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# Financial Liberalization and Integration in the APEC Region: Performance and Comparison with Chile and the European Union

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# Executive Summary

The objective of this paper is to examine the growing financial integration in the APEC region; review the theoretical and analytical perspectives on financial liberalization and integration; discuss the East Asian, Chilean and European Union experiences; and draw lessons and insights on the macroeconomic management of the risks and opportunities of financial liberalization and integration.

The 1980s and the 1990s have seen the growing financial liberalization and integration of the countries and economies in the Asia-Pacific region. The growing financial integration is a correlate of the deepening trade relations among the APEC countries. This reflects the complementarity among trade, direct investment and finance in the dynamics of outward oriented growth especially in East Asia. The recent East Asian crisis does not only highlight the risks of open capital accounts and financial integration but also, somewhat perversely, validates the growing economic integration in the East Asian region.

The essence of financial liberalization and integration is increased capital mobility and relatively open capital accounts. Most of the developing APEC member economies became more financially integrated with the rest of the world during the past one and a half decades. Much of the foreign capital that went to emerging markets went to APEC member economies. Indicative of the surges in capital inflows to the developing countries in the region are the high ratios of net capital inflow as a ratio of GDP during the latter 1980s and early 1990s. The major sources of the capital flows are APEC member economies themselves, especially Japan, the US and the Asian NIEs. This is related to some extent to the economic restructuring in the region, sometimes poetically described in terms of the "flying wild geese" pattern.

There are acknowledged benefits from financial liberalization and integration, including greater access to the world capital market at lower interest rates thereby encouraging higher rate of investment, as well as the long term advantages from financial development, risk diversification and efficient provision of financial services. However, there are also attendant macroeconomic and banking challenges and risks from open capital accounts as a number of crises involving both developing and developed countries bring out.

At the heart of the macroeconomic challenges is the so-called "incompatible trinity" of monetary independence, capital mobility and fixed exchange rates. Sooner or later, the incompatibility of the three eventually leads to currency crises as the recent East Asian crisis attests. Corollary to this is the short-lived effectiveness of sterilization efforts and the rising opportunity cost of such sterilization efforts that, in a number of ASEAN countries included a tight fiscal policy in order to minimize the inflationary effect of capital inflows. In a number of East Asian countries the higher domestic interest rate resulting from the sterilization efforts ended up encouraging further capital inflows that further exacerbated the problem of macroeconomic management. At the same time,

however, a currency appreciation attendant to a surge in capital inflow under a flexible exchange rate regime was largely anathema to Southeast Asian countries that have been pursuing export-oriented industrialization.

The problems with the European "snake in a tunnel" exchange rate system in the 1970s stemmed in part from the "incompatible trinity". Such was also the case during the EMS 1992-1993 crisis. The latter also brings out the vulnerability of members in a currency bloc when there are significant macroeoconomic shocks from the anchor country.

Not only does capital mobility pose challenges to macroeconomic management, it also poses systemic banking risks. Explicit or implicit insurance to (deposit) liabilities of banks tend to encourage banks to be more aggressive in their intermediation efforts between the foreign capital market (primarily through their foreign borrowings) and local firms (especially those without access to the world capital market except at tremendous interest rate premium and transactions costs). The recent East Asian crisis is acknowledged to stem in part from the rise in systemic banking risks arising from open capital accounts in the face of relatively weak prudential regulations. The Chilean currency crisis in the early 1980s also resulted in part from the lack of effective supervision and regulations of banks, which at that time were owned mainly by large private conglomerates, called *grupos,* and which had large grupo-related loans. The access to international financing exacerbated the bias for "unbridled self-lending".

Clearly, the policy question is not one of "to integrate or not to integrate" but rather to define a strategy of financial integration, so as to manage the risks and optimize the benefits from financial integration. The contrasting experiences of the European Union, Chile and East Asia provide lessons and implications for the choice of the strategy of financial integration in the country and the region.

**Key Lessons**

The survey of the historical experiences and of the analytic literature on the macroeconomic challenges of financial liberalization and integration bring out the following key lessons:

- Maintenance of a currency peg in the face of imprudent fiscal and monetary policies on the one hand and open international capital account on the other hand is a great recipe for an eventual currency crisis within a short span of time. As in the case of the Southern Cone (i.e., Chile, Argentina, Uruguay) experiences of the late 1970s and early 1980s, comparatively very high domestic real interest rates attract surges in capital inflows (a lot of it foreign borrowings of local residents), thereby raising domestic inflationary pressures and aggravated by the monetization of large fiscal deficits. There result real currency appreciation and a decline in the countries' international competitiveness, ballooning current account deficits, and an eventual payments crisis and currency crash.

- In the face of an open capital account and financial integration, maintaining fiscal (and macroeconomic) prudence is not enough to sustain a currency peg. Prudent macroeconomic management that leads to low inflation reduces the risk premium on

a country, thereby encouraging greater capital inflows in response to a monetary policy that results in domestic interest rates significantly higher than foreign interest rates. As the recent East Asian crisis showed, the high domestic interest rate and currency peg despite the capital inflows encourage substantial unhedged and generally short-term foreign borrowing and, concomitant to the overheating of the economy, increased investments in riskier and longer-term projects and in nontradeable sectors. The cumulation of such investments financed by short term funds increasingly make the domestic economy more vulnerable to negative external shocks such as a significant increase in world interest rate or a substantial fall in exports, and ultimately to speculative attacks on the domestic currency. An important lesson here is that a country that is financially integrated with the rest of the world and which has good credibility in its fiscal management cannot pursue an independent monetary policy and a currency peg for long without sowing the seeds for an eventual currency crisis.

- Similarly, regional currency pegs or currency areas are a breeding ground for currency turmoil unless there is full coordination of monetary and other macroeconomic policies among the member countries. As the EMS crisis of 1992-1993 suggests, inconsistency between the macroeconomic regime of the anchor country and the macroeconomic needs of the other members of the currency area would invite speculative attacks on the currencies of the members in the currency area. Maintaining exchange rate parities within the currency area necessitates the loss of monetary independence of the member countries in favor of the lead or anchor country or meeting the rigidly fixed rules on macroeconomic management as is the case under the euro zone.

- Thus, capital controls can be, and have been, used successfully as a tool for the macroeconomic management of capital flows but only on a temporary basis. Malaysia used them; France used them. In both cases, capital control measures were a complement to the other macroeconomic measures to temper capital inflows (Malaysia) or outflows (France, Malaysia). Chile used them on a longer- term basis and appeared, on the whole, to have succeeded in influencing at least the composition of capital inflows and in providing some leeway for monetary independence. It is clear, however, that capital controls are not a panacea or a substitute to sound macroeconomic policies, not too overly rigid exchange rates and strengthened prudential regulations. Equally important, a successful management of capital control measures requires a technically-competent machinery or central bank that can monitor and make appropriate adjustments in the measures in the light of the dynamic changes in the domestic and foreign financial markets. Thus, capital controls are an appropriate component of the arsenal of macroeconomic measures that a country, especially a developing country without a fully developed financial sector, can use in managing the macroeconomic challenges of international capital flows. Nonetheless, capital controls may need to used only sparingly and temporarily, or where on a longer term basis similar to Chile, adroitly, flexibly and in tandem with sound macroeconomic policies and strong prudential regulations.

**Implications**

In view of the lessons above, the implications for the Philippines are as follows:

- A bias for a floating exchange rate. This is likely a relatively dirty float rather than a truly flexible exchange rate regime.  As indicated earlier, the Philippines does not yet have a well-established and deep financial sector that offers the wide array of exchange risk management instruments at reasonable cost. This means that the Central Bank cannot likely have a totally hands-off policy in the foreign exchange market.  The bias for a more flexible exchange rate regime, however somewhat dirty rather than a totally clean free float, forces the market participants to take cognizance of exchange rate risks, encourages the development of exchange risk management instruments by the market, and allows for some independence in the determination of the country's monetary policy.

- The critical importance of strong prudential regulations, supervision and monitoring. This also includes greater transparency and disclosure requirements on the banks and other financial institutions. This is important either under a fixed exchange rate regime or under a flexible exchange rate regime. This is critical as the country deepens its financial linkages with the rest of the world. Much of that strengthening of the prudential environment would involve moving towards international best practice in banking, regulations and monitoring approaches.

- Improvement in corporate governance. This involves not only financial institutions but also of borrower firms. As the country deepens its linkages with the rest of the world, it is likely that more and more Philippine firms would seek out foreign funds directly rather than through banks. Thus, unless the foreign funds are well utilized by the firms, the country could be exposed to greater risk.  Improvements in corporate governance can be expected to be a long process that may involve changes in societal relations. Nonetheless, well performing banks and stock market, acting as outside monitors on borrower firms, can provide the impetus for improvements in corporate governance. The government can also provide some pressure for improvements in corporate governance. This can be done, for example, by requiring firms that want to borrow abroad directly to meet some quality criteria, such as a minimum rating as was the rule in Chile in the 1990s.

- The importance of maintaining prudent fiscal and monetary policies. This is easier said than done especially because an economy is buffeted by internal and external shocks on the one hand and passes through business cycles on the other hand. Nonetheless, this calls for a bias for a more conservative stance with respect to the fiscal deficit. Clearly this calls for constant and good monitoring and analysis of the domestic economy and world markets.

- There is merit in putting some "sand in the wheels" on short- term foreign borrowing by domestic firms and banks on the one hand and greater liberalization on longer-term borrowing and flows on the other hand.  In addition, where there is a significant surge in capital flows, there is some merit to look into the institution of an

unremunerated reserve requirement on short term capital inflows if necessary. Malaysia's and Chile's bias for long term flows and investments, to the point that Malaysia further liberalized foreign equity restrictions in certain critical industries while at the same time imposing selective capital controls in 1998-1999, has served the two countries well. This is because long- term flows impart greater stability and foreign direct investments can also have technology transfer, market development and human skill benefits to recipient countries. Clearly, this recommendation is relevant only during periods of large capital inflows. Thus, even Chile lowered to zero the unremunerated reserve requirement  when the was a turn around in capital flows to emerging markets in the aftermath of the East Asian crisis.

- Finally, at the end of the day, the quality of macroeconomic outcomes is dependent on the quality and capability of the institutions, both private (e.g., banks, rating firms) and public (e.g., central bank, finance), in managing the challenges of financial integration and the economy.  Thus, the importance of continuing investments in human resource and institutional development in both the government and private institutions, but especially the government institutions.

# Financial Liberalization and Integration in the APEC Region: Performance and Comparison with Chile and the European Union[1]

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## Abstract

The paper examines the growing financial integration in the APEC region; reviews the theoretical and analytical perspectives on financial liberalization and integration; discusses the East Asian, Chilean and European Union experiences; and draws lessons and insights on the macroeconomic management of the risks and opportunities of financial liberalization and integration. Clearly, the policy question is not one of *"to integrate or not to integrate"* but rather to define a strategy of financial integration, so as to manage the risks and optimize the benefits from financial integration. The contrasting experiences of the European Union, Chile and East Asia provide lessons and implications for the choice of the strategy of financial integration in the country and the region.

## I. CAPITAL FLOWS AND FINANCIAL INTEGRATION IN THE APEC REGION

The 1980s and the 1990s have seen the growing financial liberalization and integration of the countries and economies in the Asia-Pacific region. The growing financial integration is a correlate of the deepening trade relations among the APEC countries. This reflects the complementarity among trade, direct investment and finance in the dynamics of outward oriented growth especially in East Asia that underpins the so-called East Asian Miracle. The recent East Asian crisis does not only highlight the risks of open capital accounts and financial integration but also, somewhat perversely, validates the growing economic integration in the East Asian region.

The paper consists of four parts. Part One discusses the growing financial integration in the APEC region (primarily East Asian). Part Two discusses the analytical framework of the incompatible trinity and a brief literature review on currency and

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financial crashes. Part Two also discusses the famous Southern Cone experience and the Southeast experience in illustrating the incompatibility theorem. Part Three examines the experiences of Chile and the European Union in the macroeconomic management of financial liberalization and integration. The concluding part draws lessons and insights on the macroeconomic management of risks and opportunities arising from increased financial integration and liberalization.

*Measures of financial integration.* There are a number of measures of financial integration. A popular measure of growing financial integration is the volume of capital flows in the region. The presumption is that the larger the volume of capital flows the greater is the degree of financial integration. Although the measure is generally to be an imperfect measure, it is likely that where there are differences in interest returns across open economies, there would be capital flows that would help equilibriate the interest returns. In theory capital flows reduce to zero when interest rates (adjusted for risks and transactions costs) are equilibrated. However, economies are usually buffeted by demand, supply and even policy shocks; as such, capital can be expected to move accordingly. Moreover, a significant part of capital flows internationally is linked to trade and investment decisions. Thus, for example, to some extent the increased trade and economic integration of the East Asian economies with each other and with the rest of the world engenders increased capital flows in the East Asian region.

Feldstein and Horioka (1980) have popularized the use of saving and investment correlations as a test of financial integration. The hypothesis is that in a closed economy or in an economy with capital controls, a country's investment rate is virtually determined by the country's saving rate (assuming no official development assistance). Thus, there is a strong correlation between the country's saving and investment rates. In sharp contrast, a country which is perfectly integrated with the international capital market would have its investment rate not effectively constrained by its domestic saving rate; thus, there would not be any relationship between the country's saving rate and investment rate. The Feldstein-Horioka regressions are of the form:

$$(I/Y)_t = \boldsymbol{a} + \boldsymbol{b}(S/Y)_t + \boldsymbol{e}$$

*where*

$$\boldsymbol{b} = 0$$

means perfect financial integration for a small economy while a value of unity implies closed capital account.

Nonetheless, the most common measures of financial integration involve comparisons of expected returns of domestic and foreign assets. Specifically, this involves testing the interest parity conditions, specifically the covered interest parity condition, the uncovered interest parity condition and the real interest parity condition (see e.g., Fischer and Reisen, 1993 and Montiel, 1994).

**Covered interest parity** relates yields on comparable assets in different countries denominated in different currencies but with forward cover for foreign exchange risk.

Assuming away transactions costs, differences in applicable taxes of the home country and the foreign country, and the forward market margin requirements, perfect financial integration implies that the domestic interest rate is equal to the foreign interest rate and the forward cover for comparable domestic and foreign assets. That is:

$$i = i^* + f$$

where $i$ is the domestic interest rate; $i^*$ is the foreign interest rate and $f$ is the forward cover.

Under **uncovered (or unhedged) interest parity**, interest rates on comparable assets are equated given investors taking open positions in the foreign exchange market. Thus, under uncovered interest parity, the domestic interest rate is equated under equilibrium to the foreign interest rate and the anticipated rate of change in the exchange rate. That is,

$$i = i^* + e$$

where $e$ is the expected rate of change in the exchange rate.

**Real interest parity** requires that ex ante real (inflation-adjusted) interest rates are equal across countries; thus, purchasing power parity is also taken into consideration. Real interest parity is not relevant to developing countries because the assumption of purchasing power parity is a stringent assumption for developing countries. Moreover, real interest parity has been shown not to hold even in OECD countries (Fischer and Reisen, 1993).

The most often used measures in empirical tests of interest rate arbitrage involving developing countries are covered interest parity (for those few countries with forward exchange markets) and, primarily, uncovered interest parity.

Montiel (1994) discussed another measure of measure of financial integration used in the literature, i.e., the Euler equation test. The test, drawn from the Euler equation characterizing the optimal behavior of consumption, attempts to determine whether residents of two or more countries have access to the same risk-free asset. Montiel considers this the most direct test of financial integration; however, the Euler equation test has stringent underlying assumption, specifically the assumption that there no differences in the utility functions of the domestic residents from those of other countries, whether developed or developing (see Montiel, 1993). Thus, it does not seem particularly convincing as a measure of financial integration especially for developing countries.

**Capital Flows**

One of the remarkable developments in the 1990s in the world economy has been the sharp rise in international private flows to developing countries during the decade, in sharp contrast to the mid 1980s when private capital retreated during the height of the

external debt crisis in many of the developing countries especially in Latin America. Net private flows in 1995 to all developing countries (amounting to US $ 166.4 billion) was 14.3 times the average during 1983-1988 ( Helleiner, 1997, p. 4). Net capital flows to all developing countries as a ratio of GNP averaged 2.3 percent during 1978-82, 2.0 percent during 1983-1990 and 4.7 percent during 1991-1996 (Lopez-Mejia,1999, p.10). **Table 1**, taken from Alba, et.al. (1998), compares the magnitude and composition of capital inflows to East Asia, the ASEAN-4 countries, South Asia and the Latin American and Caribbean countries. The table shows the growing volume of capital inflows in relation to the gross domestic product in the developing world in the 1990s as indicated in the secular rise in the share of capital flows to GDP. More importantly, the share of net private flows increased secularly while that of net official flows declined secularly. Of the private capital flows, foreign direct investment and portfolio equity increased in importance as share of GDP in virtually all the developing regions.

Nonetheless, **Table 1** shows that East Asia, and especially the ASEAN-4 countries (i.e., Indonesia, Malaysia, Philippines, and Thailand) received the largest level of capital flows in relation to GDP among the developing countries during the 1990s. The table also shows changes in the composition of capital flows to East Asia during the 1990s. Specifically, there has been a sharp rise in portfolio flows (both bond and equity) as well as short term borrowing during the mid1990s. Bank and trade lending to East Asia, and especially the ASEAN-4, surged during the late 1980s and continued to the mid 1990s. ). East Asia led all developing areas as destination of private capital flows. The region's share to the total capital flows to developing countries increased substantially from 12 % during the early 1980s to 43 % during the 1990s (Alba, et.al., 1998, p.3).

The surge in capital flows is also shown equally starkly in **Table 2.a**, taken from Radelet and Sachs (1998). The table presents only the ending years of the decade-long surge in capital flows especially to the ASEAN-4 countries and South Korea. Nonetheless, the table echoes the changing composition of capital flows to the region described in **Table 1** and provides an intimation of why the East Asian crisis occurred. Specifically, notice the more than doubling of private flows in two years time right before the East Asian crisis, caused primarily by the near-tripling of flows from commercial banks and non-bank private creditors, much of this of short term nature. The flows were far larger than the requirements for financing the doubling of the current account deficit during the 1994-1996 period. The large magnitude of increases in capital flows, increasingly short term in maturity, in so short a time raises the issue of "absorptive capacity" of the concerned countries on the one hand and the possibility of "herd behavior" of international lending institutions on the other hand. Kaminsky (1999) highlights Calvo and Mendoza's thesis that fixed costs of gathering and processing country-specific information can result in herding behavior of rational investors. However, compensation of an agent of investors (i.e., the case of investment fund) that depends on his/her performance relative to other investor-agents' performance (especially where s/he is punished for having low returns), can end up in herding behavior that is inefficient and inconsistent with optimal risk sharing (Bikhchandani and Sharma, 2000).

***Bank lending.*** **Table 2.b and Table 2.c** present the updated and expanded foreign bank lending to selected developing APEC member countries during 1995-1999, classified according to the domiciles of the major lender banks (**Table 2b**) and by borrowing sector as well as the ratio of short term debt to international reserves (**Table 2.c**). The tables indicate that foreign bank loan outstanding to the APEC developing countries rose until the end of 1997 then dropped in 1998 and 1999 before recovering marginally in 2000. The tables indicate that it was primarily Thailand and Korea that experienced substantial declines in foreign loan outstanding at the outset of the East Asian crisis in 1997 but by 1998 virtually every East Asian country, including China, experienced substantial reduction in foreign borrowing.

**Table 2.b** shows that Japanese and European banks dominated foreign lending to East Asia. Although both the Japanese banks and the European banks have the same top four borrower countries from East Asia (i.e., China. Indonesia, Korea and Thailand), Japanese banks were more focused on Thailand. European banks were more exposed to South Korea but on the whole the loans of European bank were more spread out among the countries in East Asia. The dominant role of the Japanese banks in the foreign loans to Thailand is worth noting because of the recent study that brings out the common bank creditor as a channel of contagion across countries. Specifically, Kaminsky (1999) presents the view that "…the behavior of foreign banks can both exacerbate the original crisis, by calling loans and drying credit lines, but can also propagate crises by calling loans elsewhere. The need to rebalance the overall risk of the bank's asset portfolio and to re-capitalize and provision following the initial losses can lead to a marked reversal in bank credit across markets where the bank has exposure" (p.4).

Kaminsky (1999) noted that liabilities to Japanese banks accounted for more than one half of all the bank liabilities of Thailand as of December 1996. The share of Japanese bank loans to the total foreign bank liabilities of Indonesia and Malaysia accounted for nearly fifths as December 1996 (in contrast to only about a tenth share in the case of the Philippines). In addition, Thailand accounted for the mote than one fifth of all the total foreign lending of Japanese banks while both Korea and Indonesia accounted for an additional one fourth. (The share of the Philippines was less than one percent while that of Malaysia was less than five percent.) Kaminsky found that when a number of the member economies in a bank cluster become infected, the conditional probability of a crisis reaches 78 percent which is far higher than the conditional probability of 23 percent.

**Table 2.c** show some variation in the relative importance of the various borrower-sectors among a selected group of APEC countries before the East Asian crisis during the 1990s. Specifically, Korea's borrowings from foreign banks consisted largely of borrowings of local banks while those of Indonesia were largely those of the non-bank private sector. Thailand's foreign bank borrowings by both by the banking sector and the non-bank private sector although the latter has a somewhat higher share. The sectoral allocation of borrowings from foreign banks is more balanced for the Philippines before the crisis. As a result of the crisis, however, **Table 2.c** shows that in all of the affected countries, local banks reduced their foreign liabilities such that the sectoral allocation of outstanding foreign loans has tilted towards the non-bank private sector and the

government after the crisis. This reflects to a large extent the fact that banks in the affected countries (but far less so for the Philippine banks) were particularly hard hit by the East Asian crisis.

*Foreign direct investment.* Although limited only to foreign direct investments, **Tables 3a and 3b** provide some indication of the role of APEC in the world capital flows. The tables present foreign direct investment inflows and outflows on a balance of payments basis, which allows for comparability and additivity among countries as compared to other measures of direct investments. **Table 3c** summarizes **Tables 3a and 3b** in terms of the share of APEC to the world's total inflows and outflows of foreign direct investment as well as the level of net FDI flows into APEC. Table 3c shows that the APEC region has been a net foreign direct investment destination during the past two decades except during 1990-1992. It accounted for more than 50 percent of the world's FDI inflows during much of the period with the noteworthy exception of the 1990-1992 period, 1982-1983, and 1998. The significant decline in APEC's share in the early 1990s coincided with the sharp surge in foreign direct investments into the European Community, in preparation for the increased economic integration under the European Union. American and Japanese firms aggressively invested in Europe in part out of fear current at that time of a possible "Fortress Europe"; i.e., imposition of trade barriers against imports at the same time that barriers to trade, capital and labor movements within the European Union are dismantled.

The figures for the 1993-1999 period in **Table 3c** are interesting. Notice that despite the near tripling in the levels of FDI inflows and outflows during 1993-1996 compared to the 1990-1992 period, the level of net inflows during 1993-1996 was very low even compared to the 1980s. This means that the sharply higher level of foreign direct investments in the APEC region during the 1993-1996 period came preponderantly from the APEC member economies themselves. Notice that it was during this period of heightened FDI activity in the region that APEC's share to the world's total FDI outflows was the highest during the past two decades.[5] For example, Lamberte, Milo and Pontines (2001) present Kawai and Takagi data of FDI inflows to East during 1990-1998 which show that more than four fifths of all FDI inflows into China during the period came from Japan, US, ASEAN and other East Asia; the share for the ASEAN was about 55 percent. Nonetheless, it is worth noting that the period with the largest net FDI inflows was the period 1997-1999 coinciding with the East Asian crisis and the significant drop in the share of APEC to the world's total FDI outflows. Behind this remarkable development is the surge in foreign direct investments into the United States, including those from the European Union.

There have been shifts in the destination of FDI between developed and developing countries. Much of the FDI flows during the 1980s went to developed countries. The surge in FDI flows into the developing world occurred during the early and mid 1990s, especially to developing Asia. The East Asian crisis has led to a redirection of FDIs back to developed countries in the late 1990s, centered primarily in

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[5] Parenthetically, it may be noted that the 1993-1996 period was also the "golden age" of APEC as an economic body, when major policy goals under the Bogor Declaration were agreed upon and major policy initiatives in the Osaka and Manila summits undertaken.

North America (the United States). Behind the surge in FDI flows to developing APEC was the sharp rise in net investments in China and to a lesser extent Mexico as well as the steady rise in the level of net investments in Chile and Malaysia during the period, on the one hand. Note that the level of net outward investments from Japan and the United States stagnated or declined during the 1atter 1990s as compared to the early 1990s.

Available data for Japan, the United States, Malaysia and the Philippines may provide some indication of the relative importance of APEC member economies in the capital flows into the other APEC member economies. **Table 4a** presents the FDI flows from and into Japan during the 1990s; **Table 4b** presents the percentage share of FDI flows to individual APEC member economies to Japan's total FDI investments abroad. Japan's role as a key source of foreign direct investments in the world in the 1990s is reflected in the table, where there is a large gap between FDI flows of Japan and FDI flows into Japan. The gap was particularly large in 1990 before the contractionary effects of the bursting of Japan's asset market bubble fed into the economy. Until the East Asian crisis, much of Japan's investments abroad was concentrated in APEC countries reaching nearly three fourths of total Japan's FDI outflows during 1994-1996. Among the APEC economies, the US dominates as Japan's prime FDI destination, accounting for more than two-fifths of all of Japan's FDI outflows during the early and mid 1990s. Indonesia, Thailand, Australia, China and Singapore are the next five largest FDI destinations for Japan. The Philippines accounted for about one percent of Japan's FDI outflows in the late 1990s, smaller than the share of Malaysia and Hong Kong but higher than those of Korea, Taiwan, Mexico, Vietnam and Chile. The share of Asia as destination of Japan's foreign direct investments abroad increased during 1990-1997 period, from 12.3 percent in 1990 to 22.9 percent in 1997; however, this ratio dropped to 18.1 percent in 1998. Europe, which was the second largest destination of Japanese direct investments in 1990 at 24.1 percent declined in importance in 19.5 percent by 1997 but bounced back to 30.1 percent in 1998 as the East Asian crisis deepened. Looking into the bilateral FDI flows between Japan's FDI flow into a given APEC member economy and the FDI flow from that given APEC member economy, Japan was a net investor in all of the APEC member economies during the 1990s. This is probably not surprising given the role of Japan as probably the world's biggest net investor during the 1990s.

FDI flows from and into the United States for the period 1994-1998 are given in **Table 5a**; the share of selected APEC member economies to the US total FDI outflows are shown in **Table 5b**. The tables show the shift in the role of the United States from being a net investor to the world during 1994-1996 to being a net investment destination during 1997-1998. The tables also indicate that the outward foreign direct investment of the United States was more focused on Europe, Canada and Latin America rather than on Asia. In fact, the share of Asia in the US direct investments declined significantly in 1997 and 1998 presumably because of the East Asian crisis. In contrast, the share of Europe increased substantially as destination of American investments. Notice that there was actually a two-way flow of investments between Europe and the United States. While Europe was the main destination of American investments, Europe was also the main source of foreign direct investments into the United States. Indeed, Europe was a net investor in the United States during 1996-1998. Canada is also a net investor in the

United States, even as the share of Canada in the total FDI outflows of the United States increased modestly during the period.

In terms of the share of individual APEC member economies to the total US foreign direct investment outflows, Canada and Mexico, the US partners in the NAFTA, are the leading investment destinations of the United States among the APEC member economies.  Australia, Japan, Singapore and Hong Kong are the next important FDI destinations of US capital during 1994-1998.  The Philippines accounted for 0.58 percent and a measly 0.15 percent of the total US foreign direct investments during 1994-1996 and 1997-1998 respectively. Available data on the bilateral FDI flows between the United States and the other APEC members indicate that in many cases the United States was the net FDI investor. The major exception is the case of Japan, where the US was consistently the net investment destination. A few other APEC member economies also show that the US was the net FDI recipient in a number of years; e.g., Canada, Australia, Chinese Taipei.

The United States and to a lesser extent Japan can be expected to be major sources of foreign direct investments into the Latin American members of APEC. Arising more from NAFTA rather than because of APEC, the US foreign direct investment into Mexico amounted to US $4.5 billion in 1994 and US $5.6 billion in 1997, amounting to 41 percent and 44 percent respectively of Mexico's FDI inflow. The United States is also a major investor in Chile, accounting for more than two-fifths of Chile's foreign direct investment inflow during 1994-1997.  Japan's share to Mexico's and Chile's foreign direct investment inflow during the mid 1990s appears significantly smaller than that of the United States, accounting for less than 5 percent of Mexico's and barely one percent of Chile's. However, it is likely that these shares are very much understated because the investments could have been coursed through Cayman Islands, British Virgin Islands, Bermuda and Panama, the main destinations of published Japanese investments in Latin America probably primarily for tax purposes. [6]

Japan and the United States are also the two major sources of foreign direct investment in the Philippines. They accounted for nearly fifty percent of all of the FDI inflows into the Philippines during 1991-1993 although the share declined to about 36 percent during 1997-1999 (see **Tables 6a and 6b**).  The decline in the share of the two can be attributed in part to the rise in the share of other APEC member economies, especially Singapore, China, Hong Kong, and Taiwan. But the key reason was Europe, which was in fact the most important source (accounting for more than one-half) of total FDI inflows into the Philippines in 1999 as well as in 1993-1994.  Latin America was also a growing source of FDI inflows into the country during the 1990s. However, the Latin American sources are primarily the offshore tax havens like Bermuda, Bahamas, British Virgin Islands and Panama; hence, it is not clear where is the ultimate source of these FDI flows. There are no available data on the bilateral investment flows (i.e., inflows and outflows) between the Philippines and the other APEC member economies although presumably, the country is the net investment recipient especially with respect

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[6] The shares were estimated using the data on Japanese and US FDI outflows and the Mexican and Chilean
data of foreign direct investments from balance of payments statistics.

to the major investor countries and regions such as Japan, US, Europe, Hong Kong. Nonetheless, what is apparent is the widening of the sources of FDI flows into the Philippines among the APEC member economies. In addition, the key role of Europe in the country's FDI inflows indicate the internationalization of the sourcing of investment flows, a likely outcome when there are no discriminatory investment policies favoring one investment- source country or region over another.

The sources of foreign direct investments in a number of East Asian countries during 1986-1992 were preponderantly APEC countries. During the period, European investments (the major non-APEC source of investments) accounted for only 4.4 percent of FDI into China, 11 percent of FDI into the Philippines and Thailand, 16.1 percent of FDI into Indonesia and 19.6 percent of FDI into Malaysia. The largest source of FDI during the period was Hong Kong for China (63 %), Japan for Indonesia (36 %), the United States for the Philippines (37 %), Japan and Taiwan for Malaysia (22 % each) and Japan and Europe for Indonesia (18% and 16 % respectively) (See Riedel, 1995, p.10). Foreign direct investment in Hong Kong, Taiwan and Korea during the latter 1980s was preponderantly from Japan and the United States. For 1990, for example, the two countries accounted for 62 percent of total FDI into Hong Kong and Taiwan and 69 percent in South Korea. (See Chen, 1994).

The available data on capital flows for Malaysia during the 1990s is more complete, including portfolio flows. Thus, the case of Malaysia may provide better perspective on capital movements in the APEC region. Malaysia's equity inflows and outflows for the period 1991-1998 are shown in **Tables 7a and 7b**. Equity investment inflows increased during the early 1990s then declined with the East Asian crisis. Equity investment outflows also increased during the 1990s although slackened off in late 1990s. It is interesting to note that the total equity outflows were larger than the total equity inflows during the period 1996-1998. Singapore, Japan and the United States are the major sources of Malaysia's FDI inflows among the APEC member economies while Singapore, the United States and (during the early 1990s) Hong Kong are the major APEC destinations of Malaysia's investments. Like in the Philippines, Europe was a major investor in Malaysia; indeed, the leading investor in 1996 and 1998. Nonetheless, like the Philippines, FDI flows in and out of Malaysia was dominated by APEC member economies for much of the period.

Despite the increase in FDI flows during the period, **Tables 8a and 8b** bring out that financial integration is most apparent in terms of non-FDI flows like portfolio flows. Notice that Malaysia's portfolio inflows balooned from US $ 2.3 billion in 1991 to US $ 29.2 billion in 1994 although it dropped to around US $6.0 billion in 1998. The level of Malaysia's portfolio outflows is even more remarkable, rising dramatically from US $ 7.7 billion in 1991 to US $ 85.6 billion in 1994, slackened off at still a high level during 1995-1997 before dropping to a much lower level of US $ 14.3 billion in 1998. The figures suggest that there was a net portfolio outflow from Malaysia during the period. This may reflect the rising saving rate in Malaysia and the internationalization of portfolio decisions of Malaysian savers in light of the open capital account of Malaysia. It may also reflect the effect of policy actions of the Malaysian government during the

period. Specifically, its attempts to temper the level of capital inflows in the early 1990s in order to dampen the inflationary and exchange rate effects of such inflows on the Malaysian economy and the Malaysian ringgit. This is discussed further in Section III of this paper.

**Table 8b** shows that the portfolio flows in and out of Malaysia are dominated by Singapore and Hong Kong, and to a much less extent the United States and United Kingdom. This reflects primarily the role of Singapore and Hong Kong as East Asia's key regional financial intermediation centers. Indeed, **Table 8b** brings out that portfolio flows involve primarily the world's and region's finance centers; hence, apart from Singapore and Hong Kong, the other important players on Malaysia's portfolio flows are the United States (presumably mainly New York) and the United Kingdom (presumably London). Notice hat Japan, despite being one of the world's largest sources of savings, is not a source and destination of portfolio flows for Malaysia. This is because Tokyo never played the role of international financial intermediary for the rest of Asia, unlike Hong Kong and Singapore. Nonetheless, it is likely that Japanese financial institutions in Hong Kong and Singapore, just as the American and European financial institutions in Hong Kong and Singapore, are key players in the portfolio flows to (and out of) Malaysia, and probably the rest of East Asia.

The bilateral flows between Malaysia and other APEC member economies are interesting in that they are indicative of a country although not yet developed is high up among the middle income countries. That is, while Malaysia was a net investment destination for countries like the United States, Singapore, and for FDI, Japan, Korea, Canada, and Taiwan during the 1990s, it was also a net investor to the lower income APEC member economies like China, Indonesia, Philippines, Thailand and Vietnam. Interestingly, Malaysia was also a net investor in Australia, and marginally, New Zealand.

On the whole, it is not possible to have a definitive quantitative estimate of the role of APEC countries in the surge in capital flows in the developing countries of APEC, especially in Southeast Asia, Mexico and Chile because of data constraints. Nonetheless, the indications from the previous examples are that much of the capital flow is intra-APEC although Europe remains an important player in the region but especially in the United States. The growing intra-APEC capital flows is probably not surprising because foreign direct investments, especially from Japan and the Newly Industrialized Asian Economies (NIES), involved primarily the deepening of production networks in East Asia and North America. Moreover, overseas bank lending, especially by Japanese banks, was linked primarily to overseas (Japanese) investments in developing APEC region. Portfolio flows within the region appear to be intermediated primarily through Hong Kong and Singapore.

The growth in intra-APEC and intra-Asian investment flows became more pronounced since the mid-1980s after the Plaza Accord led to the appreciation of the Japanese yen initially and later on of the Korean won and the Taiwanese NT dollar in the latter 1980s. Japanese foreign direct investments was geared primarily to the United

States and Europe during the late 1970s and early 1980s in order to counteract rising protectionism in those regions (Chen, 1994). The appreciation of the yen and the rising cost of labor and land in Japan forced the Japanese firms to develop export bases in other East Asian countries, including Korea, Taiwan, the Southeast Asian countries and China. The liberalization in China, initially centered on the special economic zones in coastal China, paved the way for the massive transfer of manufacturing facilities from Hong Kong to the nearby Guandong province. Taiwan and South Korea also expanded outward foreign direct investments since 1987, primarily to the United States, Southeast Asia and China. The investments in the United States appeared primarily aimed at securing access to the US market and at acquiring technology; the investments to Southeast Asia and China involved shifting labor intensive manufactures to reduce labor cost (Chen, 1994).

The growing foreign direct investment flows within the region is consistent with the trade intensity in the Asia Pacific region. Estimates of trade intensity are available for 1980 and 1990 (see **Table 9**). The estimates indicate that the direction of trade of APEC economies is biased towards the APEC region, as indicated by a value of more than unity in most cases. There are a few cases of intense trade relationships, as for example the NAFTA countries, the Malaysia-Singapore-Indonesia linkage (with Singapore serving as transshipment point), and the ANZERTA countries of Australia and New Zealand. In virtually all of the APEC countries, the trade intensity measure for the European Community is less than unity. It may be noted though that there is no one-to-one relationship between the intensity of trade and intensity of foreign direct investment. This is because a major reason for the flow of foreign direct investments into developing APEC countries (especially Southeast Asia and China) is the use of the latter as export bases not only for the home country of the foreign investor but perhaps more importantly as export bases for third markets, both within and outside the APEC region.

The flow of portfolio capital within the APEC region is also indicative of the growing financial integration in the region. Indeed, more than foreign direct investment, there has been a sharp rise in portfolio equity and debt flows to the region. **Table 10** indicates that there has been a sharp rise in the gross flows, both inflows and outflows, in the APEC region. The IMF Balance of Payments data leaves much to be desired; nonetheless, the data indicate that the APEC region is a net recipient of portfolio equity and debt flows from the rest of the world. Indeed, even the US is a major net recipient of portfolio flows, primarily in debt securities. It was Japan which was the only major net portfolio investor for much of the 1990s among the APEC member economies. Analysis of bilateral flows of portfolio capital among the APEC economies cannot be undertaken because of data constraints, with the exception of Malaysia during the 1990s. Nonetheless, a significant share of portfolio flows in the APEC region comes from the region itself.

It may also be noted that bank lending to the region is also substantially drawn within APEC. Specifically, Japanese banks had the largest exposures in Southeast Asia and Korea as compared to the European and US banks. The US banks had less and stable loan exposure to Southeast Asia and Korea. Nonetheless, European banks also increased

their exposure in the region, especially Korea. (See, e.g., Radelet and Sachs, 1998; Rajan, 2000.)

Studies that examined the reasons for the surge in capital flows to developing countries in the late 1980s and early 1990s, especially to East Asia, have highlighted both pull and push factors. The push factors are both cyclical and structural factors. Specifically, the decline in world real interest rates and the recession in many developed countries in the early 1990s encouraged fund managers to seek out emerging markets for higher profit opportunities. At the same time, improvements in telecommunications and the growing role of institutional investors ( e.g., mutual and pension funds) encouraged internationalization of asset management for risk diversification. The flows of portfolio funds have been influenced also by the interest rate regime especially in the United States. Specifically, the lower interest rates in the US contributed to the increased flow of funds to the emerging markets in developing APEC in the early 1990s. Similarly, the rise in the US interest rates in the latter 1990s contributed to the retreat of portfolio funds from East Asian emerging markets during the period. The sensitivity of portfolio funds to interest rate movements in the US is indicative of the (deepening) financial relations within the APEC region

There were also important pull factors for the surge in capital flows to developing countries, in general and to developing APEC member economies in particular. Specifically, improved credit worthiness arising from successful debt restructuring, structural reforms and confidence on macroeconomic management as well as higher economic and trade growth all contributed to the surge in capital flows to developing APEC member economies. (See Lopez-Mejia, 1999.) Dasgupta and Ratha (2000) have also highlighted the complementarity between FDI and non-FDI flows. That is, non-FDI flows tend to be higher in countries that also receive higher FDI flows. This is probably not surprising as reflected in the loans of Japanese banks to the Japanese-linked firms in Southeast Asia to service the loan demands of such firms. Moreover, higher FDI inflows, especially export-oriented FDI inflows as was the case in much of Southeast Asia, improves the growth and export potential of the recipient country, thereby improving the pull factors for capital flows. Nonetheless, as noted by Rajan (2000), the composition of the capital flows is affected by macroeconomic factors. Specifically, the higher interest rate differential over LIBOR rate for Thailand despite an extremely stable exchange rate as compared to Malaysia explains in part the much higher share of loans to total capital flows in Thailand as compared to Malaysia.

In summary, the large and growing capital inflows and outflows in the APEC region are indicative of the growing financial openness of the APEC economies and the growing linkages of domestic financial markets in the region with the international and regional financial markets. At the same time it may be pointed out that in virtually all the currency crises in recent years, they were all preceded by surges in capital inflows. This suggests that the deepening financial integration also poses significant risks.

**Investment-Saving Correlations and Interest Parity Conditions**

*Investment-saving correlations*. Montiel (1994) estimated Feldstein-Horioka regressions for more than fifty developing countries for the period 1970-1990. A number of APEC developing countries are included in Montiel's sample. The results are shown in columns 1 to 3 of **Table 11.** The table also includes regression results for a few APEC member countries for the periods 1980-1989 and 1990-1999.

The Feldstein-Horioka regressions are typically the gross investment ratios of GDP as a function of the domestic saving ratios of GDP. Column 1 of **Table 11** was estimated using ordinary least squares. Columns 2 and 3 were estimated using instrumental variables; moreover, the saving ratio was replaced by the sum of national saving, net nonmarket inflows (i.e., official development assistance), and reserve depletion as a ratio of GNP. The instrumental variables estimation was to take into consideration the endogeneity of saving in OLS regressions. The modification in the saving variable is to take into consideration that developing countries, even those with zero capital mobility, receive nonmarket financial flows primarily through official development assistance. (See Montiel, 1994.)

In the Feldstein-Horioka regressions, a value of one for $b$, the coefficient of the saving ratio, implies that a country has zero capital mobility. That is, a country's investment rate is determined solely by the country's domestic saving rate. Capital openness and mobility, and therefore a country's financial integration with the world, breaks down the saving constraint on the country's investment rate. In the extreme case of perfect capital mobility, the value of $b$ is expected to be equal to zero for small countries or the country's share in world's capital stock for the large countries.

The results of the Feldstein-Horioka tests in columns 1 to 3 in **Table 11** suggest that Singapore have high degree of financial integration with the rest of the world while Chile, Malaysia and Mexico exhibit intermediate financial openness but not "necessarily strong financial integration" (Montiel, 1994, p.333). The Philippines alone among the sample countries in the table as exhibiting strong financial autarky; that is, the country is likely to have significant capital controls and is not financially integrated with the rest of the world.

The regression results, drawn from Montiel (1994), were for the period 1970-1990. Considering that the dramatic rise in private capital flows occurred in the 1990s, it may be useful to estimate similar Felstein-Horioka regressions for the 1990s and compare them with the decade of the 1980s. Columns 4 and 5 present the results using ordinary least squares estimation. The results are suggestive. Specifically, whereas Indonesia, Korea, the Philippines and Thailand had values of $b$ significantly different from zero (and higher than the estimate of 0.6 for developed countries) during the 1980s, the values became statistically not significant from zero during the 1990s. This finding suggests that Indonesia, Korea and the Philippines became more open financially and experienced greater capital mobility during the 1990s. This is consistent with the financial liberalization moves of the three countries during the decade. Malaysia's values for $b$

during the 1980s and the 1990s were not statistically significant from zero, suggesting the relative financial openness of Malaysia even during the 1980s.

In summary, the Feldstein-Horioka regressions indicate varying degrees of financial integration among the APEC member economies during the 1970s and the 1980s. Nonetheless, there are indications that APEC member economies have become more financially open during the 1990s. Alone among the APEC member countries, Montiel classified the Philippines as having low financial integration with the rest of the world during the 1970s and the 1980s. This indicates significant capital controls in the country as well as the fact that the country was not credit worthy during the 1980s because of the crisis in the early 1980s and the problems that the country faced during the rest of the 1980s. Nonetheless, the significant financial sector and foreign exchange market reforms and liberalization in the country especially during the 1990s, the Philippines has also strengthened its financial links with the rest of the world as suggested by the Feldstein-Horioka regression for the 1990s and the surge in capital inflows during the first half of the 1990s.

*Interest parity conditions*. Capital flows, while indicative of financial linkages between home and foreign financial markets, do not provide information on the degree of financial or capital market integration. For this purpose, a number of studies have focused on interest parity conditions, primarily covered and uncovered interest parity. Specifically, interest parity of comparable domestic and foreign assets (adjusted for exchange rate risk) is indicative of high capital mobility and therefore of high financial integration. Conversely, sustained covered interest rate differential ( i.e., the gap between the domestic interest rate and the foreign interest rate adjusted for the forward premium or discount on the foreign exchange rate[7]), is indicative of country or political risk; e.g., existence of capital control, differential tax treatment, default risk, localized information, risk of future capital controls (Frankel and Chinn, 1993). Similarly, for the countries without forward exchange markets, a large and sustained uncovered interest rate differential[8] is indicative of the presence of significant capital controls and therefore of low financial integration. A declining interest rate differential indicates growing financial integration of the home currency vis-à-vis the rest of the world. (See Dooley, Mathieson and Rojas-Suarez, 1997.)

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[7] The covered interest rate differential is :

$$CID = I - I^* - D$$

Where $D = (F - S)/S$

    $F$ = forward premium (if positive) or discount (if negative) on the foreign currency

    $I (I^*)$ = domestic (foreign) interest rate

[8] Uncovered interest rate differential is:

$$UID = I - I^* - E$$

Where $E = (ST - S)/S$

    $S$ = spot exchange rate

    $ST$ = expected exchange rate at the maturity date of the financial instrument

Fischer and Riesen (1993, p.29) reports estimates of covered interest differentials for Hong Kong, Japan, Malaysia, Singapore and Thailand for the period September 1982 – April 1988. The mean differentials are low for Japan and Hong Kong, and somewhat higher for Singapore and Thailand. Malaysia's differential is considerably higher than the rest and it is negative, suggesting the presence of capital outflows. Nonetheless, Fischer and Riesen note that the mean differentials for the five East Asian economies are actually smaller than a number of European countries, including Denmark, Spain, Portugal and Greece. Thus, the East Asian economies are more internationally financially integrated than the above mentioned European countries.

Frankel and Chinn (1993) examined the covered interest differential during 1982-1992 of APEC economies with well developed forward markets: Australia, Canada, Hong Kong, Japan, Malaysia, New Zealand, and Singapore. Frankel and Chinn found that Canada, Hong Kong and Singapore had nearly zero covered interest differential vis-à-vis the US interest rate; i.e., in the OLS regression with domestic interest rate as the dependent variable, the coefficient on the US interest rate and forward discount rate is almost unity and the constant is not statistically significant. Australia, Malaysia and New Zealand had coefficients still far from unity during the period. Nonetheless, Frankel and Chinn found that the coefficients at the end of the period had increased tremendously compared to the beginning coefficients, indicating that much greater financial integration of Australia, Malaysia and New Zealand internationally at the end of the 1982-1992 period. This finding corroborates to a large extent the earlier finding of Frankel that during 1982-1988, the covered interest differentials vis-à-vis the Eurodollar on average were as small for Hong Kong, Singapore, Japan and Canada as for the financially most open European countries while the differentials were bigger and more variable for Australia, Malaysia and New Zealand (Frankel and Chinn, 1993).

Chinn and Dooley (1995) updated the Frankel and Chinn (1993) study and estimated the covered interest rate differentials for seven Asia-Pacifc countries for two subperiods; i.e., September 1982-April 1988 and May 1988 – January 1994. The mean differentials and absolute differentials were low and declining for Canada, Japan, Hong Kong and less so, Australia and New Zealand. This means high and deepening capital market integration with the rest of the world. Two of the Asia-Pacific countries in Chinn and Dooley's sample –Malaysia and Singapore—were somewhat more insulated than the other five countries, reflecting imperfect capital mobility in the two countries during the 1980s. However, as Frankel and Chinn (1993) indicated, while it was less financially integrated in the early 1980s, Singapore was largely financially integrated with the world financial market (US) by the early 1990s.

Montiel (1994) tested uncovered interest parity by examining the differential between the domestic interest rate and the foreign interest rate adjusted for exchange rate change. Specifically, he posited that uncovered interest parity implies that the interest differential above has a mean value of zero and that the deviations from the mean value are serially uncorrelated. Using monthly data for the period 1985-1990, Montiel's analysis indicate that Chile, Korea and Singapore appear to meet uncovered interest

parity but not Malaysia, Mexico, the Philippines and Thailand. It appears then that Chile and Singapore, especially have high financial integration with the rest of the world.

Other empirical studies on capital mobility in the Asia Pacific region using uncovered interest parity attempt to reflect institutional differences between developing and developed countries, especially the existence of capital controls in the former. A widely cited approach is that of Edwards and Khan that states that the unobserved market clearing domestic interest rate is a weighted average of the uncovered interest rate parity and the closed economy domestic interest rate; i.e.,:

$$I = W * UIR + (1 - W) * CIR$$

Where  UIR = uncovered interest rate
       CIR = closed economy interest rate
       W = a measure of capital mobility

A higher W means a higher degree of capital mobility because there is greater weight on uncovered interest parity (Fischer and Riesen, 1993).

Estimates of the Edwards-Khan "index" for five Asia – Pacific economies show high degree of capital mobility for Singapore (i.e., W = 0.92), followed by Indonesia and Malaysia, although the high estimate for Singapore may have been boosted by the use of the covered interest rate rather than the uncovered interest rate. Estimates for South Korea and Taiwan show low capital mobility (Fischer and Riesen 1993). The implied high capital mobility for Indonesia and Malaysia may reflect the openness of the capital account in the former and possible ineffectiveness of capital controls in Malaysia. The low value of the Edwards-Khan index for Korea and Taiwan seems to jibe with the historically extensive capital controls and domestic interest regulation in the two countries up until the 1980s. Nonetheless, a study by Chinn and Maloney (1994), using a portfolio balance model rather than the Edwards-Khan methodology, suggests that a break towards greater financial openness and capital mobility occurred in South Korea and Taiwan by the turn of the 1990s. It is likely that the financial sectors of South Korea and Taiwan became more integrated with the rest of the world as a result of the liberalization of the financial sectors that occurred during the 1990s in the two countries.

In summary, financial openness and integration was mixed among the APEC developing countries during the 1970s and 1980s. Nonetheless, the various studies indicate that for the Asia Pacific countries with more open capital accounts, capital mobility is high and financial integration has deepened. For the countries with historically with greater capital controls, there are indications that the controls were not effective or that there has been some structural break towards greater financial openness by the turn of the 1990s. The further policy reforms in many countries in East Asia, including Korea, Philippines and Taiwan, toward greater financial liberalization and deregulation point toward greater financial openness and integration with the rest of the world.

**Integration of Domestic Financial Markets**

The financial openness and integration in the Asia Pacific region is generally examined in terms of the volume and prices, i.e., interest rates, of internationally tradable financial instruments; e.g., government bonds, money market instruments. Deeper financial integration is achieved, however, if there is also increased integration of the domestic financial markets. That is, the integration of prices of "nontradable" retail financial instruments; e.g., deposit rates, domestic lending rates with those of more tradable financial instruments like money market rates.

The study by de Brouwer (1997) shows that the increased international financial integration of the Asia Pacific economies occurred in tandem with increased internal integration of the domestic financial markets in the region, although there are country differences in the extent of integration. De Brouwer examined the correlation among deposit rates, lending rates, and money market rates as well as the adjustment of deposit and lending rates to the changes in the money market rates in several Asia Pacific economies during the 1980s and early 1990s. Among the findings of De Brouwer are the following:

- The deposit money market, deposit and lending rates are strongly correlated to each other in the US, Canada, Australia, Japan, Malaysia, Singapore, Philippines and Taiwan. In contrast, deposit and loan rates aare barely linked with the money market rates in Korea. The linkage in Indonesia and Thailand is weak, although it strengthened in Thailand during the 1990s.

- Adjustment to changes in the money market rates is relatively fast in Australia, Canada, Japan, Malaysia (for deposit only), the Philippines and the United States. Adjustment is slower in Hong Kong and Singapore. The slower adjustment in Hong Kong may have to do with the banking cartel power of the HKBA. The slower adjustment in Singapore may have been caused by inadequate competition in the banking sector due to tight control on bank branching and on foreign bank entry into Singapore.

- The correlation and the adjustment rate of deposit and lending rates on money market rates increased over time for Australia, Canada, Indonesia, Japan, Malaysia and the Philippines. This indicates increased integration of domestic financial markets.

- Deposit rates tend to be more correlated with and adjust faster than lending rates to the changes in money market rates. This is especially so in Indonesia, Malaysia and Thailand. This may reflect the greater difficulty in these countries to enforce controls when there are available good substitutes to controlled financial instruments; e.g., foreign currency deposits versus domestic deposits.

In summary, the 1980s and 1990s have seen the growing integration of domestic financial markets in many countries in the Asia Pacific region. As de Brouwer noted,

this stemmed from financial deregulation and increased competition in the banking sectors of the Asia Pacific during the past two decades. The increasing co-movement of the domestic deposit and lending to the money market rates, and the increasing co-movement among money market rates in the region (as reflected in the reduction in the mean interest rate differential) mean that there is greater and deeper financial integration in the Asia Pacific region.

## II. ANALYTICAL PERSPECTIVES ON THE MACRECONOMICS OF FINANCIAL LIBERALIZATION AND INTEGRATION

**Surge in capital flows and the incompatible trinity theorem : basic analytics.**

The textbook analysis of macroeconomic policies in an open economy under varying assumptions of capital mobility and exchange rate regimes provide the basic analytical foundation of the macroeconomics of financial liberalization and integration. In Figures 1.a – 1.d,  LM represents equilibrium in the financial sector, IS represents equilibrium in the real or goods sector, BP represents equilibrium in the balance of payments for a given exchange rate (under fixed exchange rate regime) and IE represents the interest parity condition (under flexible exchange rate regime).

Assuming pegged exchange rates, perfect capital mobility and perfect substitutability of domestic and foreign financial assets and a small economy, an expansionary monetary policy ( a shift in the LM curve) has at best a temporary effect of increasing national output and decreasing domestic interest rate. This is because the reduction in domestic interest rate leads to capital outflow, a consequent loss in the international reserves and reduction in money supply. In this simplified world, the final equilibrium occurs when the economy goes back to its original position. (See **Figure 1.a**.) Thus, under fixed exchange rate  regime and given perfect capital mobility, monetary policy, monetary policy cannot set an interest rate different from the world interest rate and cannot influence the equilibrium level of income. In sharp contrast, fiscal policy is effective in influencing the level of income under fixed exchange rates and given capital mobility. This is because the induced increase in domestic interest rate from a government fiscal expansion leads to capital inflow and a consequent increase in money supply that accommodates the increased money demand arising from the increased income (see **Figure 1.b**).

**Figures 1.c and 1.d** illustrate, respectively, the cases of monetary expansion under a flexible exchange rate regime with perfect mobility and under a regime of capital controls with fixed exchange rates. As  **Figure 1.c** illustrates, monetary expansion under a flexible exchange rate and perfect capital mobility would lead to a reduction in interest rate, increase in income, and a currency depreciation. The reduction in interest rate and the depreciation of the currency encourage investments and exports which are supportive of the increased output. In **Figure 1.d,** monetary expansion leads to temporary increase in income. However, with the increased imports and the resultant loss in international reserves, the money supply eventually declines until the economy goes back to its original position. The results are similar to **Figure 1.a**; however, the pace of adjustment back to the original equilibrium level is likely to be slower in **Figure 1.d**.

The four cases described above bring out the basic policy issues surrounding the macroeconomics of financial liberalization and integration. **Figure 1.a** exemplifies the so-called "incompatible trinity" problem. That is, it is not possible to satisfy the following three conditions in a sustained manner (i.e., in equilibrium); namely, perfect

capital mobility, fixed exchange rate, and monetary independence (i.e., the capability of the monetary authorities to set domestic interest rates very different from the world interest rate). Thus, under fixed exchange rate and given perfect capital mobility, macroeconomic policy makers would have to rely mainly on fiscal policy to attain desired macroeconomic targets.

A country has to break one of the three conditions set out above in order to have internal policy consistency. Thus, for example, a country that has an open capital account and wishes to have monetary independence would have to institute a flexible exchange rate regime. Similarly, a country that wants the benefits of a fixed exchange rate regime and capital mobility would have to adjust to the monetary policies of the anchor country. Finally, a country that wants to have some measure of monetary independence, however temporarily, but at the same time does not wish to have a freely floating exchange rate would need to put some barriers to capital mobility; i.e., impose some capital control measures.

The underlying alternative assumptions of perfect capital mobility or no capital mobility whatsoever and perfect substitutability of domestic and foreign financial instruments are obviously strong assumption, especially for developing countries. Nonetheless, the theoretical analysis above presents starkly the policy trade-offs that countries face in addressing the macroeconomic challenges of financial liberalization and integration. The various crises that many countries have experienced bring out clearly that managing financial liberalization and integration is a difficult and continuing challenge. At the same time, the various crises leave out lessons that can be taken into account in managing better the risks and opportunities of financial liberalization and integration in the future.

**Currency and banking crises: a brief literature review**

The exploding literature on currency crises and financial crashes bring out the tremendous macroeconomic and policy challenges pose by financial liberalization and integration. Specifically, the various currency crises and financial crashes in recent years are seemingly similar but are in fact different from one another. Thus, models that provide the analytic anchor for policy recommendations for one crisis may not be sufficient for the other crises. The evolution of the models on currency crises and financial crashes reflects the changing nature and sources of such crises and crashes. They provide analytic anchor for understanding the various crises, and thereby hopefully help analysts and policy makers prepare better for, or better still avert, currency crises and financial crashes in the future.

*First Generation Type Models.* The classic approach to a balance of payment crises is to perceive currency crises as arising from the inconsistency between a fixed exchange rate rule and the pursuit of domestic policies primarily an expansionary fiscal and monetary policy regime, especially the monetization of large fiscal deficits. Within a monetary framework, rational forward looking agents cause a breakdown of a

fixed exchange rate regime once there is a general perception that an exchange rate peg is unsustainable. This is especially the case where the regime has been made unsustainable because of policymaker's consistent persistence to monetise its fiscal deficit (Rajan, 2000; Economic Research and Resources, 1999). Once speculators perceive that an attack is inevitable, each tries to buy foreign currencies from the central bank before the reserves are depleted, which is simply a run on reserves. Thus, one key insight of the first generation model is that the depletion of international reserves is not gradual but rather sudden arising from an speculative attack on the currency.

This is best exemplified by a government that embarks on an excessively expansionary fiscal policy, financed by domestic credit creation. Then, under a fixed exchange rate regime, the country's reserves will be run down at a rate proportional to the rate of credit expansion. This is because to keep the currency at the fixed rate, the central bank has to mop up the excess money supply by buying the domestic currency and selling foreign currency. Thus, any finite stock of reserves will eventually be exhausted over time. Speculators will anticipate the inevitable sequence of events, involving the depreciation of reserves, and the sharp depreciation in the value of the currency, as the peg is abandoned. Hence, they will switch out of the domestic currency into foreign currency, thus bringing about the collapse of the currency peg. This class of models produces a unique and predictable timing for a speculative attack.(See e.g., Rajan, 2000; Pesenti and Tille, 2000.)

The first-generation models captured the main features of many past currency crises well, such as the Latin American crises in the 1980s. However, they were found to be inadequate when it came to explaining the ERM crises in Europe in 1992-93, where not all of the afflicted countries displayed large fiscal and current account deficits. This inadequacy spurred the development of a second-generation of crisis models (Pesenti, 1999).

*Second Generation Type Models.* The second-generation models are similar to some extent to their first-generation counterpart insofar as to identifying inconsistent government policies, primarily excessively expansionary and monetized expansionary policies, as the cause of currency crises (Flood and Marion, 1996). However, "…whereas first- generation models use excessively expansionary pre-crisis fundamentals *to push* the economy into crisis, second-generation models use the expectation of fundamentals expansion *ex post* to *pull* the economy into a crisis that might have been avoided" (Flood and Marion, 1996, p.4). The second-generation models focus on the dynamic interactions of market expectations, particularly investors' expectations, and government policy decisions which can lead self-fulfilling crises; the models thus highlight the role of self-fulfilling expectations in deriving several possible outcomes; (i.e., "multiple equilibria"). Thus, for example, when private agents start to give more weight to the probability of devaluation in view of the economy's fundamentals, interest rates would rise. This might eventually convince the government that the (social) cost of maintaining the exchange rate through higher interest rates is too high and hence would decide to devalue the currency. Where private agents do not expect

a devaluation, interest rates stay low and the exchange rate remains.  A currency crisis is a shift in expectations toward the devaluation outcome; as such, the defense of the currency peg becomes excessively expensive. Second-generation models seem better able to accommodate the volatility of foreign exchange markets than the first generation models. (See Pesenti and Tille, 2000;  Flood and Marion, 1996).

Flood and Marion's (1996) example is that of a government that fixes the exchange rate but also monetizes a fiscal deficit.   The monetary creation eventually builds up pressure on the exchange rate and pushes the monetary authority toward making an adjustment – either to devalue or float the domestic currency.  In contrast to the first- generation models, in second-generation models such inconsistencies in policies are not yet at a critical point that eventually leads to a crisis.  Instead, as noted earlier, the expectations of the private agents could put the government into a bind thereby making policy decisions that effectively validate and "(self)fulfill" ) private sector expectations.
The reason why government responds to such self-fulfilling expectations is because it has to balance  the benefits (such as enhancing credibility) of defending the currency against its attendant costs  -- higher interest rates that may damage the weak financial system and higher unemployment (Economics Research and Resource, 1999).

The common feature of these models is that countries pursuing policies consistent with maintaining a fixed exchange rate may come under attack, and when this happens, they may change policies even though they would not have done so otherwise. The question now is what triggers the currency attack that moves a country from a certain equilibrium point to another. Several explanations have been put forth, such as speculation by a single large investor, information frictions in emerging markets, and herding behaviour by international investors.

In these models, multiple equlibria and herding behaviour by investors play a key role. From the speculator's perspective, the probability of devaluation is associated with a belief that the peg will be let go in the next period. This uncertainty is attributed to economic fundamentals as well as the expectations or beliefs of other agents, allowing for 'herding' behaviour and contagion effects. "A successful speculative attack occurs when the market foresees that an economic indicator will deteriorate beyond an acceptable level because of the defense of the peg" (Economics Research and Resources, 1999). Unlike the first-generation models, where the onset of an attack is predictable, these "escape-clause" second-generation models cannot predict the timing of a speculative attack, particularly because these models incorporate strategic behaviour and uncertainty in an economy (Flood and Marion, 1996; Economics Research and Resource, 1999).

***Third Generation- Type Models.***   The first and second-generation models were effective in explaining Latin American crisis experience in the early 80s and provided much needed policy guidance when the ERM and the Mexican crises of 1992-93 and 1994-1995, came up respectively. However, these models proved to be able to give only an incomplete picture of the East Asia crisis.

The East Asian crisis caught almost everyone unaware. Almost nobody among those who were looking at Thailand on the eve of July 2, 1997 expected the financial turmoil to snowball into a full-fledged regional currency and financial crisis.[9] Much less for the crisis to target shaky fundamentals of Latin American countries and Russia when it jumped the entire length of the Pacific basin and skipped the deep trenches bordering the Atlantic seaboard only a few months after it started in Bangkok. This was mainly because most of the analysts had their attention glued to traditional indicators or fundamentals-based structural distress i.e. government fiscal imbalances, current account deficits and overvalued exchange rates. Although suggestive of macroeconomic vulnerability especially for Thailand's large current account deficits, the usual indicators do not provide hints about the susceptibility of the entire region to succumb to contagion from a currency and financial collapse. Before the 1997 crash, countries like Thailand, Malaysia, Indonesia, and the Philippines, were at a fiscal surplus position (Thailand, Philippines) or had low fiscal deficits that were financiable from high domestic saving rates (Malaysia). Similarly, the real exchange rate appreciation did seem manageable and not serious in the light of the historical magnitudes in Latin American countries. Moreover, the East Asian countries for the most part had been undertaking reforms that were meant to strengthen macroeconomic fundamentals; e.g., liberalisation of internal and external markets, stabilisation, deregulation and privatisation of government owned corporations.

What the East Asian crisis brought to high relief is the joint occurrence of banking and currency crises associated with the Asian financial turmoil even if the joint occurrence of banking and currency crises is not a new phenomenon. Glick and Hutchinson (1999) pointed out that in fact the incidence of "twin" banking and currency crises has been relatively widespread during the 1975-1997 period, especially in financially liberalized emerging economies. The authors also found that in emerging markets the occurrence of banking crises is a good leading indicator of currency crises but not vice versa. Developed markets have of course experienced twin banking and currency crises but a noticeable difference between a crisis in emerging economies and those of developed countries is that the latter have been largely able to sustain their output (as noted by Rajan (2000) in Calvo and Reinhart's (2000) paper).

Despite that several crises have already happened before, it is still understandable that there is the temptation to look at each new crisis in the world as if it were something new and unprecedented, and try to develop a new way of analysing it (Chang and Velasco, 1998). And indeed, the case of the East Asian crisis was something new to some extent compared to the Latin American experiences of the 1980s. The bedazzlement arising from the complexities of the East Asian Crisis has resulted in the reassessment of previous formulations on currency and banking models. This has led to the development of the third-generation models, which give more emphasis on the capital account while the previous two were focused on the current account (Yoshimoto and Ohno in Rajan, 2000). In addition, the third generation-models tend to give more importance on the role of the fragility of the banking sector in the generation of the

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[9] In this review of literature, "financial crisis" and "banking crisis" will be used interchangeably while "currency crisis", "exchange rate crisis", and "balance of payments crisis" are also loosely invoked to mean the same situation.

eventual crisis. These two dimensions of the third generation models seem more attuned to the East Asian situation given that, unlike the Latin American cases before, macroeconomic management in East Asia was far more prudent and that banks as intermediaries of international capital funds were central to the East Asian phenomenon.

Various economists have contributed to the budding literature on third-generation models. These include early contributions by Paul Krugman (1998) who focused on the 'moral hazard' problem induced by implicit government guarantees. Government guarantees to the private sector magnify the moral hazard problem, providing fertile ground for irresponsible banks rooted in the expectation that the authorities will intervene in the event of financial distress. Pesenti (2000) stated it bluntly as thus: "the major fundamental weakness of the Asian countries consisted of the exposed position of the banking and corporate sectors in an environment of limited prudential supervision" (p.11). Financial liberalisation also plays a significant role to East Asian-type crises because the lower foreign borrowing cost leads to overborrowing in foreign currency of domestic financial intermediaries. At the same time, with poor prudential regulations, the foreign loans are increasingly funnelled toward the acquisition of highly risky assets or to the financing of low profit-yielding investments (Pesenti, 2000).

An earlier attempt to formulate a third-generation crisis model was done by Chang and Velasco (1998). Chang and Velasco postulated that the East Asian crisis was a "classic financial crisis made possible by the illiquidity of the financial sector". The central theme of Chang and Velasco's model is the exposure of domestic banks to foreign currency denominated debt with short-term maturity, or for that matter, of deposits that are inherently short-term in character. Banks earn from lending such funds longer term assuming there is confidence in the banking sector such that the short term external debt is rolled over and the depositors continue their deposits with the banking sector. The risk arises when creditors refuse to roll over existing debts or that the depositors go on a "bank run". The loss in confidence of the foreign creditors and/or of domestic depositors result in banks being forced to scrounge up necessary resources, even to the extent of liquidating assets with high yielding potentials (if collected during maturity) at a discount because of necessity, or recalling loans just so banks could make-up for their own liabilities. This is the East Asian illiquidity problem of 1997 – 1998 according to Chang and Velasco (1998).

Chang and Velasco highlighted five major characteristics of the East Asian crisis:

    a. The existence of international illiquidity typified by the mismatch of international assets and liabilities of the country and its financial institutions triggered confidence problem. This explains how a country's financial sector that is plagued by potential short term obligations in foreign currency and is unable to raise a great amount of foreign currency in short notice, pose a problem;

    b. An open capital account arising from a policy of financial liberalization. This exacerbated the maturity mismatch between international assets and liabilities.

The open capital account provided the channel for capital inflow as foreign fund managers and domestic banks took advantage of opportunities of lower world interest rates relative to domestic interest rates. However, much of the foreign borrowings and funds were largely of short- term maturity. As a result, local banks became very vulnerable to self-fulfilling crisis when creditors "panic" and refused to roll over short-term loans;

c. Imprudent money-financed deficits before the crisis in affected economies were not much of a factor in the East Asian crisis in contrast to the Latin American crises of the 1980s. The fiscal problem arose after the crisis primarily from the fiscal costs of the bank bailouts. In this aspect, the East Asian crisis is similar to the Mexico "tequila crisis" of 1994.

d. A collapse of the fixed exchange rate arose because of the policy dilemma of helping out banks by pursuing an expansionary monetary policy either by maintaining interest rates low or by being the lender of last resort. In either policy decision, a collapse in the exchange rate will happen because in both cases international reserves are exhausted and diminished.

e. Moderately weak fundamentals of these countries partly observed through an over-valued exchange rate and some other external changes e.g., terms of trade, world interest rate.

Chang and Velasco (1998) saw the fragility of the banking sector as having a cascading effect on both defaults of foreign currency denominated debts because of depreciation and defaults on domestic currency denominated debts by local debtors because of sky-rocketing interest rates.

Similarly, Caballero and Krishnamurthy (2000) attributed the magnitude of the East Asian crisis on "the sharp fire sales, done by the market, of domestic assets and possibly exchange rates and the ensuing collapse in the balance sheets of both financial and non-financial sector". To them, the problem stems from a rapid decline in the country's international collateral value brought about by its "underdeveloped" domestic financial markets. These underdeveloped financial markets hinder the correct appraisals of asset values in both private and social perspectives thereby enticing "uninformed" investors.

In addition, Caballero et al (2000) explains the fragility of domestic financial markets worsens the crisis because of the collapse of the banks' balance sheets. Domestic financial intermediaries are able to acquire loans from foreign investors using their bank balance sheets as a basis of creditworthiness, resulting from valuations of available international collateral. Subsequently, the foreign funds are then lent by the domestic banks to domestic borrowers who do not have direct access to international credit lines. Caballero et.al. (2000) point out the problem faced by a country dealing with an international crisis and an asset prices collapse, is the deterioration of the "third balance -the banking system" or the banks' balance sheets, which in turn inhibits them

from procuring further foreign funds and injecting such funds into the domestic financial system , thereby further magnifying the crisis.

Calvo (1998) attributes the balance sheet problems of domestic financial intermediaries **not** on collateral deterioration or refusals to roll over. Rather, these were merely the outcome of a "sudden stop" in capital inflows. Noting that a high capital inflow episode means a large current account deficit, the "sudden stop" of capital inflows necessitates the contraction of current account deficits, which in basic terms means a significant drop in the demand for tradable goods. Given a real exchange rate, the drop in demand for tradable goods is likely to be followed by a lower demand for nontradable goods. In a flexible world, this leads to the decline in the relative price of nontradables vis-à-vis tradables. Moreover, because it is a "sudden stop", the "change is largely unexpected and therefore, loans to the nontradable sector (e.g. real estate) extended under the expectation that previous relative prices were, on the whole, permanent, could become nonperforming" (p. 38). Thus, bank bankruptcies become a huge possibility.

Calvo (1998) emphasizes that the concept of "sudden stop" is wholly independent of maturity structure of capital flows (Calvo, 1998). To explain this, he brought up the case of current account deficits (CADs), which are financed by foreign direct investment (FDIs). The assumption made in proving his point is that FDIs are constantly reinvested, making the occurrence of sudden stops immaterial and irrelevant. However, this line of argumentation falls short to some extent whenever FDIs take the form of acquisition of domestic firms. Whenever this happens, revenue generated from the sales of existing firms may further exacerbate the current account position when sellers in turn purchase foreign assets (Calvo, 1998). So it goes without saying that if the sale of domestic asset translates into a higher CAD, then "original owners are using the proceeds to increase aggregate spending" (p. 39). Thus what matters is not the maturity structure of the capital inflow but rather how the capital inflow is spent.

Nonetheless, the crux of the problem is that why is there a sudden stop. Calvo argues that " conjectures that originally lead to a sudden stop may come to be true through a self-fulfilling prophesy … because the capital inflow slowdown …could drastically lower the average and marginal productivity of capital as a result of, say, socially-costly bankruptcy battles following sharp, and largely unexpected changes in relative prices" (p.40). This is especially because the slowdown in capital flows may destroy output and credit channels, and thereby prevents consumption smoothing. At the same time, the shorter is the maturity structure of external debt, the greater is the possibility for a sudden stop crisis (Pesenti, 1998).

Lòpez-Mejia (1999) explains the higher non-performing loans of banks by hypothesizing that "if capital inflows are accompanied by an increase in asset prices, the financial sector will be more vulnerable because households' debts and consumption rise as appreciated assets are used as collaterals for new loans." Weak governance of banks may unwittingly provide resources to fan the increases in aggregate demand for both tradable and nontradable commodities, resulting in the exposure to risks of banks once asset prices of the collaterals go down (Lòpez-Mejia, 1999). This problem of banks is

usually directly simultaneous to increases in the interest rates, which in turn leads to defaults on debt payments by agents.  And because of huge drops in asset prices, these debts are not enough to be covered by the collateral issued by debtors; ergo bank losses.

The East Asian turmoil also brought forward the need to identify mechanisms of crisis transmission across countries.  First, the panic that ensued into a "creditor panic", exacerbated by the lack of coordination and lack of information, turning an illiquidity problem into one of insolvency. Second, flawed financial fundamentals contributed to the progressive weakening of the financial system, which led to the fallout in Asia. Third, contagion spreads the crisis to economies with relatively strong financial systems, either through their trade linkages or when investors noted similar features in these economies (Economics Research and Resource, 1999; Pesenti, 2000).

Pesenti (2000) stresses that insights from the East Asian crisis are best put forward by a third generation model, which revolves around the supervision, regulation and limitation of excessive borrowing from abroad, especially the short maturity types, thereby reducing the risk of temporary liquidity shortages. (Pesenti claims that a third-generation model is a combination of first and second-generation models.) Efforts to build the third-generation models are still gaining momentum (Economics Research and Resource, 1999).

**Appendix A** presents the structure of some of the models discussed in this section.

# III. VARIETIES OF EXPERIENCE ON THE MACROECONOMICS OF FINANCIAL LIBERALIZATION AND INTEGRATION: THE INCOMPATIBLE OR IMPOSSIBLE TRINITY IN ACTION

The experiences of the Southern Cone countries during the late 1970s, the East Asian countries during the late 1990s and the European countries in the early 1990s exemplify the imcompatible trinity problem in action.

### Southern Cone Experience

The experience of the Southern Cone countries; i.e., Chile, Argentina and Uruguay, during the late 1970s and early 1980s is one of the well-cited experiences of developing countries on economic stabilization and liberalization, especially capital account liberalization. The experience points out that the inconsistency among the domestic rate regime, the use of the exchange rate as an anti-inflation device, and pursuit of capital account openness could lead to serious currency overvaluation and eventual balance of payments crisis.

At the heart of the Southern Cone experience is the large capital inflow in the turn of the 1980s because of high real interest rates. The capital inflows were in large part aggressive foreign borrowings of local firms in the face of very high domestic real interest rates (Chile) or active government encouragement through exchange rate guarantees (Argentina). Real interest rates on peso loans in Chile were between 44-58 percent during 1977-1978 before the liberalization of the capital account, fell to about 10 percent by mid1979 with the opening of the capital account, but surged to near 40 percent by 1981. The initial capital inflows in Argentina were also primarily portfolio shifts by Argentines themselves who positively responded to the property rights reforms undertaken by the Argentine government.

The high real interest rates, from 10 percent to even about 40 percent, resulted from the high nominal interest rates and deceleration in the inflation rate. In the case of Argentina, the large fiscal deficits fanned the inflationary pressure. In both Chile and Argentina, the exchange rate was eventually used as an anti-inflation device by a program of decelerating rate of depreciation (until a zero rate of depreciation; i.e., pegged exchange rate for Chile by 1979). However, especially in the case of Chile, a backward indexation -wage-setting mechanism that was based on the inflation of the previous 12 months, meant effectively that the real exchange rate appreciated substantially (about 35 percent) within two to three years. For Chile this eventually led to large current account deficits (aggravated by the deterioration in the country's external terms of trade) and to eventual speculative pressures on the Chilean currency. For Argentina, the large foreign borrowing that was encouraged by the exchange rate guarantee (by 1981) largely went out as capital flight. This was because the continuing large fiscal deficits (amounting to about 10 percent of GDP) on the one hand and the significant real appreciation of the Argentine currency on the other hand eventually fed doubts on the sustainability of the

exchange rate. By 1982, faced with large reversals in capital flows, Chile and Argentina went into balance of payments crises. (See Fischer and Riesen, 1993.)


**East Asian experience**

Before the East Asian crisis, Southeast Asian countries appeared to have successfully defied the incompatible trinity theorem. However, the surge in capital flows in the 1990s and the consequent East Asian crisis has proved otherwise.


*Indonesia.* Indonesia provides an interesting counterpoint as well as complement to the Southern Cone countries. In contrast to the Latin American case where capital account liberalization was part of the stabilization and structural reform programs, Indonesia had an open capital account since 1971 well before the country liberalized its trade and financial sectors (in the 1980s). Indonesia seems to defy the usual recommendations related to the sequencing of reform, where capital account opening and liberalization is supposed to be the last to be undertaken after trade liberalization and domestic financial reform. Indeed, the opening of the capital account by Indonesia in 1971 was meant as a credibility-enhancing measure in the light of the massive macroeconomic mismanagement during the latter years of the Sukarno regime.

The open capital account did not initially pose a macroeconomic problem to Indonesia for more than one and a half decades, in contrast to the experience of the Southern Cone countries. Behind this is the lack of credit worthiness of the Indonesian private sector in the international capital market (Fischer and Riesen, 1993, p. 72) so much so that Indonesia's foreign debt was largely by the government up until the late 1980s. In effect, the implied substantial risk premium allowed for some monetary independence.

In addition, up until the early 1990s, capital flows were sterilized primarily through requiring state enterprises (in mid-1987 and in early 1991) to convert their bank deposits into purchases of government securities as means of sterilizing such capital inflows (Fischer and Reisen, 1993, p76). Nonetheless, as the Indonesian economy surged, as the Indonesian private sector became credit worthy internationally  and as the ceiling on foreign commercial  borrowings by banks was lifted, there was a surge in private sector borrowings abroad to beat the higher domestic interest rate. Facilitating the surge in foreign borrowings of short-term maturity was  the introduction of a swap facility with Bank Indonesia whereby the domestic lending rate was lower than the LIBOR plus the swap premium. (The swap premium was equal to the deposit rate less the LIBOR.) (Fischer and Reisen, 1993,  pp. 72, 76)  For example, foreign borrowing by the private sector during 1990-1993 amounted at (at least) US $ 10.6 billion as compared to only US $ 0.5 billion during 1982-1989 (Park and Song, 1997, p.93). The outstanding foreign bank debt of US $35 billion in 1994 rose dramatically to US $58.2 billion in 1997 (see **Table 2b**).  The surge in foreign borrowing primarily by the Indonesian private sector, not all of it known and monitored  by the government authorities, proved to be a major

undoing for Indonesia during the East Asian crisis. As of March 1998, Indonesia's external amounted to U $138 billion, of which US $ 64.5 billion was owed by private nonbank corporations and US $13.6 billion by private and public banks (Nasution, 1999, p.9).

Indonesia had a policy of maintaining the real exchange rate of the rupiah in the face of the large capital inflow. This means that the rate of rupiah devaluation was predictable (and historically low) so much so that the foreign borrowing by Indonesian entities was largely unhedged. The Indonesian central bank had to resort to continuous monetary sterilization efforts in order to minimize the monetary expansionary effect of the capital inflows. Bank Indonesia relied on the sales of short term Central Bank securities and money market securities. It utilized other measures in order to control excess liquidity; e.g., raise the discount rate on export draft, impose direct controls on banks; transferred a portion of the deposits of State enterprises with the commercial banks to the Central Bank. (See Park and Song, 1997.) However, the central bank's efforts to control excess liquidity led to the domestic interest rates higher than the foreign interest rate adjusted for the normal rate of depreciation of the rupiah.

As a result, Indonesian firms borrowed more from abroad, increasingly short term in maturity. The percentage of debt instruments in US dollars increased substantially during the 1990s: the ratio of credit in US dollars to total credit rose from 12.2 percent in 1990 to 30.8 percent in 1997 (Nasution, 1999, p.13). With the rise in the share of foreign currency denominated debt, it was increasingly difficult to manage exchange rate and monetary policies without hurting the viability of enterprises. This was aggravated by the high external debt service burden of Indonesia that amounted to more than 30 percent of the country's exports during the 1990s. With inadequate monitoring of external debt, poor prudential regulation of banks and heavy external debt service burden, Indonesia ended up being the most badly affected by the East Asian crisis despite being merely a "victim of contagion" from Thailand.

*Thailand.* Thailand, the origin of the East Asian crisis, illustrates the "impossible trinity" in action. Thailand's monetary policy during 1985-1997 was anchored on its nominal exchange rate, which was pegged to a basket of currencies of Thailand's major trading partners but which is dominated by the US dollar (Werner, 1999, p.4). Thailand successfully stabilized the exchange rate for nearly a decade up until the July 1997 crisis. That success, however, was illusory as the country had increasing difficulty in managing capital inflows and slowing down an increasingly overheated economy.

During the 1980s, Thailand could maintain the exchange rate despite a large current account deficit because the deficits were financed largely by foreign investment inflows. Moreover, the magnitude of the current account deficit in the 1980s was not as high as that of Singapore during 1975-82 when it averaged 9 percent of GDP and which was considered a period of considerable economic success for Singapore (Shigehara, 1999, p.50). However, by the mid-1990s, the share of FDI in financing the current

account deficit dropped to only about 10 percent while the slack was primarily taken over by foreign debt of increasingly short term maturity. Underlying the large foreign borrowings was the significant interest differential between the 12-13 percent interest rate in Thailand and about 5-6 percent for the US dollar during the period at the same time that the exchange rate remained stable (Yoshitomi, 1999).

Thailand shows the limits of sterilization policy and the difficulties of managing surges in capital inflows. Capital inflows dominated the growth of Thailand's monetary base in the late 1980s and the 1990s. Thailand was aggressive in using fiscal policy in managing capital inflows. Thailand shifted from a central government fiscal deficit of about 4 percent of GDP prior to the surge in capital inflows into a fiscal surplus averaging about 3 percent of GDP during 1988-1994 (Schadler, 1994, p.364; Park and Song, 1997, p.103). The Bank of Thailand (BOT) used dollar-baht swaps, repurchase of government and state enterprise bonds, and sales and purchases of government securities for its money market operations. The BOT required banks in August 1995 to maintain a 7 percent reserve against nonresident baht deposits, and by 1996 including all short term foreign currency liabilities of banks (including the Bangkok International Banking Facility) and finance companies. The BOT also used direct credit "guidance" through the Credit Planning Scheme as a means of controlling domestic credit expansion during 1987-1997.

However, this scheme initially excluded the BIBF loans by foreign banks, thereby creating another basis for the shift in the sourcing of funds from domestic baht loans to foreign borrowing, a substantial portion of which was coursed through the BIBF. Moreover, foreign banks were implicitly encouraged to lend domestically because the award of foreign banking licenses was dependent on the performance of foreign banks in lending to the domestic corporate sector. Thus, the incentive structure affecting the BIBF led to a major redirection of focus of BIBF from undertaking "out-out" or "in-out" deposit-lending operations to one that became essentially "out-in" operations. (See Werner, 1999.) BIBF became an important means for the sourcing of short term funds for the domestic banks, finance companies and the corporate sector. It has been argued that BIBF "window" effectively extended and worsened the asset market bubble in Thailand that is central to the emergence of the currency and banking crisis in the country.

Thailand wanted to dampen the inflationary pressure from the capital inflows at the same time that it prevented a significantly nominal appreciation of the baht in order to maintain Thailand's export competitiveness. However, as a result, domestic interest rates were persistently higher than those in the developed countries, thereby encouraging further capital inflows. It may be noted that the bulk of capital flows into Thailand during the surge period consisted of short-term borrowing of commercial banks and non-resident baht account deposits (Park and Song, 1997, p.92). The short term nature of much of Thailand's capital inflows during the capital surge period led to the level of short term debt being much higher than the level of international reserves, and to the increased vulnerability of Thailand to negative foreign investment sentiment. Thailand resorted to other measures in order to dampen the inflationary effects of the capital inflow, e.g., easing up on capital outflows. Nonetheless, the Thai economy overheated as reflected in

the high current account deficit and the real estate bubble. When the bubble burst and the export sector stagnated from the downturn in the international electronics market and the rise in domestic labor cost by 1996, foreign sentiment turned progressively negative and pressures on the baht increased.

The speculative attack on the baht started in September 1996. Subsequent speculative attacks occurred in December 1996, February 1997 and May 1997. It was only in July 2, 1997 that Thailand decided to devalue the currency. By June 1997, Thailand used up US $ 8.7 billion in reserves and undertook US $23 billion in forward contracts (maturing within 12 months) in the ultimately futile attempts to defend the currency. Behind the attempts at defending the baht were fears that the abandonment of the peg would lead to a wholesale run on the baht and therefore an immediate currency crisis. In addition, the large unhedged foreign debt exposure of Thai corporations would force the corporations to close their exposures in case such policy change occurs that can lead to a currency crisis in view of the larger unhedged debt exposure compared to the country's international reserves. It is interesting to note, however, that it was the demand for dollars by the local firms in June 1997 to hedge their open foreign exchange exposure that ultimately virtually cleaned up the country's reserves through the Exchange Equalization Fund (EEF) window, thereby setting up the stage for the abandonment of the peg on July 2, 1997. (See Werner, 1999.)

***Bubbles, Crashes and Crises.*** The case of Thailand, and to a less extent Korea and Indonesia, bring out that despite the apparent macroeconomic success the difficulties of managing the massive capital inflows would rear its ugly head in terms of an overheating economy and asset bubble; the bursting of the bubble would eventually led to the currency crisis. Yoshitomi (1999) pointed out that the case of Thailand's large current account deficits in the 1990s before the crisis were not caused by poor macroeconomic fundamentals; i.e., in the sense of large fiscal deficits or low saving rates. Rather, they were caused by the capital account surplus arising from the large capital inflows. As such, the size of the capital account surplus largely determined the current account deficit, not the other way around.

As noted earlier, the capital inflows were caused by the large interest differential and by the stability of the exchange rate. In addition, the success of the recipient in its growth performance, prudent fiscal regime and overall inflation performance contributed to the further downscaling of the risks involved in borrowing and lending in countries like Thailand, Korea and Indonesia. Finally, especially in the case of Korea, the history of government bailout of chaebols and banks in distress led market participants to expect an implicit guarantee by the government.

The capital account surplus and the accompanying foreign reserve accumulation encouraged domestic absorption through excessive domestic bank credit and money supply expansion (Yoshitomi, 1999). A large part of the increase in domestic absorption led to the large current account deficit (and thereby prevented a sharp rise in inflation). Nonetheless, the capital inflow and rise in domestic absorption also led to the asset

market bubble. In the case of Thailand, the share of loans by commercial banks and finance companies that went to real estate, construction and consumer loans (including automobile loans, margin loans for stock purchases, and hire purchase loans) rose from about 35 percent of total loans in the early 1980s to about 45 percent by the mid 1990s (Werner, 1999, p. 9). The role of finance companies is particularly significant in the making of Thailand's " bubble". The share of loans for construction, real estate and personal consumption (primarily margin loans and hire and purchase loans) averaged about 55 percent in the early to mid 1990s; at the same time the proportion of total loans granted by finance companies to the total loans granted by banks rose from about 21 percent in 1990 to about 31 percent in 1995 (Kawai and Takayasu, 1999, p. 42). Thus, when the bubble burst, it was the finance companies that were first badly affected. Nonetheless, the banking sector was also adversely affected because they own a considerable number of the finance companies.

There is some internal dynamic to Thailand's bubble. Banks relied on collateral, primarily real estate, in deciding on loans. Thus, the higher the real estate price the higher is the collateral value of the land and the higher loan the real estate can support. The additional loan could be for more real estate loan or for other sectors such as manufacturing. However, in the case of Thailand, the government pursued a tighter monetary policy in 1995 and 1996, implying a high interest rate policy (Werner, 1999). This contributed to the bursting of the bubble and the finance companies became saddled with the rise in nonperforming loans. When the inflow from abroad dried up, the financial institutions became illiquid. In the case of Thailand, the government plowed in billions of baht in trying to support faltering finance companies in 1996 but ultimately to no avail. Moreover, the financial sector problems together with the deterioration in the country's export performance led to the speculative attacks on the baht.

A bubble is essentially a case of overinvestment to the point that the returns to the investment ultimately becomes less than the cost of capital. If Thailand's bubble is centered in commercial real estate, Korea's bubble is centered in overinvestment in factories. As in the case of Thailand, the investment was increasingly financed by short-term loans, especially short term foreign loans intermediated by domestic merchant banks during 1993-1996 with the acceleration of capital account liberalization in Korea (Cho, 1999). The Korean case is somewhat unique because Korean chaebols have historically been aggressive in investments, which in the late 1970s also contributed to the balance of payments crisis in Korea in 1980. Korean chaebols have largely focused on market share rather than profitability. Thus, the ratio of current profit to total assets for the period 1989-1993 averaged only 2.0 percent in Korea as against 3.5 percent in Japan and Taiwan and 6.2 percent in the US (Cho, 1999, p. 7).

Nonetheless, there were a number of factors that made the 1990s more serious than the one in the late 1970s. First, foreign borrowing was more liberalized in the 1990s than in the 1970s. The liberalization of the capital account has led to the sharp rise in the reliance on short- term loans in the 1990s. Thus, for example, the share of short term loans as a source of financing for the country's top 30 chaebols increased sharply from 48 percent in 1994 to 64 percent in 1996 while the share of internal financing decreased

sharply from 41 percent to 22 percent during the same period (Cho, 1999, p.9). The investments were long term in terms of increases in capacity at home as well as expansion abroad. Thus, the Korean chaebols were particularly vulnerable to external and interest rate shocks because of two mismatches; i.e., currency mismatch and term mismatch. Second, the Korean chaebols expanded significantly during the 1990s in both their core businesses and branching into new sectors. The expansion was facilitated by access to credit using property as loan collateral and cross-loan guarantees. The practice of cross-loan guarantees, while allowing access to credit by individual subsidiaries from the loan guarantee of the whole group, exposed the whole industrial group to chain bankruptcies within the same group (Smith, 1998), as the unfolding of the Korean crisis showed. And third, political liberalization and the sharp rise in land values led to sharp rise in wages that was more than the rise in labor productivity. This explained in part the thin profit margin of Korean chaebols but more importantly, this led to greater vulnerability of Korean exports to exchange rate shifts in the yen-US dollar rate. The labor unions became more powerful and aggressive in the 1990s as a result of political liberalization. In addition, land values rose significantly in the 1990s such that the ratio of land value to GDP in 1994 was 5.4 in Korea as against 3.5 in Japan, 1.6 in UK and 0.7 in the US (Cho, 1999, p.6). The high land value translates into high rental cost and therefore to workers' demands for higher wages (Ibid.).

Terms of trade deterioration and the depreciation of the Japanese yen relative to the US dollar led to the sharp deterioration in the fortunes of the Korean chaebols and the Korean economy in 1996. The depreciation of the Japanese yen meant that the price advantage that Korean exports enjoyed vis-à-vis competing Japanese exports especially in third markets was eroded. Moreover, the rise in unit labor cost at home did not provide the needed cushion to allow for export price adjustment to meet the Japanese challenge in the third markets. Finally, the sharp fall in the prices of Korea's major export products (especially of computer chips) in 1996 further weakened the financial position of the chaebols. As a result, the chaebols faced debt servicing difficulties especially considering that a substantial portion of their loans was short-term. The chain of bankruptcies starting with the collapse of Hanbo Steel in January 1997, corruption scandals and labor unrest led to the decline in consumer and business confidence, rise in interest rates and vulnerability to the contagion from the Southeast Asian currency crisis.

*The financial sector and the East Asian crisis.* The East Asian crisis has highlighted the importance of prudential regulations of the financial sector in staving off future currency crises. This is because it is generally that the financial sector was at the heart of the recent East Asian crisis. Weak supervision of banks and nonbank financial institutions (e.g., finance companies) on the one hand and the macroeconomic incentive for banks and other financial institutions to increasingly rely on foreign funds for domestic relending and/or investment (because of the stability of the currency and the lower interest rate at home than abroad) on the other hand encouraged banks and non-bank financial institutions to undertake riskier and unhedged loans and investments domestically. It needs to be emphasized that the weak supervision is of all banks, both locally owned and foreign. As Werner (1999, p. 11) noted, only 15 percent of the total

dollar borrowings of Thai corporations was coursed through Thai banks; the rest –85 percent—was conducted through foreign banks.  It is worth noting also that a substantial portion—the predominant portion in the case of Indonesia—of foreign loans to the affected East Asian countries was contracted directly with the foreign banks rather than through local banks.

Regulatory oversight and incentive distortion were two important reasons for the rise in short term financing of investments in Korea. The government controlled Korean firms' direct borrowing from abroad but allowed for the sharp expansion of merchant banks, many of them through the conversion of short-term finance companies into merchant banks that can undertake foreign exchange operations. Merchant banks, however, largely borrowed short term for long term assets; indeed, the term mismatch for merchant banks was particularly serious such that short term foreign assets could cover only 6 percent of the banks' short term liabilities in 1996. This contrasted very much with the regular banks where the ratio of their foreign assets to their foreign liabilities as about 80 percent. It was only in June 1997 that government authorities imposed limits on holdings of long term assets through short- term borrowing. (See Cho, 1999, pp.11-12.) Apart from short term borrowing from abroad indirectly through the merchant banks, Korean firms relied on the domestic commercial paper (CP) market for their short term financing. The CP market grew tremendously because it was not subject to monetary control and because the commercial papers of the firms were resold in the secondary market from short-term finance companies and merchant banks with guarantees, which was against the rules. Thus the risky CP papers were traded as if risk-free and led to tremendous growth of the market. In the end, however, the failure of the government to institute proper supervisory and monitoring mechanisms on the commercial paper market raised the overall risk of the CP market and the financial sector. (See Cho, 1999, pp. 9-13.)

Indonesia highlights the weak prudential regulation and supervision of banks in the affected East Asian countries. The Indonesian case is particularly more serious because government-owned banks still accounted for two-fifths of the total assets of the Indonesian commercial banking system by 1996 (Chou, 1999, p.68).  About two-thirds of the problems loans in Indonesia are concentrated in the state-owned banks. Nasution (1999) asserts that the government ownership led to political objectives intruding in all aspects of bank operations. It meant credit worthiness of the borrowers was not given sufficient attention. Instead, state-owned bank loans were used "…to extend government assistance to particular industries and a handful of politically well-connected business groups" (Nasution, 1999, p.15). Moreover, the lending skills (including risk appraisal) of the bank officers of state-owned banks were also weak because the state assumes the risks of the state-owned banks (Ibid.).

Even Indonesia's private banks also leave much to be desired in terms of prudentials. A serious problem concerns violations of the legal lending limits on loans and advances to insiders, a single borrower or group of borrowers. Nasution (1999) pointed out findings of  the World Bank in the mid 1990s that 65 out of the 240 banks violated such legal limits, that about half of the loans were extended to members of the

same group of companies, and that in two of the largest private banks, over 90 percent of the loans were given to member companies of the same group. This suggests that prudential rules and regulations follow the CAMEL (capital adequacy, asset quality, management, earning and liquidity) were poorly implemented in Indonesia in the 1990s before the East Asian crisis broke out. This is explained in part by the structural weaknesses in the legal and accounting procession and by the insufficiency of trained personnel in the regulation and monitoring of the banking and other financial sectors. (See Nasution, 1999, p.16).

An Asian Development Bank study (1999, Vol. 1) presents indicators of the institutional framework of the banking sector by mid-1997 in the five countries heavily affected by the East Asian crisis. (see **Table 12**). Table 12 shows that Thailand, the country that triggered the East Asian crisis, can be described as weak in bank regulation and supervision while the other countries (e.g., Indonesia, Malaysia, Korea and the Philippines) had weak to fair scoring on bank supervision.

The weak bank supervision, low borrowing cost, and the euphoria of historically high growth rates in the affected East Asian countries led to excessive investments in risky and low-profitability projects. There was high investment in the nontadable sector, especially the property market which fed into a property bubble. **Table 13** shows that Thailand, Malaysia and Indonesia merited "high" rating in terms of the property sector risks because of the large proportion of property sector loans as well as the large proportion of loans collateralized by real property.

Corsetti, Pesenti and Roubini (1999) noted that there was a high rate of non-performing loans before the crisis at more than 15 percent in Thailand, Indonesia, Korea and Malaysia. Indeed, the three authors emphasized that rising non-performing loans in tandem with a lending boom is an indicator of financial fragility. According to them, the growing financial fragility together with a growing current account imbalance as well as inadequate foreign reserves eventually led to the East Asian crisis. An indication of current account imbalance is a large current account deficit at the same time that there is currency appreciation of the domestic currency. Indicators of foreign reserves adequacy are the ratio of foreign debt service burden to foreign reserves and the ratio of money supply to foreign reserves. (See Corsetti, Pesenti and Roubini, 1999.) In short, the East Asian crisis is an interplay of financial fragility and macroeconomic imbalances.

In summary, the Southern Cone and East Asian experiences indicate that the pursuit of independent monetary policy and nearly fixed exchange rate (or maintenance of a real exchange rate) is a recipe for an eventual balance of payments crisis when there is financial integration and international capital mobility and there is an incentive structure biased toward short term flows. This is especially the case where the financial sector is poor supervised and monitored. In the end, the capital account surplus that feeds the expansionary credit and monetary conditions in the domestic economy thereby generating an economic bubble stops and reverses. This results in a currency and economic crisis as the capital account reversal forces a reversal of the current account

from a deficit position to a surplus. This is only possible in the short term through a sharp reduction in domestic absorption; i.e., an economic recession.


**The European Experience: the EMS Currency Crisis of 1992-1993**

The European Monetary System (EMS) currency crisis of 1992-1993 showed the pitfalls of fixed exchange rate regimes with free capital movement when there is no full coordination of macroenomic policies among the members in the "currency zone". By the late 1980s, virtually all the EEC members had eliminated capital controls thereby ensuring free flow of capital within the Community. The financial markets became increasingly convinced that there was inconsistency between the macroeconomic regime of the lead country (Germany) and the macroeconomic needs of other members in the EMS such that exchange rate realignments had to be done. Specifically, Germany pursued a historically high interest rate regime in order to dampen the inflationary pressures from the high fiscal expenditures of the German reunification. On the other hand, Germany's trading partners needed lower interest rates in order to reduce their growing unemployment problem. However, Germany's trading partners needed to match Germany's interest rates in order to maintain their EMS parities. The financial markets increasingly believed that the position of Germany's trading partners was untenable and there would be a growing probability of devaluation. The currency attacks on the EMS currencies occurred in September 1992 that led to the devaluation of the lira and the pound and the eventual abandonment of the EMS. The Spanish was also devalued but Spain stayed in the EMS. Speculation on the French franc was quelled only after sharp rise in interest rate and after heavy intervention by both the French and German central banks. The speculative attacks on the currencies recurred in 1993 until the EMS countries adopted wider exchange rate bands allowing for greater exchange rate flexibility. (See Blanchard, 2000, pp. 408-409; Arestis, McCauley and Sawyer, 1999, pp.23-24.)


*A Closer View of the EMS Currency Crisis of 1992-1993: The Lira, the Pound Sterling, and the French franc in the 1992-1993 Crisis.* National authorities in the European Economic Community ushered in their symbolic commitment towards monetary union when nominal exchange rates within the ERM started to be rigidly fixed starting in January 1987 for nearly the next five years (called as the 'hard' or 'new' EMS). This is in notable contrast to the period 1979-87 when there were 11 realignments that took place in the ERM (called as the 'soft-EMS). In addition, the 'hard' or 'new' EMS emerged in a changing environment when restrictions to capital flows within the European Community were being relaxed by virtue of the completion of the Single European Act (SEA) in 1992 (Fratianni and Artis, 1996). Thus, when European heads of state met and finalized the Treaty on European Union in 1991, otherwise known as the Treaty of Maastricht, monetary union in Europe became inevitable. The treaty devised a three-stage gradual evolution or transition towards the ultimate objective of adopting a single currency.

However, as early as 1989 and in late 1990, there were signs in the 'new' EMS that the system was under stress, which might imperil the whole process. First, although the new EMS achieved some nominal convergence when double-digit inflation rates beginning in the 80s were reduced to single digit levels across the member countries (e.g., France, UK, Italy, Finland), nonetheless, inflation rate differentials were accumulating and showing no signs of reversal (see **Table 14**). Second, the German economic unification was a major and powerful asymmetric external shock that ultimately exposed cracks and defects within the system. Finally, the rejection of the Maastrich Treaty in the 1992 Danish referendum and its near rejection in France led financial markets to doubt the whole process of economic and monetary union (EMU) in Europe, in so far as to the political commitment of the countries (Fratianni and Artis, 1996). In turn, the awareness of financial markets that political commitment to monetary union had petered out, and economic fundamentals had started to go awry in the system by late 1992 resulted ignominiously to what came to be known as the EMS crisis of 1992/1993.

The moral of the story of 1992/1993 was of speculators making a picking of those countries and their currencies with the weakest fundamentals. This is illustrated below in the cases of Italy, the United Kingdom and France. Both Italy and UK left or withdrew from the system after experiencing massive speculative attack during the height of the crisis. Although it did not withdrew from the system, France suffered heavy damage from massive speculation against the franc.

*The Italian Lira – a case of competitiveness problem*. Two major problems confronted the Italian economy, which compromised Italy's commitment to a fixed exchange rate in the EMS after 1987. Firstly, there was the inflation problem which, although greatly reduced, remained higher than in most EMS member countries, especially Germany (**Table 14**). The apparent immediate source of the inflation problem was attributed to disturbances in the supply side caused by the acceleration in wages for the period of 1987-1989. Wages in services and in the public sector exceeded by far those in the industrial sector, in spite of no productivity growth in the former (**Table15**). The rising domestic costs was further aggravated by the rigid exchange rate policy after 1987 when Italy placed the lira in the narrow fluctuation band of the ERM. As a result, the Italian lira appreciated in real terms substantially since 1988 leading to the loss and worsening of Italy's competitive position against other EMS member countries, which showed up in the deterioration of the current account (**Table 15**).

Secondly, Italy's decision to become a member of the EMS in 1979, almost exactly coincided with a sharp acceleration in public spending, as a share of GDP, while revenues were also growing sharply, as a share of GDP, but less rapidly as spending. The public sector deficit, as a result continued to increase reaching to a peak of 13 per cent of GDP, and it remained throughout the eighties and early nineties above 10 per cent of GDP. Consequently, the sharp increase in the public sector deficit led to a very high debt-to-GDP ratio, which had exceeded 100 per cent by 1990 (see **Table 15**).

The combination of high costs and deteriorating competitiveness, a very high public-debt-to-GDP ratio, and a high unemployment rate at more than 10 per cent, made the Italian lira an excellent and ripe target for speculators. No astute enthusiast of open economy dynamics shall miss that in a condition where there is high unemployment and risk of debt explosion, interest rates could not be raised and maintained for very long to fend off and parry speculative attack on the currency. Eventually, in spite of heavy intervention by the Bank of Italy in the foreign exchange market, the Italian lira pierced its fluctuation band on September 17, 1992, and was pushed out of the ERM on the same day [Grahl (1997); Masera (1994); Micossi and Padoan (1995)].

*The Pound Sterling – the case of an overvalued entry.* Prior to the United Kingdom joining the ERM in October 1990, an excessively lax monetary policy characterized British Thatcherite monetary policy at the end of the 1980s. By 1988, inflationary pressures had developed and the balance of payments was deteriorating at an alarming rate. The apparent cause was that a very rapid growth of domestic credit was permitted and even encouraged by UK monetary authorities. It was very clear that monetary policy had to be tightened and interest rates ended at 10.3 per cent at the end of 1988. Further increases in the following year saw the interest rate climbing to 13.9 per cent by the end of 1989 (see **Table 16**).

However, real economic activity slowed very fast, leading to a very deep recession between 1990 and 1992 (**Table 17**). Business confidence waned and company shutdowns became more frequent as the rate of unemployment sharply rose. In the housing and construction sectors (a vital sector of the UK economy), high mortgage rates closed off housing demand, and the excess supply of commercial property as a carryover to the massive speculation in the construction sector during the early 1980s, pushed down rents and site values.

Membership in the ERM by October 1990 offered an opportunity to escape from this economic dilemma.  (However, there is a consensus among British economists that the sterling should have joined the ERM at a much earlier date when economic conditions were still favorable.) Since the exchange rate was now underwritten and guaranteed by the whole system, and in particular by the nominal anchor country (which was unwillingly fulfilled by Germany), it gave security for UK to bring down interest rates until they were barely above those in Germany in 1992 (**Table 16**).

UK entered the ERM at a central parity of 2.95 D-mark to the pound sterling and used the option of wider fluctuation margin of plus or minus 6 per cent. Two British economists, Wren Lewis (1990) and Barrell (1991) studied the choice of the entry rate of the pound sterling, and concluded that the sterling was overvalued on entry into the ERM. Their analysis pointed towards a rate much lower than 2.95 DM, a rate at or below 2.80 DM.

However, not only was the choice of the exchange rate parity with other EMS countries inappropriate, the timing of UK's entry into EMS was also unfortunate. UK

entered the EMS with large current account deficit (see **Table 18**). Moreover, the reunification of Germany had produced a deep-seated and unusual shock to the system. The increase in interest rates in Germany in 1990 and 1991 caused a disastrous monetary squeeze for the other ERM member countries. Those countries that were by that time committed to disinflation such as the UK, were compelled to tighten their own monetary policies in order to protect their ERM parities. This led to an appreciation of the ECU (European Currency Unit) against the dollar. The consequences of the ECU appreciation vis-à-vis the US dollar and the high interest rates were more severe while the expansionary effects of the German unification was less beneficial for the UK than for the other European countries,. This is because the UK has stronger trade links with North America, and that the UK competes with the United States in many international markets.

Throughout the summer of 1992 a ferocious attack was mounted on the pound sterling and other vulnerable currencies of the mechanism. Germany offered no relief to its partners. In July 1992 it once again raised interest rates. The crisis broke on 13 September when the lira was devalued. At the last moment the Bank of England raised its rates by 5 per cent, i.e., from 10 to 15 per cent on 16 September. However, the move lacked credibility because it was hard to believe that such rates could be maintained for long. On that evening the pound sterling, along with the Italian lira left the ERM (the irrevocable decision came to be known as Black Wednesday) [Grahl (1997); Barrell, Britton and Pain (1994)].

*The Battle of the French Franc* . The case of the franc seems very different from that of the lira or the pound sterling in that there were neither clear evidence of overvaluation nor clear signs of competitiveness problems. There was no fundamental disequilibrium in the franc/D-mark exchange rate France's rate of inflation had been brought into line with Germany, and the French current account was in a surplus (**Table 19**).

However, a few days after the far- from- overwhelming victory of support for the Maastricht Treaty on September 23, 1992, an unsuccessful attack against the French franc was launched. However, in order to support the currency the Bank of France had to suffer a loss in reserves of about Fr 80 billion. In addition, Moreover, capital controls, which were earlier abolished through the Single European Act (SEA), had to be momentarily reintroduced in order to ensure the survival of the French franc inside the ERM and help mitigate the likely repercussions of a franc devaluation on the French economy. What could have triggered the attack despite the fact that French economic fundamentals within the system were relatively healthy?

An offered explanation to the French franc case used the concept of the *n-1* problem in a system of fixed exchange rate (See Box below for a basic discussion of this fundamental problem). At the start of the 1990s, the combination of the continent-wide recession and the German Economic and Monetary Union (GEMU) posed major dilemmas to most members of the ERM, especially France. A conflict arose between the

two main driving forces of European integration; i.e., Germany and France, as to the appropriate interest rate policy to be followed in the system as a whole.

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The *n-1* problem in fixed exchange rates[10]

How to set the system wide level of money stock and the interest rate are two fundamental problems that every system of fixed exchange rates confronts. This is known as the so-called *n-1 problem*. In a system of *n* countries, there are only *n-1* independent exchange rates. Therefore, *n-1* monetary authorities had to adjust their monetary policy in order to maintain a fixed parity for their exchange rate. There will be one monetary authority, which is free to set its monetary policy independently. Thus, the system has one degree of freedom. The fundamental problem, then is, how this degree of freedom will be used.

Two solutions are available of taking care of the problem. First, is the so-called asymmetric or hegemonic solution, where one country is allowed to take a leadership role. The choice of the leader depends on its reputation in maintaining a low inflation equilibrium.[11] And, the so-called symmetric or cooperative solution, where countries in the system decide jointly about the level of their money supply and interest rates.

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The inflationary pressures created by the massive increase in government spending and fiscal transfers brought on by GEMU forced the Bundesbank to pursue a contractionary or restrictive stance in monetary policy. The recession in France, and also in the UK (as discussed earlier) demanded a looser and expansionary type of monetary policy. As Germany was increasingly dominating the system by becoming the nominal anchor of the system, France and UK repeated demands of a looser monetary policy by the Bundesbank, which, however, were unheeded.

The policy conflict between Germany on the one hand, and the UK and France, on the other hand, convinced speculators that French and UK authorities would later on cut their link with the mark in order to allow more expansionary monetary. And this is exactly what happened (the so-called self-fulfilling expectations), speculators had started to engage in a one-way bet against the pound sterling and the French franc [Melitz (1994); de Grauwe (2000)].

**Capital controls and the Chilean and Malaysian experiences**

One way of addressing the "impossible or incompatible trinity" problem is by "throwing some sand on the wheels of international capital"; i.e., impose some barriers to

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[10] The discussion here were mainly drawn from de Grauwe (2000).

[11] In the case of the EU, it was widely accepted that this role was being fulfilled by Germany through the Bundesbank (BuBa).

international capital movement. This is in view of the difficulties of managing capital inflows when the financial sector is not yet well developed, the regulatory supervisory framework leave much to be desired and the monitoring and implementation capability of countries remain weak. Two countries have been successful in the use of capital controls as a macroeconomic tool; e.g., Malaysia and especially Chile. Their success has led to a positive rethinking in recent years by analysts and countries on the role of capital controls in macroeconomic management. This is at least on a temporary and transitional basis in the meantime that developing countries do not yet have the regulatory, supervisory and monitoring infrastructure and capability to manage a fully liberalized financial sector and open capital accounts.

*Malaysia.* Malaysia used capital controls temporarily to manage capital inflows in the early 1990s and to manage capital outflows in the wake of the East Asian crisis in 1997-1998.

Malaysia experienced strong surge in capital flows in the early 1990s. Capital account surplus as a ratio of GDP during 1990-1994 averaged 10.2 of GDP. This compares with 10.1 percent, 4.0 percent and 2.0 percent of GDP respectively for Thailand, Indonesia and Korea (Park and Song, 1997, p.88). Unlike Thailand and Indonesia however, Malaysia's capital inflow consisted largely of foreign direct investment and portfolio investment, and not foreign borrowings. Malaysia, like Thailand and Indonesia, had to resort often to monetary sterilization in order to control excess liquidity and thereby contain the inflationary effect of the capital inflows. It relied on changes (i.e., rises) in the statutory bank reserve requirement, taking out loans of less than 3 months in the interbank market and flotation of Bank Negara bills and Malaysia savings bonds. In addition, it ordered the transfer of the deposits of the Employee Provident Fund and those of the government from private banks to the central bank. This is a significant move because the Fund accounts for about 20 percent of the total financial assets in the country. Malaysia also resorted to fiscal consolidation with the decrease in the fiscal deficit and eventual surplus by 1993. (See Park and Song, 1997.)

Nonetheless, Malaysia did not rely much on the fiscal sector in order to manage the surge in capital inflows, unlike Thailand. Instead, Malaysia imposed in January-February 1994 direct and market-based capital control measures to help contain the flow of capital especially so-called speculative short- term capital. The short term capital inflows consisted mainly of external borrowing by commercial banks and placements of ringgit deposits by foreigners with Malaysian banks (Ariyoshi, et.al., 1999). Malaysia resorted to capital controls because of the growing cost of monetary sterilization and to delink the offshore ringgit market mainly in Singapore from the onshore ringgit market. Moreover, the monetary sterilization led to high domestic interest rates than abroad, thereby encouraging further capital inflows that speculate on possible ringgit appreciation. Malaysia curtailed monetary sterilization when it imposed direct and market-based capital control measures.

The capital control measures included (Ariyoshi, et.al., 1999):

(a) the prohibition of residents to sell short term Malaysian money market instruments to non-residents,
(b) the prohibition of commercial banks to engage in non-trade related bid-side swap or forward transactions with non-residents and thereby reduce speculative activities of offshore agents,
(c) limits on banks' external liability positions with non-residents excluding trade-related and FDI flows, and
(d) a non-interest-bearing deposit requirement for banks against ringgit funds of foreign banking institutions.

In addition, Malaysia imposed prudential reserve and liquidity requirements to foreign currency deposits, foreign currency borrowing from foreign banking institutions, and interbank borrowing (Park and Song, 1997).

Malaysia's imposition of the capital control measures was meant to be for a short time to address the sharp rise in what was perceived to be destabilizing capital flows. The immediate market response to the capital control measures was a ringgit depreciation and the cooling off of the Kuala Lumpur Stock Exchange. Thus, the capital control measures succeeded in easing the pressures for appreciation of the ringgit and in cooling off the fast rising stock prices. With the successful stabilization of the Malaysian economy during the year as the interest differential between domestic and foreign interest rate decreased and the inflationary pressures eased, the capital control measures were lifted within the year (1994).

Malaysia's experience with the use of capital controls against speculative capital flows is instructive. The Malaysian experience suggests that in tandem with sound economic fundamentals and good institutional capacity to administer capital controls, capital control can be a viable tool for short term macroeconomic management, especially when conventional sterilization measures have become expensive and ineffective in addressing potentially destabilizing speculative short term flows (that respond essentially to short term interest rate differentials and expectation of currency appreciation).

While Malaysia did not escape the contagion from the baht devaluation and the East Asian crisis, Malaysia proved more resilient than Indonesia or Thailand. When the standard sterilization measures proved expensive and ineffective in curtailing short capital inflows, Malaysia imposed capital controls. Its success meant that short term debt is a low share of total external debt in Malaysia as compared to Thailand and Indonesia. Moreover, the preponderance of FDI in its capital inflows underscores the underlying soundness of Malaysia's economic fundamentals. Thus, Malaysia was less vulnerable to capital outflows. Moreover, its successful experience in utilizing capital controls as a tool of short term macroeconomic management in 1994 explains why Malaysia relied on capital measures again in 1997-1998 to stem capital outflows.

As in 1994, Malaysia also succeeded in its use of capital control measures in 1998-1999. Malaysia undertook selective capital controls on September 1, 1998 as part of a shift in macroeconomic strategy from a "virtual IMF style" contractionary fiscal and monetary policy at the start of the East Asian crisis in the latter 1997 toward a more expansionary macroeconomic policy (Piei and Tan, 1999).[12] The Malaysian economy went into a recession in the first half of 1998 in the aftermath of the depreciation of the ringgit from the baht contagion, high interest rate from the tight monetary policy and the reduction of government expenditures required of a tight fiscal policy. In the National Economic Recovery Plan launched in July 1998, Malaysia shifted gears towards an expansionary macroeconomic policy in tandem with financial restructuring and easing up of foreign equity restrictions in selected areas.

An important component of the macroeconomic strategy was the stabilization of the currency in the face of the regional financial uncertainty on the one hand and the reduction in the domestic interest rate (as called for by the expansionary macroeconomic policy) on the other hand. Otherwise, there would be capital outflows given the large negative interest rate differential. (A high domestic interest to prevent capital outflows was of course one of the reasons for the economic recession that Malaysia experienced in early 1998.) This necessitated effectively in insulating the domestic currency and monetary regime from the rest of the region and the world. Malaysia decided to peg the exchange rate and at the same time impose selective credit controls.

The selective credit controls were as follows (Piei and Tan, 1999, p.15):

- controls on ringgit-denominated transactions among residents via nonresident external accounts;
- controls on outflows of short term capital with a requirement that such inflows must stay in Malaysia for at least one year. This was later replaced on February 4, 1999 by a graduated exit levy (between 10 percent to 30 percent) depending on the duration of the investment and when the funds were brought into the country;
- prevention of import and export of ringgit by travelers, residents and nonresidents; and
- government approval required for Malaysian investment abroad

There were no controls on current account transactions, repatriation of interest, dividends, fees, commissions and the rental income from portfolio investments and other forms of ringgit assets, and inflows and outflows of foreign direct investment. One key objective of the controls was to ensure stability of the exchange rate in the face of the currency volatility in the region. Another objective was to make the ringgit nonlegal tender abroad (note that there was then a large offshore market for ringgit especially in Singapore) and as such would encourage the remittance of ringgit back to Malaysia (Piei and Tan, 1999). This is because much of the capital outflows from Malaysia was ringgit (not foreign

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[12] This paragraph and the next few paragraphs draw heavily on Piei and Tan (1999).

exchange) flowing into Singapore to take advantage of the much higher money market rate there. The outflows amounted to as much as 50 % of Malaysia's narrow money in mid-1998, thereby making Malaysian authorities worried about the "internationalization" of the ringgit, with the attendant loss of the effectiveness of Malaysia's monetary policy (Athukorala, 2000, p.29).

The expansionary macroeconomic policy cum selective capital controls succeeded in regenerating an economic recovery of Malaysian economy, including that of the Kuala Lumpur Stock Exchange which in 1999 was one of the top performers in the region. The exit levy was eventually wound down in the latter 1999. It needs to be emphasized though that the implementation of the capital controls was sensitive to the market: the replacement of the one-year parking period by a more "market-friendly" exit levy occurred when portfolio funds were starting to return to the region in early 1999. There appears to be not much capital outflow that occurred when the exit levy was stopped. Thus, on the whole the temporary selective capital controls and levy succeeded in insulating the Malaysian economy and allowed for the implementation of a macroeconomic strategy that allowed the recovery of the economy in the face of the prevailing regional financial and economic uncertainty.

*Chile.*          While Malaysia used capital control as a temporary macroeconomic management tool, it was Chile's apparently successful use of capital control as an integral part of its macroeconomic strategy during much of the 1990s that has made Chile's experience the "in" economic policy experiment after the East Asian financial crisis. Chile experienced robust economic growth during the 1990s despite the capital control measures. In addition, Chile largely shrugged off the contagion from the East Asian financial crisis. Thus, the strong worldwide interest in understanding the Chilean experience with capital controls.

Chile's use of capital controls is in response to its disastrous experience with surge in capital flows in the late 1970s which ended up in a serious economic crisis in Chile in 1981-1982, popularly known as the Southern Cone experience. Chile undertook major structural, macroeconomic and prudential reforms in the aftermath of the 1981-1982 crisis. The reforms involved greater export orientation, tighter expenditure control in order to dampen inflation and ensure a current account deficit at a manageable level, and stricter prudential regulations over bank behavior. Chile recovered well from the 1981-1982 crisis, such that the economy started overheating by 1989 when GDP grew by 10 percent and inflation surged. The government gradually raised interest rates during 1988-1990 to help dampen the inflationary pressures. However, the higher domestic interest rate coupled with the decline in world interest rate and the improvement in market sentiment on Chile led to a resurgence of capital inflows beginning 1989.

In order to prevent a significant real appreciation of the Chilean currency, the Chilean central bank initially purchased heavily foreign exchange and sterilized much of the intervention in order to reduce the monetary effect of the rise in international reserves arising from the central bank's intervention in the foreign exchange market. This

however was costly for the central bank in view of the large interest differential and thus could not be sustainable. (See Laurens and Cardoso, 1998.) Monetary policy was necessarily tight, resulting in real interest rates averaging 6 percent per annum in tandem with the deceleration in the inflation rate in the early 1990s (Le Fort and Budnevich, 1997, p 47). Considering that the primary reason for the massive capital inflows into Chile in the late 1970s was the high domestic interest rate over foreign interest rates, Chile imposed capital controls to regulate or temper its financial integration with the rest of the world in the light of its domestic objectives and concerns. Thus, in addressing the trade-offs inherent in the incompatible trinity theorem, Chile decided ultimately to impose capital controls rather than allow a significant appreciation of the Chilean currency which would have adversely affected the export competitiveness of the Chilean economy, and thereby the country's export oriented development strategy. Indeed, the imposition of the capital controls was partly in response to growing concerns voiced the country's politically powerful exporters of the strengthening of the Chilean peso in real terms and thus the erosion of the country's export competitiveness (Edwards, 1999, pp.16-17).

Chile's major regulations on capital movements are as follows (Le Fort and Budnevich, 1997, pp.44-46):

- *Direct investment inflows*: minimum stay of one year for the principal
- *Portfolio investment through American Depository Receipts (ADRs)*: minimum credit ratings by three internationally recognized rating agencies (i.e., BBB or better for nonfinancial companies, BBB+ or better for financial companies); minimum amount condition; unremunerated reserve requirement (URR)
- *Other portfolio capital flows*: unremunerated reserve requirement (URR) to be kept with the Central Bank in dollars
- *Loans and bonds*: unremunerated reserve requirement (URR); minimum credit-rating and minimum amount requirements
- *Deposits and credit lines*: unremunerated reserve requirement (URR)

Chile's capital control measures are meant primarily to raise the cost of foreign borrowing and tax short term capital inflows, ensure credit worthiness of Chilean firms and banks borrowing abroad, and bias the composition of capital inflows toward foreign direct investment. With the exception of the credit rating requirement, Chile's major price-based capital control measure (i.e., URR) is similar to Malaysia's. The major difference between Chile and Malaysia is that the imposition of the reserve requirement was temporary in Malaysia and decade-long in Chile.

**Table 20,** taken from Ariyoshi, et.al. (1999), presents the evolution of the implementation of the unremunerated reserve requirement in Chile. Notice that the coverage of the URR was expanded over time in order to cover loopholes. Chile's experience is typical: market participants find ways of circumventing the regulations which make such restrictions increasingly ineffective unless the loopholes re plugged.

The table also shows that Chile reduced the URR rate to zero in the aftermath of the crisis, as the pressures of capital inflows eased up and reversed to pressures for capital outflows.

It is apparent from **Table 20** that a successful management of capital control measures is a technically- capable administrative machinery (e.g., central bank) that can effectively monitor and make appropriate adjustments in the measures in the light of the dynamic changes in the domestic and foreign financial markets. That is the implementation of the capital control measures requires strong enforcement capability of central banks (Laurens, 1999 in Ariyoshi, et.al., 1999). Both Chile and Malaysia are known for the quality of the institutional capacity of their central banks, which is considered much better than the average developing country central bank.

The goals of Chile's capital controls are  (a) to slow down the volume of capital inflow and bias the composition of capital flows towards longer term maturities; (b) reduce or delay the appreciation of the Chilean peso in real terms arising  from the capital inflows; and (c) to maintain the high interest differential in Chile. A corollary of the above three goals is the reduction of the vulnerability of the country to international financial instability (Edwards, 1999).

A number of studies have examined the effectiveness of Chile's capital controls. Nadal-De Simone and Sorsa (1999), after reviewing the various studies on Chile's capital controls especially the unremunerated reserve requirement (URR), concluded:

"…there is some evidence that the URR has been successful in increasing domestic interest rates; there is relatively weaker evidence that the URR has altered the composition of capital inflows in favor of medium-to long-term capital inflows; there is mixed and weak evidence that the URR has reduced the magnitude of capital inflows and actually no evidence that the URR affected the level of the real exchange rate." (p.48).
 Nadal-de Simone and Sorsa (1999) noted however that the empirical studies they reviewed had significant econometric or misspecification problems that cast downs on the robustness of the results.

The findings on the impact of the URR on the domestic real interest rate are significant in that they establish that capital controls could provide some leeway for an independent monetary policy. This was especially important for Chile because of the heavy use of indexation in the economy. Nonetheless, Edwards (1999) pointed out that the independence of monetary policy had one important cost. That is, the resulting high real interest rates meant high cost of capital especially for small and medium enterprises. For example, Edwards noted that the cost of funds in US dollar terms for smaller Chilean firms was as high as 21 percent in 1996 and 19 percent in 1997.
The findings on the impact of URR on the volume of capital flows and the real interest rate are likely the less robust. The volume of capital flows does not only respond ;to the URR but to the gamut of costs and opportunities in Chile, for example. Nonetheless, it is worth noting that the Chilean peso appreciated in real terms by about 28 percent during 1991-1998 as against more than 20 percent during 1985-1990 (Edwards,

1999) and about 30 percent during 1979-1981 (Corbo and De Melo, 1987, p.134). That is, the average rate of real currency appreciation was lower during the period of capital controls despite the high real interest differentials during the 1990s. It appears therefore that, while capital controls did not significantly affect the real exchange rate in the long run, the pace of appreciation was moderated that allowed Chile's industry to adjust better. Indeed, it can be argued that behind the crisis in the early 1980s in Chile was precisely the too abrupt real exchange rate appreciation that wrought havoc on Chile's real economy and export sector.

The mixed evaluation of the impact of capital controls on Chile brings out that capital controls are not a panacea. Indeed, it is best to view the capital control measures as part of a broad program of macroeconomic and structural reforms in Chile that was on the whole skillfully coordinated (Ariyoshi, et.al., 1999). The macroeconomic policy environment was one of tight monetary and fiscal policy in order to dampen inflationary pressures, in the light of the use of indexed prices in Chile. Capital control was then to support the high interest target consistent with the anti-inflationary stance of the government. At the same time, Chile's export orientation included a reduction in tariffs and trade protection as well as a bias for foreign direct investment in capital inflows. Finally, Chile imposed "…high disclosure standards, stringent rules for loan classification and provisioning, strict limits on connected lending and on banks' exposure to foreign exchange risks, and clear procedures for correction of liquidity or solvency problems" (Laurens 1999 in Ariyoshi, et.al., 1999, p.7). Thus, to some extent, capital control measures in Chile were also as much for prudential regulation as for macroeconomic management.

In short, capital controls are not meant to be a substitute for sound macroeconomic policies, not overly rigid exchange rates and strong prudential regulations and banking supervisory systems to reduce moral hazard and corruption (Edwards, 1999). At the same time, however, a flexible use of taxation of capital inflows is useful when there are signs that the magnitude of inflows would be at variance with the overall macroeconomic policy stance. As in Chile, when the international financial environment changes against emerging markets like during the East Asian crisis, the tax on capital inflows can be reduced to zero.

**Financial Liberalization and the Sequencing Issue**

The conventional view on liberalizing the capital account is that it should follow the opening of the current account and the domestic financial system based on the arguments of Mckinnon (1973 and 1982), Frenkel (1982), and Edwards (1984). Others have argued for simultaneous liberalization of the current and capital accounts and have been advanced by Little, Scitovsky, and Scott (1970), Michaely (1986) and Krueger (1984). It is only recently that the sequencing debate now encompasses not just the sequencing of the current and capital account, but is now expanded to other markets. Johnston, Darbar and Echeverria (1999) emphasize that sequencing is more complex so that stylized prescriptions are misleading. Undertaking the liberalization of the capital

account and other aspects of economic and financial sector reform are complex and require attention to linkages among specific components of broader reform areas. The emphasis is on the need for an integrated approach towards capital account liberalization, it being a part of the overall reform process (Schneider, 2000).

What may be more important is the issue of sequencing in the liberalization of the various components of the capital account. Reisen (2000), for example, points out that foreign direct investment and trade related finance need to be liberalized immediately because they are important for growth and yet they have little adverse impact on macroeconomic management and financial sector stability. On the other hand, liberalization of short term bank lending and other volatile short term flows (e.g., hedge funds) must be deferred until a country has strong prudential regulations and supervision and that the domestic financial sector is deep enough to withstand shocks from capital flow reversals. Underpinning the sequencing approach to the liberalization of the various forms of capital flows is to ensure productive use of the inflows for greater efficiency and growth while at the same time maintain macroeconomic and financial stability.

## Selected Country Experiences with Sequencing Capital Account Liberalization[13]

*The Chilean experience.* Prior to 1973, the financial sector in Chile was highly regulated. Interest rate ceilings and credit restrictions inhibited the domestic and international movement of capital. An extensive multiple exchange rate regime was used by the government to direct the flow of capital to preferred sectors of the economy (Dobson, 1998). In 1973, GDP fell by 5.6 percent, the fiscal deficit reached 21 percent of GDP, and the inflation rate was approximately 500 percent.

The Chilean authorities followed programs of stabilization and sweeping liberalization measures primarily in the financial sector between 1974 and 1981. The multiple exchange rate regime was abolished and replaced by a crawling peg exchange rate regime. The main elements of the financial sector reform were: (1). all but one of the 20 domestically owned commercial banks were privatized; (2). creation of new financial institutions; (3). allowed foreign banks to open numerous branches and purchase Chilean banks; (4). banks allowed to borrow abroad; (5) minimum capital requirements were increased and penalties imposed for noncompliance, restrictions were placed on the concentration of bank ownership (however, difficult to enforce and were removed in 1978) and bank disclosure, and reporting requirements were strengthened; (6) the jurisdiction of the supervisory authorities were widened to include all financial institutions; (7) initially, in 1974 interest rates on short-term capital market transactions outside the commercial banking sector was liberalized, followed a year later by the liberalization of commercial bank interest rates; (8) quantitative controls on bank credit were abolished and selective credits to priority sectors were reduced.

Although the current account was liberalized and domestic regulatory financial reform introduced at the beginning of the reform process, it was not until 1977 that the

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[13] This section draws heavily from Johnston, et al. (1992 and 1997).

government began to remove capital account controls for the financial sector (Dobson, 1998).

Within two years after Chile fixed its exchange rate in 1979, the degree of overvaluation of the real exchange rate had become significant and ultimately unsustainable. The real interest rates rose from 9 percent in 1980 to 29 percent in 1981 and then to 48 percent in 1982 (Dobson, 1998). The combination of the overvalued peso and the sharp rise in interest rates led to widespread bankruptcies, which was subsequently accompanied by a run on a major bank, the stock market crashed, leaving many corporations insolvent, since they had collateralized loans with borrowed shares. In 1982, the peso devalued, further damaging the solvency of the business sector, which was already heavily indebted with foreign loans. The crisis resulted in a temporary reversal of some of the liberalization measures and in a strengthening of regulations and supervisory arrangements.

The fixed exchange rate was abandoned in 1982. During the three months that the peso was allowed to float, it depreciated by 43 percent. The crawling peg regime was subsequently reinstituted. The Central Bank attempted to deal with the crisis by making additional funds available to the banking system and to borrowers, buying nonperforming foreign currency loans, and rescheduling remaining foreign currency loans at favorable exchange rates. In late 1983 liberal capital account rules were abandoned. In addition to reinstituting exchange controls, the government raised the uniform tariff rate to 20 percent in an attempt to build the foreign reserves to meet external debt obligations (Dobson, 1998).

Capital account measures have been gradually relaxed since Chile's recovery from the banking crisis, although selective and initially focused on liberalizing capital inflows. These were the following: (1). The central bank's foreign exchange regulations permitted foreign direct investment inflows through debt/equity swaps. However, capital from these investments cannot be repatriated for 10 years and profits for four years; (2). Also as an amendment to the foreign exchange regulations, nonresidents were permitted to purchase selective debt instruments, but the source of foreign exchange and the conversions had to take place outside of the official foreign exchange market; (3). In 1986 and 1987, nonresidents were permitted to invest in publicly offered instruments with the repatriation of the original capital after five years and no limit on profit remittances; (4). In 1991, residents were allowed for the first time to use foreign exchange obtained in the unofficial foreign exchange market to invest abroad.

At the same time, new restrictions were introduced on capital flows were introduced. The central bank introduced a 20 percent reserve requirement on new foreign borrowing. Subsequently, the reserve requirement was extended to most outstanding foreign borrowing and to foreign currency deposits, and increased to 30 percent. Although, in 1993 the minimum period for capital remain in the country was reduced from three years to one year.

***The Southeast Asian experience.*** Indonesia's experience with capital account convertibility has been unconventional. The capital account was liberalized prior to financial sector reforms. The capital account was liberalized as early as 1971, when the rupiah was made freely convertible, and a managed floating exchange rate indexed to a basket of currencies. It also had eliminated most controls on capital outflows while retaining controls on capital inflows. Prior to reform, monetary policy was based on interest rate controls at state-owned banks (interest rates charged by private banks and nonbank financial institutions were not controlled), credit ceilings, and access to central bank liquidity credits.

Financial reform, occurred in two stages. The first stage, in 1983, focused initially on establishing the financial markets, institutions, and instruments for a more market-based system. Credit ceilings were eliminated, interest rate controls on deposit rates at state-owned banks were removed, and the modification of the central bank's liquidity credit program. Open market operations using regular auctions of central bank certificates (SBIs) became the main monetary instrument. New money market instruments (SBPUs or banker's acceptances) were introduced. The second stage, begun in 1988 and known as *Pakto*, focused on promoting competition in the financial sector. It permitted greater foreign participation in the financial sector through the licensing of new foreign banks and branches, created a level playing field for foreign and domestic banks, and permitted foreign participation in other types of financial institutions and in the insurance business; eased the requirements for becoming a foreign exchange bank; reduced the amount that state-owned enterprises were required to deposit in state-owned banks, and lowered the reserve requirement while raising minimum paid-in capital requirements. Measures to strengthen the regulatory framework for banking operations only started in 1995-96 when regulations were issued to upgrade the accounting standards to ensure compliance with prudential guidelines and to safeguard against excessive risk taking through derivative tradings.

The first phase of financial reforms in Indonesia did not involve banking system instability. However, soon after the 1988 reforms, the weakness in bank supervision and regulation and in banking solvency were highlighted when two private banks faced short-lived bank runs and liquidity problems that were controlled through lender-of-last-resort support from Bank Indonesia.

In 1988, Indonesia also liberalized payments and transfers for current international transactions and accepted the obligations of Article VIII of the IMF's Articles of Agreement. In addition, the selling of swaps in the foreign exchange market was liberalized.

Subsequently, in 1989, domestic banks obtained access to international markets, through the following: (1). eliminated quantitative limits on bank borrowing from nonresidents; (2). foreign direct investors were allowed to sell foreign exchange directly to commercial banks instead of through the central bank.

During the 1990-1991 period, there were a mixture of liberalization measures and restrictive policies that were pursued by Indonesia. Concerned that the substantial inflows of foreign capital mainly in the form of commercial bank borrowing was excessive, it introduced stricter limits on the open foreign exchange positions of banks and reduced their foreign exchange swap positions as a percentage of their capital base. There was also a limitation on public sector borrowing from abroad, which remained in place until 1996. Nevertheless, Indonesian authorities continued to broaden arrangements for foreign borrowing by private entities. The sales of securities to nonresidents were permitted and foreign direct and portfolio investment through the stock market was liberalized.

Indonesia initially seemed poised to weather the 1997 Asian financial crisis because of stronger fundamentals, including a relatively smaller external current account deficit, and its decision to widen the trading band of the rupiah. However, after the depreciation of the Thai baht on 2 July 1997, pressures on the on the fixed rate at which the Indonesian rupiah was pegged mounted. And on, 14 August the rupiah was allowed to float. The Indonesian rupiah depreciated rapidly, exposing the underlying weakness of the financial sector. The Indonesian government announced in two instances, first, in November 1997 and in January 1998 that it was availing of IMF supported economic program. In the context of the IMF program, Indonesia is scheduled to undergo widespread structural reforms and a comprehensive plan to rehabilitate the financial sector.

Thailand already has a fairly liberal capital account since the 1970s, while financial sector reform lagged this process of openness (Khatkhate, 1998; Schneider, 2000). The passage of The Alien Business Law of 1972 and the Investment Promotion Act of 1977 expanded the sectors open to foreign investment and liberalized the screening requirement for such investments. Portfolio investments were treated liberally although exchange controls applied to the repatriation of interest, dividends and principal. Likewise, foreign borrowing could be conducted freely but had to be registered with the Bank of Thailand. In 1992, the Bangkok International Banking Facility (BIBF) was established, which greatly eased access to foreign financing and expanded short-term inflows. And in 1995, the Provincial International Banking Facility was established, which can extend credit in foreign currencies funded from overseas.

Meanwhile, Thailand accepted the obligations of IMF Article VIII in 1990, which liberalized the payments and transfers for current international transactions. Further liberalizations also occurred, such as the removal of limits on the amount of foreign exchange that could be purchased, brought in, or taken out of the country; the broadening of the uses of nonresident baht accounts and resident foreign currency accounts.

One notable exception was the control on capital outflows, which was subsequently liberalized gradually starting in 1990 when commercial banks were allowed to lend limited amounts to nonresidents in foreign currency. The following year and in 1994 (when the ceiling was raised), Thai residents were permitted to invest abroad or to lend limited amounts to companies that are at least 25 percent Thai-owned.

Domestic financial market reforms focused initially on the development of the stock market with the establishment of the Securities Exchange of Thailand in 1975 and the amendment of the Securities Exchange Act in 1984. Interest rates and credit controls were liberalized gradually, and in 1992 the ceilings on savings deposits and lending rates were removed.

The composition of capital flows evolved over the period and appeared responsive to incentives for attracting flows. Net portfolio flows became more important due to reforms in the Thai stock markets, the establishment of the BIBF, including the high positive interest rate differential. Consequently, short-term net inflows reached 60 percent of total capital inflows in 1995. This prompted Thai authorities to restrict capital inflows by imposing 7 percent reserve requirement on banks' nonresident baht accounts.

In 1996 in the face of an appreciating real exchange rate, capital inflows and exports declining sharply, economic growth and investment levels deteriorated. Moreover, the high exposure to the property sector and inadequate loan provisioning exposed the financial sector to vulnerabilities. In addition, the high interest rates stance to counteract the flows aggravated the solvency and liquidity position of banks.

When the baht devalued on 2 July 1997, the prolonged defense of the baht had caused foreign exchange reserves to drop. The eventual depreciation resulted in nonperformng loans, which was already high to further increase, and with external debt at over 40 percent of GDP culminated in a banking crisis. And, on 5 August 1997 Thailand agreed to an IMF rescue package in the amount of US$17.2 billion (Dobson 1998).

Malaysia accepted Article VIII obligations in 1968. Malaysia has always had a relatively open capital account since the 1970s. Since the mid-1980s portfolio inflows have been free of restrictions, and bank's foreign borrowing and lending in foreign exchange has been free (except for net foreign exchange open position in limits). Residents' foreign currency borrowing is subject to limits that require approval if they are to be exceeded (Schneider, 2000).

Financial sector reform in Malaysia followed a severe financial sector crisis in the early 1980s. The central bank of Malaysia reformed its export refinance scheme, reduced liquidity and reserve requirement ratios of commercial banks to lower their costs of funds, created investment funds to shift bank lending out of real estate, introduced more flexible interest rates, abolished deposit rate controls, and encouraged the establishment of a secondary mortgage market (Dobson, 1998).

In the early 1990s, Malaysia faced large inflows of foreign capital, comprising both short- and long-term capital. The significant increase in short-term inflows (which rose from 5.3 percent to 8.7 percent of GDP in 1993), induced mainly by a high interest rate differential and expectations of a ringgit appreciation, increased concerns regarding sustainability and stability.

In 1997, in the midst of a financial crisis, Malaysian authorities initially tried to break the link between onshore and offshore rates by setting limits on ringgit non-trade related swap transactions with non-residents, but these reinforced large interest interest rate differentials and induced greater outflows. Consequently, Malaysian authorities decided to implement direct exchange and capital control measures in September 1998. These sought to contain ringgit speculation and the outflow of capital by eliminating the offshore ringgit market (Schneider, 2000).

## Exchange Rate Arrangements and the Impossible Trinity

Two important mechanisms to address the impossible trinity theorem are to adopt a truly flexible exchange rate regime or to subordinate the domestic monetary policy to the demands of maintaining the fixed exchange rate with the anchor country.

*Flexible exchange rate.* It is generally accepted that developing countries with thin and underdeveloped financial sectors are not yet ready for truly flexible exchange rate regimes and not just dirty floats in the context of greater financial liberalization and integration. Drawing from the interest parity condition, changes in the expectations of current and future domestic and foreign interest rates as well as changes in the expected exchange rate in the far future will affect the exchange rate today. This means that the exchange rate can change without any change in the current domestic interest rate. It also means exchange rate volatility when the financial system is thin and underdeveloped. Moreover, the problem of exchange rate overshooting can occur especially in an emerging market. Large changes in the exchange rate can have large negative effect on the economy, both on the asset side and on the production side. On the other hand, attempting to stabilize the exchange rate in the face of changed expectations would involve volatility in the domestic interest rate. Large movements in the interest rate would also have adverse impact on the economy. Thus, controlling an economy could be more difficult under a truly flexible exchange rate in an emerging economy with a still thin and underdeveloped financial sector. (See Blanchard, 2000, pp.409-410.)

*Currency union.* Thus, the other extreme option is to peg the exchange rate and follow the dictates of the anchor country or to a supra-national monetary authority. However, the Europeran Union countries provide a rich history of the problems of exchange rate and monetary coordination. From the the Hague summit of the EEC heads of states in 1969 when they made monetary integration an explicit EEC goal (Arestis, McCauley and Sawyer, 1999) to the launching of the euro and the establishment of the European Central Bank, Europe experienced failed attempts at exchange rate coordination towards greater fixity in the intra-European exchange rates as well as greater monetary stability. They include the "snake" as well as the "snake in the tunnel" in the early 1970s and the European Monetary System in the 1980s.

The snake was the first attempt toward the ultimate introduction of one European currency by narrowing the mutual exchange rate margins among the European Economic Community members. It became a "snake within a tunnel" by April 1972 a few months after the devaluation of the dollar vis-à-vis the German deutschmark in December 1971. The snake in a tunnel means that the intra-European exchange rate fluctuations are narrower than the fixed margins (the tunnel) vis-à-vis the US dollar. The snake did not really move the process toward greater monetary integration because it was established during the period when capital control measures were in fact strengthened in Europe in order to prevent an unwanted appreciation of the European currencies vis-à-vis the US dollar and thus lose export competitiveness and European jobs (Bakker, 1996, pp.113-116). The snake collapsed and transformed into a Deutschmark zone with the withdrawal of the sterling, lira, French franc and the (Irish) punt (Arestis, McCauley and Sawyer, 1999).

The other notable exchange rate arrangement was the Exchange Rate Mechanism (ERM) under the European Monetary System (EMS). In addition to the establishment of a monetary unit (Ecu) and the provision of credit financing, the ERM has a complicated mechanism of adjustments of the parity grid and divergence indicator. "The parity grid tied each currency to every other currency in a system of mutually agreed exchange rates. When one currency diverged from parity, all other exchange rates also diverge, hence all countries must respond through intervention to re-establish parity" (Arestis, McCauley and Sawyer, 1999, p.20). What differentiates the ERM in principle from the standard fixed exchange rate systems under the IMF is that there is symmetry in the ERM while the affected country with divergence from parity had the sole responsibility to adjust under the standard IMF adjustment programs. Nonetheless, in reality, the bulk of the adjustment in the ERM remained with the high inflation members devaluing their currencies vis-à-vis other ERM member currencies during 1979-1987 when there were eleven (11) realignments within the ERM.

The new stage in the ERM occurred with the hard pegging of the member countries among their currencies after 1987. However, as the EMS currency of 1992-1993 shows, hard pegs become vulnerable to currency attacks when there is internal inconsistency in the macroeconomic regimes of the member economies.

In summary, the experience of the European Union countries through the years indicate the instability of exchange rate parity systems when there is no full coordination of monetary and other macroeconomic policies among the member states. This is another of the incompatible trinity theorem especially in the early 1990s when there was virtually free flow of capital in the Union. As indicated in the Euro zone, maintenance of parities in the Euro zone necessitated stringent restrictions on the monetary and fiscal policies of the member countries. In short, monetary independence had to be compromised.

The loss of monetary independence to maintain fixed exchange rates is exemplified by the conditions set for membership in the "Euro zone" of the European Monetary Union. (The euro is the new single currency of the European Union.) The conditions include ceilings on the budget deficit as a ratio of GDP, overall government

debt as a ratio of GDP, long term interest rates relative to the average of the three countries with lowest inflation rates, inflation rate relative to the average inflation rate of the three countries with lowest inflation rate. In addition, the European System of Central Banks and the European Central Bank would assume responsibility for monetary policy in the Euro zone. These conditions are in effect restraints on the macroeconomic policy regime of the member countries in the Euro zone.

# IV    Summary and Concluding Remarks: Key Lessons and Implications

The essence of financial liberalization and integration is increased capital mobility and relatively open capital accounts.  Most of the developing APEC member economies became more financially integrated with the rest of the world during the past one and a half decades. Much of the foreign capital that went to emerging markets went to APEC member economies. Indicative of the surges in capital inflows to the developing countries in the region are the high ratios of net capital inflow as a ratio of GDP during the latter 1980s and early 1990s. Thus, for example, the average  ratio of net capital flows to GDP during 1990-1994 was 10 percent in Thailand and Malaysia, 6 percent in the Philippines and 3.9 percent in Indonesia (Leung 1998). The major sources of the capital flows are APEC member economies themselves, especially Japan, the US and the Asian NIEs. This is related to some extent to the economic restructuring in the region, sometimes poetically described in terms of the "flying  wild geese" pattern.

There are acknowledged benefits from financial liberalization and integration, including greater access to the world capital market at lower interest rates thereby encouraging higher rate of investment, as well as the long term advantages from financial development, risk diversification and efficient provision of financial services (Le Fort and Budnevich 1997).  However, there are also attendant macroeconomic and banking challenges and risks from open capital accounts as a number of crises involving both developing and developed countries bring out.

At the heart of the macroeconomic challenges is the so-called "incompatible trinity" of monetary independence, capital mobility and fixed exchange rates. Sooner or later, the incompatibility of the three eventually leads to currency crises as the recent East Asian crisis attests. Corollary to this is the short-lived effectiveness of sterilization efforts and the rising opportunity cost of such sterilization efforts that, in a number of ASEAN countries included a tight fiscal policy in order to minimize the inflationary effect of capital inflows. Estimates of offset coefficients in a number of East Asian countries are also high (e.g., Leung 1998), suggesting that the higher domestic interest rate resulting from the sterilization efforts ended up encouraging further capital inflows that further exacerbated the problem of macroeconomic management. At the same time, however, a currency appreciation attendant to a surge in capital inflow under a flexible exchange rate regime was largely anathema to Southeast Asian countries that have been pursuing export-oriented industrialization.

The problems with the European "snake in a tunnel" exchange rate system in the 1970s stemmed in part from the "incompatible trinity". Such was also the case during the EMS 1992-1993 crisis. The latter also brings out the vulnerability of members in a currency bloc when there are significant macroeoconomic shocks from the anchor country.

Not only does capital mobility pose challenges to macroeconomic management, it also poses systemic banking risks. Explicit or implicit insurance to (deposit) liabilities of banks tend to encourage banks to be more aggressive in their intermediation efforts between the foreign capital market (primarily through their foreign borrowings) and local firms (especially those without access to the world capital market except at tremendous interest rate premium and transactions costs). The recent East Asian crisis is acknowledged to stem in part from the rise in systemic banking risks arising from open capital accounts in the face of relatively weak prudential regulations. The Chilean currency crisis in the early 1980s also resulted in part from the lack of effective supervision and regulations of banks, which at that time were owned mainly by large private conglomerates, called *grupos,* and which had large grupo-related loans. The access to international financing exacerbated the bias for "unbridled self-lending".

Clearly, the policy question is not one of "to integrate or not to integrate" but rather to define a strategy of financial integration, so as to manage the risks and optimize the benefits from financial integration. The contrasting experiences of the European Union, Chile and East Asia provide lessons and implications for the choice of the strategy of financial integration in the country and the region.

*Lessons.* The survey of the historical experiences and of the analytic literature on the macroeconomic challenges of financial liberalization and integration bring out the following key lessons:

- Maintenance of a currency peg in the face of imprudent fiscal and monetary policies on the one hand and open international capital account on the other hand is a great recipe for an eventual currency crisis within a short span of time. As in the case of the Southern Cone (i.e., Chile, Argentina, Uruguay) experiences of the late 1970s and early 1980s, comparatively very high domestic real interest rates attract surges in capital inflows (a lot of it foreign borrowings of local residents), thereby raising domestic inflationary pressures and aggravated by the monetization of large fiscal deficits. There result real currency appreciation and a decline in the countries' international competitiveness, ballooning current account deficits, and an eventual payments crisis and currency crash.

- In the face of an open capital account and financial integration, maintaining fiscal (and macroeconomic) prudence is not enough to sustain a currency peg. Prudent macroeconomic management that leads to low inflation reduces the risk premium on a country, thereby encouraging greater capital inflows in response to a monetary policy that results in domestic interest rates significantly higher than foreign interest rates. As the recent East Asian crisis showed, the high domestic interest rate and currency peg despite the capital inflows encourage substantial unhedged and generally short-term foreign borrowing and, concomitant to the overheating of the economy, increased investments in riskier and longer-term projects and in nontradeable sectors. The cumulation of such investments financed by short term funds increasingly make the domestic economy more vulnerable to negative external

shocks such as a significant increase in world interest rate or a substantial fall in exports, and ultimately to speculative attacks on the domestic currency. An important lesson here is that a country that is financially integrated with the rest of the world and which has good credibility in its fiscal management cannot pursue an independent monetary policy and a currency peg for long without sowing the seeds for an eventual currency crisis.

- Similarly, regional currency pegs or currency areas are a breeding ground for currency turmoil unless there is full coordination of monetary and other macroeconomic policies among the member countries. As the EMS crisis of 1992-1993 suggests, inconsistency between the macroeconomic regime of the anchor country and the macroeconomic needs of the other members of the currency area would invite speculative attacks on the currencies of the members in the currency area. Maintaining exchange rate parities within the currency area necessitates the loss of monetary independence of the member countries in favor of the lead or anchor country or meeting the rigidly fixed rules on macroeconomic management as is the case under the euro zone.

- The European Union, has decided on a path of fixed exchange rates, and indeed a common currency—the *euro*--among the members of the Union, despite the earlier troubles with the snake and the speculative currency attacks in 1992-1993. This is expected of an economic and monetary union, with a surpranational central bank. Given the free flow of capital and people in the EU, a flexible exchange rate regime could introduce market and policy uncertainty as well as potentials for discredited "beggar thy neighbor" policies. Being under a fixed exchange rate system, the EU member countries must necessarily subordinate national fiscal and monetary policies to the regional institutions or to the policies of the anchor economy (ies), primarily Germany.

- Chile (and also Colombia) provides a case of "gradual and limited financial integration" (Le Fort ad Budnevich 1997). Chile (and Colombia) deliberately provided "sand in the wheel" of international financial flows into the country in order to minimize…" interest rate arbitrage, destabilizing speculation, bubbles and overshooting behavior of asset prices…" (Le Fort and Budnevich 1997). This Chilean policy is a reaction to the excesses of the late 1970s which eventually led Chile to succumb to a serious balance of payments crisis in the early 1980s. In addition, Chile imposed stringent prudential regulations, including greater transparency on bank loans and the state of health of banks

- Thus, capital controls can be, and have been, used successfully as a tool for the macroeconomic management of capital flows but only on a temporary basis. Malaysia used them; France used them. In both cases, capital control measures were a complement to the other macroeconomic measures to temper capital inflows (Malaysia) or outflows (France, Malaysia). Chile used them on a longer- term basis and appeared, on the whole, to have succeeded in influencing at least the composition of capital inflows and in providing some leeway for monetary independence. It is

clear, however, that capital controls are not a panacea or a substitute to sound macroeconomic policies, not too overly rigid exchange rates and strengthened prudential regulations. Equally important, a successful management of capital control measures requires a technically-competent machinery or central bank that can monitor and make appropriate adjustments in the measures in the light of the dynamic changes in the domestic and foreign financial markets. Thus, capital controls are an appropriate component of the arsenal of macroeconomic measures that a country, especially a developing country without a fully developed financial sector, can use in managing the macroeconomic challenges of international capital flows. Nonetheless, capital controls may need to used only sparingly and temporarily, or where on a longer term basis similar to Chile, adroitly, flexibly and in tandem with sound macroeconomic policies and strong prudential regulations.

- Apart from fixed exchange rates under an optimum currency concept and from putting "sand in the wheels" of international finance, the third policy option in the face of increased financial integration is to adopt a flexible exchange rate. Standard macroeconomic texts bring out that it is under flexible exchange rates that a country's central bank can have some measure of independence from the rest of the world. However, it is generally acknowledged that a truly flexible exchange rate requires a well-developed financial sector which developing countries like the Philippines do not have. Under a freely flexible exchange rate, exchange rates can change from changes in expectations on future interest rates, which can mean exchange rate volatility when the financial system is thin and underdeveloped. Moreover, exchange rate overshooting can occur. Large changes in the exchange rate can have large negative effect on the economy. At the same time, stabilizing the exchange rate in the face of changed expectations involve volatility in the interest rate which can also have adverse impact on the economy. Thus, controlling an economy could be more difficult under a truly flexible exchange rate regime in an emerging economy with a still thin and underdeveloped financial sector.

- The East Asian crisis has brought out once more the issue of the appropriate sequencing of liberalization. The general consensus in the literature is that the sequence of liberalization should preferably be domestic real reform first, followed by domestic financial sector reform, then the external trade sector reform, and finally the liberalization of the capital account (Brooks and Oh, 1999). While there are significant differences in details, most countries have largely followed the broad strategy of liberalization in at least one important aspect; that is, liberalization of the capital account was usually the last to be undertaken. Nonetheless, the historical experience has been mixed in part because the liberalization process has tended to be incomplete in most cases. What the East Asian crisis brought out with respect to the sequencing of liberalization issue are two aspects which were not highlighted before; i.e., the importance of domestic financial institutional and regulatory environment and capacity before full blown capital account liberalization, and the greater bias for liberalization of long term capital flows before short term flows. Specifically, strong prudential regulations, supervision and monitoring of the financial sector is an important prerequisite before any headlong rush to full liberalization of the capital

account.    Reisen (2000) points to regulatory distortion in the international financial system that give an undue bias in to short -term interbank loans and to bank loans to hedge funds for example. Yet these two short term capital flows are the most volatile and contributed to the East Asian "bubble" and eventual currency and banking crisis. At the same time, the bias for short term foreign loans in the East Asian crisis was encouraged in part by restrictions on foreign direct investments and other long term flows (e..g, bonds, equities) as against the more liberalized short term capital movements (Shigehara, 1999).

*Implications.*    In view of the discussion above, the implications for the Philippines are as follows:

- A bias for a floating exchange rate. This is likely a relatively dirty float rather than a truly flexible exchange rate regime.  As indicated earlier, the Philippines does not yet have a well-established and deep financial sector that offers the wide array of exchange risk management instruments at reasonable cost. This means that the Central Bank cannot likely have a totally hands-off policy in the foreign exchange market. Thus, Central Bank intervention can be expected to intervene in the foreign exchange market primarily mainly to prevent exchange rate overshooting and large exchange rate fluctuations but not to "lean against the wind".  Note that this kind of dirty float is rather different from a dirty float that largely follows a currency basket approach to exchange rate determination or to a policy of real exchange rate targeting. The bias for a more flexible exchange rate regime, however somewhat dirty rather than a totally clean free float, forces the market participants to take cognizance of exchange rate risks, encourages the development of exchange risk management instruments by the market, and allows for some independence in the determination of the country's monetary policy.

- The critical importance of strong prudential regulations, supervision and monitoring. This also includes greater transparency and disclosure requirements on the banks and other financial institutions. This is important either under a fixed exchange rate regime or under a flexible exchange rate regime. This is critical as the country deepens its financial linkages with the rest of the world. Much of that strengthening of the prudential environment would involve moving towards international best practice in banking, regulations and monitoring approaches.

- Improvement in corporate governance. This involves not only financial institutions but also of borrower firms. As the country deepens its linkages with the rest of the world, it is likely that more and more Philippine firms would seek out foreign funds directly rather than through banks. Thus, unless the foreign funds are well utilized by the firms, the country could be exposed to greater risk.  Improvements in corporate governance can be expected to be a long process that may involve changes in societal relations. Nonetheless, well performing banks and stock market, acting as outside monitors on borrower firms, can provide the impetus for improvements in corporate governance. The government can also provide some pressure for improvements in

corporate governance. This can be done, for example, by requiring firms that want to borrow abroad directly to meet some quality criteria, such as a minimum rating as was the rule in Chile in the 1990s.

- Chile's rule that firms or financial institutions borrowing abroad should meet a minimum required rating by two rating agencies is primarily an external debt management measure. There is some merit to it. Chile's imposition of credit rating requirements before domestic firms and banks can borrow abroad contributed to the improved debt profile of the country. This is in contrast to the aggressive foreign borrowing of Indonesian firms and banks before the East Asian crisis, which complicated the country's external debt management and restructuring. To a large extent, the East Asian crisis was an external debt management problem disguised as capital inflows problem. The point is that there are systemic risks to a lot of firms borrowing abroad as the Indonesian case (where the recent economic crisis was aggravated by a large number of externally indebted firms whose external debt was not even known by the monetary authorities) suggests. This recommendation is particularly important during periods of "investment euphoria" as during a bubble or fast accelerating economic growth.

- The importance of maintaining prudent fiscal and monetary policies. This is easier said than done especially because an economy is buffeted by internal and external shocks on the one hand and passes through business cycles on the other hand. Nonetheless, this calls for a bias for a more conservative stance with respect to the fiscal deficit. Clearly this calls for constant and good monitoring and analysis of the domestic economy and world markets.

- There is merit in putting some "sand in the wheels" on short- term foreign borrowing by domestic firms and banks on the one hand and greater liberalization on longer-term borrowing and flows on the other hand. In addition, where there is a significant surge in capital flows, there is some merit to look into the institution of an unremunerated reserve requirement on short term capital inflows if necessary. Malaysia's and Chile's bias for long term flows and investments, to the point that Malaysia further liberalized foreign equity restrictions in certain critical industries while at the same time imposing selective capital controls in 1998-1999, has served the two countries well. This is because long- term flows impart greater stability and foreign direct investments can also have technology transfer, market development and human skill benefits to recipient countries. Clearly, this recommendation is relevant only during periods of large capital inflows. Thus, even Chile lowered to zero the unremunerated reserve requirement when the was a turn around in capital flows to emerging markets in the aftermath of the East Asian crisis.

- Finally, at the end of the day, the quality of macroeconomic outcomes is dependent on the quality and capability of the institutions, both private (e.g., banks, rating firms) and public (e.g., central bank, finance), in managing the challenges of financial integration and the economy. Thus, the importance of continuing investments in

human resource and institutional development in both the government and private institutions, but especially the government institutions.

# Figures



Figure 1.a
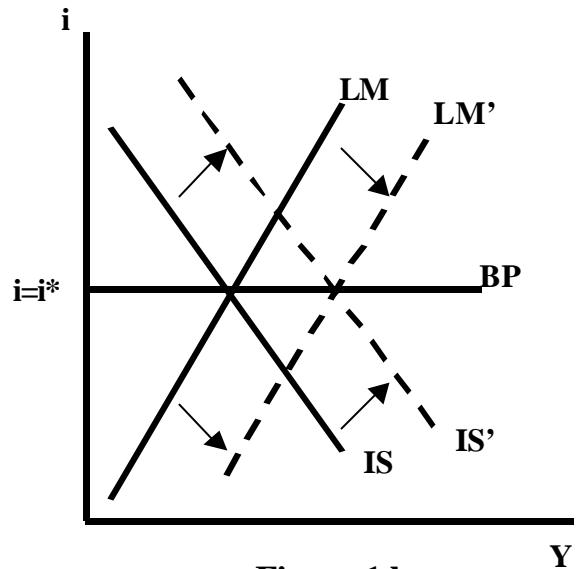


Figure 1.b
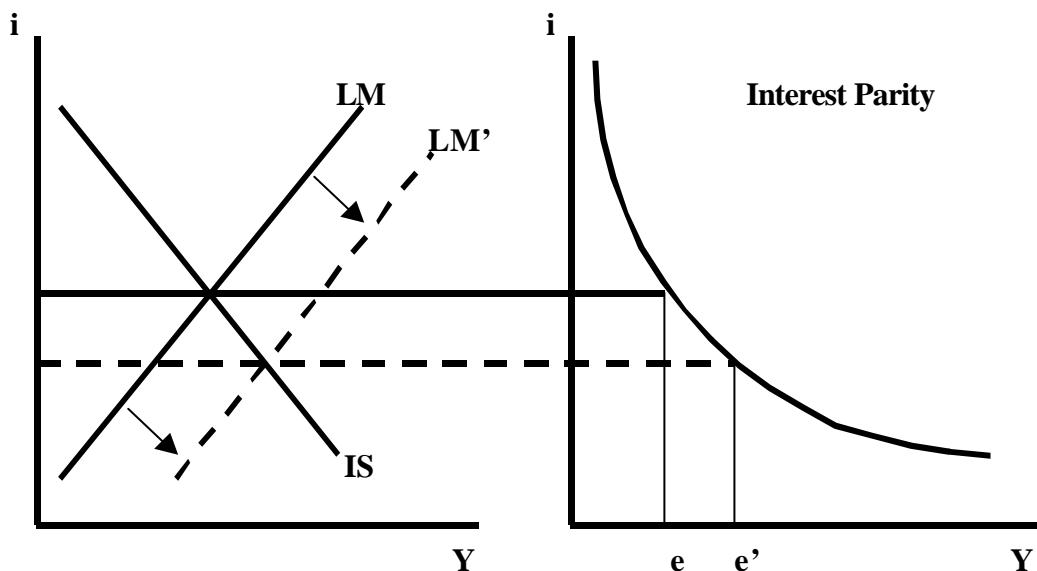


Figure 1.c
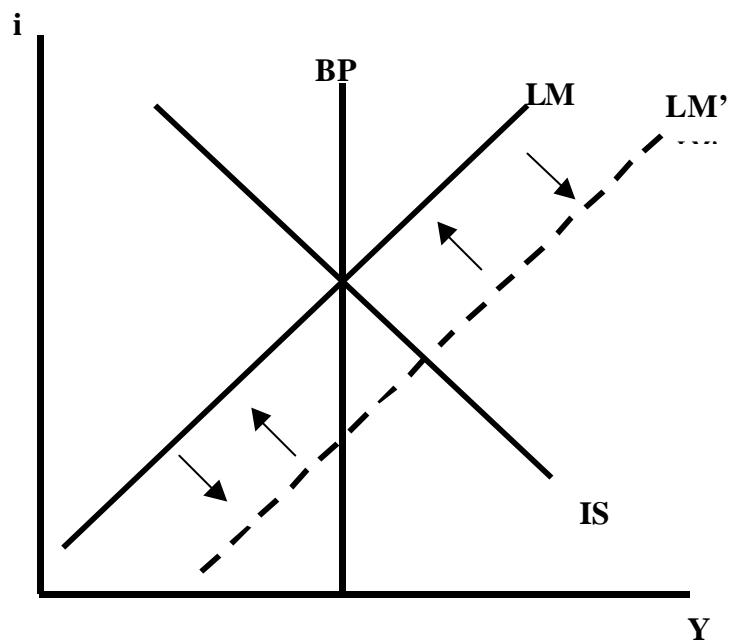
**Figure 1.d**

# Model Specifications and Frameworks:  A Review of Banking and Currency Crisis Models

Jitendra Rafael S. Mojica

## Abstract

Three years since the East Asian incident, economists are still searching for an adequate answer to the question *"why it all happened?"* more so, *"why the crisis meant incurring a huge cost for those economies that were affected?"* While there have been many attempts to fill this void in the literature, the general sentiment among economists continues to be that the frameworks invoked to explain the phenomenon, fall short of giving a complete picture of the entire quagmire.  This paper summarizes the different crisis models in the literature to give a better picture of policy dilemmas faced by pundits during times of crisis.

## I.  Introduction

The particular irregularities of the East Asian Crisis have led some to suggest the development of a third generation class of models for currency crises.  It was apparent at the onset of the Asian Financial turmoil that first and second-generation type models were inadequate in giving correct policy prescriptions.  However, this sentiment circling in academic circle has remained an assertion without the benefit of across comparison among these models.  What are these models about?  How are they inadequate?  What are their strengths and weaknesses?  These are the things, questions and qualifications, needed to bring forward a clearer understanding of crises literature.

The evolutions of currency and financial crises models have so far been limited to rational experience and policy implications.  This paper would thus be about the nitty-gritty detail of these crises frameworks i.e. mathematical specifications found throughout the literature. First the discussion shall be on the early development of first and second-generation crisis models.   After which some of the finer points of third generation type models are then presented.

## II.  First Generation Model – Krugman, Flood and Garber (KFG)

The classic approach to a balance of payment crises is to perceive currency crises as the inconsistency between a fixed exchange rate rule and the pursuit of domestic policies such as monetising large fiscal deficits.  These models drew what appears to be a sudden speculative attack on currencies, yet is quite rational.  Rajan (2000) noted that within a monetary framework, rational forward looking agents causes a breakdown of a fixed exchange rate regime once there is a general perception that an exchange rate peg is unsustainable.  Especially since the regime has been made unsustainable because of policymaker's consistent persistence to monetise its fiscal deficit (Rajan, 2000; Economic Research and Resources, 1999).   And once speculators perceive that an attack is inevitable, each tries to buy foreign currencies from the central bank before the reserves are depleted, which simply a run on reserves.

Drawing from Rajan (2000a), the KFG model was discussed like this:

Assumptions:

- Small open economy with perfect capital mobility and a single tradable good
- Agents hold three assets
  - Domestic money
  - Foreign bonds
  - Domestic bonds

Model:

$$m_t - p_t = a_0 - a_1 i_t + a_2 y_t \qquad . a_1 a_2 > 0 \qquad (1)$$

$$m_t = g_t + c_t \qquad (2)$$

$$i_t = i_t^* + \hat{e}_t + rp_t \qquad (3)$$

$$p_t = p_t^* + e_t \qquad (4)$$

$$def_t = \dot{c}_t = \boldsymbol{m} > 0 \qquad (5)$$

Where:

$m_t$ = Nominal domestic money (high powered) supply

$y_t$ = Real output / income (which is assumed constant for simplicity)

$p_t$ = Domestic price level

$p_t^*$ = Foreign price level

$c_t$ = Domestic assets (in nominal terms)

$i_t$ = Domestic real interest rates

$i_t^*$ = Foreign real interest rates

$e_t$ = Exchange rate (in foreign currency terms)

$\hat{e}_t$ = Expected rate of depreciation

$def_t$ = Fiscal deficit

*All the variables with a dot (.) over them refer to rates of change; and

$a_0, a_1, a_2, \boldsymbol{m}$ are non-negative parameters.

*All variables other than those in rates and $rp_t$ are in natural log

Equation (1) is the real money demand function. Equation (2) expresses money supply (monetary base) as equal to domestic assets plus foreign assets. Equation (3) is the international asset market arbitrage condition i.e. uncovered interest parity theorem plus a country / currency risk premium (rp), the latter taken to be exogenous and constant. Equation (4) is the PPP condition. Equation (5) states that the fiscal deficit is monetised at a constant rate $\boldsymbol{m}$. This is the rate of credit growth. Assuming that $i_t^*$, $p_t^*$ and $rp_t$ are constant, substituting equations (1) and (3) into (4) derives:

$$e_t = m_t + a_1 \hat{e}_t - \boldsymbol{g} \qquad (6)$$

Where:

$$g = (a_0 + p_t^* - a_1 rp_t + a_2 y_t)$$

Under a fixed exchange rate regime (i.e. $\hat{e}_t = 0$), using equation (2) and totally differentiating the resulting equation:

$$\dot{g}_t = -\dot{c} = -m \qquad \qquad (7)$$

Where:

$$g_t = \text{foreign assets / reserves}$$

Equation (7) states that the combination of a fixed exchange rate regime and an open capital account simultaneously must imply the loss of monetary autonomy (i.e. the "impossible" or " inconsistent" trilogy principle). The fiscal deficit generates domestic credit in the form of money creation, and under a fixed exchange rate regime, has to be absorbed as a decline in international reserves.

Agents are assumed to have perfect foresight and understand that the peg is unsustainable in light of the prevailing fiscal stance. Hence they expect reserves to eventually fall to some minimum level and the currency to consequently depreciate. The argument continues on by looking at the international interest rate parity condition, which produces a rise in domestic interest rates. Further more, equation (1) suggests that real money demand decreases. Indicating that domestic prices are held by world prices through the PPP condition, by equation (3), a way to calibrate the system would be through a discontinuous upward jump in the actual exchange rate.

Since domestic credit grows continuously, this decline in the nominal monetary base must be fully accounted for by a fall in foreign reserves. In other words, the presence of farsighted agents implies that foreign reserves will decline to their minimum level at the earliest possible time of an expected currency depreciation (Rajan, 2000).

## III.    Second Generation Models – Obstfeld's Escape Clause

The second-generation models to some extent are similar to their first-generation counterpart insofar as to identifying inconsistent government policies as the cause of currency crises (Flood and Marion, 1996). The second-generation models focus on the dynamic interactions of market expectations, particularly investors' expectation and conflicting objectives of the government, which is essentially the actual policy outcomes and show how this can lead to a self-fulfilling run on the domestic currency (Pesenti, 2000).

Flood and Marion (1996) relied on Obstfeld's presentation of a devaluation model: Purchasing power parity holds so that $e_t = p_t$.

Domestic output, $y_t$, follows:

$$y_t = a(e_t - w_t) - u_t \qquad \qquad a > 0 \qquad \qquad (1)$$

Where:

Logs $e_t$ = Exchange rate quoted as the domestic-currency price of foreign level normalised to zero

$p_t$ = Domestic price level

$p^*$ = Constant foreign price level normalised to zero

$w_t$ = (log) wage

$u_t$ = Serially independent mean-zero shock.

* Wages for period t are set at the end of period $t-1$ so that expected real wages stay constant,

$$w_t = E_{t-1}e_t \qquad (2)$$

The policymaker has one tool in this set-up, the exchange rate, and it is chosen each period after seeing the wage for the period. Policymaker at the beginning does not incur any direct cost from using discretionary policy. Decisions are entirely purposeful and reduce the weighted average of inflation and business cycle considerations.

$$L_t = .5q(p_t - p_{t-1}) + .5(y_t - y^*)^2 \qquad (3)$$

Where:

$y^*$ = Policymaker's output target

$q$ = Relative weight attached to deviations of inflation from a target of 0

The structure and results of this model are well known. As long as $y^*$ is unrealistically high (>0 presently) and wages are set before policy, workers must anticipate that the policymaker exercising discretion will inflate attempting to reach $y^*$. With that expectation built into wage negotiations, it becomes optimal for the policy maker to validate the expectations. Therefore the model predicts an inflationary equilibrium even though no one is made better off by anticipated inflation. The model also predicts that the policymaker will stabilise the results of shocks but at the cost of higher than ideal average inflation.

In contrast, decision makers may take into account replacing discretion with a rule. If today, the rule is to hold the exchange rate fixed for all time then it means that the inflation is held to zero. In effect, the rule circumvents discretion's inflationary tendencies but at the cost of higher output volatility since no policy response now puts output shocks in place (Flood and Marion, 1996).

Essentially, the guiding principal behind escape clause models is the combination of the both rules and discretions. The idea is to follow a rule until such rule is affected by some external condition that forces it to rely on discretionary action. A caveat to this is the fact that it can be twisted and abused. Policymaker may deem all situations as affected by some external condition. Thus, to ensure that discretionary actions are only taken in special cases is to impose a cost on the policymaker every time they break the rule. This has been deemed in the literature to be the superior arrangement over following pure rules or pure discretion strategies (Flood and Marion, 1996).

Condition:

$$L^D + C < L^R \qquad (4)$$

Where:

$L^D =$ Period loss under discretion

$L^R =$ Period loss under rule

Condition for indifference:

$$\boldsymbol{l}^{1/2}(\boldsymbol{a}\boldsymbol{d}(\bar{u}) + \bar{u} + y^*) = (2C)^{1/2} \qquad (5)$$

Where:

$\boldsymbol{l} = \boldsymbol{a}^2 / (\boldsymbol{q} + \boldsymbol{a}^2), \bar{u}$ Is a critical value of the output disturbance such that the two policies produce equal values of the loss function and $\boldsymbol{d}(\bar{u})$ is a quadratic function of $\bar{u}$ that represents the market's depreciation expectations.

## IV.    Third Generation Models

The main distinction attributed to these models has been that its "bank-centred" view on currency crisis (Krugman, 1999). Although to generalise all of them as taking a "bank-centred" approach or to dismiss outright that first and second-generation models as being "non-financial", is nothing more than being far from the truth since Calvo's portfolio-equity based model focuses on returns to investment, or how a Krugman, Flood and Garber (KFG-type) model can easily include the role of banks in its analysis (Rajan, 2000a).

The first of two third generation type models included in this survey is that of Chang and Velasco's (1998). As mentioned, it revolves around the concept of international illiquidity, particularly the mismatch of assets and liabilities in the financial system of a country.

### 1.  The Bank Panic Model

Drawing from Rajan (2000), Chang and Velasco's (1998) stylised model was written like this:

First assume a small open economy with ex ante identical agents with three periods of interest:

Planning period *(t = 0)*
A short-run *(t = 1)*
The long run *(t = 2)*

Then assume a composite consumption good whose price in the world market is fixed over time and normalised to one "dollar".

Further more assume that each domestic agent has:

An endowment *e > 0* of consumption in *(t = 0)*

The agent is indifferent between whether she consumes in either time period (short or long run). In addition to their endowment, domestic residents have access to international capital markets and are able to borrow at most d units. There exists a technology in the planning period, which yields:

$R$ units of consumption in the long run
$r$ units of consumption if liquidated in the short run

Where $0 < r < 1 < R$

However due to indivisibilities, agents are unable to access the technology if acting individually, only being able to do so if they pool their resources (i.e. if they coalesce and form a bank). If agents do form a bank, the relationship / contract between each bank and the domestic resident / owner is as follows. She surrenders her:

Endowment $e$
Capacity to borrow $d$ to the bank

In exchange, she can withdraw either the initial deposit $e$ in the short run or an amount $y$ in the long run. Both deposits and loans are assumed to be short term, needing to be renewed at $t = 1$. The banks operate in a perfectly competitive environment such that long run profits are zero, and they distribute all their remaining value to the depositors / owners at $t = 2$. Banks are faced with a reserve requirement of $b$ per depositor. These reserves are held in liquid form (i.e. world asset). Given these assumptions, at $t = 2$, investment by each bank:

$$(k) = e + d - b > 0 \text{ per depositor}$$

Consequently, $y = R(e + d - b) - d + b = \text{Re} + (d - b)(R - 1)$

Since $R > 1$, and as long as $b$ is "small" (compared to $d$), $y > e$,
thus providing the incentive for the depositor to form / invest
in banks.

Assume that there is some trigger such that depositors and creditors "panic" and attempt to withdraw funds from the banks at $t = 1$. To be precise, creditors will recall $d$ units while depositors will attempt to withdraw their initial endowment of $e$ units. The bank however has only $b$ units of liquid assets and receives just $r$ from "premature" liquidation of the project.

Since $r < 1$
And $k = e + d - b > 0$

The potential capital outflows from / obligations of the bank $(e + d)$ exceeds the resources available $(b + rk)$. In other words, the bank is internationally illiquid. Thus banks, in this model, are social welfare maximizers that channel liquid assets of their owners (depositors) into illiquid but high-yielding (productive) investments. By so doing, they help increase capital inflows to the economy with the potential for higher growth and consumption levels ("good equilibrium"). However this maturity transformation role of banks makes them susceptible to panic withdrawals.

Following some negative shock, depositors, concerned about the safety of their savings, attempt to withdraw *en masse* (which occurs given the "first-come-first served" rule of deposit withdrawal), while creditors are unwilling to rollover short-term loans. Since banks' liquid asset / reserves are less than their potential foreign currency obligations, they are forced into premature liquidation of long-term investments. Given the partial irreversibility of investments they obtain a lower return on liquidation. However insofar as the foreign currency revenues obtainable in the short term are still less than the corresponding short-term potential foreign currency obligations, the banks are "internationally illiquid". This sudden termination of bank finance forces the abandonment of potentially solvent investment projects. This consequent decline in capital formation eventually ends with a sudden drop in output. In the same manner, the injection of fresh liquidity with all things held constant may increase normalisation of investment and output levels (Rajan, 2000a and b).

## 2. The Calvo-Mendoza Capital Crisis Model

Again, drawing from Rajan (2000b), the portfolio-equity model takes on this form:

First, assume the existence of homogeneous investors. Second, assume J countries in which investors allocate a fixed pool of funds; normalised to one unit. Third, assume returns in each are distributed with mean of p and variance of $s_0^2$. Using a single agent, assume that this investor hears news that country k's new stochastic return is r, where $(r - p) = e \neq 0$. Let the returns in country $k = s_1$. Also, let $q$ be the share of the portfolio invested in all countries other than country k.

Let X be the portfolio. Explicitly, the model starts out like this:

$$E(X) = p + (1 - q)e \tag{1}$$

$$Var(X) = [(qs_0)^2 / (J - 1) + (1 - q)s_1^2] \tag{2}$$

Assume that the agent is a price taker. Under the veil of normal distribution of returns, let the agent maximise the following quadratic objective function (U) w.r.t. $q$:

$$MaxEU(X) = [(1 - q)e + p] - v / 2[(qs_0)^2 / (J - 1) + (1 - q)^2 s_1^2], v > 0 \tag{3}$$

The proportion of fund devoted to country k obtains:

$$(1 - q) = [g + e / v] / g + s_1^2] \tag{4}$$

Where:

$$g = s_0^2 / (J - 1)$$

However, the absence of information on the returns in country k (i.e. country k is identical to all other countries ex ante), from equation **(4)**, the share of portfolio allocated to the country is 1/J, as would be expected a priori. Accordingly, in the absence of news, the portfolio allocated to country k tends to become unimportant, as J gets arbitrarily bigger (i.e. plenty of alternatives for investment diversification). Yet as soon as news comes in, the change in the portfolio composition to country k becomes extremely

sensitive to the expected mean return differential ($e$) and variance in country k as J $\rightarrow \infty$.

Specifically:

$$\partial(1-\boldsymbol{q})/\partial\boldsymbol{e} = [v/[\boldsymbol{g}+\boldsymbol{s}_1^2]]^{-1}$$

$$\partial(1-\boldsymbol{q})/\partial\boldsymbol{e} \rightarrow 1/(v\boldsymbol{s}_1^2) \, as \, J \rightarrow \infty$$

$$\partial(1-\boldsymbol{q})/\partial\boldsymbol{s}_1^2 = -[\boldsymbol{g}+\boldsymbol{e}/v]/[\boldsymbol{g}+\boldsymbol{s}_1^2]^2$$

$$\partial(1-\boldsymbol{q})/\partial\boldsymbol{s}_1^2 \rightarrow -\boldsymbol{e}/(v\boldsymbol{s}_v^4) \, as \, J \rightarrow \infty$$

These are equations (5) (5') (6) (6') respectively.

The idea here is to differentiate speculative tendencies of agents. If an agent takes a laid back approach to speculation, then it would be best for the agent to gather relevant information upon which to base their investment decisions on. To the extent that their actions are based on best available information, speculation cannot be considered arbitrary. The incentive for investors to gather information may be explored within this portfolio diversification model.

Let there be an unspecified fixed cost involved in learning about country k. Assume that the learning costs allow the agent to obtain information about returns in the country with certainty (i.e. $\boldsymbol{s}_1^2 = 0$). From equation **(4):**

$$(1-\boldsymbol{q}) = [1 + \boldsymbol{e}/(v\boldsymbol{g})] \tag{4'}$$

Assume no short sales. The next relationship between the range of values of $\boldsymbol{e}$ and $(1-\boldsymbol{q})$ may be derived:

| If | then |
|---|---|
| $\boldsymbol{e}$ | $(1-\boldsymbol{J})$ |
| $[0,\infty)$ | 1 |
| $[-vy,0)$ | $(0,1)$ |
| $(-\infty,-vy)$ | 0 |

The first condition $\boldsymbol{e} \geq 0$, as long as the fixed information costs are not prohibitively large, there is gain to be had from gathering information ex post. In the same manner, for $\boldsymbol{e} \leq -v\boldsymbol{g}$, there is no incentive of a gain in spite of information gathering. What about the intermediate case of $\boldsymbol{e} = [-v\boldsymbol{g},0)$? $As \, J \rightarrow \infty$, there is no ex post gain to be had, as the distribution of returns ensures that a highly diversified portfolio will provide a return of p which exceeds r (as $\boldsymbol{e} = r - p$), while a small J, ex post utility could still increase with information gathering. Assuming continuity, we have that the marginal gain of information gathering about any single country falls as portfolios get increasingly diversified (Rajan, 2000b).

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## Table 1
**Magnitude and Composition of Capital Flows**
(Percent of GDP)

| | East Asia | | | | ASEAN 4 | | |
|---|---|---|---|---|---|---|---|
| | 1985 - 1988 | 1989 - 1992 | 1993 - 1996 | | 1985 - 1988 | 1989 - 1992 | 1993 - 1996 |
| **Net Long Term Capital Flow** | 1.4 | 3 | 6.2 | | 2 | 4.8 | 6.9 |
| Net Official Flows | 0.4 | 0.6 | 0.4 | | 1.2 | 1.3 | 0.4 |
| Net Private Flows | 1 | 2.4 | 5.8 | | 0.8 | 3.5 | 6.6 |
| **Bank/Trade Lending** | 0 | 0.7 | 0.7 | | -0.3 | 0.9 | 0.8 |
| **Portfolio Bond** | 0.3 | 0.1 | 1 | | 0.2 | -0.1 | 1.4 |
| **FDI** | 0.7 | 1.3 | 3 | | 0.9 | 2.3 | 2.4 |
| **Portfolio Equity** | 0 | 0.2 | 1.1 | | 0.1 | 0.4 | 2 |
| | | | | | | | |
| **IMF Credit** | -0.1 | -0.1 | 0 | | -0.1 | -0.1 | 0 |
| **Other Private Flows** | -0.4 | -0.5 | -1.9 | | 0.3 | 2 | -0.1 |
| of which short term debt | 0.2 | 0.7 | 0.9 | | 0.1 | 2 | 2.3 |

| | South Asia | | | | Latin America and the Caribbean | | |
|---|---|---|---|---|---|---|---|
| | 1985 - 1988 | 1989 - 1992 | 1993 - 1996 | | 1985 - 1988 | 1989 - 1992 | 1993 - 1996 |
| **Net Long Term Capital Flow** | 2.2 | 1.9 | 2.6 | | 1.3 | 1.7 | 4.3 |
| Net Official Flows | 0.9 | 1.1 | 0.4 | | 0.5 | 0.3 | 0 |
| Net Private Flows | 1.3 | 0.8 | 2.1 | | 0.8 | 1.4 | 4.4 |
| **Bank/Trade Lending** | 1.1 | 0.5 | 0.4 | | 0.3 | 0 | 0.5 |
| **Portfolio Bond** | 0.1 | 0.2 | 0 | | 0.2 | 0.2 | 1.2 |
| **FDI** | 0.1 | 0.1 | 0.6 | | 0.7 | 0.9 | 1.6 |
| **Portfolio Equity** | 0 | 0.1 | 1.1 | | 0 | 0.3 | 1.1 |
| | | | | | | | |
| **IMF Credit** | -0.4 | 0.2 | -0.1 | | 0 | 0 | 0.1 |
| **Other Private Flows** | 0 | 0.3 | 0.6 | | -0.7 | 0.7 | 0.6 |
| of which short term debt | 0.4 | 0.1 | -0.2 | | -0.1 | 0.7 | 0.6 |

**Sources:** Alba,Pedro; Amar Bhattacharya, Stijn Claessens; Susati Ghosh; and Leonardo Hernandez, **"Volatility and Contagion in a Financially - Integrated World:  Lessons from East Asia's Recent Experience."**  Paper presented at the PAFTAD 24 Conference, "Asia Pacific Financial Liberalisation and Reform", May 20-22, 1998.  Chiangmai, Thailand

# Table 2.a

**External Financing in the Five Most Affected Asian Countries[a]**

( In Billions of US Dollars)

|  | 1994 | 1995 | 1996 | 1997[b] |
|---|---|---|---|---|
| **Current Account Balance** | -24.6 | -41.3 | -54.9 | -26 |
| **External Financing, net** | 47.4 | 80.9 | 92.8 | 15.2 |
| **Private Flows, net** | 40.5 | 77.4 | 93 | -12.1 |
| Equity Investment | 12.2 | 15.5 | 19.1 | -4.5 |
| Direct Equity | 4.7 | 4.9 | 7 | 7.2 |
| Portfolio Equity | 7.6 | 10.6 | 12.1 | -11.6 |
| **Private Creditors** | 28.2 | 61.8 | 74 | -7.6 |
| Commercial Banks | 24 | 49.5 | 55.5 | -21.3 |
| Non-bank Private Creditors | 4.2 | 12.4 | 18.4 | 13.7 |
| **Official Flows, net** | 7 | 3.6 | -0.2 | 27.2 |
| Int'l Financial Institutions | -0.4 | -0.6 | -1 | 23 |
| Bilateral Creditors | 7.4 | 4.2 | 0.7 | 4.3 |
| **Resident Lending/others[c], net** | -17.5 | -25.9 | -19.6 | -11.9 |
| **Reserves Excluding Gold** | -5.4 | -13.7 | -18.3 | 22.7 |

**Note:**

a. Indonesia, Malaysia, Philippines, South Korea, and Thailand

b. Estimate

c. Including resident net lending, monetary gold, and errors and omissions

**Source:**

Steven Radelete and Jeffrey Sachs, **"The Onset of the East Asian Financial Crisis",** March 30, 1998

**Table 2.b**
**International Claims Held By Foreign Banks-- Distribution by country of origin**
in US $ Billions

| A. End 1995 | Total Outstanding | Claims held by banks from: | | | |
|---|---|---|---|---|---|
| | | Japan | U.S.A. | Canada | Europe* |
| China | 48.4 | 17.7 | 1.7 | 0.5 | 20.4 |
| Chile | 13.6 | 1.0 | 4.1 | 0.7 | 6.0 |
| Indonesia | 44.5 | 21.0 | 2.8 | 0.3 | 15.0 |
| Malaysia | 16.8 | 7.3 | 1.5 | 0.1 | 6.2 |
| PNG | 0.1 | 0.0 | 0.0 | - | 0.1 |
| Peru | 5.6 | 0.2 | 0.6 | 0.1 | 2.9 |
| Philippines | 8.3 | 1.0 | 2.9 | 0.3 | 3.5 |
| Thailand | 62.8 | 36.9 | 4.1 | 0.8 | 14.9 |
| Korea | 77.5 | 21.5 | 7.6 | 0.9 | 23.6 |
| Vietnam | 1.1 | 0.3 | 0.1 | 0.0 | 0.9 |
| *Total* | 278.7 | 106.9 | 25.4 | 3.7 | 93.5 |
| **B. End 1996** | | | | | |
| China | 55.0 | 17.8 | 2.7 | 0.8 | 26.0 |
| Chile | 15.2 | 0.8 | 4.2 | 0.7 | 7.6 |
| Indonesia | 55.5 | 22.0 | 5.3 | 0.6 | 21.0 |
| Malaysia | 22.2 | 8.2 | 2.3 | 0.1 | 9.2 |
| PNG | 0.2 | 0.0 | 0.0 | - | 0.1 |
| Peru | 8.0 | 0.2 | 1.4 | 0.1 | 4.1 |
| Philippines | 13.3 | 1.6 | 3.9 | 0.4 | 6.2 |
| Thailand | 70.2 | 37.5 | 5.0 | 1.1 | 19.2 |
| Korea | 100.0 | 24.3 | 9.4 | 1.4 | 33.8 |
| Vietnam | 1.5 | 0.2 | 0.2 | 0.0 | 1.2 |
| *Total* | 341.1 | 112.7 | 34.4 | 5.2 | 128.6 |
| **C. End 1997** | | | | | |
| China | 63.1 | 19.6 | 2.5 | 1.1 | 32.5 |
| Chile | 21.2 | 1.2 | 4.7 | 1.0 | 11.8 |
| Indonesia | 58.2 | 22.0 | 4.9 | 0.9 | 21.7 |
| Malaysia | 28.8 | 8.5 | 1.8 | 0.2 | 13.9 |
| PNG | 0.3 | 0.6 | 0.6 | - | 0.2 |
| Peru | 9.9 | 0.1 | 2.0 | 0.1 | 6.6 |
| Philippines | 19.7 | 2.6 | 3.2 | 0.4 | 10.4 |
| Thailand | 58.5 | 33.2 | 2.5 | 0.8 | 17.1 |
| Korea | 93.4 | 20.3 | 9.5 | 1.7 | 33.4 |
| Vietnam | 1.7 | 0.3 | 0.1 | 0.0 | 1.2 |
| *Total* | 354.8 | 108.4 | 31.8 | 6.2 | 148.8 |

**cont. Table 2.b**
International Claims Held By Foreign Banks-- Distribution by country of origin
in US $ Billions

| D. End 1998 | Total Outstanding | Claims held by banks from: | | | |
| --- | --- | --- | --- | --- | --- |
| | | Japan | U.S.A. | Canada | Europe* |
| China | 58.4 | 15.1 | 1.9 | 0.6 | 29.3 |
| Chile | 22.2 | 1.2 | 4.2 | 1.0 | 13.9 |
| Indonesia | 44.8 | 16.4 | 3.5 | 0.5 | 19.5 |
| Malaysia | 20.8 | 6.6 | 0.9 | 0.5 | 10.6 |
| PNG | 0.4 | 0.0 | 0.0 | 0.0 | 0.3 |
| Peru | 10.6 | 0.1 | 2.2 | 0.2 | 7.0 |
| Philippines | 16.1 | 2.3 | 2.7 | 0.4 | 9.2 |
| Thailand | 40.7 | 22.4 | 1.4 | 0.5 | 14.1 |
| Korea | 65.3 | 16.9 | 6.3 | 1.5 | 26.2 |
| Vietnam | 1.7 | 0.3 | 0.1 | 0.0 | 1.5 |
| *Total* | 280.9 | 81.5 | 23.1 | 5.1 | 131.5 |
| | | | | | |
| **E. End 1999** | | | | | |
| China | 46.6 | 11.8 | 1.5 | 0.4 | 25.6 |
| Chile | 20.7 | 1.2 | 3.9 | 1.1 | 12.8 |
| Indonesia | 40.7 | 12.5 | 3.5 | 0.6 | 20.6 |
| Malaysia | 18.1 | 6.0 | 1.4 | - | 8.3 |
| PNG | 0.3 | 0.0 | 0.0 | - | 0.2 |
| Peru | 10.3 | 0.2 | 1.8 | 0.2 | 7.6 |
| Philippines | 16.7 | 2.9 | 3.0 | - | 8.8 |
| Thailand | 28.4 | 13.1 | 0.8 | - | 11.9 |
| Korea | 60.7 | 12.6 | 7.0 | 1.8 | 24.4 |
| Vietnam | 1.7 | 0.4 | 0.1 | - | 1.2 |
| *Total* | 244.1 | 60.6 | 22.9 | 4.1 | 121.5 |

**Note:** *Reporting countries from Europe include Austria, Finland, France, Germany, Italy, Luxembourg, Netherlands, Spain, and United Kingdom.

**Sources:** Bank of International Settlements and Steven Radelete and Jeffrey Sachs, "The Onset of the East Asian Financial Crisis", March 30, 1998.

**Table 2.c**
**International Claims Held by Foreign Banks-- Distribution by maturity and sector**
in US $ Billions

| | Total Outstanding | Banks | Public Sector | Non-bank Private | Short-term | Reserves | Short-term/Reserves |
|---|---|---|---|---|---|---|---|
| | | | Obligation by Sector | | | | |
| **A. End 1995** | | | | | | | |
| China | 41.3 | 15.8 | 12.2 | 13.3 | 17.5 | 53.6 | 0.3 |
| Chile | 12.4 | 3.8 | 2.8 | 5.7 | - | - | - |
| Indonesia | 35.0 | 7.8 | 7.0 | 20.1 | 19.4 | 13.2 | 1.5 |
| Malaysia | 13.5 | 3.9 | 2.4 | 7.1 | 6.2 | 25.5 | 0.2 |
| PNG | 0.2 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.9 |
| Peru | 3.0 | 1.2 | 0.9 | 1.0 | - | - | - |
| Philippines | 6.8 | 1.7 | 2.6 | 2.5 | 5.7 | 7.1 | 0.8 |
| Thailand | 43.9 | 14.1 | 2.8 | 27.0 | 29.2 | 30.3 | 1.0 |
| Korea | 56.6 | 37.0 | 5.0 | 14.6 | 31.6 | 25.7 | 1.2 |
| Vietnam | 0.7 | 0.3 | 0.2 | 0.2 | 2.7 | 0.9 | 3.0 |
| *Total* | 213.4 | 85.6 | 36.0 | 91.6 | | | |
| **B. End 1996** | | | | | | | |
| China | 48.4 | 19.4 | 9.8 | 19.2 | 22.3 | 76.0 | 0.3 |
| Chile | 13.6 | 3.9 | 2.5 | 7.2 | - | - | - |
| Indonesia | 44.5 | 8.9 | 6.7 | 28.8 | 26.0 | 14.8 | 1.8 |
| Malaysia | 16.8 | 4.4 | 2.1 | 10.1 | 7.3 | 23.9 | 0.3 |
| PNG | 0.2 | 0.0 | 0.0 | 0.1 | 0.1 | 0.3 | 0.3 |
| Peru | 5.6 | 2.4 | 0.9 | 2.4 | - | - | - |
| Philippines | 8.3 | 2.2 | 2.7 | 3.4 | 5.3 | 7.8 | 0.7 |
| Thailand | 62.3 | 25.8 | 2.3 | 34.7 | 41.1 | 36.9 | 1.1 |
| Korea | 77.5 | 50.0 | 6.2 | 21.4 | 46.6 | 32.7 | 1.4 |
| Vietnam | 1.1 | 0.5 | 0.2 | 0.4 | 3.3 | 1.4 | 2.4 |
| *Total* | 278.3 | 117.5 | 33.4 | 127.7 | | | |
| **C. End 1997** | | | | | | | |
| China | 55.0 | 22.8 | 8.5 | 23.7 | 25.4 | 107.6 | 0.2 |
| Chile | 15.2 | 3.7 | 1.7 | 9.8 | - | - | - |
| Indonesia | 55.5 | 11.7 | 6.9 | 36.8 | 32.2 | 19.3 | 1.7 |
| Malaysia | 22.2 | 6.5 | 2.0 | 13.7 | 11.1 | 27.1 | 0.4 |
| PNG | 0.2 | 0.0 | - | 0.2 | 0.0 | 0.6 | 0.1 |
| Peru | 8.0 | 3.4 | 1.0 | 3.6 | - | - | - |
| Philippines | 13.3 | 5.2 | 2.7 | 5.3 | 8.0 | 11.7 | 0.7 |
| Thailand | 70.2 | 25.9 | 2.3 | 41.9 | 37.6 | 38.6 | 1.0 |
| Korea | 100.0 | 65.9 | 5.7 | 28.3 | 66.6 | 34.1 | 2.0 |
| Vietnam | 1.5 | 0.6 | 0.2 | 0.7 | 3.8 | 1.8 | 2.1 |
| *Total* | 341.1 | 145.7 | 31.0 | 164.0 | | | |

**cont. Table 2.c**
International Claims Held by Foreign Banks-- Distribution by maturity and sector
in US $ Billions

| D. End 1997 | Total Outstanding | Banks | Public Sector | Non-bank Private | Short-term | Reserves | Short-term/Reserves |
|---|---|---|---|---|---|---|---|
| | | | **Obligation by Sector** | | | | |
| China | 63.1 | 27.1 | 7.1 | 28.9 | 31.5 | 143.4 | 0.2 |
| Chile | 21.2 | 3.6 | 1.8 | 15.7 | - | - | - |
| Indonesia | 58.2 | 11.7 | 6.9 | 39.7 | 32.9 | 17.4 | 1.9 |
| Malaysia | 28.8 | 9.9 | 1.7 | 15.9 | 14.9 | 20.9 | 0.7 |
| PNG | 0.3 | 0.0 | 0.0 | 0.3 | 0.2 | 0.4 | 0.5 |
| Peru | 9.9 | 3.3 | 0.6 | 6.0 | - | - | - |
| Philippines | 19.7 | 8.9 | 2.4 | 8.4 | 11.8 | 8.7 | 1.4 |
| Thailand | 58.5 | 17.8 | 1.8 | 39.2 | 34.8 | 26.9 | 1.3 |
| Korea | 93.4 | 55.9 | 3.9 | 34.2 | 53.8 | 20.4 | 2.6 |
| Vietnam | 1.7 | 0.5 | 0.1 | 1.0 | 2.3 | 2.1 | 1.1 |
| | | | | | | | |
| *Total* | 354.8 | 138.7 | 26.3 | 189.3 | | | |
| | | | | | | | |
| **E. End 1998** | | | | | | | |
| China | 58.4 | 21.5 | 6.9 | 29.8 | 27.9 | 149.8 | 0.2 |
| Chile | 22.2 | 3.8 | 1.7 | 16.7 | - | - | - |
| Indonesia | 44.8 | 5.1 | 6.7 | 33.0 | 20.1 | 23.5 | 0.9 |
| Malaysia | 20.8 | 5.7 | 1.8 | 13.2 | 8.6 | 25.7 | 0.3 |
| PNG | 0.4 | 0.0 | 0.0 | 0.4 | 0.2 | 0.2 | 1.0 |
| Peru | 10.6 | 2.9 | 0.7 | 7.0 | - | - | - |
| Philippines | 16.1 | 6.0 | 2.1 | 8.1 | 7.2 | 10.8 | 0.7 |
| Thailand | 40.7 | 8.8 | 1.9 | 30.0 | 23.5 | 29.5 | 0.8 |
| Korea | 65.3 | 37.1 | 5.4 | 22.7 | 28.1 | 52.0 | 0.5 |
| Vietnam | 1.7 | 0.4 | 0.1 | 1.2 | 2.2 | 2.1 | 1.0 |
| | | | | | | | |
| *Total* | 281.0 | 91.3 | 27.3 | 162.1 | | | |
| | | | | | | | |
| **F. End 1999** | | | | | | | |
| China | 46.6 | 15.8 | 6.4 | 24.4 | 17.7 | 158.3 | 0.1 |
| Chile | 20.7 | 1.8 | 1.4 | 17.4 | - | - | - |
| Indonesia | 40.7 | 4.2 | 8.4 | 28.0 | 20.0 | 27.2 | 0.7 |
| Malaysia | 18.1 | 3.9 | 2.6 | 11.6 | 7.6 | 30.6 | 0.2 |
| PNG | 0.3 | 0.0 | 0.0 | 0.3 | 0.1 | 0.2 | 0.5 |
| Peru | 10.3 | 2.7 | 0.9 | 6.6 | - | - | - |
| Philippines | 16.7 | 5.1 | 3.0 | 8.6 | 5.7 | 15.0 | 0.4 |
| Thailand | 28.4 | 3.5 | 2.0 | 22.8 | 23.4 | 34.8 | 0.7 |
| Korea | 60.7 | 35.0 | 5.2 | 20.3 | 34.7 | 74.0 | 0.5 |
| Vietnam | 1.7 | 0.2 | 0.1 | 1.3 | 2.4 | 2.9 | 0.8 |
| | | | | | | | |
| *Total* | 244.2 | 72.2 | 30.0 | 141.3 | | | |

**cont. Table 2.c**
International Claims Held by Foreign Banks-- Distribution by maturity and sector
in US $ Billions

| F. End 2000 | Total Outstanding | Obligation by Sector | | | Short-term | Reserves | Short-term/Reserves |
|---|---|---|---|---|---|---|---|
| | | Banks | Public Sector | Non-bank Private | | | |
| China | 58.3 | 29.7 | 6.5 | 20.6 | - | 168.9 | - |
| Chile | 22.3 | 1.5 | 1.4 | 19.3 | - | - | - |
| Indonesia | 40.3 | 4.9 | 7.7 | 27.3 | - | 23.3 | - |
| Malaysia | 20.8 | 3.8 | 3.5 | 13.4 | - | 29.6 | - |
| PNG | 0.2 | 0.0 | 0.0 | 0.1 | - | 0.3 | - |
| Peru | 13.2 | 4.6 | 0.9 | 7.7 | - | - | - |
| Philippines | 16.5 | 4.5 | 3.0 | 8.9 | 5.9 | 15.3 | 0.4 |
| Thailand | 26.7 | 5.7 | 2.1 | 18.6 | - | 32.7 | - |
| Korea | 58.8 | 33.7 | 5.2 | 19.2 | - | 96.2 | - |
| Vietnam | 2.2 | 0.3 | 0.2 | 1.8 | - | - | - |
| | | | | | | | |
| *Total* | 259.3 | 88.7 | 30.5 | 136.9 | - | - | - |

**Table 3.a**
**FDI Inflows, 1980-1999 (B.O.P. basis)**
in US $ Million

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Level** | | | | | |
| **World** | 54,691 | 69,395 | 57,560 | 50,336 | 59,978 | 57,122 | 88,653 | 142,479 | 165,776 | 199,099 |
| **APEC** | 30,830 | 38,461 | 23,416 | 23,686 | 38,375 | 31,734 | 55,987 | 93,252 | 94,704 | 104,070 |
| | | | | | | | | | | |
| | | | | | **Share to World** | | | | | |
| **Developed Countries** | 84.9 | 66.1 | 53.7 | 64.7 | 69.0 | 73.0 | 80.6 | 82.4 | 81.1 | 84.7 |
| **European Union** | 38.9 | 23.4 | 24.9 | 30.6 | 15.2 | 27.7 | 25.3 | 27.7 | 36.1 | 40.6 |
| **North America** | 41.6 | 37.3 | 21.8 | 24.8 | 49.2 | 37.4 | 44.0 | 47.5 | 39.0 | 37.7 |
| **Japan** | 0.5 | 0.3 | 0.8 | 0.8 | | 1.1 | 0.3 | 0.8 | | |
| **Developing Countries** | 15.0 | 33.8 | 46.2 | 35.3 | 31.0 | 27.0 | 19.4 | 17.4 | 18.6 | 15.0 |
| **Africa** | 0.5 | 2.7 | 2.5 | 2.4 | 2.4 | 5.0 | 2.0 | 1.8 | 1.7 | 2.5 |
| **Latin America and the Caribbean** | 13.5 | 11.7 | 13.9 | 11.5 | 9.5 | 12.6 | 7.2 | 6.1 | 5.7 | 3.7 |
| **Asia** | 0.7 | 19.2 | 29.6 | 20.9 | 18.8 | 9.1 | 10.1 | 9.4 | 11.0 | 8.8 |

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | **Level** | | | | | |
| **World** | 209,325 | 159,833 | 172,083 | 226,294 | 255,988 | 331,844 | 377,516 | 473,052 | 680,082 | 865,487 |
| **APEC** | 92,042 | 59,452 | 69,505 | 121,935 | 142,939 | 169,224 | 205,962 | 245,169 | 320,958 | 435,656 |
| | | | | | | | | | | |
| | | | | | **Share to World** | | | | | |
| **Developed Countries** | 82.2 | 71.3 | 65.4 | 61.3 | 56.7 | 62.0 | 58.2 | 58.2 | 70.7 | 73.5 |
| **European Union** | 47.0 | 49.1 | 45.4 | 33.3 | 30.0 | 34.5 | 28.8 | 27.2 | 36.6 | 35.2 |
| **North America** | 26.8 | 16.1 | 13.9 | 24.5 | 20.8 | 20.5 | 24.9 | 24.8 | 30.6 | 34.7 |
| **Japan** | 0.8 | 0.8 | 1.6 | 0.1 | 0.4 | 0.0 | 0.1 | 0.7 | 0.5 | 1.5 |
| **Developing Countries** | 17.6 | 27.1 | 32.0 | 35.7 | 41.0 | 33.7 | 38.4 | 37.8 | 26.4 | 24.4 |
| **Africa** | 1.2 | 1.9 | 2.2 | 1.7 | 2.2 | 1.4 | 1.5 | 1.5 | 1.1 | 1.0 |
| **Latin America and the Caribbean** | 4.6 | 9.9 | 10.4 | 7.9 | 11.8 | 9.9 | 12.2 | 14.6 | 10.8 | 10.5 |
| **Asia** | 11.6 | 15.2 | 19.2 | 25.8 | 26.8 | 22.1 | 24.5 | 21.5 | 14.5 | 12.2 |

**Notes:**   1. Figures for APEC are totals for the 21 current members of APEC.

2. Shares pertain to percentage share in the World total

**Source:**   **JETRO Statistical Data on east Asia and APEC Member Countries Nov. 2000**

**Table 3.b**
**FDI Outflows, 1980-1999 (B.O.P. basis)**
in US $ Million

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Level | | | | | |
| **World** | 52,705 | 53,264 | 36,575 | 39,608 | 54,567 | 58,576 | 92,633 | 140,577 | 178,577 | 230,785 |
| **APEC** | 26,865 | 24,982 | 18,331 | 17,714 | 26,840 | 24,051 | 40,367 | 64,814 | 71,517 | 106,155 |
| | | | | | | | | | | |
| | | | | | Share to World | | | | | |
| **Developed Countries** | 96.8 | 96.7 | 91.8 | 93.0 | 93.6 | 91.0 | 94.3 | 95.2 | 92.9 | 111573.0 |
| **European Union** | 45.0 | 48.9 | 43.1 | 48.2 | 44.3 | 44.8 | 51.5 | 50.9 | 52.1 | 48.3 |
| **North America** | 44.3 | 35.2 | 32.9 | 31.4 | 31.6 | 21.2 | 19.4 | 24.3 | 11.9 | 18.5 |
| **Japan** | 4.5 | 9.2 | 12.4 | 9.1 | 10.9 | 11.1 | 15.8 | 14.1 | 19.9 | 19.9 |
| **Developing Countries** | 3.2 | 3.3 | 8.2 | 7.0 | 6.4 | 9.0 | 5.6 | 4.8 | 7.1 | 6.9 |
| **Africa** | 0.2 | 1.5 | 2.6 | 4.0 | 2.2 | 2.3 | 0.3 | 1.0 | 0.7 | 0.4 |
| **Latin America and the Caribbean** | 0.9 | 1.2 | 2.9 | | 0.7 | 1.8 | 1.3 | 0.1 | 0.3 | 0.4 |
| **Asia** | 2.0 | 0.5 | 2.7 | 3.2 | 3.5 | 4.8 | 4.1 | 3.7 | 6.1 | 6.1 |

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Level | | | | | |
| **World** | 245,455 | 199,214 | 201,568 | 246,597 | 282,902 | 357,537 | 390,776 | 471,906 | 687,111 | 799,928 |
| **APEC** | 101,394 | 80,619 | 86,208 | 131,265 | 143,537 | 173,670 | 176,670 | 207,780 | 236,719 | 240,258 |
| | | | | | | | | | | |
| | | | | | Share to World | | | | | |
| **Developed Countries** | 93.6 | 94.5 | 89.2 | 84.1 | 85.0 | 85.8 | 84.9 | 85.6 | 94.9 | 91.5 |
| **European Union** | 53.8 | 53.8 | 51.3 | 39.1 | 42.7 | 44.5 | 46.6 | 47.4 | 61.9 | 63.7 |
| **North America** | 14.8 | 19.3 | 22.9 | 33.6 | 29.2 | 29.0 | 25.0 | 25.9 | 25.8 | 21.1 |
| **Japan** | 20.6 | 15.9 | 8.6 | 5.6 | 6.4 | 6.3 | 6.0 | 5.5 | 3.5 | 2.8 |
| **Developing Countries** | 6.4 | 5.5 | 10.7 | 15.8 | 14.9 | 14.1 | 14.8 | 13.6 | 4.8 | 8.2 |
| **Africa** | 0.6 | 0.6 | 0.2 | 0.2 | 0.2 | 0.0 | | 0.3 | 0.1 | 0.1 |
| **Latin America and the Caribbean** | 1.2 | 1.1 | 1.3 | 3.1 | 2.2 | 2.0 | 1.5 | 3.2 | 1.4 | 3.4 |
| **Asia** | 4.5 | 3.8 | 9.2 | 12.6 | 12.5 | 12.0 | 13.3 | 10.0 | 3.3 | 4.7 |

**Notes:**

1. Figures for APEC are totals for the 21 current members of APEC.

2. Shares pertain to percentage share in the World total

**Source:**  **JETRO Statistical Data on east Asia and APEC Member Countries Nov. 2000**

**Table 3.c**

**Share of APEC to World Foreign Direct Investment
Flows (in Percent)**

| Years | Inflow | Outflow |
|---|---|---|
| 1980 - 1985 | 52.7 | 48.4 |
| 1985 - 1989 | 58.1 | 43.4 |
| 1990 - 1992 | 40.5 | 41.5 |
| 1993 - 1996 | 53.8 | 49.4 |
| 1997 - 1999 | 49.8 | 36.2 |

**APEC Foreign Direct Investment Inflows and
Outflows (in US $ billion)**

| Years | Inflow | Outflow | Net Inflows |
|---|---|---|---|
| 1980 - 1985 | 154.77 | 114.73 | 40.04 |
| 1985 - 1989 | 379.75 | 306.91 | 72.84 |
| 1990 - 1992 | 221 | 268.22 | -47.22 |
| 1993 - 1996 | 640.06 | 625.14 | 14.92 |
| 1997 - 1999 | 1001.78 | 684.76 | 317.02 |

**Source of Basic Data:**     JETRO Statistical Data on East Asia and APEC Member Countries

**Table 4.a**
**Observations about Japan…**
in US $ Billion

**Total Japanese Foreign Direct Investment Outflows to…**

| Country / Year | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|---|---|---|---|---|---|---|---|---|---|
| Asia | 7.35 | 6.30 | 6.43 | 6.82 | 9.13 | 11.97 | 12.19 | 12.27 | 7.87 |
| North America | 28.94 | 21.24 | 16.02 | 15.61 | 17.55 | 22.39 | 23.83 | 22.22 | 13.44 |
| Europe | 14.44 | 10.77 | 7.82 | 8.02 | 6.86 | 8.20 | 7.93 | 10.43 | 13.11 |
| Oceania | 4.29 | 3.55 | 2.68 | 2.15 | 1.62 | 2.53 | 1.42 | 1.80 | 2.14 |
| Latin America | 4.01 | 3.44 | 2.93 | 3.32 | 4.91 | 4.33 | 4.45 | 5.97 | 6.34 |
| Africa | 0.58 | 0.70 | 0.37 | 0.49 | 0.41 | 0.38 | 0.43 | 0.36 | 0.41 |
| Mid&Near East | 0.04 | 0.08 | 0.55 | 0.35 | 0.28 | 0.19 | 0.22 | 0.42 | 0.23 |
| *Total Japanese Outflows* | 59.64 | 46.08 | 36.79 | 36.75 | 40.75 | 49.99 | 50.47 | 53.46 | 43.55 |

**Total Foreign Direct Investment Inflows to Japan from…**

| Country / Year | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|---|---|---|---|---|---|---|---|---|---|
| Asia | 0.12 | 0.14 | 0.11 | 0.39 | 0.32 | 0.26 | 1.01 | 0.78 | 0.27 |
| North America | 1.02 | 1.79 | 1.62 | 1.21 | 1.74 | 1.91 | 2.16 | 1.50 | 4.95 |
| Europe | 1.17 | 1.37 | 1.47 | 1.18 | 1.43 | 1.40 | 1.86 | 2.41 | 2.37 |
| Oceania | 0.02 | 0.01 | 0.00 | 0.01 | 0.03 | 0.01 | 0.01 | 0.01 | 0.00 |
| Latin America | 0.11 | 0.10 | 0.61 | 0.31 | 0.14 | 0.15 | 0.49 | 0.52 | 0.32 |
| Africa | 0.01 | 0.00 | 0.01 | 0.01 | 0.00* | 0.00* | 0.00* | 0.00* | 0.00* |
| Mid&Near East | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00* | 0.01 | 0.01 | 0.00 |
| *World Inflows to Japan* | 2.46 | 3.41 | 3.82 | 3.12 | 3.66 | 3.73 | 5.54 | 5.22 | 7.91 |

**Note:** Values reflecting amounts of 0.00 are recorded foreign direct investments (FDI) of less than $5 Million except for those with *.  No FDI flows were recorded during those years.

**Source:** European Institute for Japanese Studies:  <http://www.hhs.se/eijs/>

**Table 4.b**
**Observations about Japan…**
in US $ Billion

| Average Share of Japanese Foreign Direct Investment Outflows to APEC Member Countries… | | | |
|---|---|---|---|
| Country / Years | 1991-1993 | 1994-1996 | 1997-1998 |
| **Australia** | 5.9 | 3.6 | 3.0 |
| **Brunei** | - | 0.0 | - |
| **Canada** | 1.9 | 1.4 | 1.4 |
| **Chile** | 0.1 | 0.1 | 0.0 |
| **China** | 2.7 | 6.8 | 2.3 |
| **HongKong** | 2.6 | 2.7 | 1.6 |
| **Indonesia** | 3.2 | 3.9 | 4.0 |
| **Korea** | 0.6 | 0.9 | 0.8 |
| **Malaysia** | 2.0 | 1.4 | 1.4 |
| **Mexico** | 0.3 | 0.7 | 0.4 |
| **New Zealand** | 0.3 | 0.2 | 0.8 |
| **PNG** | 0.0 | - | 0.0 |
| **Peru** | - | 0.0 | 0.0 |
| **Philippines** | 0.5 | 1.3 | 1.0 |
| **Russia** | 0.1 | 0.1 | 0.0 |
| **Singapore** | 1.7 | 2.4 | 2.6 |
| **Taipei** | 0.9 | 0.9 | 0.8 |
| **Thailand** | 1.9 | 2.3 | 3.4 |
| **Vietnam** | 0.0 | 0.4 | 0.4 |
| **United States** | 42.1 | 43.6 | 34.8 |
| **APEC** | 67.0 | 72.6 | 58.7 |

**Note:**   Values reflecting 0.0 are computed averages of foreign direct investments (FDI) falling bellow 0.05 and were simply rounded out.

**Source:**   **European Institute for Japanese Studies:  <http://www.hhs.se/eijs/>**

**Table 5.a**
**Observations about the United States…**
in US $ Million; all industries

**Total U.S. Foreign Direct Investment Outflows to…**

| Country / Year | 1994 | 1995 | 1996 | 1997 | 1998 |
|---|---|---|---|---|---|
| Canada | 6047 | 8602 | 7181 | 7493 | 10259 |
| Europe | 34380 | 52275 | 40148 | 51698 | 74538 |
| South and Central America | 14111 | 15795 | 11767 | 17863 | 12719 |
| Western Hemisphere | 3598 | 245 | 6371 | 4104 | 5301 |
| Africa | 762 | 352 | 1678 | 3371 | 2712 |
| Middle East | 709 | 879 | 467 | 601 | 2062 |
| Asia and the Pacific | 13437 | 14342 | 15363 | 13693 | 13471 |
| *Total U.S. Outflows* | **73044** | **92490** | **82975** | **98823** | **121062** |

**Total Foreign Direct Investment Inflows to the U.S. from…**

| Country / Year | 1994 | 1995 | 1996 | 1997 | 1998 |
|---|---|---|---|---|---|
| Canada | 4584 | 4824 | 8590 | 15399 | 11859 |
| Europe | 29168 | 39686 | 55989 | 70508 | 167655 |
| South and Central America | 955 | 592 | 1090 | 595 | 2169 |
| Western Hemisphere | 2594 | 2294 | 900 | 3399 | -1891 |
| Africa | 44 | -117 | -101 | 435 | -572 |
| Middle East | 251 | -360 | 496 | 791 | 967 |
| Asia and the Pacific | 7499 | 11854 | 17493 | 14361 | 8773 |
| *World Inflows to the U.S.* | **45095** | **58773** | **84457** | **105488** | **188960** |

**Table 5.b**
**Observations about the United States …**
in US $ Million; all industries

**Average Share of U.S Foreign Direct Investment Outflows to APEC
Member Countries…**

| Country / Years | 1994-1996 | 1997-1998 |
|---|---|---|
| Australia | 3.74 | 2.71 |
| Canada | 8.69 | 7.98 |
| HongKong | 1.79 | 2.64 |
| Japan | 1.59 | 2.78 |
| Korea | 0.85 | 0.63 |
| Malaysia | 1.14 | 0.25 |
| Mexico | 3.24 | 4.31 |
| New Zealand | 1.07 | -0.38 |
| Philippines | 0.58 | 0.15 |
| Singapore | 2.26 | 2.46 |
| Chinese Taipei | 0.59 | 0.39 |
| **APEC** | **25.53** | **23.91** |

**Average Share of U.S Foreign Direct Investment Inflows to APEC
Member Countries…**

| Country / Years | 1994-1996 | 1997-1998 |
|---|---|---|
| Australia | 3.95 | 1.61 |
| Canada | 9.51 | 10.44 |
| HongKong | 0.24 | 0.11 |
| Japan | 13.92 | 6.28 |
| Korea | 0.26 | -0.01 |
| Malaysia | 0.12 | 0.04 |
| Mexico | 0.61 | 0.26 |
| New Zealand | 0.01 | 0.06 |
| Philippines | 0.02 | 0.00 |
| Singapore | 0.05 | 0.70 |
| Chinese Taipei | 0.44 | 0.34 |
| **APEC** | **29.15** | **19.81** |

**Table 6.a**
**Observations about the Philippines…**
in US $ Million

**Total Foreign Direct Equity Investment Inflows to the Philippines from…**

| Continent / Year | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|---|---|---|
| Asia | 272.10 | 217.02 | 87.08 | 187.26 | 598.36 | 665.12 | 509.20 | 359.87 | 525.91 |
| North America | 76.03 | 57.05 | 35.58 | 77.55 | 57.01 | 293.75 | 117.41 | 243.93 | 84.57 |
| Europe | 49.60 | 30.15 | 201.41 | 588.50 | 105.82 | 161.68 | 153.87 | 158.74 | 1206.75 |
| Latin America | 0.93 | 4.40 | 34.50 | 6.45 | 11.89 | 105.81 | 209.64 | 85.54 | 215.00 |
| Oceania | 1.48 | 4.82 | 0.56 | 5.00 | 21.21 | 3.19 | 12.71 | 3.62 | 23.54 |
| Other Countries | 14.00 | 14.60 | 18.58 | 17.15 | 20.17 | 51.46 | 50.57 | 30.36 | 27.11 |
| Asian Development Bank | - | - | - | - | - | 0.00 | 0.00 | 2.68 | 0.04 |
| *Total Inflows to the Philippines* | **414.14** | **328.04** | **377.71** | **881.91** | **814.45** | **1281.01** | **1053.40** | **884.74** | **2082.92** |

**Share Distribution of Total Foreign Direct Equity Investment Inflows to the Philippines from…**

| Continent / Year | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 |
|---|---|---|---|---|---|---|---|---|---|
| Asia | 0.66 | 0.66 | 0.23 | 0.21 | 0.73 | 0.52 | 0.48 | 0.41 | 0.25 |
| North America | 0.18 | 0.17 | 0.09 | 0.09 | 0.07 | 0.23 | 0.11 | 0.28 | 0.04 |
| Europe | 0.12 | 0.09 | 0.53 | 0.67 | 0.13 | 0.13 | 0.15 | 0.18 | 0.58 |
| Latin America | 0.00 | 0.01 | 0.09 | 0.01 | 0.01 | 0.08 | 0.20 | 0.10 | 0.10 |
| Oceania | 0.00 | 0.01 | 0.00 | 0.01 | 0.03 | 0.00 | 0.01 | 0.00 | 0.01 |
| Other Countries | 0.03 | 0.04 | 0.05 | 0.02 | 0.02 | 0.04 | 0.05 | 0.03 | 0.01 |
| Asian Development Bank | - | - | - | - | - | 0.00 | 0.00 | 0.00 | 0.00 |

**Note:**

**Asia** (Japan, HongKong, Singapore, Malaysia, South Korea, Taiwan, PRO China)

**North America** (United States, Canada)

**Latin America** (Panama, Bermuda, Bahamas, British Virgin Islands)

**Europe** (Netherlands, United Kingdom, Switzerland, France, Germany, Sweden, Austria, Denmark, Luxembourg)

**Oceania** (Australia, Republic of Nauru)

**Source:**           **Selected Philippines Economic Indicators 1998 Yearbook**

**Table 6.b**
**Observations about the Philippines…**
in US $ Million

| Average Share of Foreign Direct Inflows to the Philippines from APEC Member Countries… | | | |
|---|---|---|---|
| **Country / Years** | **1991-1993** | **1994-1996** | **1997-1999** |
| **United States** | 14.9 | 12.77 | 14.27 |
| **Japan** | 35.0 | 24.91 | 21.20 |
| **HongKong** | 8.4 | 13.46 | 3.03 |
| **PRO China** | - | 0.08 | 4.65 |
| **Australia** | 0.49 | 1.06 | 0.92 |
| **Canada** | 0.18 | 0.13 | 0.04 |
| **South Korea** | 4.52 | 1.33 | 1.27 |
| **Taiwan** | 1.15 | 1.62 | 2.80 |
| **Singapore** | 2.37 | 5.87 | 4.67 |
| **Malaysia** | 0.25 | 1.58 | 0.83 |

**Table 7.a**
**Observations about Malaysia…**
in US $ Million

| | **Total Malaysian Equity Investment Outflows…** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Region / Year** | **1991** | **1992** | **1993** | **1994** | **1995** | **1996** | **1997** | **1998** |
| **Africa** | 1.1 | 5.1 | 1.9 | 27.1 | 30.7 | 475.8 | 127.6 | 72.1 |
| **Central and South America** | - | 0.4 | - | - | - | 5.2 | 11.7 | - |
| **North America** | 12.4 | 65.2 | 228.4 | 143.0 | 183.0 | 435.6 | 401.7 | 384.2 |
| **West Asia** | - | 2.7 | - | 0.4 | 4.8 | 3.2 | 17.1 | 2.0 |
| **South Asia** | - | 1.2 | 2.7 | 17.5 | 10.8 | 34.6 | 21.3 | 9.9 |
| **South East Asia** | 96.4 | 84.8 | 232.3 | 389.6 | 1061.0 | 877.7 | 735.1 | 423.4 |
| **North East Asia** | 40.0 | 64.8 | 169.4 | 330.5 | 314.2 | 599.0 | 308.9 | 71.1 |
| **West Europe** | 20.7 | 36.1 | 51.3 | 146.8 | 219.3 | 343.8 | 620.3 | 199.1 |
| **East and Central Europe** | - | - | - | - | - | 0.4 | 1.4 | - |
| **CIS** | - | - | - | 2.7 | 0.4 | 0.8 | 4.3 | - |
| **Oceania** | 13.5 | 30.6 | 42.0 | 171.2 | 195.0 | 149.5 | 131.2 | 18.9 |
| **Labuan IOFC** | 4.0 | 4.3 | 5.1 | - | 45.5 | 97.4 | 87.4 | 103.5 |
| **Other Countries** | 2.2 | - | 52.8 | - | 4.0 | 15.1 | 77.5 | 109.1 |
| *Total Malaysian Equity Outflows* | **190.2** | **295.2** | **785.9** | **1228.7** | **2068.5** | **3038.0** | **2545.5** | **1393.4** |

| | **Total Malaysian Equity Investment Inflows…** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Region / Year** | **1991** | **1992** | **1993** | **1994** | **1995** | **1996** | **1997** | **1998** |
| **Africa** | - | - | - | - | 1.6 | - | 2.1 | 0.5 |
| **Central and South America** | - | - | - | - | - | - | - | - |
| **North America** | 97.5 | 186.5 | 205.9 | 423.2 | 528.3 | 397.1 | 461.8 | 236.6 |
| **West Asia** | 1.5 | 2.7 | 0.8 | 4.2 | 1.6 | 1.6 | 2.1 | 2.5 |
| **South Asia** | 0.4 | - | 0.8 | 3.4 | 0.8 | 5.6 | 1.8 | - |
| **South East Asia** | 249.1 | 376.9 | 318.6 | 984.0 | 574.9 | 626.0 | 738.3 | 205.7 |
| **North East Asia** | 1003.3 | 658.8 | 534.2 | 963.4 | 935.0 | 629.6 | 645.2 | 395.9 |
| **West Europe** | 221.8 | 227.7 | 226.5 | 561.5 | 232.4 | 1184.5 | 177.7 | 593.4 |
| **East and Central Europe** | - | - | - | - | - | - | - | - |
| **CIS** | - | - | - | - | 0.4 | - | - | - |
| **Oceania** | 39.3 | 19.2 | 19.8 | 19.8 | 35.1 | 63.6 | 56.5 | 16.6 |
| **Labuan IOFC** | - | - | - | - | - | - | 44.1 | 40.5 |
| **Other Countries** | - | - | - | - | 15.2 | - | 18.8 | 23.2 |
| *Total  Equity Inflows to Malaysia* | **1612.8** | **1471.8** | **1306.5** | **2959.5** | **2325.3** | **2908.0** | **2148.4** | **1515.0** |

**Source:**          **Cash BOP Reporting System, Bank Negara Malaysia**

**Table 7.b**
**Observations about Malaysia…**
US $ Million

| Average Share of Malayasian Foreign Equity Investment Outflows to APEC Member Countries… | | | |
|---|---|---|---|
| Country / Years | 1991-1993 | 1994-1996 | 1997-1998 |
| Australia | 6.14 | 8.49 | 2.84 |
| Brunei | 0.06 | - | 0.12 |
| Canada | 0.54 | 1.16 | 0.65 |
| Chile | - | - | - |
| China | 3.03 | 5.72 | 2.47 |
| HongKong | 11.15 | 10.27 | 3.35 |
| Indonesia | 0.47 | 3.61 | 4.66 |
| Japan | 3.10 | 3.33 | 1.25 |
| Korea | 0.06 | 0.04 | 0.15 |
| Mexico | - | - | - |
| New Zealand | 0.18 | 0.21 | 0.35 |
| PNG | 1.07 | 0.43 | 0.06 |
| Peru | - | - | - |
| Philippines | 0.34 | 6.70 | 1.45 |
| Singapore | 32.24 | 24.57 | 15.25 |
| Taipei | 3.64 | 0.77 | 1.25 |
| Thailand | 1.16 | 1.23 | 5.29 |
| Vietnam | 0.67 | 1.66 | 1.27 |
| United States | 18.24 | 10.19 | 21.00 |

| Average Share of Foreign Malaysian Equity Investment Inflows to Malaysia from APEC Member Countries… | | | |
|---|---|---|---|
| Country / Years | 1991-1993 | 1994-1996 | 1997-1998 |
| Australia | 1.51 | 1.32 | 1.79 |
| Brunei | 0.24 | 0.51 | 0.87 |
| Canada | 0.10 | 0.87 | 0.93 |
| Chile | - | - | - |
| China | 0.39 | 0.44 | 0.83 |
| HongKong | 9.35 | 7.66 | 4.95 |
| Indonesia | 0.52 | 0.63 | 1.46 |
| Japan | 24.54 | 15.34 | 18.27 |
| Korea | 1.59 | 1.47 | 1.14 |
| Mexico | - | - | - |
| New Zealand | 0.22 | 0.05 | 0.02 |
| PNG | - | - | - |
| Peru | - | - | - |
| Philippines | 0.02 | 0.63 | 0.05 |
| Singapore | 20.37 | 23.49 | 21.36 |
| Taipei | 12.92 | 5.69 | 3.24 |
| Thailand | 0.45 | 0.35 | 0.47 |
| Vietnam | - | 0.03 | 0.06 |
| United States | 11.28 | 15.47 | 16.95 |

Source:        Cash BOP Reporting System, Bank Negara Malaysia

**Table 8.a.1**
**Observations about Malaysia…**
US $ Million

| Country / Year | Total Portfolio Investment Payments by Malaysia to APEC Member Countries… | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **1991** | **1992** | **1993** | **1994** | **1995** | **1996** | **1997** | **1998** |
| United States | 251.65 | 1636.31 | 2500.29 | 12037.67 | 2983.53 | 2318.15 | 3632.16 | 1224.60 |
| Australia | 24.73 | 35.33 | 127.03 | 154.40 | 129.18 | 209.48 | 179.87 | 24.22 |
| Belgium | 180.74 | 4.32 | 86.24 | 415.16 | 106.85 | 166.15 | 587.94 | 28.55 |
| Brunei Darussalam | 2.55 | - | 12.04 | 1.91 | 6.78 | 46.90 | 20.62 | 5.35 |
| Hong Kong SAR | 1940.50 | 2666.46 | 9550.52 | 16926.16 | 10612.42 | 16450.43 | 22804.64 | 4745.72 |
| Japan | 86.92 | 106.78 | 120.43 | 829.93 | 612.81 | 460.29 | 634.86 | 75.71 |
| Germany | 6.91 | 160.18 | 1010.45 | 3156.19 | 148.32 | 105.73 | 142.54 | 105.53 |
| Canada | 2.91 | 3.53 | 13.21 | 9.15 | 55.42 | 44.92 | 66.47 | 120.06 |
| Luxembourg | 42.91 | 78.13 | 206.67 | 295.45 | 149.91 | 266.32 | 400.26 | 41.30 |
| Netherlands | 2.18 | 6.28 | 14.37 | 41.94 | 23.92 | 54.46 | 67.54 | 9.18 |
| China, People's Republic of | - | 4.32 | - | 3.43 | 18.74 | 3.97 | 154.98 | - |
| Singapore | 4262.86 | 10603.41 | 38458.88 | 38812.47 | 20764.32 | 26866.60 | 28545.78 | 5954.27 |
| Switzerland | 17.46 | 28.66 | 302.24 | 283.63 | 133.57 | 337.47 | 375.73 | 205.97 |
| Taiwan ROC | 8.00 | 18.45 | 78.47 | 62.52 | 26.71 | 94.60 | 54.03 | 26.51 |
| United Kingdom | 857.52 | 5342.34 | 10307.29 | 11835.23 | 4279.33 | 6364.58 | 7299.87 | 1423.95 |
| Other Countries | 48.73 | 129.55 | 196.19 | 691.93 | 239.22 | 334.68 | 643.75 | 265.36 |
| *Total Payments* | **7736.56** | **20824.04** | **62984.34** | **85557.17** | **40291.06** | **54124.73** | **65611.05** | **14256.29** |

Source: **Cash BOP Reporting System, Bank Negara Malaysia**

**Table 8.a.2**
**Observations about Malaysia…**
US $ Million

| Country / Year | Total Portfolio Investment Receipts to Malaysia from APEC Member Countries… | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **1991** | **1992** | **1993** | **1994** | **1995** | **1996** | **1997** | **1998** |
| United States | 361.84 | 1712.08 | 3548.81 | 13353.67 | 5492.60 | 3525.72 | 3511.30 | 1361.49 |
| Australia | 29.46 | 51.82 | 132.09 | 115.51 | 194.97 | 188.01 | 163.51 | 18.61 |
| Belgium | 65.10 | 19.24 | 172.49 | 427.36 | 98.08 | 606.57 | 774.21 | 59.39 |
| Brunei Darussalam | 1.45 | 71.45 | 15.93 | 4.57 | 29.50 | 41.74 | 40.17 | 11.98 |
| Hong Kong SAR | 1720.49 | 3868.17 | 12176.29 | 14207.24 | 9612.46 | 16574.85 | 15011.02 | 4423.26 |
| Japan | 90.55 | 100.50 | 692.67 | 1056.00 | 491.61 | 285.00 | 438.65 | 80.30 |
| Germany | 81.82 | 115.42 | 1114.95 | 2859.21 | 120.41 | 159.00 | 106.28 | 95.34 |
| Canada | 3.27 | 0.39 | 19.81 | 13.72 | 21.13 | 45.71 | 55.45 | 91.77 |
| Luxembourg | 44.73 | 83.62 | 250.96 | 296.98 | 222.08 | 376.82 | 278.33 | 56.08 |
| Netherlands | 5.09 | 16.49 | 25.25 | 43.84 | 36.28 | 83.07 | 57.59 | 26.26 |
| China, People's Republic of | 0.36 | 0.39 | 8.94 | 2.67 | - | 6.76 | 13.15 | 40.28 |
| Singapore | 3767.18 | 12404.21 | 44018.10 | 43466.89 | 20794.23 | 27902.85 | 26790.84 | 5393.71 |
| Switzerland | 18.91 | 35.73 | 373.72 | 502.08 | 185.40 | 394.31 | 445.76 | 221.77 |
| Taiwan ROC | 8.00 | 31.01 | 72.65 | 40.03 | 21.93 | 40.54 | 39.10 | 20.65 |
| United Kingdom | 790.60 | 5288.55 | 10139.47 | 13725.74 | 4905.71 | 7017.25 | 7337.91 | 1656.94 |
| Other Countries | 46.55 | 123.27 | 187.25 | 789.91 | 208.92 | 360.92 | 437.22 | 223.05 |
| *Total Receipts* | **7035.42** | **23922.35** | **72949.38** | **90905.42** | **42435.31** | **57609.11** | **55500.50** | **13780.88** |

Source: **Cash BOP Reporting System, Bank Negara Malaysia**

**Observations about Malaysia…**
**in US $ Million**

### Table 8.b.1

**Average Share of Malayasian Portfolio Payments to APEC Member Countries…**

| Country / Years | 1991-1993 | 1994-1996 | 1997-1998 |
|---|---|---|---|
| Australia | 0.23 | 0.30 | 0.22 |
| Brunei | 0.02 | 0.04 | 0.04 |
| Canada | 0.03 | 0.08 | 0.47 |
| China | 0.01 | 0.02 | 0.12 |
| HongKong | 17.68 | 25.50 | 39.44 |
| Japan | 0.61 | 1.11 | 0.75 |
| Singapore | 55.69 | 48.85 | 42.64 |
| Taipei | 0.10 | 0.10 | 0.14 |
| United States | 5.03 | 8.58 | 7.07 |

### Table 8.b.2

**Average Share of Portfolio Receipts to Malaysia from APEC Member Countries…**

| Country / Years | 1991-1993 | 1994-1996 | 1997-1998 |
|---|---|---|---|
| Australia | 0.27 | 0.30 | 0.22 |
| Brunei | 0.11 | 0.05 | 0.08 |
| Canada | 0.03 | 0.05 | 0.39 |
| China | 0.01 | 0.00 | 0.16 |
| HongKong | 19.10 | 22.35 | 29.63 |
| Japan | 0.89 | 0.94 | 0.69 |
| Singapore | 55.25 | 48.42 | 43.78 |
| Taipei | 0.11 | 0.05 | 0.11 |
| United States | 5.72 | 11.25 | 8.13 |

Source:       Cash BOP Reporting System, Bank Negara Malaysia

**Table 9**
**Trade Intensity of Selected Asia Pacific Economies, 1990**

| | Japan | China | NIEs | ASEAN 6 | South Asia | ANZ | NAFTA | USA | EC 12 |
|---|---|---|---|---|---|---|---|---|---|
| **Japan** | 0 | 1.4 | 2.69 | 2.51 | 1.11 | 2.07 | 1.84 | 2.15 | 0.47 |
| **China** | 2.2 | 0 | 7.64 | 1.31 | 1.11 | 0.59 | 0.49 | 0.57 | 0.23 |
| **NIEs** | 1.81 | 6.25 | 1.58 | 1.82 | 1.03 | 1.35 | 1.65 | 1.93 | 0.39 |
| **ASEAN 6** | 2.93 | 1.21 | 1.89 | 4.28 | 2.18 | 1.6 | 1.12 | 1.36 | 0.38 |
| **South Asia** | 1.28 | 0.25 | 0.96 | 1.07 | 2.54 | 0.87 | 0.91 | 1.08 | 0.72 |
| **ANZ** | 3.77 | 1.6 | 1.82 | 2.03 | 1.76 | 5.42 | 0.76 | 0.83 | 0.35 |
| **NAFTA** | 1.59 | 0.79 | 1.08 | 0.82 | 0.78 | 1.46 | 2.19 | 1.43 | 0.51 |
| **USA** | 1.88 | 0.84 | 1.4 | 1.06 | 0.98 | 1.85 | 1.49 | 0 | 0.62 |
| **EC 12** | 0.32 | 0.32 | 0.27 | 0.32 | 0.69 | 0.52 | 0.43 | 0.47 | 1.52 |

**Note: :**     The index of trade intensity of country i export trade with country j  is as follows

$Iij = (Xij/Xi)/(Mj/W)$

Where:

$Xi = Z\ Xij$ =total exports of country I

$W = Zi = Zj\ Xij$ = total volume of world trade

$Mj$ =total imports of country j

$Xij$ = exports from country i to country j

$Iij >$ means more than average (less than average) intensive trade relationship between countries i and j.

**Table 10**
**PORTFOLIO INVESTMENTS OF APEC AND OTHER COUNTRIES**
in US$ Millions

| Countries | 1990 | | | 1991 | | | 1992 | | | 1993 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | assets | liabilities | net | assets | liabilities | net | assets | liabilities | net | assets | liabilities | net |
| Australia | 368 | 7104 | 7472 | -4505 | 13530 | 9025 | -3727 | 4853 | 1126 | -9882 | 10964 | 7082 |
| Brunei | … | … | 0 | … | … | 0 | … | … | 0 | … | … | 0 |
| Canada | -2239 | 15964 | 13725 | -10179 | 27527 | 17348 | -9800 | 20506 | 10706 | -13784 | 41352 | 27568 |
| Chile | … | 361 | 361 | … | 189 | 189 | … | 458 | 458 | -90 | 820 | 730 |
| China | -241 | … | -241 | -330 | 565 | 235 | -450 | 393 | -57 | -597 | 3646 | 3049 |
| Hong Kong | … | … | 0 | … | … | 0 | … | … | 0 | … | … | 0 |
| Indonesia | … | -93 | -93 | … | -12 | -12 | … | -88 | -88 | … | 1805 | 1805 |
| Japan | -37800 | 46680 | 8880 | -81650 | 126050 | 44400 | -34570 | 7610 | -26960 | -64230 | -6650 | -70880 |
| Korea | -134 | 218 | 84 | 717 | 2338 | 3055 | 849 | 4953 | 5802 | -538 | 10553 | 10015 |
| Malaysia | … | -255 | -255 | … | 170 | 170 | … | -1122 | -1122 | … | -709 | -709 |
| Mexico | -7354 | 3369 | -3985 | -603 | 12741 | 12138 | 1165 | 18041 | 19206 | -564 | 28919 | 28355 |
| New Zealand | -111 | 282 | 171 | -68 | -83 | -151 | -7 | 383 | 376 | -288 | 2435 | 2147 |
| Papua New Guinea | … | … | … | … | … | … | … | … | … | … | … | … |
| Philippines | … | -50 | -50 | -15 | 125 | 110 | -115 | 155 | 40 | -949 | 897 | -52 |
| Singapore | -1640 | 573 | -1037 | -665 | -242 | -907 | 1091 | 1398 | 2489 | -7833 | 2867 | -4966 |
| Taiwan | … | … | 0 | … | … | 0 | … | … | 0 | … | … | 0 |
| Thailand | … | -38 | -38 | … | -81 | -81 | … | 924 | 924 | … | 5455 | 5455 |
| United States of America | -28770 | 22020 | -6750 | -45670 | 57540 | 11870 | -49170 | 71980 | 22810 | -146250 | 110980 | -35270 |
| Peru | … | … | 0 | … | … | 0 | … | … | 0 | … | 228 | 228 |
| Russia | … | … | … | … | … | … | … | … | … | … | … | … |
| Vietnam | … | … | 0 | … | … | 0 | … | … | 0 | … | … | 0 |
| Argentina | -241 | -1068 | -1309 | -8261 | 8744 | 483 | -80 | 990 | 910 | -2037 | 30341 | 28304 |
| Brazil | … | … | 0 | … | … | 0 | … | … | 0 | … | … | 0 |
| India | … | … | … | … | 5 | 5 | … | 284 | 284 | … | 1369 | 1369 |
| **APEC (18)** | -77891 | 96135 | 18244 | -142968 | 240357 | 97389 | -94734 | 130444 | 35710 | -239005 | 213334 | -25671 |
| **APEC (21)** | -77891 | 96135 | 18244 | -142968 | 240357 | 97389 | -94734 | 130444 | 35710 | -239005 | 213562 | -25443 |

**Continuation Table 10**
**PORTFOLIO INVESTMENTS OF APEC AND OTHER COUNTRIES**
**in US$ Millions**

| Countries | 1994 | | | 1995 | | | 1996 | | | 1997 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | assets | liabilities | net | assets | liabilities | net | assets | liabilities | net | assets | liabilities | net |
| Australia | 3347 | 12583 | 15930 | 753 | 12396 | 13149 | -1693 | 21806 | 20113 | -462 | 12114 | 11652 |
| Brunei | … | … | 0 | … | … | 0 | … | … | 0 | … | … | 0 |
| Canada | -6587 | 17155 | 10568 | -5328 | 17974 | 12646 | -13632 | 14856 | 1224 | -8094 | 13580 | 5486 |
| Chile | -351 | 1259 | 908 | -13 | 49 | 36 | -132 | 1230 | 1098 | -235 | 2605 | 2370 |
| China | -380 | 3923 | 3543 | 79 | 710 | 789 | -628 | 2372 | 1744 | -899 | 7703 | 6804 |
| Hong Kong | … | … | 0 | … | … | 0 | … | … | 0 | … | … | 0 |
| Indonesia | … | 3877 | 3877 | … | 4100 | 4100 | … | 5005 | 5005 | … | -2632 | -2632 |
| Japan | -91550 | 64330 | -27220 | -87240 | 50670 | -36570 | -114580 | 73440 | -41140 | -71230 | 99960 | 28730 |
| Korea | -2028 | 8149 | 6121 | -2284 | 13875 | 11591 | -5998 | 21183 | 15185 | 2008 | 12287 | 14295 |
| Malaysia | … | -1649 | -1649 | … | -436 | -436 | … | -268 | -268 | … | -248 | -248 |
| Mexico | -767 | 8182 | 7415 | -662 | -9715 | -10377 | 544 | 13418 | 13962 | -708 | 5037 | 4329 |
| New Zealand | -74 | 2168 | 2094 | -277 | 2920 | 2643 | -424 | 4237 | 3813 | -110 | 348 | 238 |
| Papua New Guinea | … | … | … | -1373 | 1066.2 | -306.8 | -1064.5 | 1134 | 69.5 | … | … | … |
| Philippines | -632 | 901 | 269 | -1429 | 2619 | 1190 | 191 | 5126 | 5317 | -9 | 555 | 546 |
| Singapore | -10110 | 114 | -9996 | -8616 | 410 | -8206 | -10286 | 1672 | -8614 | -11807 | 938 | -10869 |
| Taiwan | … | … | 0 | … | … | 0 | … | … | 0 | … | … | 0 |
| Thailand | -5 | 2486 | 2481 | -2 | 4083 | 4081 | -41 | 3585 | 3544 | -446 | 4807 | 4361 |
| United States of America | -60310 | 139400 | 79090 | -100070 | 237480 | 137410 | -115800 | 367630 | 251830 | -87980 | 383510 | 295530 |
| Peru | … | 572 | 572 | … | 163 | 163 | … | 181 | 181 | … | 194 | 194 |
| Russia | 114 | -33 | 81 | -1704 | 82 | -1622 | -173 | 9917 | 9744 | -157 | 45597 | 45440 |
| Vietnam | … | … | 0 | … | … | 0 | … | … | 0 | … | … | 0 |
| Argentina | -185 | 4722 | 4537 | 64 | 5109 | 5173 | -808 | 11676 | 10868 | -901 | 11349 | 10448 |
| Brazil | … | … | 0 | … | … | 0 | … | … | 0 | … | … | 0 |
| India | … | 5491 | 5491 | … | 1590 | 1590 | … | 3958 | 3958 | … | 2543 | 2543 |
| **APEC (18)** | -169447 | 262878 | 93431 | -206462 | 338201.2 | 131739.2 | -263544 | 536544 | 272882.5 | -179972 | 540564 | 360592 |
| **APEC (21)** | -169333 | 263417 | 94084 | -208166 | 338446.2 | 130280.2 | -263717 | 546524 | 282807.5 | -180129 | 586355 | 406226 |

**Note:**   APEC  (18) includes Australia, Canada, Chile, China, Hong Kong, Indonesia, Japan, Korea, Malaysia, Mexico, New Zealand, Papua New Guinea, Philippines, Singapore, Taiwan, Thailand, and the United States of America

APEC (21) includes APEC (18), Peru, Russia, and Vietnam

**Source:**   **Balance of Payments Statistical Yearbook**

**Table 11**

## Feldstein - Horioka Regression Results

| | Montiel's Results | | | | |
|---|---|---|---|---|---|
| | **(1970 - 1990)** | | **Error – Correction** | | **(1982 - 1990)** **(1990 - 1999)** |
| **Country** | **Levels OLS** | **Levels Modified** | **Modified** | **Level OLS** | **Level OLS** |
| Chile | 0.51[c] | 0.41[c] | 0.35[b] | | |
| Indonesia | 0.82[a] | 1.01[a] | 0.71 | 1.01[a] | 0.16 |
| Korea | 0.35[c] | 0.48[c] | 0.72 | 0.77[a] | 2.8 |
| Malaysia | 0.24 | 0.54 | 0.25[b] | 1.05 | -0.89 |
| Mexico | 0.28[c] | 0.28[c] | 0.03[b] | | |
| Philippines | 1.16[c] | 1.16[a] | 0.67[a] | 1.2 | -0.48 |
| Singapore | 0.06[b] | NA | NA | | |
| Thailand | 0.72[c] | 1.13[a] | -0.3 | 0.94[a] | 1.1 * |

**Notes:**  
**a.** Different from zero at the 5 percent level

**b.** Different from one at the 5 percent level

**c.** Different from both zero and one at 5 percent level

* 1990 – 1997

**Sources:**  
Montiel (1994) for columns 1 - 3

Authors' computations for columns 4 - 5

**Table 12**
**Indicators of Institutional Framework (mid 1997)**

| Country | Bank Regu-Qual | Bank Sup. Qual. | Transparency | GS Fragility<br>*0 = best*<br>*24 = worst* | GS Camelot<br>*1 = best*<br>*10 = worst* |
|---|---|---|---|---|---|
| Hong Kong | VG, I | G, I | VG | 8 | 3.5 |
| India | Sat, I | F, I | F, I | 11 | 5.8 |
| Indonesia | Sat, I | W, I | Sat | 15 | 4.6 |
| Korea | W, I | Fair | F, I | 18 | na |
| Malaysia | Sat, I | W, I | Sat | 15 | 4.5 |
| Philippines | G | Fair | Sat | 13 | 3.7 |
| Singapore | VG | VG | Poor | 7 | 4 |
| Thailand | W, I | Weak | P, I | 22 | 5.2 |

**Note:** VG = Very Good; G = Good; Sat = Satisfactory; F = Fair; P = Poor; I = Improving

GS Fragility = Goldman Sachs Fragility Score

GS Camelot = Goldman Sachs Camelot Score for domestic banks only, for asset quality (25%), management (20%), capital adequacy (15%), earnings (15%), operating environment (15%), & Transparency (5%).

**Source:** **ADB 1999, Vol. 1, p.65**

**Table 13**
**Indicators of Institutional Framework (mid 1997)**

| Country | Property Sector Risks | Exposure % of Total Loan | Loan % Collateral |
|---|---|---|---|
| Hong Kong | Mod. | 40 - 55 | 50 - 70 |
| Indonesia | High | 25 - 30 | 80 - 100 |
| Korea | Mod. | 10 - 15 | 60 - 100 |
| Malaysia | High | 30 - 40 | 80 - 100 |
| Philippines | Mod. | 15 - 20 | 70 - 80 |
| Singapore | Mod. | 30 - 40 | 70 - 80 |
| Thailand | High | 30 - 40 | 80 - 100 |

Note: "High" risk because of large proportion of property loans and large proportion of loans collaterised by real property.

Source: **J.P. Morgan 1998, cited in ADB, 1999, Vol. 1, p. 57**

**Table 14**

**Consumer Price Inflation (per cent per annum)**

|      | German | France | Belgium | Netherla | UK   | Italy | Denmar |
|------|--------|--------|---------|----------|------|-------|--------|
| 1980 | 5.5    | 13.6   | 6.7     | 6.5      | 18   | 21.1  | 12.3   |
| 1981 | 6.3    | 13.4   | 7.1     | 6.7      | 11.9 | 18.7  | 11.7   |
| 1982 | 5.3    | 11.8   | 8.7     | 5.9      | 8.6  | 16.3  | 10.1   |
| 1983 | 3.3    | 9.6    | 7.7     | 2.7      | 4.6  | 15    | 6.9    |
| 1984 | 2.4    | 7.4    | 6.3     | 3.3      | 5    | 10.6  | 6.3    |
| 1985 | 2.2    | 5.8    | 4.9     | 2.3      | 6.1  | 8.6   | 4.7    |
| 1986 | -0.1   | 2.7    | 1.3     | 0.1      | 3.4  | 6.1   | 3.6    |
| 1987 | 0.2    | 3.1    | 1.6     | -0.7     | 4.1  | 4.6   | 4      |
| 1988 | 1.3    | 2.7    | 1.2     | 0.7      | 4.9  | 5     | 4.6    |
| 1989 | 2.8    | 3.6    | 3.1     | 1.1      | 7.8  | 6.6   | 4.8    |
| 1990 | 2.7    | 3.4    | 3.4     | 2.5      | 9.5  | 6.1   | 2.7    |
| 1991 | 3.5    | 3.2    | 3.2     | 3.9      | 5.9  | 6.5   | 2.4    |
| 1992 | 4      | 2.4    | 2.4     | 3.7      | 3.7  | 5.3   | 5.5    |

Source: **Grahl (1997).**

**Table 15**

## ITALY: Basic Data
### (% change unless otherwise specified)

| | 1980-1985 | 1986-1989 | 1990-1991 | 1992 |
|---|---|---|---|---|
| GDP | 1.9 | 3.3 | 1.7 | 0.9 |
| Wages | | | | |
| - manufacturing | 16.6 | 7.5 | 9 | 6.3 |
| - services | 15.3 | 7.4 | 9.4 | 5.7 |
| - public sector | 18.9 | 9.8 | 12.2 | 2.7 |
| Unit labor cost | | | | |
| - manufacturing | 11.3 | 3.5 | 7.2 | 3.3 |
| - services | 15.7 | 5.4 | 8.7 | 4.1 |
| Trade balance[1] | -2.5 | -0.3 | -0.4 | 0.2 |
| Current Acct. Balance[1] | -1.1 | -0.4 | -1.6 | -2.2 |
| Public Sector | | | | |
| - total spending | 21.7 | 10.4 | 11.7 | 8.7 |
| - primary spending | 20.9 | 9.9 | 10.6 | 6.5 |
| - total revenues | 21.4 | 12.3 | 11.8 | 11.2 |
| - total balance[1] | -11 | -10.8 | -10.6 | -9.5 |
| - primary balance[1] | -4 | -2.4 | -0.7 | 1.9 |
| - outstanding debt stock[1] | 70 | 93.4 | 102.3 | 111 |

Note:    [1] Percentage ratios to GDP.

Source:    Micossi and Padoan (1995).

**Table 16**

## Short-term interest rates

|      | Germany | France | Italy | UK   |
|------|---------|--------|-------|------|
| 1987 | 4       | 8.2    | 11.5  | 9.7  |
| 1988 | 4.2     | 7.9    | 11.3  | 10.3 |
| 1989 | 7.1     | 9.3    | 12.7  | 13.9 |
| 1990 | 8.4     | 10.2   | 12.4  | 14.8 |
| 1991 | 9.2     | 9.7    | 12.2  | 11.5 |
| 1992 | 9.5     | 10.5   | 14    | 9.6  |

**Table 17**

## Growth rate of real GDP, percent per annum

|      | Germany | France | Italy | UK   |
|------|---------|--------|-------|------|
| 1987 | 1.4     | 2.2    | 3.1   | 4.8  |
| 1988 | 3.7     | 4.3    | 4.1   | 4.3  |
| 1989 | 3.4     | 3.8    | 2.9   | 2.1  |
| 1990 | 5.1     | 2.2    | 2.2   | 0.5  |
| 1991 | 3.7     | 1.1    | 1.4   | -2.2 |
| 1992 | 1.5     | 1.9    | 1.1   | -0.9 |
| 1993 | -0.5    | 1      | 0.8   | 1.4  |

Source:      Grahl (1997).

**Table 18**

## How competitive was UK?

| | Export prices relative to world prices (1987 = 100) | Balance of payments<br><br>Current account as % of GDP | |
|---|---|---|---|
| 1980 | 119.5 | 1.5 | |
| 1981 | 116.7 | 2.5 | |
| 1982 | 109.5 | 1.5 | |
| 1983 | 104.4 | 0.9 | |
| 1984 | 100.9 | -0.2 | |
| 1985 | 104.1 | 0.5 | |
| 1986 | 98.8 | -0.8 | |
| 1987 | 100 | -2 | |
| 1988 | 106.4 | -4.8 | |
| 1989 | 103 | -5.4 | |
| 1990 | 103.6 | -4.2 | **UK joins ERM** |
| 1991 | 102.7 | -1.8 | |
| 1992 | 105.9 | -2.7 | |

Source: **Grahl (1997).**

**Table 19**

# French and German Data

| France | Economic Growth | Inflation Rate | Current Account % of GDP | Unemployment Rate |
|--------|-----------------|----------------|--------------------------|-------------------|
| **1987** | 2.3 | 3.2 | -0.6 | 10.5 |
| **1988** | 4.5 | 2.7 | -0.5 | 10 |
| **1989** | 4.3 | 3.4 | -0.6 | 9.4 |
| **1990** | 2.5 | 2.9 | -1.3 | 8.9 |
| **1991** | 0.7 | 2.9 | -0.5 | 9.4 |
| **1992** | 1.4 | 2.3 | 0.3 | 10.3 |
| **1993** | -0.9 | 2.3 | 0.4 | 11.8 |

| Germany | Economic Growth | Inflation Rate | Current Account % of GDP | Unemployment Rate |
|---------|-----------------|----------------|--------------------------|-------------------|
| **1987** | 1.4 | 0.6 | 4.1 | 7.6 |
| **1988** | 3.7 | 1.4 | 4.2 | 7.6 |
| **1989** | 3.4 | 3.1 | 4.9 | 6.9 |
| **1990** | 5.1 | 2.6 | 3.2 | 6.2 |
| **1991** | 3.1 | 3.8 | -1.2 | 6.7 |
| **1992** | 2.1 | 4.7 | -1.3 | 7.7 |
| **1993** | 1.4 | 4 | -1.5 | 7.5 |

Source:          **Melitz (1994)**

Increase flexibility of monetary policy, prevent appreciation of exchange rate; allow for high domestic interest rates; discourage short-term inflows; favor equity and long-term financing.

# Table 20

## Timetables and Motivations for Changes in Unremunerated Reserve Requirement (URR): Chile

| Measure | Motivation |
|---|---|
| **June 17, 1991**: A 20 percent URR is introduced to be held for up to 90 days for 90-day credits; to the maturity of the credit for 90-day to one-year credits; for one year for credits of more than one year. URR is in same currency as the foreign borrowing, is not remunerated and is applicable to all foreign loans to banks or other, except trade credits. | Increase flexibility of monetary policy, prevent appreciation of exchange rate; allow for high domestic interest rates; discourage short-term inflows; favor equity and long-term financing. |
| **June 27, 1991**: Borrowers allowed to meet URR by entering a repurchase agreement in which the central bank sells the borrower and repurchases immediately a note equivalent to 20 percent of loan (at LIBOR). | Repurchase agreement mechanism allows the tax to be paid up-front, which facilitates enforcement and monitoring. |
| **July 1991**: Reserve requirement extended to current borrowing that is renewed. | Close a loophole. |
| **January 1992**: URR extended to foreign-currency deposits in banks. | Close a loophole. |
| **May 1992**: URR rate raised to 30 percent except for direct borrowing abroad by corporations. URR to be held for one year regardless of loan maturity. | Increase the cost of implied tax; unify duration to facilitate enforcement. |
| **August 1992**: URR raised to 30 percent for all transactions; deposit for one year regardless of loan maturity. Discount raised to LIBOR + 2.5 percent. | Close loophole and increase cost of implied tax. |
| **October 1992**: Discount raised to LIBOR + 4 percent. | Increase cost of the implied tax. |
| **November 1994**: Starting in January 1995, URR deposits in U.S. dollars only. | Prevent positions in domestic currency. |
| **July 1995**: Secondary American Depository Receipts become subject to URR. | Close a loophole |
| **December 1995**: New borrowing to prepay other loans is exempted. | New borrowing likely to lower the cost and increase maturity. |
| **May 1996**: Potentially speculative foreign direct investment becomes subject to URR. | Close a loophole. |
| **December 1996**: Small credits excluded (less than $200,000 or a cumulative $500,000 in 12 months). | Reduce administrative burden of enforcing the measure. |
| **March 1997**: Small credit exemption reduced (less than $100,000 or a cumulative $100,000 in 12 months). | Close a loophole. |
| **June 1998**: URR reduced to 10 percent to reduce cost of external borrowing, except for short-term credit lines and foreign currency deposits. | Adjustment to international capital market environment. |
| **September 1998**: URR rate reduced to zero percent. Requirement for foreign investors to keep their money in the country for at least a year maintained. | Adjustment to international capital market environment. |

**Source:** IMF, Annual Report on Exchange Agreements and Exchange Restrictions (various issues). Reprinted: Ariyoshi, et. al (1999)