervalued for too long – leading to so much domestic price inflation that the original exchange-rate 'parities' may now be too difficult to retrieve.

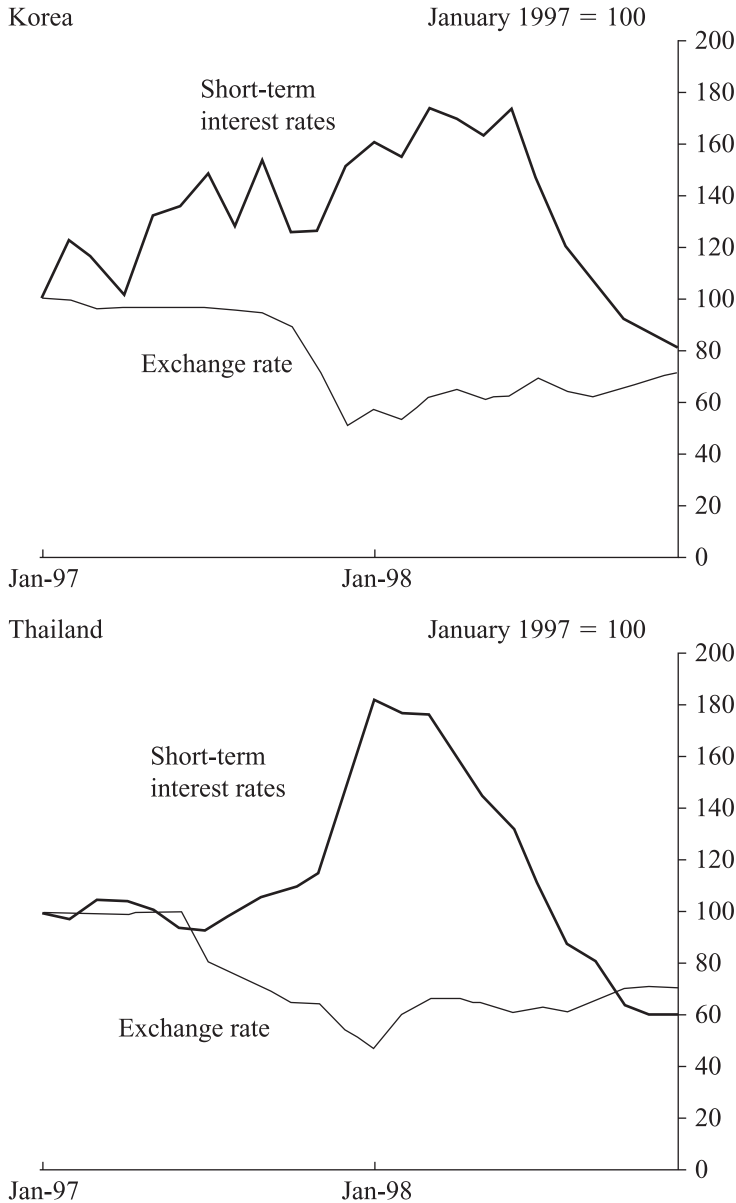


Figure 12

Perhaps because France had suffered from numerous confidence crises in the post-war era, in the early 1990s, it provided the best modern example of a country more promptly following the restoration rule. The massive speculative attack against the franc in September 1993 forced a virtual suspension of the

ERM bilateral parity grid: official exchange-rate margins were widened from 2.25 per cent to a ridiculous ±15 per cent. Yet, within a few weeks, the franc-mark exchange-rate quickly returned to its traditional level; and French short- and long-term interest rates closely tracked German ones in the 1990s. So quickly was the mark/franc exchange rate restored that the devaluation had a negligible effect on the French price level. Because France's monetary and fiscal 'fundamentals' were not misaligned with Germany's, restoration was easy – even though defending against the initial massive attack was impossible.

Is there a general lesson here about the feasibility of freely floating exchange rates among different classes of economies? In his chapter titled 'The Confidence Game', Paul Krugman (1999) identifies the differences thus:

> It seems, in other words, that there is a sort of double standard enforced by the markets. The common view among economists that floating rates are the best, if imperfect, solution to the international monetary trilemma was based on the experience of countries like Canada, Britain, and the United States. And sure enough, floating exchange rates work pretty well for First World Countries, because markets are prepared to give those countries the benefit of the doubt. But since 1994 one Third World country after another – Mexico, Thailand, Indonesia, Korea, and most recently, Brazil – has discovered that it cannot expect the same treatment. Again and again, attempts to engage in moderate devaluations have led to a drastic collapse in confidence. And so now markets believe that devaluations in such countries are terrible things; and because markets believe this, they are. (Krugman, 1999, p. 111)

Krugman makes an important distinction. To cushion the effects of the fall in primary products prices from the Asian crisis, Australia and Canada could let their currencies float (gently) downwards without capital controls and not be attacked. Why? Because exchange rate expectations for the Australian and Canadian dollars were already fundamentally regressive. Both were mature market economies with (1) credible internal monetary mechanisms (independent central banks) for targeting their domestic price levels over the long run, and (2) relatively long terms to maturity for their internal and external debts. (In Asia, the non-crisis creditor countries of Taiwan and Singapore were (are) more like mature capitalist ones in these respects.)

Of course, (1) and (2) are complementary. Only with long-term confidence in the purchasing power of domestic money (against the centre country's) would exchange-rate expectations be naturally regressive, and are long-term bond and mortgage markets possible to organize. Also, having finance at longer term bolsters the credibility of the central bank to hit its inflation targets over the longer term.

Now return to our 'emerging-market' debtor economy where the term structure of finance is short and there is no history of central bank independence. Quite the contrary. In most Third World economies – including the Asian five – the central bank has often been commandeered to provide cheap credit for promoting exports, subsidizing commercial banks, and otherwise directing credit in line with the government's development program. Sometimes, this strategy has been facilitated by ringing the country with capital controls. Correspondingly, there is a potential lack of confidence in the long-term exchange rate *unless* the government can effectively restrain itself. By credibly pegging the currency to the dollar, the central bank shows the market that it is prepared to limit growth in domestic base money and avoid future inflation despite its lack of independence

Before 1997, during their 'miracle' growth phases, the East Asian economies successfully pegged to the dollar as the nominal anchor for their domestic price levels. With the benefit of hindsight, however, we now know that this policy was seriously incomplete. First, and most obviously, there was the failure to regulate the financial system properly – including the central bank itself in some cases – against undue risk taking including short-term foreign exchange exposure.

Second, and more subtly, the East Asian debtor economies had not committed themselves to long-term exchange rate stability in the mode of the nineteenth-century gold standard – even though they seemed to be securely pegged in the short and medium terms. Because of the short-term structure of finance, each was vulnerable to a speculative attack on its currency; but none had a long-run exchange rate strategy in place to mitigate the worst consequences of any such attack. That is, there was no restoration rule for keeping exchange-rate expectations regressive.

In part, the problem arose because the pre-1997 East Asian dollar standard was informal rather than formal. With exception of Hong Kong, none of the countries involved had formally declared a dollar parity – and each had been classified by the IMF as following some variety of 'managed floating' rather than being a dollar pegger. After any forced suspension, there was no traditional (gold) parity in the nineteenth-century sense to which the government was obviously bound to return.

Probably the biggest problem, however, was philosophical. In the endless debate on fixed versus floating exchange rates, academic economists on either side have failed to take the term to maturity of the exchange rate into account. Given the great asymmetry among national monies, I have been arguing that countries on the periphery of the dollar standard will always be subject to speculative attacks and (attempted) flight into dollars. (The small countries in Eastern Europe are similarly situated on the periphery of the euro standard.)

However, emerging-market economies whose macroeconomic fundamentals are sound so as to permit a 'good fix' for their exchange rates should extend the maturity of that commitment to the distant future, i.e., adopt the restoration rule explicitly – and, ideally, collectively. (Of course, those that must rely on the inflation tax, and cannot credibly commit to long-run exchange rate stability, should not try it.) Indeed, the benefits from having the exchange rate pinned down in the long run exceed those from having a hard short-term fix. With regressive exchange-rate expectations and the future price level more secure, the authorities can seriously encourage the lengthening of the term structure of domestic and foreign finance. As long-term bond issues in the nineteenth-century mode begin to displace short-term bank finance, the government's commitment to long-term exchange rate stability is naturally reinforced.

In summary, suppose that the long-run monetary, fiscal, and price-level, fundamentals of an emerging-market country could be sustainable. Nevertheless, the national currency is subject to a massive speculative attack – possibly aggravated by contagion from neighbouring countries. Then, temporary suspension of official intervention should be coupled with the promise of eventually restoring the initial par value of the currency. Despite some unavoidable temporary currency depreciation, our restoration rule would maintain regressive expectations and limit capital flight. This has several advantages:

- In the *short run*, the government under attack is not forced to increase near-term interest rates so sharply in a cyclical downturn – or when its banks are particularly weak from maturity mismatches. The expectation of eventual exchange rate appreciation minimizes (but need not eliminate) the need to increase short-term interest rates to assure the markets that restoration is in prospect.
- In the *medium run* when the errant exchange rate is nudged back up, the contagion from 'accidental' competitive devaluation is mitigated. Despite a temporary devaluation at the outset of the attack, the other countries within the Asian dollar standard need not worry about persistent beggar-thy-neighbour policies. Moreover, within the domestic economy, the bankruptcy threat to foreign-currency debtors is diminished.
- In the *long run*, the central bank can keep the domestic price level consistent with eventually restoring its 'traditional' dollar exchange parity. Domestic inflation would not spiral out of control. If the domestic bond market were open, long-term interest rates would remain fairly stable at levels close to those in the USA. Indeed, only with a credible commitment to long-term exchange rate stability in place, is it possible to develop a long-term domestic bond market – so vital for reducing term-structure risk in a reformed banking system.

8. The Role of the USA in Restoring Exchange Stability in Asia: A Concluding Note

What about the centre country in the world dollar standard, the USA? For Asian countries, the dollar remains the principal reserve asset and safe-haven currency. East Asian foreign trade, both within the region and with the outside world, is largely invoiced in dollars. The foreign exchange markets, spot and especially forward, are organized with the dollar as the central vehicle currency for clearing international payments. However, to help to restore financial stability in Asia, US policies need to have both a passive and (perhaps) an active aspect.

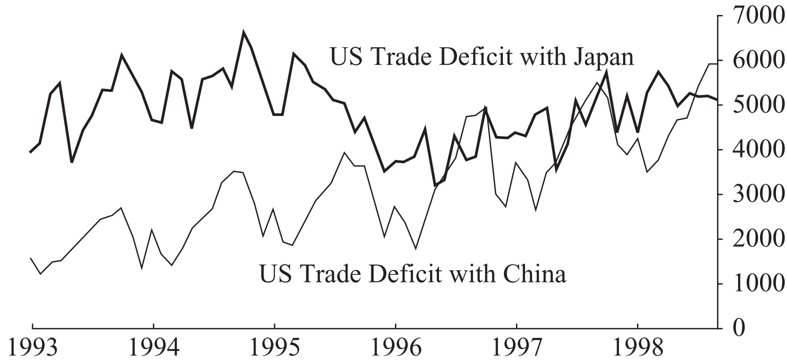
On the passive side, keeping the US price level stable, with dollar interest rates at moderate levels, greatly increases the attractiveness of the dollar as a monetary anchor. Then, when Asian countries manage to reorganize their monetary policies to establish unchanging dollar parities, their prices levels would also be stable – neither deflation as in Japan now, nor inflation as in the East Asian Five with undervalued currencies. Once collectively pegged to the dollar, with Japan and China being securely roped in, all are protected against (inadvertent) beggar-thy-neighbour devaluations. Short-term capital flows would be less volatile once interest rates are more nearly aligned because of virtual exchange rate stability. However, the US government, itself under pressure from Wall Street lobbyists, should not push still-developing countries to eliminate exchange controls on capital account before they can safely do so.

Constructive US passivity encompasses trade policy as well. The centre country should not use its political and economic power to press trading partners, who happen to run trade surpluses with it, to appreciate their currencies. The Japanese slump of the 1990s, with interest rates pushed toward zero, is a consequence of US mercantile pressure, beginning in 1971, to push up the yen (McKinnon and Ohno, 1997; forthcoming). The failure to tether the loose cannon in the Asian system, the yen/dollar exchange rate, largely reflects US mercantile concerns.

In the future, other East Asian countries need not be immune from similar US mercantile pressure. Figure 13 shows China's bilateral trade surplus with the USA increasing to become comparable with Japan's by the late 1990s. Also, in the late 1980s when their trade surpluses were relatively large, both Korea and Taiwan came under some pressure from the US Treasury to appreciate their currencies.

Instead, USA must admit to itself that its large current account deficit mainly reflects extremely low household saving in the USA itself. Although the American deficit's ebb and flow is affected by events in other countries, the dollar exchange rate cannot be used as an instrumental variable to 'correct' it. This understanding is key to maintaining stability in dollar exchange rates, and the US nominal anchor, in a reformed Asian dollar standard.

On the active side, the nature of the world dollar standard makes the USA



Note: Monthly data.
Source: US Department of Commerce.

Figure 13: China Overtaking Japan as the Largest Source of US Trade Deficit (US$ Millions)

the natural lender of last resort should some crisis on the periphery – in Asia, Latin America, Russia, and so on – cause domestic nationals in the crisis country to fly into dollars. There is a need for governments, particularly the US government to recycle these dollars to prevent the contagion from spreading through domino devaluations. With the benefit of hindsight, this recycling was not done soon enough during the Asian crisis of 1997.

This recycling usually needs to have conditions attached, with the mobilization of resources from the other industrial countries as well. From this comes the important role of the IMF as the lender of first resort, even though the US Treasury cannot escape being the lender of last resort. In the future, both need to condition their lending to achieve virtual exchange rate stability among neighbouring recipient countries – with the restoration rule becoming part of the IMF's 'rules of the game'. Indeed, the great weakness of the present international system is to have official lending to individual countries in crisis which inevitably creates moral hazard for future lending, but to have no long-term exchange rate objectives for containing spillover effects from one country to another.

Of course, if there is some major financial breakdown in the USA itself, then all bets are off. My exchange rate analysis would lose a badly needed numéraire, and the East Asian economies would lose a common monetary anchor that they can ill do without.

REFERENCES

C. Adams - D. J. Mathieson - G. Shinasi - B. Chada (1998), *International Capital Markets: Developments, Prospects and Key Policy Issues*, IMF, Washington DC, September.

M. Bordo - F. Kydland (1995), "The Gold Standard as a Rule: An Essay in Exploration", *Explorations in Economic History.*

J. Chai (1998a), "Economic Growth, Real Exchange Rates, and the Balassa–Samuelson Effect in East Asia," CREG Memo 326, Stanford University, August.

J. Chai (1998b), "The Balassan–Samuelson Effect in Hong Kong, Center for Research In Economic Growth", CREG, Memo. 327, Stanford University, August.

K. Dominguez (1998), "The Dollar Exposure of Japanese Companies", *Journal of the Japanese and International Economies*, 12(4) December, pp. 388–405.

B. Eichengreen (1999), "Building on a Consensus", *Financial Times*, February 2.

S. Fischer (1999), "On the Need for an International Lender of Last Resort", speech delivered to the American Economic Association, January 3.

J. A. Frankel (1992), "Is Japan Creating a Yen Bloc in East Asia and the Pacific?", NBER Working Paper, April.

J. A. Frankel - S. J. Wei (1994), "Yen Bloc or Dollar Bloc? Exchange Rate Policies in the East Asian Economies", in T. Ito and A. Krueger (eds), *Macroeconomic Linkage: Savings, Exchange Rates, and Capital Flows*, University of Chicago Press.

S. Fukuda (1996), "The Structural Determinants of Invoice Currencies in Japan: The Case of Foreign Trade with East Asian Countries", in T. Ito and A. Krueger (eds), *Financial Deregulation and Integration in East Asia*, NBER, University of Chicago Press, pp. 147–66.

C. Goodhart - P. J. R. Delargy (1998), "Financial Crises: Plus ça Change, Plus C'est La Même Chose", *International Finance*, 1(2), December, pp. 261–88.

C. Goodhart - P. Hartman - D. Llewellyn - L. Rojas-Suàrez - S. Weisbrod (1998), *Financial Regulation: Why, How and Where Now?* Routledge, London.

R. Glick (1998), "Overview", in R. Glick (ed.), *Managing International Capital Flows and Exchange Rates: Perspectives from the Pacific Basin*, Cambridge University Press, pp. 1–40.

IMF (1996), *International Financial Statistics*, IMF, January.

IMF (1998), *International Capital Markets: Developments, Prospects and Key Policy Issues*, IMF, September.

G. Kaminsky - C. Reinhart (1999), "The Twin Crises: The Causes of Banking and Balance of Payments Problems", *American Economic Review*, 89(3), June, pp. 473–500.

P. Krugman (1999), *The Return of Depression Economics*, W. W. Norton, New York.
C. H. Kwan (1998), *The Yen, the Yuan and the Asian Currency Crisis: Changing Fortune between Japan and China*, Nomura Research Institute, October.
R. I. McKinnon (1979), *Money in International Exchange: The Convertible Currency System*, Oxford University Press, New York.
R. I. McKinnon (1993), *The Order of Economic Liberalization: Financial Control in the Transition to a Market Economy*, 2nd edn, Johns Hopkins University Press.
R. I. McKinnon (1996), *The Rules of the Game: International Money and Exchange Rates*, MIT Press.
R. I. McKinnon - K. Ohno (1997), *Dollar and Yen: Resolving Economic Conflict Between the United States and Japan*, MIT Press. (Japanese Translation, Nihon Keizai Shimbun, 1998).
R. I. McKinnon - K. Ohno (Forthcoming), "The Exchange Rate Origins of Japan's Economic Slump in the 1990s", *The World Economy.*
R. I. McKinnon - H. Pill (1996), "Credible Liberalizations and International Capital Flows: The Overborrowing Syndrome" in T. Ito and A. Krueger (eds), *Financial Deregulation and Integration in East Asia*, NBER, University of Chicago Press, pp. 7–48.
R. I. McKinnon - H. Pill (1997), "Credible Economic Liberalizations and Overborrowing", *American Economic Review*, 87(2), May, pp. 189–203.
R. I. McKinnon - H. Pill (1998), "International Overborrowing: A Decomposition of Credit and Currency Risk", *World Development*, 26(7), July, pp. 1267–82.
R. I. McKinnon - H. Pill (1999), "Exchange Rate Regimes for Emerging Markets: Moral Hazard, and International Overborrowing", *Oxford Review of Economic Policy*, 15(3).
K. Ohno (1999), "Exchange Rate Management in Developing Asia: A Reassessment of the Pre-crisis Soft Dollar Zone", ADBI Working Paper 1, Asian Development Bank, Tokyo. January.
K. Ohno - K. Shirono (1997), "Persistence of the East Asian Dollar Zone", Graduate School of Policy Science, Saitama University.
K. Sato (1999), "The International Use of the Japanese Yen: The Case of Japan's Trade with East Asia", *The World Economy*, June, pp. 547–84.
G. Soros (1999), "To Avert the Next Crisis", *Financial Times*, January 4.
G. S. Tavlas (1997), *The International Use of the US Dollar: An Optimum Currency Area Perspective*, Bank of Greece and IMF.
M. Wolf (1993), "Pegging Out", *Financial Times*, January.
World Bank (1993), *The East Asian Miracle: Economic Growth and Public Policy*, Oxford University Press.