

***PROSPECTS FOR ASIAN MONETARY COOPERATION AFTER
THE ASIAN FINANCIAL CRISIS: PIPEDREAM OR POSSIBLE
REALITY?***

by
Peter Wilson
National University of Singapore
Working Paper No 151

August 2002

PROSPECTS FOR ASIAN MONETARY COOPERATION AFTER THE ASIAN FINANCIAL CRISIS: PIPEDREAM OR POSSIBLE REALITY?

Workshop on Institutional Change in Southeast Asia
Stockholm School of Economics
10-11 June 2002

Peter Wilson
Department of Economics
National University of Singapore
1 Arts Link
Singapore
Email: ecspeter@nus.edu.sg

This paper re-assesses the prospects for greater monetary integration in Asia in the wake of the Asian financial crisis of 1997. The Asian crisis highlighted the absence of well-developed supranational institutions in Asia to provide early warning signals of impending currency or balance of payments problems, access to unconditional funds to cope with financial problems, and a common defensive mechanism to deal with speculative movements in exchange rates. Since 1997 there have been a number of initiatives to enhance monetary cooperation in the region including a Japanese proposal for an Asian Monetary Fund, the Chiang Mai Initiative at the Asean+3 meeting in May 2000, the Kobe Research Project, and the currency swap agreements and surveillance machinery initiated at the Asian Development Bank Meeting in Honolulu in May 2001. We find that whilst a common monetary and exchange rate policy in EA is unlikely in the foreseeable future, until the net economic benefits of giving up unilateral exchange rate regimes are more apparent, a good case can be made for placing responsibility for the functions of macroeconomic surveillance and regional resource pooling within a permanent institution which could evolve over time into a fully-fledged Asian Monetary Fund with its own Asia-specific rules on conditionality.

JEL Classification numbers: F31, F33, F36

Keywords: Optimum currency area; Asian Monetary Fund ; Exchange rates; ASEAN; Monetary cooperation

PROSPECTS FOR ASIAN MONETARY COOPERATION AFTER THE ASIAN FINANCIAL CRISIS: PIPEDREAM OR POSSIBLE REALITY?

A hen and a pig are negotiating to solve the food shortage. The hen makes a suggestion: "I will supply the eggs if you will supply the bacon." The pig ponders this for a moment and replies: "but yours is a contribution, mine is a total commitment." (Kofi Annan)

1. Introduction

The idea that East Asian (EA) countries would commit themselves to a monetary union in the foreseeable future is absurd. But the prospects also looked quite bleak for European monetary union (EMU) at the height of the currency crisis in September 1992 when the exchange rate mechanism of the European monetary system (EMS) appeared to be falling apart under the strain of currency speculation and many of the citizens of prospective EMU countries were having second political thoughts about voting in favour in the referendums which were mandatory under the Maastricht Treaty to ratify the transition to full monetary union on 1st January 1999. Sweden, Denmark and the United Kingdom opted out altogether until the dust settled. Even ardent supporters of enhanced monetary and exchange rate cooperation in EA are not expecting rapid progress towards a monetary union.

Paradoxically the Asian financial crisis increased economic disparities in the region, thus making monetary integration more difficult, but rekindled political interest in Asian monetary and exchange rate cooperation. The crisis reduced the credibility of the unilateral fixing of exchange rates and increased the attraction of a common currency arrangement. The *perceived* failure of international organizations, such as the International Monetary Fund (IMF), to foresee the crisis and deal effectively with it led to calls for some sort of regional monetary fund, and the negative spillover and currency contagion effects on countries which appeared to be in reasonably sound shape economically before the crisis, such as Malaysia, also catalysed efforts to devise specifically regional mechanisms of crisis management. It is thus an opportune time to re-assess the prospects for monetary and exchange rate cooperation in EA.

We begin in the next section with some background on monetary and exchange rate cooperation before and after the Asian crisis, and look at the case for an Asian Monetary Fund. This is followed by the question as to how far EA countries, or a subset such as the Association of Southeast Asian Nations (ASEAN), satisfy the economic and political

prerequisites for some kind of longer term monetary integration. We finish with a discussion of the specific issue of exchange rate cooperation and a brief conclusion.

2. Background

East Asia or ASEAN?

As a general rule, the benefits of monetary integration are greater, and the costs lower, for countries which have similar levels of income and economic development. Given the diversity of EA (Table 1) we are confronted at the outset with a tricky sample selection problem.

The period beginning around the middle of the 1980s up to the Asian financial crisis of 1997 was an important period of dynamic change in EA as trade liberalization and domestic economic reforms in a number of countries coincided with growing interdependence in the world economy through trade and capital flows. The result was substantial growth and structural change and the emergence of a competitive group of dynamic Asian economies consisting of the older and more established "four (little) tigers" or "four dragons", or "gang of four" of Singapore, Taiwan, Korea, and Hong Kong, together with the two most dynamic southeast Asian countries of Thailand and Malaysia. The latter group became more competitive across a broad range of manufactured goods relative to the older tigers, while the former endeavoured to switch into higher value-added manufacturing and services, into new markets, or to establish manufacturing facilities overseas as a substitute for exports (Wilson, 2000b). To complicate matters further, recently China has joined the latter group but is threatening to 'leapfrog' into the former in a comparatively short period of time.

By the 1990s ASEAN had itself emerged as one of the fastest growing regions in the world. Real GDP grew at about 6 percent between 1985 and 1995 on an annual average basis, compared to the world average of 2 per cent and growth in developed market economies of 3 per cent. Over the same period ASEAN's share of global merchandise trade reached 6.7 percent by the end of 1995, compared to 3.8 percent in 1985.¹ This growth was widely shared in the 1990s prior to the Asian crisis amongst both the 'core' ASEAN5 and the 'periphery' countries of Brunei and the poorer newcomers (Table 1).

Certainly the ASEAN10 is large enough to generate significant benefits from economic integration with its total land area of 4.4million square kilometres and population of approximately 500m (Table 1), but the underlying weakness of ASEAN from its inception in

1967 was its heterogeneous membership. While Singapore espoused export-oriented free trade policies, the other members chose import-substituting industrialization. It is geographically quite disparate, with Indonesia, Philippines and east Malaysia detached from continental southeast Asia, and there are significant differences in basic economic indicators (Table 1). The richer members in terms of income per capita are Singapore², Brunei and Malaysia, followed by Thailand, the Philippines, and Indonesia and the poorer remainder. Indonesia is a vast country while Singapore is small. Agriculture is dominant in Laos, Myanmar, Vietnam, the Philippines, and Indonesia, but negligible in oil-rich Brunei and service-oriented Singapore.

Moreover, there is little evidence that the gap in income per capita among ASEAN countries has been narrowing. Indeed, according to Park (2000) Their inequality indices have been widening among both ASEAN10 and the ASEAN5. The Asian financial crisis has further undermined the shared benefits of economic growth with the emergence of a two-track ASEAN5, with Indonesia, Thailand and the Philippines performing much less well than Malaysia, and Singapore.

Even if more formal techniques are applied, it is not at all obvious what would constitute a distinct economic grouping in East Asia. Yuen (2000), for example, using hierarchical cluster analysis over the period 1990 to 1997 placed Japan with a group of mature developed countries with high income per capita, low GDP growth and moderate inflation (Australia, New Zealand, USA). Further clusters included a high growth Asian group comprising Korea, Malaysia and Thailand, characterized by moderate income per head, inflation and interest rates; a group of emerging economies (Indonesia, Philippines) with moderate growth, low income per capita and high inflation; and the small open economies of Hong Kong and Singapore which share the characteristics of the highest income per capita, the lowest interest rates, the highest value-added in services and the lowest value-added in agriculture. A fifth cluster consisted solely of China which was distinctly different from the rest of the Asian sample!

¹ The GDP figures are from Tongzon (1998, p. 16) and the trade share was calculated from the International Monetary Fund, *Direction of Trade Statistics*, 1997.

² Singapore is, in reality, now a fully-developed country. In 1995 The OECD decided to stop classifying Singapore as a developing country and re-classified her from a newly-industrialising country to 'a more advanced developing country'. Korea, on the other hand, was elevated to full OECD membership in October 1997, which automatically brings with it developed country status. Singapore's status here looks decidedly odd, but the authorities in Singapore remain adamant that she is not yet a developed country. For a discussion of this controversial anomaly, see Wilson (2000a).

As a consequence of this sampling problem, empirical work on monetary integration in EA has tended to rely on an ad hoc and varying list of countries for which reliable data could be found (Goto and Hamada 1994, Eichengreen and Bayoumi 1998), or on a subset of ASEAN countries (Bayoumi and Mauro, 1999, Nicolas, 1999). The latter is justified on the grounds that policymakers in ASEAN have expressed an interest in the possibility of closer monetary ties and it is already committed to integration in other areas.

But, as we shall see, the case for ASEAN *monetary* integration is much weaker than for other subsets of EA countries and it is hard to envisage serious monetary and exchange rate integration without the participation of countries such as Japan, China and Korea, if only to provide the financial resources for a regional fund and common exchange rate system.³ Certainly monetary integration in ASEAN is not a pre-requisite to monetary integration in EA.

From its inception in 1967 under the Bangkok Declaration, ASEAN has largely been a political organization established essentially to contain the rise of communism in southeast Asia. It has undoubtedly been successful in containing intra-ASEAN conflict and in providing a forum for the discussion of regional matters, including disputes over territorial claims in the south China sea, but as a political force it has exerted little influence on the world stage given its heterogeneous character and the decline of the communist threat. The Asian financial crisis has further eroded the political consensus within ASEAN and Singapore, in particular, has tended to look to its own geo-political interests, which increasingly lie outside ASEAN. One example is its determination to pursue bilateral preferential trading Arrangements with countries outside the region, such as the USA, even if this upsets her ASEAN partners and weakens the solidarity of ASEAN as a trading bloc.⁴

It is widely accepted that apart from providing some common policies on food, energy and tourism, ASEAN achieved little in terms of tangible economic benefits for its members in the first two decades of its existence (Wong, 1988, Yeung, 1999), and much of the gains would probably have been achieved without coordinated initiatives through ASEAN from unilateral trade liberalization after the mid-1980s (Singapore much earlier), driven by private enterprise, inward foreign direct investment, and the mutual benefits from each country having 'growing neighbours'. Pomfret (1996) has described ASEAN as an 'enigma' in Asia by virtue of its longevity as a developing country trading block, but 'perpetually at the

³ Although Japan would probably remain outside a 'soft' or 'hard' joint pegged exchange rate system in the first instance.

⁴ For further details on changes in Singapore's global perspectives, see Peebles and Wilson (2002).

crossroads' in the sense that it fails to deliver and periodically something always needs to be done to revitalize the integration process.

Structural diversity in ASEAN has meant less scope for trade creation in the sense of shifting resources from inefficient to efficient producers within the bloc. Attempts to orchestrate this collectively were doomed to fail as governments resisted closing down their own factories. On the other hand, policies which were trade diverting by restricting lower cost competition from outside to protect infant industries within ASEAN (except Singapore) were politically feasible but were costly in the longer run by virtue of their inefficiency and came under increasing threat from advocates of trade liberalization.

Attempts to lower tariff rates collectively through preferential trading arrangements after 1977 were disappointing and hampered by the voluntary listing of products for preferential treatment, and a cumbersome case-by-case approach. Initiatives to promote industrial cooperation after 1976 also largely failed, a classic example being Malaysia's decision to develop its own integrated automobile industry (Pomfret, 1996, p. 373).

Beginning in 1991, ASEAN members made a concerted effort to speed up the process of tariff reduction by committing themselves to an ASEAN free trade area (AFTA). The AFTA goals were much more credible than earlier preferential tariff arrangements in ASEAN and By 2001 83 per cent of all tariff lines were covered by AFTA and average tariff rates were down to 4.59% by 2000 (*Singapore 2000*, p. 131), but it still remains to be seen whether member countries, now performing less well economically, will open up their markets to the final consumer goods of their fellow AFTA members. The underlying problem is the same as before: governments are reluctant to lower protection on items which harm vested interests. An ominous sign in November 2000 was a protocol signed by ASEAN Economic Ministers setting up a temporary exclusion list for those countries facing economic difficulties, though they did reaffirm their commitment to realize AFTA by 2002. Malaysia has since been granted a reprieve until 2005 for its motor industry, which sets an alarming precedent for an important industry in ASEAN, and in March 2001 Indonesia postponed the lowering of import duties.⁵

In many ways a more promising political forum from the monetary perspective is the ASEAN+3, established in December 1999, adding China, Japan and Korea to ASEAN. This offers a tantalizing opportunity to strengthen regional bargaining power with the outside world and capitalize on a larger bloc with close trade and investment links. On the other

⁵ For a discussion of ASEAN's on-going commitments to AFTA, see Tongzou (2002).

hand, it makes the logistics even less manageable with a wider range of exchange rate and monetary regimes, and further increases the gap between the more developed and less developed countries (Table 1) and the potential for greater asymmetries in economic shocks affecting individual members.

Pre-crisis monetary cooperation:

Before the Asian financial crisis there existed only rudimentary monetary and exchange rate cooperation between Asian countries (Chan and Rajan, 2001). There had been some discussion about the development of a yen bloc (Taguchi, 1998, Kwan, 1998, 2000) just as the European monetary system (EMS) had evolved into a de facto Deutsche mark bloc in the 1980s. But there was little evidence that such a bloc had emerged and the idea had been met with a lukewarm political reception, largely because of on-going disputes between Japan and her EA neighbours, such as Korea and China, over former war atrocities.

There was also a noticeable absence of any collective defence against currency crises apart from a limited network of bilateral repurchase agreements (repos), some currency swap arrangements and some informal cooperation between regional central banks. In February 1996, for instance, the Monetary Authority of Singapore (MAS) and Hong Kong Monetary Authority intervened to support the yen against the dollar, and in May 1997 the MAS unsuccessfully tried to support the baht. The swap arrangements were also woefully inadequate. When Thailand called upon a swap arrangement set up during the Mexican crisis of 1994 to shore up the baht in 1997 it had little effect and was likely perceived as an act of desperation.

Asian monetary cooperation has undoubtedly been complicated by the wide variety of officially declared exchange rate regimes prevalent in EA, the lack of transparency as to how these regimes are *actually* operated, and the different responses of individual countries to the Asian financial crisis itself.

Table 2 summarizes EA currency arrangements in 1990, 1997, 2001, and their monetary policy positions in 2001, as recorded at the IMF. Compared to Europe in the mid-1970s when the first steps in exchange rate cooperation were being put in place after the breakdown of the Bretton Woods system of fixed exchange rates, one is struck by the variety of Asian forex regimes and monetary policies. Hong Kong has had a hard fix to the dollar since October 1983 and operates a quasi currency board. Japan floats. In 1990 and 1997 both Singapore and Indonesia are officially managed floating but for Singapore this means managing the Singapore dollar against an unpublished trade-weighted basket with the primary objective of

maintaining low and stable inflation by reducing import prices⁶, while the Indonesian rupiah seems to be managed in terms of a crawling basket peg to allow the currency to depreciate steadily over time to offset a domestic inflation rate which persistently exceeds that of its competitors. Thailand, on the other hand, officially operated a multi-currency basket peg prior to the crisis but in practice has pegged quite closely to the dollar, ostensibly to maintain export competitiveness. The Philippines and, more recently, Korea are supposedly floating but their regimes are rather opaque. China, on the other hand, which was supposed to be managed floating since 1990, has, in fact, fixed rigidly to the dollar since the beginning of 1994.

During the Asian crisis itself there was substantial exchange rate volatility in EA. Table 3 shows the standard deviation of monthly changes in bilateral Asian exchange rates against the dollar, changes in the nominal effective exchange rate (NEER), and cumulative currency depreciation over the crisis period June 1997 to December 1998. Figure 1 provides a visual picture of nominal monthly exchange rate movements (price of the US dollar measured in domestic currency) for EA between 1990 and 2002.

Non-crisis countries, such as China and Hong Kong stuck closely to the dollar. Singapore devalued by 15 per cent but kept both the rate against the dollar and the NEER fairly stable compared to Malaysia and the Philippines, who devalued by about 50 per cent. Of the crisis countries, Indonesia displayed the highest volatility against the dollar (73 per cent) and devalued by a massive 218 percent.

Post-crisis monetary initiatives:

The Asian crisis may have increased economic disparities in the region, but it renewed political interest in Asian monetary and exchange rate cooperation. There were a number of reasons for this.

To begin with, unilateral exchange rate regimes (including de facto dollar pegging) hadn't worked very well, with the exceptions of Singapore and Taiwan, where success was probably more a function of good macroeconomic fundamentals than the nature of their forex regimes per se, although both countries wisely allowed their currencies to appreciate to some degree in response to the large inflow of capital in the 1990s and so avoided the trap of trying to peg too tightly to the dollar to retain export competitiveness. It helped that this was consistent with their domestic policy priority of price stability.

⁶ Singapore's rather unusual, but highly successful, foreign exchange rate regime and monetary policy is

Other countries, notably Thailand, Indonesia and Malaysia eventually succumbed to the ‘triad of incompatibilities’, namely the difficulty, if not impossibility, of juggling three economic policy objectives in the air at once: ‘managing the currency’ (in effect dollar pegging), retaining some autonomy in domestic monetary policy, and integrating with international capital markets through partial or full currency convertibility (Kwan et al, 1998). Their response to the inflow of capital in the 1990s was to stop it from appreciating the real effective exchange rate (REER), which would have eroded export competitiveness, by buying foreign assets and simultaneously sterilizing the impact of the inflow on the domestic money supply (and thus on goods and asset markets) by issuing domestic assets. This was done quite successfully for some time before the bubble burst. Dollar pegging made this worse since a dollar appreciation against the yen increased the real exchange rate, reduced foreign direct investment and encouraged undesirable un-hedged short-term capital inflows by creating the perception that the central bank would defend the rate against the dollar come what may, so loans could safely be repaid in dollars at a more or less fixed rate. The ‘corner solutions’ of a hard peg or a free float, which were mooted in the immediate aftermath of the crisis were not particularly palatable to Asian governments (as we shall see in 5 below), so the search for a cooperative exchange rate solution became a more attractive option than it might have been prior to the crisis.

The crisis had also shown the extent to which EA economies had become integrated into global goods and factor markets in the 1990s as they liberalised their foreign trade regimes and opened up their domestic markets to both short-term and long-term international capital. The counterpart of this increased interdependence with each other and with the rest of the world was greater exposure to spillover effects across national boundaries, including financial contagion and trade effects as changes in nominal exchange rates affected relative competitiveness and trade flows. Insofar as these effects were externalities which could not be internalized by any one country individually, there are calls to supplement national policies with cooperative solutions at the international or regional level, including regional resource pooling and crisis management policies.

The attractiveness of an international solution had been diminished by the *perception* that international organizations, such as the IMF, had failed to anticipate the crisis, in spite of extensive early-warning machinery, had wrongly diagnosed it as a ‘Latin-American’ style structural crisis, rather than as a capital account crisis made worse by weaknesses in financial

explained in Monetary Authority of Singapore (2000).

and corporate governance, and had applied the wrong remedy, notably to Indonesia, by being slow to disburse funds and imposing excessive conditionality on the loans that were eventually given. If these financial problems are shared within the region then a regional response to financial crises becomes appropriate. The success so far of EMU, despite doubts about its suitability as an optimum currency area, has probably also given some encouragement to advocates of Asian monetary integration. The result has been a spate of post-crisis initiatives to explore monetary and exchange rate cooperation, or to 'evolve the regional financial architecture'.

In September 1997, much to everyone's surprise, Japan proposed an Asian Monetary Fund (AMF) to pool regional funds for quick disbursement in an emergency. The support from other potential creditor countries, such as Singapore and Taiwan, was not discouraging, and the opportunity to devise a multilateral Asian forum was welcomed at the political level by Malaysia and Indonesia, as a possible counterbalance against the Western countries in general, and Washington in particular.

The Japanese proposal was met, however, with strong resistance from both Washington and the IMF. The latter objected on the grounds that such a fund would merely duplicate the facilities available at the Fund itself, it would serve only to undermine the IMF through 'soft' conditionality and would exacerbate the moral hazard problem as a regional lender of last resort. It would be better, suggested the IMF, for EA to focus instead on structural reforms and the establishment of surveillance and monitoring machinery which would complement rather than compete with the IMF. As Stanley Fischer put it: an Asian Monetary Fund would be "A threat to the authority and effectiveness of the IMF."⁷

American and IMF pressure prevailed and the AMF was shelved for the time being. As an alternative, the Manila Framework Group was set up in November 1997 to enhance trans-Pacific monetary cooperation. Finance Ministers and representatives from 14 central banks from countries both within and outside the Asia-Pacific region agreed to meet twice a year, with the Asian Development Bank (ADB), the IMF, and the World Bank providing surveillance reports.

More important, from the perspective of Asian monetary cooperation, was the meeting of the finance ministers of the ASEAN+3 on the sidelines of the Annual Meeting of the ADB in Chiang Mai in May 2000. The idea of an AMF may have been lost, but in what subsequently became known as the 'Chiang Mai Initiative', the ASEAN+3 agreed in principle to establish

⁷ Quoted in Chan and Ramkishan (2001)

a pool of hard currencies to be used in times of crisis and to explore the possibility of setting up surveillance machinery to anticipate future crises.

This culminated in May 2001 at the ADB meeting in Honolulu, which dropped the idea of a *common* pool of hard currencies but expanded the existing ASEAN repos and swap arrangements to ASEAN+3, thereby creating a regional network of bilateral repos and currency swaps. The former allow participating countries to obtain short-term liquidity through the sale and buyback of US Treasury bills or notes. The latter enables countries to swap 'soft' for hard currencies if the home currency is under attack. Initially the sum involved was \$6 billion, with bilateral deals signed between Japan and Malaysia, Japan and Korea, and Japan and Thailand. Others are due to be negotiated in the future (Rana, 2002). The sums involved are quite small compared to the daily flow of funds through the foreign exchange markets and constitute a pool of liquidity denominated in dollars rather than a common fund denominated in a common currency. The swaps are also complementary to IMF lending rather than a substitute for it since disbursement is conditional on an IMF loan and associated programme for macroeconomic and structural assistance, except for 10 per cent of the loan, which can be granted automatically during a crisis.

Nonetheless, monetary cooperation is on the move in the sense that the swaps and repos consolidated in Honolulu constitute the beginnings of a regional financing facility, maybe even an embryonic AMF, and a symbolic first step towards monetary cooperation. It is reminiscent of the General Arrangements to Borrow (GAB) in the early 1960s which allowed the IMF to borrow from the ten major industrial countries in order to assist countries with balance of payments deficits. This was the first time the IMF had borrowed to supplement its resources and was the forerunner of other borrowing arrangements, such as the oil facilities in the 1970s, and it had an important political dimension by promoting consultation among the Group of Ten countries. In addition, swaps involve real credit risk, as opposed to repos which are essentially hard currency loans with US government securities as collateral. Significantly, China has not objected to the concept of an AMF or the increasing use of the yen in swap agreements, and a yen-renmimbi swap is expected to be introduced soon for the first time. We live in interesting times.

The ASEAN Secretariat has proposed a regional financing arrangement whereby each member central bank sets aside some of its reserves, say 5%, to be placed with the other central banks on a pro rata basis, in order to increase the role of local currencies within the region and decrease dependence on outside currencies. Members would then be permitted to borrow multiples of the placement amount (Rana, 2002).

ASEAN and ASEAN+3 are also pressing ahead with their own IMF-style surveillance and monitoring machinery. Under the ASEAN+3 Surveillance Process finance ministers and the Secretary General meet twice a year for policy coordination. The ASEAN Surveillance Process was set up in October 1998 to strengthen policy-making capacity through peer reviews, and is supported by a new Regional Economic Monitoring Unit (REMU) at the ADB to support monetary and financial cooperation in Asia, together with an Asia Recovery Information Center (ARIC), a dedicated internet based clearinghouse of information on the Asian recovery established in November 1999.⁸ An early warning system is also under development at the ADB.

From the exchange rate point of view, under the Hanoi Plan of Action in December 1998 ASEAN leaders had agreed to study the feasibility of a common currency and exchange rate system, but a key development was the January 2001 Third Asia-Europe (ASEM) meeting of finance ministers which agreed to set up the Kobe Research Project. This is an ongoing project at Kobe University in Japan's APEC Study Center to facilitate inter-regional cooperation and research and study activities on topics of mutual interest, such as regional and monetary cooperation, exchange rate regimes and public debt management.⁹ The idea is to strengthen economic/cultural/political ties with Europe and to draw on European experience in regional cooperation, including the feasibility of a common exchange rate system modelled along European lines. We shall come back to this later on.

3. An Asian Monetary Fund?

Why not an AMF? Notwithstanding opposition by the IMF and Washington to an independent AMF, the idea of a regional fund is gaining some support, especially amongst those who are impatient with the pace of reforms to the international financial architecture.¹⁰ It could be a new institution, or a manifestation of the existing ADB. The latter might be preferable since it has greater expertise and transparency than the ASEAN Secretariat. It could be capitalized by reserve contributions from its members according to some formula, and members could borrow multiples of their original contributions. It might act as a lender of last resort, or simply promote regional monetary cooperation and act as a repository for surveillance and early warning machinery for future financial crises.

⁸ Both REMU and ARIC can be found at <http://.aric.adb.org>.

⁹ For further details on the Kobe Research Project, try www.rieb.kobe-u.ac.jp or www.worldbank.org.

¹⁰ For a recent review of such sentiments, see Rana (2002).

Whilst capitalizing such an institution might have been a little daunting in the past, Asian countries now have substantial resources at their disposal, particularly Japan, China and Singapore, partly because of rapid growth in their foreign exchange reserves in the 1990s (Table 4). All that is required is a willingness to pool them to take advantage of economies of scale and some machinery for affecting the transfer. The total official foreign exchange reserves of ASEAN+3 in 1999 exceeded \$700 billion, compared to \$200 billion in 1990. Even ASEAN9 had reserves exceeding \$180 billion. Moreover, in 1997, prior to the transfer of reserves by EMU countries to the European Central Bank, the ASEAN+3 had higher reserves than the founding members of EMU (Table 4).

Surely an AMF can't be any worse than the IMF in dealing with the Asian region? Certainly it would run the risk of becoming a 'soft option' as far as conditionality is concerned, and it would be subject to political pressures in the region against the implementation of unpopular policies. It might also exacerbate the problem of moral hazard in lending matters, but similar arguments have been levied against the IMF in the past. On the other hand, an AMF might, by virtue of its location, be better informed on issues of direct relevance to the region, be willing and able to respond more quickly to regional crises, and would be less susceptible to Washington based political interference. The Chiang Mai Initiative was a useful first step towards augmenting regional resources but the sums involved are small and its scope for action is severely limited by the bilateral nature of the arrangements and the dominance of IMF conditionality. A permanent Asian Monetary Fund would be a better solution.

The view that a regional solution, including Asia-specific conditionality, might be better is also strengthened if the causes of the Asian financial crisis are traced, not so much to Latin American weaknesses in macroeconomic fundamentals (high inflation, large budget deficits, unsustainable current account deficits) but to premature financial sector liberalization, weaknesses in financial markets and in corporate governance, and mistakes in the management of international capital flows which left countries susceptible to financial panic and destabilizing currency flows. A solution to this, which could be orchestrated by an AMF, might be to develop a regional bond market to stem the flow of savings invested outside of the region only to be recycled back as short-term bank loans in foreign currency, which was a potent source of instability in the build up to the Asian financial crisis.

The globalization of goods and factor markets in the last two decades has substantially increased interdependence and externality effects across national boundaries, such as financial contagion, which supports the case for supplementing national policies with regional initiatives, since one country alone cannot fully internalize these spillover effects. As

Rose (1999, 2000) has argued, currency crises tend to be regional and spread via trade links thus disrupting regional trade flows. An AMF would be one way to mitigate these effects.

A good example of these spillover effects is the way in which the contagion effects of the Asian financial crisis affected countries in EA not so much through direct trade links with crisis hit countries, such as Thailand and Indonesia, but through indirect links with countries with large trade volumes, such as Japan, Hong Kong and Korea. To illustrate for one country, Table 5 shows the relative impact of Singapore's trading partners on Singapore's real GDP growth from Abeysinghe (2001), using a quarterly model linking the GDP's of twelve economies or blocs through a matrix of bilateral export shares.

As expected, shocks originating in Japan, the USA and the rest of the OECD have relatively strong effects on Singapore. Less obvious, however, is the fact that countries with a larger trading volume generate more spin-off effects on other countries even though their direct trade links might be weak. This is because the multipliers take into account both the direct and indirect effects. Malaysia, for example, is Singapore's second largest market for total exports, but comes fifth in terms of the impact on Singapore's GDP growth while Hong Kong, which is half as important as a market for Singapore's exports, comes fourth. This is because an increase in GDP growth in Hong Kong stimulates imports from other countries including Singapore. This increases Singapore's exports directly and indirectly through Hong Kong's export markets that import intermediate products from Singapore, so the cumulative effect of the growth in Hong Kong on Singapore's GDP is larger than that resulting from an equivalent increase in growth in Malaysia.

One might argue that it would be better for EA to focus on financial and corporate reforms and crisis prevention measures which are complementary to the IMF, while the necessary economic and political preconditions are set in place for closer monetary union. But there is still a good case for increasing monetary and exchange rate cooperation *now*. An AMF would actually be quite an easy first 'baby' step since it would be an extension of the current activities of the ADB and ASEAN Secretariat, it need not be based on a specific hegemon such as Japan, or require a yen bloc, or prior evidence that EA is an optimum currency area (discussed in the next section); and it need not be evolved in the first instance from membership in a regional trade bloc, such as ASEAN. Indeed, from a resource point of view, ASEAN+3 or some other configuration which includes the richer Asian countries would be more logical.

It would also be a crucial first step to institutionalise change in EA by building on the post-crisis political goodwill (and the 2002 World Cup shared between Korea and Japan!) to begin

the process of constructing self-help mechanisms to prevent future crises, and a regional forum for arguing about EA monetary and exchange rate affairs. As the Malaysians might put it: “Asia boleh” (Asia can do it). Although Europe has a long history of institution building at the supranational level, experiments with exchange rate coordination in the 1970s (often acrimonious and unsuccessful) required forums in which economists and politicians could argue with one another and vent their feelings against ‘outsiders’, usually the USA, in order to develop something distinctly ‘European’.

In this sense the decision to shelve the idea of an AMF was probably a mistake, but explicable in the context of Japan’s ambivalence towards the USA and its rather uneasy position in the geo-political landscape of EA, where there are old problems to be solved regarding multiple claims over territories in the south China sea and a good deal of resentment still about Japan’s refusal to address the issue of its world war II atrocities in the region (especially in Korea and China), in the same manner as Germany has done. China’s entry into the World Trade Organization and emergence as a formidable political power has also created political uncertainties and a degree of rivalry between Japan and China with respect to influence over events in the rest of EA, which might complicate steps towards monetary and exchange rate cooperation, but need not preclude it.

4. An Asian Monetary Union?

There is much discussion about the prospects for an Asian monetary union but in fact, Singapore already has a curious currency union with Brunei. Indeed, the Brunei ringgit is the only currency which can be obtained for the Singapore dollar at a known and fixed rate, and the only sense in which Singapore operates a true currency board system (Peebles and Wilson, 1996). Under a ‘currency interchangeability arrangement’ introduced in June 1967, Brunei, Malaysia and Singapore adopted free interchangeability of their currencies. In 1973 Malaysia dropped out to focus on its own independent monetary policy, but Singapore and Brunei continue to accept each others’ currency as ‘customary tender’ and exchange it at par into their own currency, periodically repatriating the accumulated stock of notes back to the country of origin. In essence, the arrangement is a currency union characterized by a one-for-one exchange rate and a joint managed floating exchange rate mechanism. There is no formal cooperative support mechanism but in practice a joint monetary policy is conducted by the MAS.

Both countries seem to benefit from the arrangement as a common currency enhances trade and factor flows between the two countries and the effective pooling of the money stock and

foreign exchange reserves reduces the threat from an outside speculative attack. Singapore benefits, in particular, from the attraction of Brunei funds into Singapore and the Asian dollar market through Singapore's offshore banks, and Brunei benefits from the credibility of Singapore's monetary policy keeping inflation low and the currency stable. There is little evidence of serious trade imbalances between the two countries or differential unemployment rates, even though there is limited inter-country labour mobility (Chan and Ngiam, 1992). Brunei has given up its own monetary policy but seems happy to be the passive partner, and Singapore has little to lose.

The optimum currency area

In the original Mundellian (1961) sense an OCA exists when the benefits of fixing exchange rates exceed the costs. This need not necessarily be defined by common geographical boundaries since it could take the form of a common anchor to a specific currency, and thus a common monetary policy. A monetary union would then be an extreme form of monetary integration where there is a common currency and central bank.

The microeconomic benefits of an OCA to its members include the increased allocative efficiency arising from the saved transaction costs of currency conversion, the elimination of currency risk and hedging costs within the bloc, and economies of scale in the holding of foreign exchange reserves if a common central bank replaces the banks of individual countries. It may also promote a single integrated market if barriers between the regions are removed and foreign investors perceive the union as a single market and take advantage of economies of scale. Macroeconomic gains might include a reduction in inflation and inflationary expectations if the common monetary policy is disciplined and credible, a reduction in risk adjusted real interest rates as currency risk is eliminated and expected inflation falls, and the elimination of the intra-bloc social costs of floating exchange rates (destabilizing speculation, exchange rate uncertainty, currency overshooting) if exchange rates are permanently fixed.

The costs of an OCA are generally associated with the 'economic stabilization loss' or extra instability in output resulting from the giving up of the exchange rate as a macroeconomic tool for individual countries. There may also be one-time costs as high inflation countries converge to a common interest rate structure and inflation rate. More persistent costs could arise from difficulties in the application of a common monetary policy, especially if individual economies are subject to frequent asymmetric shocks. For example, countries with high inflation and low unemployment may require high nominal interest rates and vice versa

for countries with high unemployment and low inflation. Fiscal externalities may also arise if, for example, a 'large' country within the bloc embarks on an undisciplined fiscal expansion thus generating inflationary pressures for the bloc as a whole, and negative effects on trade balances as a result of an un-wanted appreciation of the common currency.

A number of *single* criteria have been put forward to help decide whether a group of countries actually constitute an OCA. The assumption is that OCAs are more likely to succeed if closely linked by trade in goods and services and by factor mobility, or there is evidence that convergence will occur quickly in the future.

The 'early' Mundell (1961) stressed the need for sufficient factor mobility (particularly labour) to enable countries to adjust to asymmetric output shocks without resort to the exchange rate. A classic example would be widespread adoption of more flexible exchange rates after the first oil shock in 1973.

McKinnon (1963) emphasised the importance of openness (high proportion of traded to non-traded goods) so that giving up the exchange rate instrument would be no cost since the expenditure switching effects of depreciation would in any case quickly pass through to higher domestic prices and wages and offset any competitive advantage from the original devaluation/depreciation. Moreover, since small countries tend to be more open, they will, *ceteris paribus*, lose less from monetary integration.

Kenen (1969) pointed out that a high degree of product diversification would be a positive factor since OCA members would be more likely to have a diversified portfolio of jobs and be less susceptible to industry-specific shocks.

The problem with single criteria is that they may conflict (Tavlas, 1994): a country may be very open to trade but at the same time have a low level of labour mobility. *Multiple* criteria adopt a more explicit cost/benefit approach.

Bayoumi (1994) has neatly incorporated Mundell, McKinnon and Kenen criteria into a general equilibrium model of the OCA adding the key insight that the bloc's common external exchange rate is, by definition, some average of what would have been the equilibrium exchange rates of the members had they not been in a currency union. So if some members experience asymmetric shocks, the external exchange rate cannot move to satisfy them all. However, the net benefits of membership increase for a given country facing a negative asymmetric shock with the degree of openness representing a high level of 'cross' or diversified consumption (McKinnon), the degree of international labour mobility (Mundell), and the degree of industrial diversification which reduces the size of aggregate shocks (Kenen).

In a similar vein, Melitz (1995) showed that the net benefits of giving up the nominal exchange rate if there is some wage-price stickiness, depends on a country's trade weighted covariance of real exchange rates with its trading partners. A high covariance means that a change in the nominal rate will move the real rate in the desired direction in terms of each partner so devaluation/depreciation is effective. But if the covariance is low, devaluation/depreciation may be appropriate for some, but not for all partners, so the exchange rate weapon becomes less effective and the costs of joining a monetary union are reduced.

Whilst OCA criteria provide a basis for assessing the costs and benefits of monetary integration, they are not strictly necessary providing there is sufficient endogenous convergence and political will. This is important when assessing the prospects for AMU. As Frankel and Rose (1998) have pointed out, countries are more likely to satisfy the criteria *ex post* and historical extrapolation can be misleading. High inflation countries, for example, may be more willing to join a monetary union precisely because it will enable them to bypass domestic political constraints and gain the credibility of the common central bank. In the EMU case there should be substantial benefits, both microeconomic and macroeconomic, from monetary integration, especially if a common currency acts as a catalyst to complete the single market. However, labour mobility is still limited within Europe, convergence in business cycles appears to be persuasive only for a 'core' of countries excluding those on the 'periphery', such as Spain and Ireland, and there are lingering doubts that the Maastricht institutions are going to be strong enough to contain political tensions, especially in the area of fiscal harmonization (Wilson, 1998).

Indeed, if the Maastricht convergence criteria were strictly applied in 1996 (Wilson, 1998), Portugal, Spain and Italy failed on price stability, and only Finland, the Netherlands, Luxembourg and Ireland passed on budget deficits. One year later, all 11 future members passed on interest rates, price stability and budget deficits and were within the widened band of the exchange rate mechanism (ERM). Interestingly, Argentina¹¹ which was in deep economic crisis in 2002, also passes these tests in 1997 (Table 6). All failed, however, in terms of the debt to GDP ratio except Argentina, France, Finland and Luxemburg. By January 1999, when EMU was born, short-term interest rates had stabilized at around 3.5%, spot and forward exchange rates had converged on their central parities in the ERM and the Maastricht tests had been passed as far as price stability and current budget deficits were

¹¹ I am grateful to Hasse Karlsson for pointing out the Argentinean connection.

concerned (with some creative accounting in the case of budget deficits), but not in terms of future budget deficits and government debt.

OCA criteria are thus not set in tablets of stone. Although Mundell in 1961 worried that countries which were dissimilar would not be able to have a common monetary policy in the face of asymmetric shocks, he realized that this doesn't make sense for highly diversified industrial countries producing a wide range of goods and he appears to have changed his mind in Mundell (1973). *Heterogeneous* economies could share the risks from asymmetric shocks better within a common currency area as long as there were international portfolio diversification in capital markets so a country which suffered an adverse shock could easily borrow from other countries in the currency area and so share the risks of asymmetric shocks. A good argument for adopting the euro in EMU is precisely that it will encourage greater portfolio diversification in the euro area, and this has already happened. It is not, however, imminent in East Asia.

Is Asia or a subset of countries, such as ASEAN, an optimum currency area?

There is pretty much universal agreement, even amongst those who advocate further monetary and exchange rate cooperation in EA, that Asian monetary union is a long way off in terms of a significant pooling of sovereignty into common institutions, and the adoption of a common exchange rate mechanism. Neither is EA or ASEAN an OCA according to the strict criteria discussed above. But, notwithstanding the sample selection problem adhered to earlier, there is some disagreement as to *how far* EA or a subset countries satisfy the economic criteria for an OCA. This is important not simply because it will affect the political agenda for countries contemplating further monetary integration, but because some *minimum* prerequisites in terms of economic integration are necessary for the development of common monetary institutions. As we shall see below, advocates of a common EA exchange rate policy, such as Williamson (1998) and Mckinnon (2000), do assume that EA countries are sufficiently close as trading partners and competitors in world markets to justify a common monetary arrangement. If this is not the case then the case for giving up unilateral exchange rate regimes is significantly weaker.

Empirical work on EA and ASEAN has been a mixture of an ad hoc application of the single OCA criteria and more formal modelling of the magnitude and characteristics of the supply and demand shocks affecting countries over time. The case for an OCA is strengthened where there is substantial cross-border trade and factor flows, a degree of similarity or convergence in the levels and behaviour of key macroeconomic indicators relevant to a common monetary

policy, such as inflation, unemployment, budget deficits (indicating fiscal sustainability so there is less need for monetary policy), interest rates, and exchange rates. Also where there is evidence of small and synchronised supply and demand shocks, fast adjustment to shocks, and common business cycles.

Building on earlier empirical work by Goto and Hamada (1994) and Bayoumi and Eichengreen (1994), which was quite supportive of the case for monetary integration in EA, Eichengreen and Bayoumi (1998) came to the conclusion that 9 EA countries satisfied the standard economic criteria for an OCA almost as well as Western Europe so a common currency peg would benefit its small open economies, although domestic financial systems were less well diversified so a common currency peg would be risky. EA also lacked the institutional framework and political preconditions to make a peg work, so it risks being unstable.

As far as ASEAN was concerned, (Bayoumi and Mauro, 1999) suggested that it was less suitable for monetary integration than Europe just prior to the Maastricht Treaty, since the latter had achieved a much higher degree of economic integration, and had greater political will and the necessary institutional structures, but the economic differences were not that large.

Tables 7 and 8 reproduce some of the key results from this analysis. The size of the shocks was much larger for East Asia even if the crisis years are excluded but their adjustment to shocks was relatively fast compared to Europe, particularly for Malaysia, Thailand, Singapore and Hong Kong for demand shocks, and Indonesia, Malaysia, and Taiwan on the supply side. This was attributed to more flexible labour markets and good macroeconomic management. But the good performance tends to be on government debt and budget deficits. The performance on inflation is much more varied with only Brunei, Malaysia and Singapore performing well in comparison with EMU (Table 9). There are also sizeable positive correlations between the underlying aggregate supply disturbances for Malaysia, Singapore and Indonesia within ASEAN, but not Philippines or Thailand; and Taiwan with Singapore, Thailand and Hong Kong in the broader East Asia grouping.

Eichengreen and Bayoumi (1998) and Bayoumi and Mauro (1999) also constructed 'OCA indexes' (Table 10) which measure the expected level of bilateral exchange rate variability based on four proxies for an OCA: the difference in growth rates between the two countries (less costly to stabilize exchange rates between partners if their GDPs move together), differences in the commodity concentration of exports (less costly if the composition of trade is similar), the ratio of bilateral exports to GDP (more benefits if bilateral trade is large), and

the size of the two economies (more benefits if they are large). If the index is small in magnitude then bilateral exchange rates are more stable and there is less cost from giving up the exchange rate weapon.

Overall, the 9-12 range is not so far from the 6-9 range between France, Italy and Spain, but only a few bilateral indices in EA are in the 6-7 range: Singapore with Malaysia, Thailand and the Philippines in ASEAN, and Singapore with Korea, Taiwan and Hong Kong in the broader EA grouping. Not surprisingly it is the smaller, more open economies which would find it less costly to peg to other EA economies and bilateral links with Singapore dominate the matrix.

Some researchers, including the present author, are, however, more sceptical about the extent to which EA or ASEAN satisfy the economic criteria for an OCA.

One persistent theme is the lack of similarity in levels of economic development and lack of convergence in income per capita discussed earlier under the sample selection problem. Nicolas (1999), in particular, has argued that similarity in ASEAN countries has been exaggerated because of high levels of aggregation. Using the Finger-Kreinin similarity index (Table 11), ASEAN5 countries *appear* similar since all are manufacturers and traders, but they are much less similar within manufacturing. Indonesia, the Philippines, Thailand and Malaysia produce a large amount of food products and electrical machinery, but Singapore produces no food but does refine petroleum. The only strong similarity in export structures is between Singapore and Malaysia, and ASEAN5 countries are not very well diversified in production. Half of Singapore's manufacturing is in electronics and non-electronic machinery and 13% in petrol refining, while the Philippines and Malaysia are concentrated in food products and electrical machinery.¹²

The magnitude of intra-Asian trade is also controversial. Intra-bloc trade as a per cent of regional GDP is similar in magnitude to the EU and higher than for MERCOSUR and NAFTA (Table 12) but this is largely because of sheer openness (Table 13), and intra-ASEAN trade is much lower as a percent of total bloc trade (Table 12). There has undoubtedly been an increase in intra-regional trade in EA since the beginning of the 1980s, but when the growth and size of bilateral trade is normalized by the relative share of the countries in total world trade, by calculating trade intensity indices, it is not clear that there has been an equivalent increase in Asian trade bias (Frankel and Wei, 1994).

¹² Kwan (1998) also found the correlation between Asian countries vectors' of the share composition of imports and exports by product: less similar than for Europe.

The intensity of intra-ASEAN trade based on the average origin of imports and destination of exports has increased substantially since the mid-1980s as a per cent of total regional GDP (Table 12) and most is Asian in origin, but it is less than the 16-20% of bloc trade usually quoted. Most trade and investment is with Asian countries outside ASEAN, including Japan and the other newly-industrialized countries, and it is much less if Singapore is excluded from the trade matrix (Table 14) and allowance is made for re-exports, particularly between Singapore and other ASEAN countries.¹³

Recent work on 'shocks' has also been more guarded. Yuen (2001), for example, found some synchronization in supply shocks only for small groups of countries within EA, such as Singapore and Malaysia; Malaysia and Indonesia; Japan and Korea; and Hong Kong and Taiwan.

Others have questioned the assumption that faster adjustment to supply shocks in EA can be attributed to more mobile cross-border labour movements. It is true that labour markets are generally more flexible than in Europe. But the large proportion of foreign workers in the labour forces of Singapore, Malaysia and Hong Kong, are inflated by one-way movements of un-skilled workers from the poorer countries in the region, such as Indonesia and the Philippines, in search of higher wages, rather than the symmetric short-term adjustment mechanism implied in the Mundell (1961) criterion. Singapore, in particular, has undoubtedly benefited from the ability to cancel contracts for unskilled foreign workers at short notice in order to cushion the rise in domestic unemployment during economic downturns, such as in 1986 and 2001, and as in Malaysia, this labour has no permanent right of entry, unlike in the EU.

Another problem arises if the shocks facing countries are predominantly country-specific rather than regional or global, since the case for an OCA is predicated on the basis of similar or highly correlated shocks among members which, by definition would be global or regional in origin.¹⁴

Chow and Kim (2000) looked at 15 European and 7 EA countries using SVAR analysis and found country specific shocks dominated the determination of output in EA, in stark contrast to Europe. In the case of Singapore, for example, the variance decomposition of domestic output, showing the percentage fraction of output fluctuation induced by global, regional and

¹³ For the original six ASEAN countries about 21.7 per cent of their total trade is intra-bloc in 1999, falling to 18.6 if Singapore is excluded (IMF Direction of Trade Statistics, October 2000).

¹⁴ Country-specific shocks might include changes in monetary or fiscal policy, in productivity, or in the terms of trade, while regional shocks from the EA point of view could arise from changes in the yen-dollar rate or

domestic shocks, is 13, 4, and 83 respectively, compared to the 'core' European countries (Austria, Belgium, Netherlands, France), where the shocks were mostly regional (6,59,34). Interesting for those of us who think that EMU should have proceeded on the basis of the more integrated 'core' countries first, non-core countries in Europe (such as Spain and Portugal) were also subject to a higher proportion of country specific shocks.¹⁵

Political and institutional prerequisites

Although there are differing views on the extent to which EA or ASEAN satisfy the economic preconditions for closer monetary and exchange rate integration, there is much more of a consensus that Asia lacks the requisite institutions and socio-political forces to achieve the level of integration that has now been achieved in Europe (Bayoumi and Mauro, 1999, Nicolas, 1999).

To begin with, European integration has been characterised by a long period (at least 50 years) of politically-driven integration and commitment to a 'European ideal', combined with the progressive delegation of a range of powers to supranational institutions.¹⁶

The 1957 Treaty of Rome which initiated closer economic and political coordination in Western Europe, including the pursuit of a customs union, was not concerned with monetary union but was primarily motivated by the desire to contain Germany within an economic and political system which would make it impossible for it to initiate another war with its European neighbours. The first serious document about monetary union was probably the Werner Report, published in 1971 at the height of the crisis surrounding the collapse of the Bretton Woods system, which envisaged monetary union within a decade. This turned out to be remarkably prophetic, albeit premature.

China's accession to the World Trade Organization. Good examples of global shocks would be an oil price hike or the terrorist attacks in the USA in September 2001.

¹⁵ It is surprising that global and regional shocks are of little importance to such open, interrelated EA economies, and contrasts with Mookergee and Tongzon (1997), who found some qualified evidence of common business cycles (dominated by investment cycles) and closer integration of ASEAN countries amongst themselves and globally. Singapore, Malaysia, and the Philippines appear to share a common cycle since they are relatively open, but not with the more closed Indonesia or Thailand. The sources of the cycles are traced to the USA and Japan as markets and suppliers of foreign direct investment, with cointegration between the business and investment cycles of the USA (weak with respect to Japan) and ASEAN, and between some ASEAN countries, with Singapore tending to lead ASEAN cycles.

¹⁶ French contenders might include Giscard D'Estaing, Jacques Delors, Francois Mitterand, Jacques Chirac. Germans, such as Helmut Schmidt, Helmut Kohl, Hans-Dietrich Genscher. Even some from the UK: Lord Heath, Lord Owen and Chris Patten.

The collapse of the Bretton Woods system in the early 1970s produced the ‘snake in the tunnel’ in April 1972 when Germany, Belgium, Netherlands and Luxemburg (joined for periods by other countries) fixed their currencies within bands of 4.5 per cent around central parities against the dollar and floated jointly against the outside world. The experiment was short-lived and not very successful but it was an important learning process and precursor for the EMS in 1979. The EMS included the ERM which was designed to stabilize exchange rates within plus or minus 2.25 per cent of their central parities. This was more successful, especially between 1979 and 1987 (see below). The Delors Report of 1989 marked the first serious commitment to the ideal of a full monetary union, and the Maastricht Treaty of 1991 set down a detailed time-table and explicit preconditions for its achievement, including macroeconomic convergence criteria.

European integration has not always been a smooth process and there has been opposition and resistance at each stage. There were serious currency crises in 1992 and 1993, and attempts to create a single market in capital and labour have been painfully slow. There was an embarrassing public wrangle over the appointment of the first President of the European Central Bank (ECB) in 1998 and political differences about the conduct of monetary and exchange rate policy surfaced in early 1999, partly because of ambiguities in the Maastricht Treaty. Also controversial has been the Stability and Growth Pact, under which EMU members are obliged to publish regular ‘stability’ programs including actual and forecast fiscal deficits, with procedures for punishing if deficits exceed 3 per cent of GDP. The institutions of EMU are also inadequate in the areas of transfer payments and fiscal harmonization, so there is plenty of room for political tensions.

It may not yet be a ‘happy family’, but The EU (which includes EMU members) has achieved a substantial degree of institutional integration around a set of common values, with a significant amount of ‘people representation’ in terms of the European Commission, European Parliament, Court of Justice, ECB, and there are in place at least some rudimentary mechanisms to compensate/redistribute from richer to poorer regions. By contrast, ASEAN is based more on the ‘good neighbours’ principle of levelling the playing field and removing obstacles to cross border economic activity, driven by policymakers and secretariats based on national institutions and loose networks. Little sovereignty has been surrendered and there is a distinct absence of idealists. The idea of ‘Asian values’ turned out to be a short-lived phenomenon in the early 1990s and largely centred in Singapore, and the anti-Western rhetoric of Malaysia and Indonesia is not shared by other ASEAN members such as

Singapore and the Philippines. Moreover, there is little in place by way of income transfer mechanisms. Most assistance comes from outside ASEAN, from Japan, the USA or the EU.¹⁷ So the options for integration in EA seem to be quite limited for the foreseeable future. When Lee Hsien Loong, the Deputy Prime Minister of Singapore, was asked in 2001 whether Asia would ever become a homogeneous trading bloc like Europe or develop its own single currency, he clearly didn't think so: 'No it cannot be. The politics is very different. The political systems and the financial and economic philosophies are too difficult. It cannot be harmonised. I cannot see it in my working lifetime...will it be the yen or the renmimbi?'¹⁸ A monetary union may be a distant pipedream but there is still scope for cooperation in matters of trade, competition policy, labour and capital mobility and in the monetary arena through 'self-help' mechanisms, such as the pooling of resources in an AMF and the establishment of monitoring and surveillance machinery, as suggested earlier. European integration was characterised by a long period of harmonization in economic policy even before the Maastricht Treaty was signed. A key test case will be whether EA countries will be willing to cooperate in exchange rate matters, which was crucial in early European experience.

5. An Asian exchange rate mechanism?¹⁹

The Asian financial crisis demonstrated, amongst other things, that unilateral exchange rate regimes (including de facto dollar pegging) hadn't worked very well in the 1990s faced with massive capital inflows into the region (Kwan et al, 1998).²⁰ A further problem was the sharp swings in the dollar-yen exchange rate. A classic case of this 'third country' effect was in April 1995 when the dollar appreciated sharply against the yen thereby reducing the competitiveness of Asian countries relative to Japan and the EU. Those countries which

¹⁷ This contrast between the European 'happy family' model of integration and the 'good neighbours' model, was recently expressed by Pascal Lamy, the EU Trade Representative, and is reported in the Singapore *Business Times* of 18 February 2002.

¹⁸ Quoted in Peebles and Wilson (2002, p.267).

¹⁹ The literature on the choice of an exchange rate regime is voluminous. In the Asian context, see the readings in Collignon et al (1998).

²⁰ Although as Nicolas (1999) has pointed out, the dollar peg was good for the Asian 'miracle' between 1985 and 1995 insofar as the stability it produced within a climate of unilateral liberalization and open regionalism increased trade and investment, and encouraged the relocation of production from Japan as yen appreciation made it cheaper to produce abroad in the 'dollar zone'.

resisted devaluation found their NEER rising with potentially damaging effects on their current accounts.²¹

There is also the perennial problem of competitive devaluations, since devaluations by one or a number of EA economies puts deflationary pressures on their close competitors if they decide not to follow suit. The global slowdown in 2001 and 2002, together with yen weakness generated precisely such problems. Matters are made worse by the asymmetric needs of specific countries. Korea, for example, is more competitive in export markets with Japan, while the poorer ASEAN countries of Indonesia and the Philippines, and China are more concerned about relative currency fluctuations among themselves. This is precisely why Japan is anxious to include discussions about the exchange rate in forums concerned with monetary cooperation, such as the Manila Framework and ASEAN+3.

The Immediate response to the Asian crisis was that if it were not possible to juggle all three economic policy objectives at once then a 'corner' solution might be better. Either keep convertibility and a stable currency but abandon monetary independence and fix the currency, preferably backed up by a currency board, or keep monetary policy and convertibility but abandon currency management and adopt a free float.

But a hard peg is perceived to be too rigid for most countries in EA, and with the notable exception of Hong Kong (and Brunei), they have not been in a hurry to give up monetary policy or their central banks. Even Malaysia, which adopted a formal peg to the dollar in September 1998, has restricted convertibility in order to maintain some control over monetary policy. On the other hand, the potential costs of a clean float are seen to be too great for emerging economies with weak financial infrastructure. There would be a risk of serious currency misalignment with real consequences for exports and inflation targets, and continued volatility in capital flows and foreign exchange markets, characterised by manipulation and herd behaviour, runs the risk of destabilising speculation.

A unilateral basket peg (published or not) is better in as much as it provides some insulation against movements in the major currencies, especially the dollar/yen rate, and reduces volatility in the NEER and REER. It is also relevant to countries with reasonably diversified trade patterns and thus no obvious single candidate for an exchange rate anchor. Such a regime could also be a transit stage to a free float. On the other hand, it must be a credible regime backed up with good macroeconomic management if it is not to fall prey to periodic crises. The main problem, however, is that a unilateral basket peg still leaves considerable

²¹ It is actually quite difficult to find hard evidence of a long-term negative relationship between the real trade

intra-EA instability since baskets would differ between countries and a change in the dollar-yen rate would lead to a change in intra-EA exchange rates with consequences for exports if the countries concerned are close competitors. In these circumstances a common exchange rate solution becomes quite appealing.

A yen bloc?

If lingering political problems could be put aside between Japan and her neighbours, a currency bloc with EA countries pegging to the yen as a group or increasing the weight of the yen in their unilateral currency baskets would be a neat solution (Taguchi, 1998, Kwan 1998, 2000). It would insulate them (including Japan) from intra-EA fluctuations in the yen dollar exchange rate and it could form the basis of wider monetary integration, including a common currency. Japan is already a 'hegemon' of sorts given its importance in regional trade and investment and its developed country status, and there is some trade invoicing in the yen. But a yen bloc seems rather remote at the present time. The Bank of Japan is hardly a credible anchor for monetary policy and the short-term capital market in Japan is not sufficiently liquid or deep to act as a regional currency centre and much of Japan's exports are in fact invoiced in the dollar. There are also some well-known asymmetries in the exchange rate policy objectives of some EA countries. Korea, for instance, tends historically to follow a depreciating yen to retain export competitiveness in the Japanese market, while Singapore, on the other hand, is more likely to follow an appreciating yen to subdue import prices and thus contain imported inflation.

Besides, there is little evidence so far of the emergence of a de facto yen bloc (Frankel 1993, Frankel and Wei, 1994, Benassy-Quere 1998). Table 15 shows the monthly volatility of Asian currencies against the dollar as a per cent of their volatility against the yen between 1990 and 1997. Although the yen does figure quite prominently in some implicit or explicit currency baskets, the highest ratio is for China, but even this becomes negligible from 1994 onwards when China adopted a tight peg against the dollar.

A dollar peg?

An alternative solution would be to peg unilaterally or collectively to the dollar (or attach a large weight to it in currency baskets) in order to stabilize intra-bloc exchange rates and long-run exchange rate expectations and to anchor regional price levels and gain the benefits of a

balance and real exchange rate appreciation for East Asian countries (Wilson, 2001).

larger dollar trading zone among close trading partners (McKinnon, 2000). A common currency would be better since there would be no need for an independent anchor and it would remove exchange rate uncertainty (as in EMU), but EA does not satisfy OCA criteria sufficiently and AMU is not imminent, so an EA dollar standard (EADS) would be a simple second best solution. It could be introduced more quickly than a European-style ERM, it would be better than floating, and it could build on the existing widespread use of the dollar in regional trade invoicing and reserve composition. A dollar peg would be highly transparent with immediate effects on public confidence.²²

Moreover, according to Calvo and Reinhart (2000) dollar pegging is a rational response to capital market conditions in emerging economies where the domestic currency can't be used to borrow abroad so all domestic investments have a currency mismatch (borrow in foreign for projects which generate domestic currency) and a maturity mismatch (long-term projects financed by short-term borrowing). In the absence of hedging facilities agents borrow in the forex market, mostly in dollars, and for the short-term. Dollar pegging is a rational response to the fear of floating, since positive shocks such as a capital inflow appreciate the NEER and REER, and adverse shocks raise the possibility of a collapse in the currency since devaluations are associated with recession and inflation and not increased export competitiveness.

The case for an EADS is also based on the observation that EA was, in fact, a dollar bloc prior to the Asian financial crisis, and most EA countries have since returned to the peg. Table 16 presents some evidence on the volatility of Asian currencies against the dollar and some associated dollar pegging coefficients before, during, and after, the Asian financial crisis. Figure 1 provides the visual picture. The dollar pegging coefficients are obtained from the following regression based on McKinnon (2000), where SWF is the Swiss franc (used as the numeraire), USD is the US dollar, JPY is the yen, DEM is the German mark or euro after 1st January 1999:

$$\begin{aligned} \% \Delta (\text{Local Currency}/\text{SWF}) = & \beta_1 + \beta_2 \% \Delta (\text{USD}/\text{SWF}) + \beta_3 \% \Delta (\text{JPY}/\text{SWF}) \\ & + \beta_4 \% \Delta (\text{DEM}/\text{SWF}) + \varepsilon \end{aligned} \quad (1)$$

²² Mundell has also recently proposed at an ADB Lecture in 2001 that Hong Kong fully dollarise in order to speed up monetary convergence in EA. Since China is already effectively pegged to the dollar, an explicit ASEAN+3 peg to the dollar would encourage convergence to an Asian currency area revolving around the dollar, as an interim step towards a common currency.

If the local currency is tightly fixed to some value of the dollar then β_2 will be significant with a small standard error and approach unity, while β_3 and β_4 will be insignificant and close to zero.

Clearly there is a substantial amount of dollar pegging before the crisis, including China from 1994.²³ Even Malaysia, Philippines and Singapore, which have relatively high volatility against the dollar, appear to have large dollar weights in their exchange rate baskets. For Singapore, which is not usually regarded as a tight dollar pegger, a one percent change in the ratio of the US dollar to the Swiss franc is associated with a 0.69 per cent change in the Singapore dollar ratio to the Swiss franc. China and Hong Kong stuck rigidly to the dollar during the crisis and there is some evidence that EA is returning to a dollar standard since 1999 (Malaysia officially pegged the ringgit to the dollar in September 1998 and China's unified exchange rate system is now closely allied to the dollar). Indonesia is a clear exception and maybe Thailand and the Philippines where the standard errors of the dollar pegging coefficients are relatively high.

So if there has been a return to high frequency dollar pegging²⁴ then all it requires is to modify the rules to make the system work better (McKinnon, 2000) by, for example, limiting banks' and other financial institutions' net foreign exchange exposure and developing a long-term bond market.

The re-emergence of informal pegging to the dollar in EA may be a rational solution to the problems they face in an uncertain and competitive world, but it represents a collective choice by default based on a false sense of cohesion and leaves the region vulnerable to further competitive devaluations, currency contagion and crises. In this sense, 'informal dollar pegging in a non-optimal way' strengthens the case for a collective solution, which could be a more formal dollar peg, as suggested by McKinnon and others. The case against this particular choice rests largely on the belief that EA with its diversified trade patterns is not a *sufficient* 'optimal' currency area with respect to the USA in the way that many Latin American countries may be by virtue of their strong bilateral trade and investment links. So the dollar is not a natural anchor for EA countries. Moreover, pegging to the dollar to anchor regional price levels need not stabilize effective exchange rates, it provides no insulation against outside currencies (unless they also fix against the dollar) and it is not clear that EA

²³ Earlier evidence in favour of dollar pegging is summarised in Nicolas (1999).

²⁴ According to McKinnon (2000) the case for a return to the EADS is stronger when high frequency weekly or even daily foreign exchange data is used to calculate the dollar pegging coefficients.

countries are committed to stabilizing their price levels through exchange rate policy or in general need to adopt a nominal inflation anchor.

A common basket peg?

An alternative collective solution is to adopt a common basket peg (Williamson 1998). By using both common weights and a basket it would minimize the effects of fluctuations in major currencies and at the same time minimize intra-EA exchange rate instability. The basket can be used to stabilize the NEER or REER with a band to adjust for misalignments, and the collective weights would obviate the problem of 'beggar-thy-neighbour' competitive devaluations. In essence it would be a 'collective basket' instead of 'collective security' as in the EADS.

To see how this might work counterfactually, Williamson (1998) conducted an experiment for nine EA countries which he assumed to be close competitors, between the end of 1994 and April 1995 when the yen appreciated sharply against the dollar. Most EA countries stayed with the dollar and so experienced a large actual fall in their NEER, more than they would have wanted. A unilateral basket peg, by definition would have meant zero variation in the NEER but significant instability bilaterally against the dollar and thus relative to each other. A common basket peg, on the other hand, with weights based on common extra-regional trade would have meant an identical 9.8% appreciation of all EA currencies against the dollar and modest changes in NEERs, and the exact composition of the basket was not crucial for obtaining the benefits of insulation.

Of course, a common basket peg cannot simultaneously anchor the price level, and it loses some of the simplicity of the EADS. There are also technical considerations in the choice of common weights and political compromises, since the weights are unlikely to match exactly the optimal weights in a country's own basket so the common NEER or REER may be too strong or too weak for some countries.

Hence again the importance of evidence of sufficient OCA integration, but this is less demanding than when a single anchor is used as in the EADS. Williamson himself uses direction of trade and export similarity indices to support the case that his sample is of competing countries. When Eichengreen and Bayoumi re-constructed their OCA index for EA countries against potential anchor countries (Germany, USA, Japan) and also constructed a common basket using (arbitrary) Williamson-type weights, they concluded that there was no obvious common anchor and a common basket worked nearly as well as choosing any one of the anchors for most countries. But it did not work so well for Hong Kong and Singapore,

which would clearly prefer to peg to the dollar, while Indonesia, Korea, and Thailand marginally prefer the yen, and Malaysia, Philippines and Taiwan marginally preferred the dollar.

An Asian ERM?

As with the common basket peg, the main objective of an ERM solution would be to stabilize intra-bloc exchange rates through some principle of joint intervention and access to pooled short-term credit facilities. It could be based around an adjustable peg with central parities and a reasonably wide band to allow for periodic adjustment of exchange rates as fundamentals change without generating speculative crises. Limited capital controls could be used, at least in the early stages, to buy time to make the necessary adjustments before a full-blown crisis materialized.

In this sense EA would be following in the footsteps of Western Europe when the breakdown of the Bretton Woods system of fixed exchange rates in the early 1970s led to generalized floating and then the choice between returning to a dollar peg or pegging to a regional anchor. In the European case the social costs of floating exchange rates together with the perceived costs of intra-bloc instability, particularly the threat it posed to other areas of economic integration (which had been proceeding well since 1960), produced first the ‘snake in the tunnel’ in the early 1970s, the EMS in 1979, and a de facto anchor to the Deutsche mark in the 1980s to capture the benefits of the low German inflation rate. Note that in the early stages of exchange rate cooperation, the desire to anchor price levels was probably not the key driving force.

By most accounts (De Grauwe, 1997) the EMS worked quite well in its early years between 1979 and 1987 with small but frequent realignments and margins were flexible enough, compared to the rigidity of the Bretton Woods system, to allow adjustment to fundamentals such as differential inflation rates, without incurring major crises. The capital controls which were still present at this time probably also reduced the potential funds available for speculation and bought time for realignments. It was only when the EMS evolved into a more rigid system between 1987 and 1993 that it was unable to cope, with no realignments until the currency crisis of 1992.

Two problems, in particular, dogged the later years of the EMS and would be relevant for an EA ERM: those of ‘credibility’ and ‘liquidity’. The credibility problem is inherent in any fixed exchange rate system. In the European case countries with higher than average inflation and rigid wages were tempted to solve their competitiveness problem by ‘surprise’

devaluations rather than adopting contractionary policies which might increase unemployment. The same applied if a negative asymmetric shock threatened to deteriorate the current account.

The liquidity problem arose from an unintentional lack of symmetry in the procedures for joint intervention to support weak currencies. The original idea was that both weak and strong currency central banks would intervene jointly to stabilize exchange rates. In practice the EMS evolved into a hegemonic system revolving around the DM in which weak currency countries bore the main brunt of the adjustment to asymmetric shocks. The same could happen in Asia. The 1992 currency crisis in Europe was not primarily the result of irrational speculation or the absence of capital controls (which just made matters worse), or due to lack of liquidity per se (in principle it was unlimited), but because Germany refused to provide the liquidity and instead sterilized the effects on the German money supply of the DM sold by the weaker currency countries through a reverse open market operation. The underlying problem was that Germany had become the de facto anchor for monetary policy but its own monetary policy had moved out of line with the other members of the EMS, such as France and the United Kingdom. During the 1992-3 recession both France and the UK wanted lower interest rates to stimulate employment while Germany wanted higher rates to compensate for the large rise in its money supply following reunification with east Germany in 1989.

In spite of these deficiencies, European experience in exchange rate cooperation may be more relevant to EA than that of other monetary blocs. Given the direction of EA trade there is no natural external anchor for the system, unlike the rand bloc based on South Africa, or the CFA zone based on the French franc, and dollarization or a formal dollar peg is less attractive (except by default) than in say, Latin America. However, unlike the EMS, there is no obvious candidate for a regional anchor, in the absence of a yen bloc, so a common fix to the currencies of close trading partners and a joint float against the rest of the world be more realistic.

There are also political advantages from the flexibility of an ERM type of mechanism since members would initially retain a significant amount of independence in fiscal policy and other areas of economic 'sovereignty', and as in the European case, there would need to be room for experimentation and periodic crises. If governments in EA are concerned primarily with intra-bloc instability (as opposed to anchoring price levels) and the need to find a more permanent solution to the monetary and exchange rate problems thrown up by the Asian financial crisis, then institutionalized negotiations to devise an Asian equivalent to the ERM, with a fair degree of flexibility built-in, is a politically feasible option. From the point of view

of domestic politics, politicians would be showing commitment without sacrificing too much, and inter-country negotiations could leave plenty of room for compromise. It is also an attractive option for bureaucrats and economists; not least because there is a ready made 'model' and Europe would probably be keen to 'export' some of its experience (via ASEM) in return for some increase in political leverage.

A common monetary policy but not yet?

A common currency peg in EA seems unlikely in the immediate future. Although there is now a significant amount of intra-bloc trade and investment, the economic and political preconditions for a common monetary policy are not sufficiently present, and it is not at all clear empirically that the benefits would outweigh the costs. It is also made more difficult by the greater openness of international capital markets today compared to the situation facing Europe in the past. Policymakers in the region do, however, appear to be concerned about the effects of exchange rate changes and intra-bloc currency instability on their competitive positions and this should provide some scope for a continuing dialogue about exchange rate issues which might lead to a common exchange rate mechanism in the future. Even a return to de facto dollar pegging would be better addressed by more transparency and coordination than at present.

6. Conclusion

An EA monetary union is not on the horizon, not least because of the difficulty of identifying a coherent group of countries in East Asia satisfying some minimum criteria for an OCA with sufficient similarity as far as asymmetric shocks are concerned and, at the same time, with a sufficiently strong political commitment to develop the requisite institutional structure and pool of sovereignty to have any chance of success. But this does not preclude further steps towards closer regional monetary and exchange rate cooperation, particularly if there is a repeat of the Asian financial crisis of 1997-8.

Before the crisis there existed only a rudimentary infrastructure of monetary cooperation. The Asian crisis may have widened economic disparities in the region but it also renewed political and academic interest in the prospects for closer monetary and exchange rate cooperation. The result was a flurry of initiatives, including the formalization of a regional network of repurchase agreements and currency swap arrangements, the development of regional mechanisms for crisis surveillance and monitoring, and the beginnings of discussions about the possibility of a common exchange rate system. Machinery for information sharing and

macroeconomic surveillance to anticipate future crises is not hard to set up, requires little by way of commitment or sacrifice of sovereignty and is a prerequisite for further integration such as an Asian Monetary Fund and common exchange rate system. Monetary cooperation is at last on the move in EA.

Although the 1997 Japanese proposal for an Asian Monetary Fund was rejected, under pressure from the IMF and Washington, a good case can be made for placing responsibility for the functions of macroeconomic surveillance and regional resource pooling within a permanent institution which could evolve over time into a fully-fledged Asian Monetary Fund with its own Asia-specific rules on conditionality. The resources available under the Chiang Mai Initiative are clearly inadequate and there would be significant economies of scale from more extensive resource pooling. Support for an Asian Monetary Fund is increasing, not least as a reaction to the problems thrown up by the Asian crisis itself: the difficulties of implementing unilateral exchange rate policy in a world of increasing trade interdependence and capital mobility; the inadequacy of existing global institutions in dealing with regional crises; and the need for regional, if not international, institutions to internalize the spillover effects arising from globalization. If political problems can be overcome, an AMF would be a crucial, affordable, and relatively painless, first step towards developing distinctly EA institutions and beginning the long path towards monetary and exchange rate integration.

A common exchange rate policy is less likely in the foreseeable future until the net economic benefits of giving up unilateral exchange rate regimes are more apparent and there is sufficient political commitment to Asian monetary integration, but a key indicator of EA commitment to monetary cooperation will be whether they are willing to discuss a common exchange rate system. In the early stages the prerequisites for this are not as demanding as for monetary union, provided sufficient flexibility is built-in. All it requires is a belief that unilateral exchange rate regimes can be improved upon through a collective system aimed at reducing intra-bloc exchange rate instability and the threat of competitive devaluations, or the anchoring of price levels, for countries which are close competitors. The construction of a numeraire currency unit based on a common basket peg would be a possible first step and this reference unit could be linked to access to funds from a common resource pool. A yen bloc would be a nice solution since it would also solve the problem of a regional anchor, but there is little evidence historically for the natural development of such a bloc, and it is doubtful that Japan can provide the necessary economic and political leadership for it to work, at least until it has solved its own problems. As a collective solution an EADS is also quite appealing,

since there is evidence for it de facto, so all that needs to be done is to formalize it and make it work better. But pegging to the dollar will not necessarily stabilize intra-bloc exchange rates and it is not clear that the USA is a suitable candidate for a common anchor for all EA countries except by default. A common basket peg will do this but requires common weights in the basket, which need not suit all members. An ERM solution, which is not inconsistent with some kind of common basket principle, loses the simplicity of the yen bloc, EADS and common basket peg, but might be more appealing politically if the arrangements are flexible enough to leave countries initially with sufficient independence in macroeconomic policy, and it can build on European experience.

References

- Abeysinghe, T. (2001), Thai meltdown and transmission of recession within ASEAN4 and NIE4, in S. Claessens (ed.), *International Financial Contagion*, Boston: Kluwer Academic Publishers.
- Aggarwal, T. and Mougoue, M. (1993), Cointegration among Southeast Asian and Japanese currencies, *Economics Letters*, **41**, 161-166.
- Asian Development Bank (1997), *Key Indicators of Developing Asian and Pacific Countries*. Manila: Asian Development Bank.
- Bayoumi, T. (1994), A formal model of optimum currency areas. *International Monetary Fund Staff Papers*, **41**, 537-554.
- Bayoumi, T. and Eichengreen, B. (1994), *One money or many? Analyzing the prospects for monetary unification in various parts of the world*, Princeton Studies in International Finance, 76.
- Bayoumi, T. and Mauro, P. (1999), *The suitability of ASEAN for a regional currency Arrangement*, Washington, DC.: International Monetary Fund, WP/99/162.
- Benassy-Quere, Agnes (1998), Exchange rate regimes and policies, in Collignon, Stefan, Jean, Pisani-Ferry, and Yung Chul Park (eds) (1998), *Exchange Rate Policies in Emerging Asian Countries*, London: Routledge.
- Blanchard, Oliver and Danny Quah, (1989), The dynamic effects of aggregate demand and supply disturbances, *American Economic Review* **79**, 655-73.
- Calvo, Guillermo, and Carmen Reinhart (2000), *Fear of Floating*, University of Maryland, Mimeo.
- Chan, K. and Ngiam, Kee Jin (1992), Currency interchangeability arrangement between Brunei and Singapore: a cost-benefit analysis, *The Singapore Economic Review*, **37**(2).

- Chan Li Lin and Ramkishan Rajan (2001), The economics and politics of monetary regionalism, *Asean Economic Bulletin*, **18**(1).
- Chow Hwee Kwan and Kim Younbai (2000), Exchange rate policy in Singapore: prospects for a common currency peg in East Asia, *The Singapore Economic Review*, **45**(3), 139-164.
- Collignon, Stefan, Jean, Pisani-Ferry and Yung Chul Park (eds) (1998), *Exchange Rate Policies in Emerging Asian Countries*, London: Routledge.
- De Grauwe, Paul, (1997), *The Economics of Monetary Integration*, Oxford: Oxford University Press.
- Dornbusch, R. and Yung Chul Park (1998), Flexibility or nominal anchors, in Collignon, Stefan, Jean, Pisani-Ferry and Yung Chul Park (eds), *Exchange Rate Policies in Emerging Asian Countries*. London: Routledge.
- Eichengreen, B. and Bayoumi, T. (1998), Is Asia an optimum currency area? Can it become one? Regional, global and historical perspectives on Asian monetary relations, in Collignon, Stefan, J. Pisani-Ferry and Yung Chul. Park (eds), *Exchange Rate Policies in Emerging Asian Countries*, London: Routledge.
- Enders, W. (1995), *Applied Econometric Time-Series*, New York: John Wiley.
- Frankel, J. (1993), *Is Japan Creating a Yen Bloc in East Asia and the Pacific?* Centre for International and Development Economics Research, WP C93-007, University of California, Berkeley.
- Frankel, J. and Rose A. (1998), The endogeneity of the optimum currency criteria, *Economic Journal*, **108**, 1009-25.
- Frankel, J and S. J. Wei (1994), *Yen bloc or dollar bloc? Exchange rate policies of the East Asian economies*, in Ito T. and A. O. Krueger (eds), *Macroeconomic Linkages*, Chicago: University of Chicago Press.
- Goto J. and Koichi Hamada (1994), *Economic Preconditions for Asian Regional Integration*, in Ito, T. and A. O. Krueger (eds), *Macroeconomic Linkages*, Chicago: University of Chicago Press.
- Hong Liang (1999), *Do Hong Kong SAR and China constitute an optimal currency area? An empirical test of the generalized purchasing power parity hypothesis*, Washington DC.: International Monetary Fund Staff Working Paper WP/99/79.
- International Monetary Fund, *Direction of Trade Statistics*: Washington DC.: International Monetary Fund (various years).
- International Monetary Fund *International Financial Statistics*, Washington DC: International Monetary Fund (various years).
- International Monetary Fund (1997), *World Economic Outlook*. Washington DC: The International Monetary Fund.

- Kenen, P. B. (1969), Theory of optimum currency areas, in Mundell R. and A. Swoboda, *Monetary Problems in the International Economy*, Chicago: University of Chicago Press.
- Kwan, C. H. (1998), The possibility of forming a yen bloc in Asia, *Journal of Asian Economics*, **9** (4), 555-580.
- Kwan, C. H. (2000), The possibility of forming a yen bloc revisited, *ASEAN Economic Bulletin*, **17** (2), 218-232.
- Kwan, C. H., Donna Vanderbrink and Chia Siow Yue (eds) (1998), *Coping with Capital Flows in East Asia*, Singapore: Nomura Research Institute (Tokyo) and Institute of Southeast Asian Studies.
- McKinnon, R. (1963), Optimal currency areas, *American Economic Review*, **53**, 1-25.
- McKinnon, R. (2000), After the crisis, the east Asian dollar standard resurrected: an interpretation of high frequency exchange rate pegging, Paper presented to the 25th Federation of ASEAN Economic Associations Conference, 7-8 September, Singapore.
- Melitz, J. (1995), A suggested reformulation of the theory of optimal currency areas, *Open Economies Review*, **6**, 281-98.
- Monetary Authority of Singapore (2000), *A Survey of Singapore's Monetary History*. Singapore: Economics Department, Monetary Authority of Singapore, Occasional Paper No. 18, January.
- Mookerjee, R. and Tongzon, J. (1997), Do the Asean countries have a common business cycle, *Journal of the Asia Pacific Economy*, **2**(1), 58-81.
- Mundell, R. (1961), A theory of optimum currency areas, *American Economic Review*, **51**, 657-65.
- Mundell, R. (1973), Uncommon arguments for common currencies, in Johnson, H.G. and A. K. Swoboda, *The Economics of Common Currencies*, London: Allen and Unwin.
- Nicolas, Françoise (1999), Is there a case for a single currency within ASEAN? *The Singapore Economic Review*, **44**(1), 1-25.
- Park, DonghYun (2000), Intra-Southeast Asian income convergence, *Asean Economic Bulletin*, **17**(3) 285-292.
- Park, Y. C. (2001), *Beyond the Chiang Mai Initiative. Rationale and Need for a Regional Monetary Arrangement in East Asia*, Paper presented at the Seminar on Regional Cooperation: The Way Forward, ADB Annual Meeting, Honolulu, 8 May.
- Peebles, G. and Peter Wilson (1996). *The Singapore Economy*, Cheltenham: Edward Elgar.
- Peebles, G. and Peter Wilson (2002), *Economic Growth and Development in Singapore: Past and Future*, Cheltenham: Edward Elgar.

Pomfret, Richard (1996), ASEAN – always at the crossroads?, *Journal of the Asia Pacific Economy*, **1** (3), 365-390.

Rana, Pradumna B. (2002), *Monetary and Financial Cooperation in East Asia: The Chiang Mai Initiative and Beyond*, Manila: Asian Development Bank ERD Working Paper 6, available at <http://aric.adb.org>.

Rose, A. (1999), *Is there a case for an Asian Monetary Fund?* FRBSF Economic Letter 99-37.

Rose, A. (2000), One money, one market: estimating the effect of common currencies on trade. *Economic Policy* (forthcoming).

Singapore 2000, Singapore: Ministry of Information and the Arts.

Taguchi, Hiroo (1998), *On the internationalization of the Japanese yen*, in Ito, T and A. O. Krueger (eds), *Macroeconomic Linkages*, Chicago: University of Chicago Press.

Tavlas, G. (1994), The theory of monetary integration, *Open Economies Review*, **5**, 211-230.

Tongzon, Jose (1998), *The Economics of Southeast Asia: the Growth and Development of ASEAN Economies*, Cheltenham: Edward Elgar.

Tongzon, Jose (2002), “*The Devastating Crisis, Singapore’s Extra-Asian Trade Agreements and Their Implications for ASEAN.*” Paper for Workshop on Institutional Change in Southeast Asia, Stockholm School of Economics, July 10-11.

Tse, Y. K. and Ng L. K. (1997), The cointegration of Asian currencies revisited, *Japan and the World Economy*, **9**, 109-114.

Williamson, John (1998), The case for a common basket peg for East Asian currencies, in Collignon, Stefan, Jean, Pisani-Ferry, and Yung Chul Park (1998), *Exchange Rate Policies in Emerging Asian Countries*, London: Routledge.

Wilson, Peter (1998), *European Monetary Union: will it succeed or fail?* National University of Singapore Economic Policy Forum, EPF 98/5.

Wilson, Peter. 2000a, The dilemma of a more advanced developing country: conflicting views on the development strategy of Singapore. *The Developing Economies*, **38** (1), 105-34.

Wilson, Peter. 2000b, The export competitiveness of dynamic Asian economies 1983-95: a dynamic shift-share approach, *Journal of Economic Studies*, **27**(6), 541-565.

Wilson, Peter. 2001, Exchange rates and the trade balance for dynamic Asian economies – does the J-curve exist for Singapore, Malaysia, and Korea? *Open Economies Review*, **12**(4), 389-413.

Wong, John (1988), The Association of Southeast Asian Nations, in Ali M. El-Agraa, (ed), *International Economic Integration*, London: Macmillan.

World Bank, *World Development Report*, Washington, D.C.: Oxford University Press for the World Bank, various years.

World Investment Report, New York: United Nations, Various years.

Yuen, H. (2000), *A Cluster-Based Approach for Identifying East Asian Economies: a Foundation for Monetary Integration*, National University of Singapore Staff Working Paper.

Yuen, H. (2001), Optimum currency areas in East Asia: a structural VAR approach, *Asean Economic Bulletin*, **18**(2), 206-217.

Yeung, May T., Nicholas Perdikis and William A. Kerr (1999), *Regional Trading Blocks in the Global Economy: The EU and ASEAN*, Northhampton, MA: Edward Elgar.

Table 1: Basic economic indicators for east Asian countries in 1997

	Size Sq km (000)	Population (millions)	GNP per Capita US\$	Growth 1990-97 Per cent	Share of GDP			
					Agric	ind	manufac	Serv
					Per cent			
Indonesia	1812	200	3450	7.5	16	42	25	41
Malaysia	329	21	10920	8.7	13	46	34	41
Philippines	298	73	3670	3.3	20	32	22	48
Singapore	1	3	29000	8.5	0	36	26	64
Thailand	511	61	6590	7.5	11	40	29	50
Asean5	2951	358	4681	7.1	12	39	27	49
Brunei	6	0.3	14301	-	-	-	-	-
Cambodia	181	10	1302	6.2	50	15	5	35
Laos	237	5	1311	6.7	52	21	15	28
Myanmar	678	48	719	-	46	16	-	38
Vietnam	330	77	1339	8.6	27	31	-	42
Periphery	1432	140	1151	7.2	44	21	-	36
Asean10	4383	498	3496	7.1	26	31	-	43
China	9326	1227	3570	11.9	20	51	40	29
Hong Kong	1	7	24540	5.3	0	15	7	84
Korea	99	46	13500	7.2	6	43	26	51
Japan	377	126	23400	1.4	2	38	25	60

Notes: GNP per capita is measured at purchasing power parity, growth is in terms of real GDP; the income per capita figures for Brunei and Myanmar are for GDP at purchasing power parity, the sectoral shares for Brunei and Myanmar refer to 1996.

Sources: World Bank, World Development Report 1998; data for Brunei and Myanmar are from Park (2000).

Table 2: Asian currency arrangements 1990, 1997, 2001

	Fixed to a single currency	Fixed to a composite	Managed float	Independent float	Convertibility	Monetary policy 2001
China	2001		1990, 1997		Partial	Monetary target/exch. rate anchor
Hong Kong	1990, 1997, 2001				Full	Exch. rate anchor
Indonesia			1990, 1997, 2001		Partial	Fund supported/other
Japan				1990, 1997, 2001	Full	Other
Korea			1990, 1997	2001	Partial	Inflation target
Malaysia	2001	1990	1997		Partial	Exch. rate anchor
Philippines				1990, 1997, 2001	Partial	Monetary target/fund supported/other
Singapore			1990, 1997, 2001		Full	Other
Thailand		1990, 1997	2001		Partial	Inflation target/fund supported/other

Source: International Monetary Fund, International Financial Statistics, various years.

Table 3: Asian exchange rate volatility during the crisis period, June 1997 to December 1998

	Standard deviation of changes		Cumulative depreciation	
	Against the US\$	NEER	Against the US\$	NEER
China	0.03	1.65	-0.12	-2.05
Hong Kong	0.07	1.66	0.13	-3.5
Indonesia	73.02	-	217.93	-
Korea	15.00	-	35.81	
Malaysia	10.38	4.38	51.39	32.09
Philippines	7.50	3.71	48.15	31.71
Singapore	3.42	1.41	14.58	4.93
Thailand	14.53	-	40.16	
Yen	4.19		-1.16	
Swiss Franc	2.72		-4.90	
DM	2.47		-1.76	

Notes: All exchange rates are monthly end of period; NEER is the nominal effective exchange rate based on a trade-weighted basket of currencies; a negative sign for the cumulative depreciation implies a cumulative appreciation;

Source: International Monetary Fund, *International Financial Statistics*.

Table 4: International reserves 1990, 1997 and 1999

Country	Total reserves (US\$ billions)			Increase in reserves 1990-99 %
	1990	1997	1999	
Indonesia	8.7	17.5	26.4	203
Malaysia	10.7	21.1	30.6	186
Philippines	2.0	8.7	13.2	560
Singapore	27.7	71.3	76.8	177
Thailand	14.3	26.9	34.1	138
Laos	0.08	0.15	0.10	25
Myanmar	0.41	na	0.65	59
Vietnam	0.43	1.9	2.00	365
ASEAN9	64.3	147.6	183.9	186
China	34.5	146.7	158.0	358
Korea	14.9	20.5	74.0	397
Japan	87.8	227.0	286.9	227
ASEAN+3	201.5	541.8	702.8	249
Hong Kong	24.7	92.9	96.2	289
Taiwan	77.7	87.4	106.2	37
USA	173.1	134.9	60.5	-65
Switzerland	61.3	63.2	36.3	-41
EMU	446.3	432.9	254.6	-43

Notes: Reserves are gross and comprise holdings of monetary gold valued at the year-end London price of US\$ 290.25, Special Drawing Rights, reserves held at the International Monetary Fund and holdings of foreign exchange under the control of the monetary authorities; EMU consists of 11 members of the European Monetary Union.

Source: *World Bank World Development Report, various years.*

Table 5: Singapore's trading partners ranked by export shares and multiplier effects on Singapore's real GDP growth

Rank by export share In 1996 %			Rank by multiplier effect		
1	USA	18.4	1	ROECD	1.09
2	Malaysia	18.0	2	USA	0.92
3	ROECD	16.4	3	Japan	0.70
4	Hong Kong	8.9	4	Hong Kong	0.44
5	Japan	8.2	5	Malaysia	0.39
6	Thailand	5.7	6	China	0.29
7	Indonesia	3.7	7	South Korea	0.25
8	South Korea	3.0	8	Thailand	0.20
9	China	2.7	9	Taiwan	0.20
10	Taiwan	2.2	10	Indonesia	0.14
11	Philippines	1.8	11	Philippines	0.08

Notes: The multiplier effect measures the total direct and indirect effects on Singapore's real GDP growth of a one per cent shock to the real GDP of the foreign country or region concerned in the fourth quarter of 1997 after four quarters have elapsed. The multipliers are normalized in terms of the effect of the shock on the foreign country itself; ROECD is the OECD countries except Japan and the USA.

Source: Abeysinghe (2001).

Table 6: Convergence criteria for Argentina and EMU countries in 1997

	Inflation	Interest Rates	Budget deficit	Government debt	ERM
Argentina	0.5	8.0	-2.4	40	No
Italy	1.9	6.7	-2.3	121	Yes
Spain	1.9	6.3	-2.8	68	Yes
Portugal	1.9	6.2	-2.8	62	Yes
Netherlands	1.9	5.5	-1.3	72	Yes
Belgium	1.5	5.7	-2.4	123	Yes
Luxembourg	1.4	6.9	+1.6	7	Yes
Austria	1.2	5.6	-2.9	66	Yes
Ireland	1.2	6.2	+0.4	67	Yes
France	1.2	5.5	-3.0	57	Yes
Finland	1.2	5.9	-1.5	58	Yes
Germany	1.5	5.6	-3.0	62	Yes
EMU maximum	2.7	7.9	-3.0	60	+/- 15%

Note: inflation is the rate of consumer price inflation (per cent), interest rates are long-term rates (per cent), budget deficit is the public sector deficit or surplus as a percent of GDP, government debt is public sector gross debt as a percent of GDP, ERM is the exchange rate mechanism of the European Monetary System; the Argentine figures for deficits and debt are a ratio of GNP; the EMU targets are explained in Wilson (1998);

Source: Wilson (1998), Dagens Industri, Monday 14 January 2002, Finans, p. 22, from www.di.se

Table 7: Size and speed of adjustment to disturbances for East Asia and Western Europe compared

	Aggregate supply		Aggregate demand	
	Size	Speed	Size	Speed
East Asia: (1968-98)				
Indonesia	0.067	1.19	0.138	0.74
Malaysia	0.042	1.14	0.042	1.23
Philippines	0.074	0.80	0.075	0.79
Thailand	0.304	0.14	0.063	1.08
Singapore	0.057	0.75	0.077	1.37
Hong Kong	0.046	0.90	0.054	1.08
Japan	0.116	0.18	0.019	0.54
Korea	0.077	0.16	0.030	0.41
Taiwan	0.034	1.09	0.056	0.94
Average	0.091	0.71	0.062	0.82
EMU: (1969-89)				
Austria	0.018	1.00	0.017	0.42
Belgium	0.028	0.67	0.020	0.51
Denmark	0.022	1.10	0.017	0.14
Finland	0.018	0.88	0.027	0.68
France	0.034	0.24	0.014	0.10
Germany	0.022	1.19	0.015	0.66
Ireland	0.021	1.22	0.038	0.38
Italy	0.030	0.43	0.036	0.38
Netherlands	0.033	0.69	0.019	0.51
Portugal	0.061	0.43	0.026	0.37
Spain	0.057	0.08	0.015	0.12
Average:	0.031	0.72	0.022	0.39

Source: adapted from Bayoumi and Mauro (1999)

Table 8: Correlations of aggregate supply shocks for East Asia and EMU countries compared

	Malaysia	Indonesia	Singapore	Philippines	Thailand	Hong Kong	Japan	Taiwan	Korea
Malaysia	1.00								
Indonesia	0.49	1.00							
Singapore	0.40	0.32	1.00						
Philippines	0.05	0.16	0.01	1.00					
Thailand	0.02	0.16	0.33	0.14	1.00				
Hong Kong	0.12	0.40	0.42	0.00	0.33	1.00			
Japan	-0.02	0.03	0.02	0.03	0.32	-0.23	1.00		
Taiwan	0.00	0.32	0.42	0.15	0.54	0.40	0.23	1.00	
Korea	0.17	0.11	0.21	0.07	0.21	0.18	0.17	0.01	1.00

	Germany	France	Netherlands	Belgium	Denmark	Austria	Italy	Spain	Portugal
Germany	1.00								
France	0.52	1.00							
Netherlands	0.54	0.36	1.00						
Belgium	0.62	0.40	0.56	1.00					
Denmark	0.68	0.54	0.56	0.37	1.00				
Austria	0.41	0.28	0.38	0.47	0.49	1.00			
Italy	0.21	0.28	0.39	0.00	0.15	0.06	1.00		
Spain	0.33	0.21	0.17	0.23	0.22	0.25	0.20	1.00	
Portugal	0.21	0.33	0.11	0.40	-0.04	-0.03	0.22	0.51	1.00

Source: Bayoumi and Mauro (1999)

Table 9: Selected macroeconomic indicators for ASEAN and EMU in 1997

	Inflation Rate (Per cent)	Central Government Balance (Per cent of GDP)	Debt	General Government Balance (Per cent of GDP)	Debt
Brunei	1.7	-0.3	na	-0.3	na
Cambodia	8.0	-4.3	na	-4.3	na
Indonesia	6.6	-0.7	na	-0.7	74
Laos	19.3	-6.4	na	-6.4	na
Malaysia	2.7	2.6	na	6.0	48
Myanmar	10.0	-4.3	na	-6.0	na
Philippines	6.0	-1.0	55.7	-1.0	38
Singapore	2.0	10.4	na	10.4	na
Thailand	5.6	-1.6	4.5	-1.6	30
Vietnam	3.2	-0.9	na	-0.9	na
Average	6.5	-0.6	20.1	-0.5	38
Std dev	5.3	4.6	36.2	5.2	19.
Austria	1.3	-2.6	na	-1.9	64.4
Belgium	1.6	-2.4	na	-1.9	121.9
Finland	1.2	-4.3	na	-1.4	55.5
France	1.2	-2.6	na	-3.0	57.8
Germany	1.8	-1.8	39.2	-2.7	61.3
Ireland	1.5	-0.5	na	1.2	66.9
Italy	1.7	-2.7	na	-2.7	122.3
Luxembourg	1.4	na	na	1.7	6.7
Netherlands	2.2	-2.2	59.4	-0.9	71.4
Portugal	2.2	-2.8	na	-2.5	61.4
Spain	2.0	-2.1	na	-2.6	69.3
Average	1.6	-2.4	49.3	-1.5	69
Std dev	0.4	1.0	14.2	1.6	31.6

Source: Bayoumi and Mauro (1999)

Table 10: Bilateral optimum currency area indices for East Asia and selected EMU countries compared (per cent)

	Hong Kong	Indonesia	Korea	Malaysia	Philippines	Singapore	Thailand
Hong Kong							
Indonesia	12						
Korea	8	11					
Malaysia	11	11	11				
Philippines	9	11	9	10			
Singapore	4	9	7	6	6		
Thailand	10	11	10	9	8	3	
Taiwan	6	11	8	11	8	6	9

	Germany	France	Italy
France	7		
Italy	7	6	
Spain	9	6	Na

Source: Bayoumi and Mauro (1999), Eichengreen and Bayoumi (1998)

Table 11: Similarity indexes for ASEAN5

Economic activity	Indonesia	Malaysia	Philippines	Singapore
Thailand	0.86	0.88	0.85	0.78
Singapore	0.73	0.72	0.68	
Philippines	0.83	0.80		
Malaysia	0.89			
Manufacturing				
Thailand	0.66	0.67	0.74	0.48
Singapore	0.36	0.64	0.56	
Philippines	0.75	0.71		
Malaysia	0.66			
Exports				
Thailand	0.58	0.63	0.60	0.55
Singapore	0.42	0.83	0.45	
Philippines	0.49	0.52		
Malaysia	0.52			
Concentration index				
Thailand	41.3			
Singapore	60.1			
Philippines	52.2			
Malaysia	45.1			
Indonesia	39.6			

Notes: The similarity indexes are constructed using the Finger-Kreinin index, the Economic activity index comprises agriculture, mining, manufacturing, electricity, construction, trade, transport, finance and social services averaged over the period 1990-96; The Manufacturing index is based on three digit ISIC data covering 28 branches based on averages between 1991 and 1995; the export structure index was based on 10 SITC sectors using averages for 1990-96; the concentration index is computed at the three digit ISIC level for 1996.

Source: Nicolas (1999, Tables 2-5)

Table 12: Regional trade patterns 1985 and 1998 per cent of total regional GDP

	1985		1998	
	Exports	Imports	Exports	Imports
ASEAN with:				
ASEAN	5.8	4.9	11.7	11.8
Japan	7.8	5.8	5.9	8.3
USA	6.0	4.3	10.9	6.8
EMU	2.6	2.8	6.3	4.3
Other industrial	1.9	2.7	4.5	3.3
Other developing	6.6	7.6	13.4	14.0
EMU with:				
EMU	12.5	12.3	12.8	12.0
Japan	0.3	0.8	0.4	1.0
USA	2.4	1.9	2.0	2.0
Other industrial	5.3	4.6	5.0	4.2
Other developing	5.6	6.9	5.8	5.6
MERCOSUR with:				
MERCOSUR	1.0	1.0	2.1	2.3
USA	2.8	1.4	1.2	2.2
EMU	3.0	1.2	1.7	2.3
Other industrial	1.5	1.0	0.9	1.4
Other developing	3.7	2.7	2.0	2.0
NAFTA with				
NAFTA	3.0	3.4	5.3	5.4
Japan	0.6	1.7	0.7	1.5
EMU	0.9	1.3	1.2	1.7
Other industrial	0.6	0.8	0.8	0.8
Other Developing	1.7	2.6	2.5	4.0

Note: ASEAN comprises the ASEAN 10 excluding Brunei, EMU consists of the 11 members of EMU on 1st January 1999, Mercosur comprises Argentina, Brazil, Paraguay, Uruguay and associate members Bolivia and Chile.

Source: Adapted from Bayoumi and Mauro (1999)

Table 13: East Asian trade openness, 1998

	Exports to GDP Ratio	Imports to GDP ratio	Trade to GDP ratio
Singapore	1.29 (1.52)	1.19 (1.34)	2.48 (2.86)
Hong Kong	1.10 (1.31)	1.18 (1.31)	2.28 (2.62)
South Korea	0.33 (0.39)	0.23 (0.28)	0.56 (0.67)
Indonesia	0.35 (0.39)	0.19 (0.31)	0.54 (0.70)
Malaysia	0.98 (0.96)	0.78 (0.80)	1.76 (1.76)
Thailand	0.44 (0.53)	0.35 (0.39)	0.79 (0.92)
Philippines	0.39 (0.49)	0.42 (0.53)	0.81 (1.02)
Japan	0.09 (0.10)	0.06 (0.08)	0.15 (0.18)
China	0.19 (0.21)	0.14 (0.17)	0.33 (0.38)

Notes: Numbers in parentheses refer to goods and services

Source: *World Bank* (2000, Tables 12, 15, 20).

Table 14: Average Intra-ASEAN trade flows 1990-96

	Indonesia	Malaysia	Philippines	Singapore	Thailand
Origin of Imports			per cent		
ASEAN	9.3	18.8	10.3	20.5	12.9
Singapore	6.1	14.3	4.7	-	6.6
Japan	23.2	26.5	21.9	21.3	29.8
Hong Kong	0.9	2.1	4.9	3.2	1.3
China	3.4	2.3	1.7	3.1	2.8
Korea	6.3	3.3	4.9	3.5	3.8
USA	12.1	16.4	18.8	15.7	11.4
West Europe	22.2	16.2	11.9	14.6	17.4
Others	22.5	14.4	25.6	18.0	20.6
Origin of exports			per cent		
ASEAN	12.6	28.0	8.6	24.8	15.6
Singapore	9.0	21.6	3.9	-	11.4
Japan	31.7	13.3	17.0	7.8	17.2
Hong Kong	2.9	4.3	4.6	8.1	5.0
China	3.7	2.5	1.2	2.1	1.8
Korea	6.2	3.4	2.3	2.6	1.4
USA	13.6	19.6	37.3	19.6	20.7
West Europe	14.4	15.0	18.3	15.1	19.0
Others	15.0	13.9	10.6	19.9	19.1

Source: Nicolas (1999)

Table 15: Volatility of Asian currencies against the US dollar relative to the yen 1990 to 1997

Country	Volatility against the US\$/ volatility against the yen
	Per cent
China	78
Hong Kong	4
Indonesia	8
Korea	27
Malaysia	37
Philippines	43
Singapore	38
Thailand	16
Average	31

Note: Volatility is measured in terms of the standard deviation of changes in the official exchange rate of the local currency in terms of the dollar or yen, using monthly data from 1990(2) to 1997(5);

Source: Source: International Monetary Fund, *International Financial Statistics*.

Table 16: Dollar pegging coefficients 1990 to 2001

Pre-crisis 1990(2) – 1997(5)	Volatility against the US\$	Dollar Coefficient	R-Square
China	3.75	0.741 (0.247)**	0.228
Hong Kong	0.12	0.998 (0.005)**	0.999
Indonesia	0.23	0.979 (0.012)**	0.992
Korea	0.68	0.893 (0.033)**	0.944
Malaysia	1.17	0.856 (0.050)**	0.881
Philippines	1.64	1.110 (0.078)**	0.801
Singapore	1.08	0.690 (0.028)**	0.943
Thailand	0.44	0.824 (0.005)**	0.999
Yen	2.84		
Swiss Franc	2.91		
German Mark /Euro	2.42		
<hr/>			
Crisis 1997(6) -1998(12)			
China	0.03	0.998 (0.003)**	0.999
Hong Kong	0.07	0.997 (0.007)**	0.999
Indonesia	73.0	-4.126 (2.659)	0.153
Korea	15.0	-0.652 (1.133)	0.251
Malaysia	10.4	-0.194 (0.665)	0.111
Philippines	7.50	0.492 (0.560)	0.232
Singapore	3.42	0.294 (0.238)	0.543
Thailand	14.53	-0.956 (0.826)	0.264
Yen	4.19		
Swiss Franc	2.72		
German Mark /Euro	2.47		
<hr/>			
Post-crisis 1999(1) – 2001(12)			
China	0.00	1.000 (0.000)**	0.999
Hong Kong	0.05	1.001 (0.004)**	0.999
Indonesia	24.3	0.657 (0.606)	0.134
Korea	2.70	0.902 (0.139)**	0.849
Malaysia	0.00	1.000 (0.000)**	0.999
Philippines	3.51	0.969 (0.181)*	0.656
Singapore	1.50	0.629 (0.096)**	0.803
Thailand	2.74	0.864 (0.162)**	0.597
Yen	2.49		
Swiss Franc	2.83		
German Mark /Euro	1.61		

Notes: Exchange rates are monthly official rates measured in terms of local currency per unit of foreign currency (May 1997=100); volatility is defined as the standard deviation of changes in monthly exchange rates against the dollar; a * signifies significance at the five per cent probability level and ** at one per cent;

Source: International Monetary Fund, *International Financial Statistics*.

