Dynamic Macroeconomic Adjustments under Different Foreign Exchange Rate Systems — A Reassessment

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1. Introduction

Since the early 1970s countries' choices of exchange rate regime have significantly changed. Immediately after the breakdown of the Bretton Woods system of fixed exchange rates in 1973 when the world's major currencies began to float, most developed countries continued to peg their exchange rates to a single currency or a basket of currencies. However, since the late 1970s, there has been a steady fall in the number of developing countries that maintain some type of formal pegged exchange rate, and a concomitant rise in the number of countries with more flexible regimes.

Explanations to account for this trend include: large exchange rate fluctuations among the major currencies that followed the breakdown of the Bretton Woods system, acceleration of inflation following oil shocks of the 1970s and 1980s, increases in capital mobility, and a series of external shocks including a steep rise in international interest rates, a slowdown of growth in the industrial countries, and the debt crisis.[1)]

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1) The steady fall in the number of countries with soft pegs continued in the 1990s, but the shift was towards both floating rates and hard pegs. For the group of 22 developed market economies (DME), 33 emerging market economies (EME), and other developing countries (0)16 the results are as follows: In 1991, 59 percent of developing countries had some kind of soft peg regime. By 1999, this proportion had fallen to 34 percent while the share of floating regimes increased from 25 to 42 percent, and the share of hard pegs from 16 to 24 percent. The shift away from soft pegs and towards both corners is observed in all three country groups but a large part of the expansion on the hard peg side results from the creation of the EMU which reduced the number of DMEs with a soft peg regime from 11 to one. The EMEs with a soft peg regime fell from 21 to 14. Five of these (Indonesia, Thailand, Russia, Brazil, and Mexico) moved to floating regimes, and two (Argentina and Bulgaria) instituted currency board arrangements. Among other developing countries, a larger shift has been towards flexibility; only six small countries moved to hard peg regimes.

The polarization in the currency regime choice has led some authors to conclude that soft peg regimes in countries open to international capital flows are not sustainable for extended periods, and that these countries should move away from the middle towards both extremes of the exchange rate spectrum where the risk is minimal (disappearing middle, two-corner solutions). Hence they must either float freely or fix truly and thus credibly under a hard peg regime. In recent years, the "two-corner solution" has become a new orthodoxy in the choice of an exchange rate regime for developing countries. The new orthodoxy has been challenged by a number of authors (Frankel 1999, Cooper 1999, Edwards 2000, Williamson 2000).[2)]

The choice of whether to have a fixed or floating exchange rate regime remains a controversial issue for many countries in the developing world. According to research by David Fielding and Michael Bleaney, presented to the Royal Economic Society at the Annual Conference at Warwick University on Thursday 2 April, 1998, adherence to a fixed exchange rate does help keep inflation low. At the same time, maintenance of a fixed exchange rate over a long period of time requires commitment to macroeconomic policies which ensure that balance of payments

2) In particular, these authors have argued that: "comer solutions" are not free from problems: "corner solutions" may be appropriate under specific circumstances for a limited number of developing countries: moving away from soft pegs towards more flexibility does not mean free floating: and intermediate regimes are more likely to be appropriate for more countries than the corner solutions. A recent challenge came from the French and Japanese finance ministries. In a discussion paper jointly prepared for the Asia and European Finance Ministers' meeting in January 2001, they pointed out the main shortcomings of the two extreme solutions and stated that an intermediate regime whereby the exchange rate moves within a given implicit or explicit band with its center pegged to a basket of currencies would be appropriate for many emerging market economies (ASEM 2001). Such a regime should be backed by consistent and sustainable macroeconomic and structural policies and may be accompanied, for a certain period and under specific conditions, by market-based regulatory measures to curb excessive capital inflows. Crockett 1994, Eichengreen 1994, Obstfeld and Rogoft (1995), Summers 2000, Eichengreen 2000. Fisher argued that the disappearing middle is due to the logic of the impossible trinity (Fisher 2001). Frankel and others (2000) stressed that the relative difficulty to verify the intermediate regimes, particularly the broad band regimes pegged to a basket of currencies, is also a critical factor to explain why intermediate regimes are less viable than the corner solutions. Edwards (2000) noted: "From a historical perspective the current support for the two-corner approach is largely based on the shortcomings of the soft pegs..., and not the historical merits of the two corner systems". Frankel (1999) observed: "Neither pure floating nor currency boards sweep away all the problems that come with modem globalized financial markets. Central to the economists' creed is that life always involves trade offs. Countries have to trade off the advantages of more exchange rate stability against the advantages of more flexibility. Ideally, they would pick the degree of flexibility that optimizes with respect to this trade off. Optimization often, though not always, involves an interior solution". See. Frankel, J. A., "No single Currency Regime is Right for all Countries or at all Times", NBER 1999: Edwards, ibidem.

deficits do not persist.[3)]

Among the other factors influencing monetary growth, the most important is the degree of openness of the economy (that is, the size of international trade relative to the economy's total output). More open economies tend to have lower monetary growth rates, perhaps because the balance of payments disciplining mechanism is stronger. A country in the top 5% with regard to openness can be expected to have a monetary growth rate about 4% lower than the average.

An important difference between fixed and flexible exchange rate regimes is in the transmission process linking monetary growth and real economic growth with inflation. In theory, an increase in monetary growth or a reduction in real economic growth in a flexible exchange rate regime ought to lead to a proportionate increase in the inflation rate. In a fixed exchange rate regime, the effects will be less than proportionate because some prices (those of goods traded on international markets) will not be influenced by what happens in the domestic economy. Most macro data shows that a 1% increase in monetary growth in a fixed exchange rate system can be expected to increase the inflation rate by just 0.5%.[4)]

Yet little consensus has emerged about how exchange rate regimes affect common macroeconomic targets, such as inflation and growth. At a theoretical level, it is difficult to establish unambiguous relationships because of the many ways in which exchange rates can influence and be influenced by other macroeconomic variables. Likewise, empirical studies typically find no clear link between the exchange rate regime and macroeconomic performance.[5)]

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3) Fielding and Bleaney examined the impact of the choice of exchange rate regime on inflation rates across 80 low and middle income countries. They found that: The most direct influence of a fixed exchange rate is that it tends to encourage monetary discipline in a government since rapid monetary expansion leads to painful balance of payments deficits. Controlling for other factors, the average fixed exchange rate country has a rate of monetary growth 12% lower than the average flexible exchange rate country.

4) See "Exchange Rate Regimes, Monetary Discipline & Inflation", by David Fielding and Michael Bleaney presented at the Royal Economic Society,1998, Annual Conference at Warwick University. Also compare with: Ghosh, A., Ostry, J, Gulde, A-M., Wolf, H. (1999), "Does the Exchange Rate Regime Matter for Inflation and Growth?", *Economic Issues No2*, International Monetary Fund, Washington D.C.

5) Williamson, J. "Estimating Equilibrium Exchange Rates", *Institute of International Economics*, 1994. Also Williamson, J., "Exchange Rate Regimes for Emerging Markets: Reviving the Intermediate Option", *Institute for International Economics*, September 2000; Schulstad, Paul, and Serrat, A. (1995), *An Empirical Examination of a Multilateral Target Zone Model* (Banco de Espana: Documento de Trabajo no. 9532).; Svensson, Lars E.O. (1992), "An Interpretation of Recent Research on Exchange Rate Target Zones", *Journal of Economic Perspectives*, 6(4), Fall. Tarapore Committee (1997), Report of the Committee on Capital Account Convertibility (Mumbai: Reserve Bank of India). Ortiz, Guillermo, and Agustin Carstens (2000), "The Experience with a ↗

This paper is organized into four sections. The first one gives an introduction to the topic, the second deals with terminology and periodization, the third one with macroeconomic adjustments under different currency systems and the fourth one is a synthetic summary.

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2. Foreign Exchange Rate System, Terminology and Periodization

Beyond the traditional fixed-floating dichotomy lies a spectrum of exchange rate regimes. The de facto behavior of an exchange rate, moreover, may diverge from its de jure classification. While it is customary to speak of fixed and floating exchange rates, regimes actually span a continuum, ranging from pegs to target zones, to floats with heavy, light, or no intervention. The traditional dichotomy can mask important differences among regimes.

Most current analyses use a three-way classification: pegged, intermediate (i.e., floating rates, but within a predetermined range), and floating. Regimes can be classified according to either the publicly stated commitment of the central bank (a de jure classification) or the observed behavior of the exchange rate (a de facto classification). Neither method is entirely satisfactory. A country that claims to have a pegged exchange rate might in fact instigate frequent changes in parity. On the other hand, a country might experience very small exchange rate movements, even though the central bank has no obligation to maintain a parity. The approach usually taken is to report results according to the stated intention of the central bank, but to supplement these results by categorizing the nonfloating regimes according to whether or not changes in parity were frequent. The *de jure* classification uses the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions, while the *de facto* classification is based on a survey of IMF desk officers for each country.

The following classification system (ranked on the basis of the degree of flexibility of the arrangement) has been widely used in the literature: independent floating, managed floating,

↘ Floating Exchange Rate Regime: The Case of Mexico", paper presented to a conference on "International Financial Markets: The Challenge of Globalization" at Texas A and M University, 31 March; Pisani-Ferry, Jean, and Benoit Coeure (1999), "The Exchange-Rate Regime Among Major Currencies", paper presented to the IMF Conference on Key Issues in Reform of the International Monetary and Financial System, Washington, May 28-29; Rose, Andrew (1996), "Exchange Rate Volatility, Monetary Policy, and Capital Mobility: Empirical Evidence on the Holy Trinity", *Journal of International Money and Finance*.

crawling bands, crawling pegs, pegged within bands, fixed peg arrangements, currency board arrangements, and exchange arrangements with no separate legal tender (Frankel 1999, Edwards and Savastano 1999, IMF 1999). Here we can extend this classification to clarify the degree of flexibility allowed by some of these regimes, thereby making it easier to compare the alternative regimes proposed by various authors. First, a new "lightly managed float" regime is added, which involves only light interventions in the foreign exchange market to moderate excessive fluctuations. The key difference between a "lightly managed float" and a "managed float" is that, in the latter, the government has an idea where the exchange rate should be to maintain competitiveness and intervenes to keep the rate close to it. In the former, the rate is essentially determined in the market by demand and supply. Second, the crawling band regime is divided into "crawling broad band" and "crawling narrow band" systems. A broad band regime (say, about +/– 15 percent around the central parity) provides more flexibility and is closer to a floating system in terms of its merits and shortcomings. A narrow band system (the Bretton Woods system, and pre-1992 European Monetary System), on the other hand, can be put together with the other fixed exchange rate regimes.[6)]

The foreign exchange rate systems are ranked on the basis of the degree of flexibility of the exchange rate. At one end of the spectrum is independent floating, a regime which provides maximum flexibility, allowing the exchange rate to be determined freely in the market by supply and demand. Currency union/dollarization constitutes the other extreme where the exchange rate does not exist because the monetary autonomy is fully surrendered and a shared currency or another country's currency is used as the only legal tender. The eight regimes between these extremes show decreasing flexibility as one moves from the floating regimes towards currency union/dollarization. To simplify the presentation and better structure the discussion, the ten regimes are arranged under the following four relatively homogeneous groups: (a) floating regimes (independent floating, lightly managed float); (b) Intermediate regimes (managed float, crawling broad band); (c) Soft peg regimes (crawling narrow band, crawling peg, pegged within bands, fixed peg); and (d) hard peg regimes (currency board, currency union/dollarization).

The post-war history of currency regimes is usually divided into three periods:

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6) See Edwards, S. and. Savastano, M. A "Exchange Rate in Emerging Economies: What do we Know? What do We Need to Know", *Working Paper 7228*, NBER July 1999, and also See Frankel, J. A., "No single Currency Regime is Right for all Countries or at all Times", NBER 1999.

(a) *Pegged exchange rate regime (Second World War – June 1997)*

This regime was first adopted after the Second World War. The value of the baht was initially either pegged to a major currency/gold or to a basket of currencies. The basket regime was adopted from November 1984 until June 1997. During this period, the Exchange Equalization Fund (EEF) would announce and defend the baht value against the US dollar daily, whose monetary and financial measures were mainly designed to be in line with the pegged exchange rate regime.

(b) *Monetary targeting regime (1997–2000)*

After the adoption of the floating exchange rate system in 1997, most South-East Asian countries received financial assistance from the IMF. During implementation of the IMF program, monetary targeting regime was adopted. Under this regime, the World Bank targeted the domestic money supply using a financial programming approach in order to ensure macroeconomic consistency as well as to reach the ultimate objectives of sustainable growth and price stability. The Bank set the daily and quarterly monetary base targets, on which its daily liquidity management was based. Daily liquidity management was essentially aimed at avoiding excessive volatility in interest rates and ensuring liquidity in the financial system.

(c) *Inflation targeting regime (May 1997- present)*

After the IMF program was introduced central banks made an extensive reappraisal of both the domestic and the external environment and concluded that the targeting of money supply is going to be less effective than the targeting of inflation. The main cause for change was that the relationship between money supply and output growth was becoming less stable, especially in the period after the major crisis and the uncertainty in credit extensions as well as the rapidly changing financial sector.

3. Foregn Exchange Rate systems in South East and North East Asia

Macroeconomic performance under alternative exchange rate regimes have been a subject of continuing research and controversy. Using a three-way classification (pegged, intermediate, and floating rates), an earlier study (Ghosh and others, 1996) which included 136 countries for the period 1960-89, analyzed the link between exchange rate regimes, inflation and

growth[7]. A strong result of the study is that pegged exchange rates are associated with lower inflation and less variability. The authors argued that this was due to a discipline effect — the political costs of failure of defending the peg induce disciplined monetary and fiscal policy — and a confidence effect — to the extent that the peg is credible, there is a stronger readiness to hold domestic currency, which reduces the inflationary consequences of a given expansion in money supply. The study also found that pegged rates are associated with higher investment but correlated with slower productivity growth. On net, output growth is slightly lower under pegged exchange rates compared to floating and intermediate regimes. In addition, the variability of growth and employment is greater under the pegged regimes.[8]

A number of methodological weakness of these studies have been pointed out (Edwards and Savastano, 1998; Mussa and others, 2000).[9] First, they do not control for the country circumstances (degree of capital mobility, size, degree of integration, and macroeconomic policies). For instance, in some countries, the correlation between inflation and the exchange rate was due to fiscal indiscipline rather than to an exogenous decision to adopt a flexible exchange rate. Second, classification of the exchange rate regimes used in these studies is the official one reported by the countries (*de jure*) rather than the actual (*de facto*) regime. As noted earlier, discrepancies between the two are often substantial. Third, these studies implicitly assume that all exchange rate regimes in their sample were sustainable (that is, consistent with macroeconomic policies) and that all changes in regimes were voluntary. The fourth weakness is related to reverse causality. These studies do not address the issue whether fixed exchange rates deliver low inflation by adding discipline and credibility to the conduct of macroeconomic policies, or is it that countries with low inflation choose pegged exchange rates to indicate their

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7) See Ghosh, A. R., Gulde, A. M., Ostry, J. D. and Wolf, H. (1996): "Does the Exchange Rate Regime Matter for Inflation and Growth"; *IMF Economic Issues 2*, 1996.

8) A more recent IMF study that extends the period of analysis to the mid-1990s reports similar findings (IMF 1997). However, in an analysis of the recent experience with increasing capital market integration and the replacement of fixed exchange rates in the 1990s, Caramaza and Aziz (1998) found that the differences in inflation and output growth between fixed and flexible regimes are no longer significant.

9) See Sebastian Edwards & Savastano, Miguel A. (1998): "The Morning After: The Mexican Peso in the Aftermath of the 1994 Currency Crisis"; *NBER Working Papers 6516*, National Bureau of Economic Research, Inc.
See Mussa, M., Masson, P., Swoboda, A., Jadresic, E., Mauro, P. and Berg, A. (2000): "Exchange Rate Regimes in an Increasingly Integrated World Economy"; *IMF Occasional Paper 193*, 2000.

intention to maintain their anti-inflationary stance.[10)]

All ASEAN South-East and the developed North-East Asian countries use a form of a managed floating exchange rate system with certain modifications. The old fixed-rate exchange systems were abandoned and the floating system was seen as reflecting market forces rather than the artificial defence of a currency by the government. A country that did not need to intervene to support its currency would not need to maintain huge foreign-exchange reserves. On the other hand, the post-IMF foreign exchange arrangements are modified again. After the Asian crisis all Asian economies gave ways to anti-inflationary monetary discipline. Some academics started to argue that the floating-system had caused all the world's ills, and that, in any case, few currencies were free floating.[11)] Most Asian countries had a 'dirty' managed floating system; i.e., they intervened when they felt that the currency was below or above the monetary target. On the other hand, in all Asian countries international reserves had *increased* not decreased contrary to the academic expectations. The inflation rates seemed to be significantly higher than under the fixed system. Currencies became determined not by the fundamental forces of purchasing power parity but by the speculation and arbitrage of the international money market. The other feature of this region was that international trade became overwhelmed by international flows of funds as a determinant of exchange rates. On the other hand, countered some proponents of freely floating exchange rates, if governments know better

10) Using data from 159 countries for the 1974–99 period, Levy-Yeyati and Sturzenegger (2000) reclassified the exchange rates into three groups (float, intermediate, fixed) and estimated the correlation between the actual (*de facto*) exchange rate regimes and macroeconomic performance. The main findings include: (a) fixed exchange rate regimes seem to have no significant impact on the inflation level when compared with pure floats, while intermediate regimes are the clear under-performers; (b) pegs are significantly and negatively correlated with per capita output growth in non-industrial countries; (c) output volatility declines monotonically with the degree of regime flexibility; and (d) real interest rates appear to be lower under fixed rates than under floating rates because of the lower uncertainty associated with fixed rates. See Levy-Yeyati and Sturzenegger "*Classifying Exchange Rate Regimes: Deeds vs. Words*", UTDT

11) Ethier, Wilfred, and Bloomfield, Arthur I. (1975), "Managing the Managed Float", *Princeton Essays in International Finance no. 112*; Goodhart, Charles, and Delargy, P.J.R. (1998), "Financial Crises: Plus ca Change, plus c'est la Meme Chose", *International Finance* 1(2), 261–87; Fratzscher, Marcel (1998), "The Impact of Exchange Rate Regimes and Stability on Macroeconomic Performance: An Empirical Analysis", mimeo; McKinnon, Ronald I. (2000), "After the Crisis, the East Asian Dollar Standard Resurrected: An Interpretation of High-Frequency Exchange-Rate Pegging", paper presented to a conference of the ASEAN Economic Associations in Singapore on 7–8 September; Ortiz, Guillermo, and Agustin Carstens (2000), "The Experience with a Floating Exchange Rate Regime: The Case of Mexico", paper presented to a conference on "International Financial Markets: The Challenge of Globalization" at Texas A and M University, 31 March.

than the market where an exchange rate belongs, then they should, on average, be able to make a profit by buying when currency is undervaluated and selling when currency is overvaluated. Yet the evidence demonstrated the opposite: central-bank intervention seemed to be mistimed, losing more often than Malaysia, Thailand 1997, Taiwan 1998, Malaysia 1998, Singapore 1999. In Appendix 1 we present the more important systematic and institutional foreign exchange developments in Asian countries.

In Thailand under the managed float system, the value of the baht is determined by market forces. The reference rate for interbank spot transactions is a volume-weighted average of interbank spot rates on the previous trading day. The reference rate for commercial banks' counter transactions is a simple average of the submitted rates across all commercial banks on the previous trading day. Foreign exchange counter rates consist of the buying and selling rates for 27 currencies.[12)]

Some countries, for example Taiwan, have a floating exchange rate system in which bankers set rates independently of the authorities. The Taiwan authorities, however, control the largest banks authorized to deal in foreign exchange. Fourteen foreign banks are engaged in foreign exchange business. The number of private domestic banks permitted to deal in foreign exchange is steadily increasing.[13)]

In Indonesia the government has maintained the convertibility of the rupiah since the 1960's. There have been no foreign exchange controls since 1972. The government follows a managed float based on a basket of major trading currencies, including the dollar. Current policy is to maintain the competitiveness of the rupiah through a gradual depreciation against the dollar, at a rate of about 5% a year. Since 21 June 1973, Malaysia has adopted the flexible exchange rate regime. Bank Negara Malaysia exercises the option to intervene when deemed necessary in order to even out sharp exchange rate fluctuations.

12) For example in Thailand, the central bank announced the adoption of inflation targeting in May 2000. The central bank decided to launch inflation targeting under the existing legal framework, whereby the Monetary Policy Board (MPB) was first appointed on 5 April 2000 and vested with the power to decide monetary policy by the Governor. The Board, with 9 members, comprised distinguished external experts and the top management of the central bank. The MPB had the authority to set the direction of monetary policy with price stability as the overriding objective, and also to refine the inflation targeting framework to suit the Thai economy.

13) Taiwan's Central Bank of China (CBC) intervenes in the foreign exchange market when it feels that speculation or "drastic fluctuations" in the exchange rate may impair normal market adjustments. Two tools the CBC uses to influence the foreign exchange market are restrictions on banks' overbought and oversold positions and limits on banks' foreign liabilities. The CBC also limits the use of derivative products denominated in New Taiwan dollars.

Since mid-July 1997, Bank Negara had allowed the ringgit to be determined by market forces, but started intervening again in early January 1998 in order to stop market panic, following the free fall of the rupiah. In money market interventions, the central bank has had to exercise great care to ensure that the timing of the interventions is just right, which is not always easy to achieve.

Korea's case is particularly important for other South-East Asian economies. Korea's exchange rate system is a free-floating system. A total of 29 exchange rates of the Korean Won against other currencies are disseminated now, involving the U.S. Dollar, Japanese Yen, Euro (and its member countries' currencies), British Pound, Singapore Dollar, Thai Bhat, and so on. Exchange rates of the Korean Won against the U.S. Dollar are obtained from actual foreign exchange transactions between foreign exchange banks through foreign exchange broker companies. Exchange rates of the Korean won against other currencies are automatically determined in relation to the exchange rate of the U.S. Dollar against these currencies in the international foreign exchange market. The Bank of Korea disseminates the exchange rate data as a service to the public, but the data are originally provided by foreign exchange broker companies.

In the 1980s, the exchange rate determination in Korea had been greatly influenced by government discretion. In a small open economy, which relies heavily on international trade for its growth, the current account is a major control variable used by the government to maintain macroeconomic stability. Korea was no exception to this stylized fact. As such, the Korean government had frequently intervened in the foreign exchange market to attain a desired level of the current account balance. The real effective exchange rate is a trade weighted average of real exchange rates of Korea's major trading partners and has been considered as a useful indicator for a country's price competitiveness in the global market. If the real effective exchange rate falls, it implies that the Korean won depreciates against the currencies of major trading partners, thereby increasing the price competitiveness of Korean products in the world market.

The fact that government discretion has disappeared in the 1990s is mainly attributable to the introduction of the Market Average Exchange Rate System in March 1990. Unlike other past exchange rate systems, this system, to a substantial degree, left the exchange rate to be determined by market forces. Consequently, it has contributed significantly to the efficient functioning of the foreign exchange market. Nevertheless, it failed to remove all the market inefficiency as it still limited daily exchange rate fluctuations. In fact, the daily exchange rate band maintained until December 15, 1997 has provided a room for the exchange rate to be per-

sistently misaligned, particularly in the later periods of the 1990s.[14)]

Trade-related funds flow freely into and out of Taiwan. Although Taiwan relaxed some restrictions on capital account transactions in 1995, most notably restrictions on portfolio investments, it still maintains a range of controls on inward and outward capital flows that limit demand for the New Taiwan Dollar and reduce upward pressures on its value.

The daily exchange rate band under the Market Average Exchange Rate System assumed a similar role in Korea by making the exchange rate movements stable. Although the stable exchange rate movements play a positive role in attracting foreign capital, capital inflows tend to put upward pressures on the real value of the domestic currency. This has indeed happened in Korea. The continuing increase in capital inflow in the 1990s was accompanied by persistent real appreciation of the Korean won as the real exchange rate continued to decline over time. In retrospect, the pressures for future depreciation of the nominal won/dollar exchange rate appear to have built up as late as 1996. The growth rate of Korean exports declined dramatically from 31.5% in 1995 to 4.1% in 1996. The market may have interpreted this decline in exports as a signal that the current account deficit of 4.8% in GDP would not be sustainable. Similarly, the external liability to exports almost doubled to 125.3% in 1996 from 63.6% in 1995.[15)]

4. Macroeconomic benefits and disadvantages of foreign exchange rate systems

4.1 *Operational currency systems in world economy*

The experiences with implementation of the exchange rate systems may suggest some generalizations about the conditions under which various regimes would function reasonably well — though there are many exceptions. The floating systems, it was suggested, would be an

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15) See Macrostatistics for Korea. Ministry of Finance Data, 2001.

appropriate choice for medium and large industrialized countries and some emerging market economies that have import and export sectors that are relatively small compared to GDP, but are fully integrated into the global capital markets and have diversified production and trade, a deep and broad financial sector, and strong prudential standards. On the other hand, the hard peg system seems to be more appropriate for countries satisfying the optimum currency area criteria (countries in the European Economic and Monetary Union), small countries already integrated into a larger neighboring country (dollarization in Panama), or countries with a history of monetary disorder, high inflation, and low credibility of policymakers to maintain stability and that need a strong anchor for monetary stabilization (currency board in Argentina and Bulgaria). Possibly, the soft peg regimes would be best for countries with limited links to international capital markets, less diversified production and exports, and shallow financial markets, as well as countries stabilizing from high and protracted inflation under an exchange rate-based stabilization program (Turkey). These are largely but not exclusively non- emerging market developing countries. The intermediate regimes, a middle road between floating rates and soft pegs, aim to incorporate the benefits of floating and pegged regimes while avoiding their shortcomings. They are better suited for emerging market economies and some other developing countries with relatively stronger financial sector and track record for disciplined macroeconomic policy.[16)]

4.2 *Advantages and Disadvantages of Forex systems*

As indicated earlier in this study, all exchange rate regimes offer differing benefits as well as costs (see Table 1).

The main advantages of the floating regimes are their relative invulnerability to currency crisis, and their ability to absorb adverse shocks and pursue an independent monetary policy. These advantages come with the cost of high short-term exchange rate volatility and large medium-term swings characterized by misalignment. At the other end of the spectrum, the hard peg regimes provide maximum stability and credibility for monetary policy, and low trans-

16) Dollarization is a generic name used to mean the replacement of a national currency by a foreign currency as legal tender, which would refer not only to the use of the dollar, but also for instance to the use of the rand, franc, etc. A notable exception is Denmark which is in the Europe's Exchange Rate Mechanism (ERM) and is thus pegging within a band. Mussa, M., Masson, Swoboda, P., Jadresic, A. E., Mauro, P. and Berg, A. "Exchange Rate Regimes in an Increasingly Integrated World Economy", *IMF Occasional Paper 193*, 2000. McKinnon, R. I., "Euroland and Asia in a Dollar-Based International Monetary System: Mundell Revisited", 1999.

Table 1 Main Trade-Offs When Selecting an Exchange Rate System in an Open Economy

	Floating	Intermediate	Soft Peg	Hard Peg
Stability	– –	+ –	+ +	+ +
Misalignment	+ –	+ +	+ –	+ +
Vulnerability to Crisis	+ –	+ +	– –	+ +
Vulnerability to Shocks	+ +	+ –	– –	– –
Independence of Monetary Policy	+ +	+ –	– –	– –

action costs and interest rates, but suffer from the loss of lender of last resort role of the central bank and seigniorage revenue. Two big advantages of the soft peg regimes are that they maintain stability and reduce transaction costs and the exchange rate risk while providing a nominal anchor for monetary policy. These advantages have been undermined by a substantial increase in global capital mobility in the 1990s. The soft peg regimes, in countries open to international capital flows, are inherently vulnerable to currency crises. By giving up some nominal stability for greater flexibility, the intermediate regimes aim to get the best of both worlds: to provide a limited nominal anchor for inflationary expectations, but also avoid volatility and overvaluation, and reduce the risk of currency crisis by restoring the two-way bet for speculators with broad soft bands. An important consensus on the choice of exchange rate regimes is that no single exchange rate regime is best for all countries or at all times (Frankel 1999, Mussa and others 2000, ibidem). The choice would vary depending on the specific country circumstances at the time period in question (the size and openness of the country to trade and financial flows, structure of its production and exports, stage of its financial development, its inflationary history, and the nature and source of potential shocks it faces), and the country's policy objectives which would involve trade-offs. The ultimate choice would be determined by the relative weights given to these factors.. In selecting the optimum degree of flexibility macroeconomic policy makers usually place higher weights on things that would minimize short term socio-economic costs.[17)]

In floating regimes, the real and nominal exchange rates are endogenous variables determined in the market by demand and supply. The government and the monetary authority do

17) Frankel, J. A., "No single Currency Regime is Right for all Countries or at all Times", NBER 1999. Frankel, J., E. Fajnzylber, S. Schmukler, and L. Serven, "Verifying Exchange Rate Regimes", May 2000; Mussa, M., P. Masson, A. Swoboda, E. Jadresic, P. Mauro, and A. Berg, "Exchange Rate Regimes in an Increasingly Integrated World Economy", IMF Occasional Paper 193, 2000.

not determine what the rate should be and do not make any effort to guide the rate towards a desired level or zone. Episodic and ad hoc interventions in a lightly managed regime are in the spirit of "leaning against the wind". They aim to slow the exchange rate movements and dampen excessive fluctuations, and are not intended to defend any particular rate or zone.

In contrast, in all other regimes (with the exception of a currency union/dollarization where the national currency is given up altogether), the government needs to have an idea where the real exchange rate should be to ensure that the national economy is competitive. Typically, the long-run equilibrium real exchange rate is estimated based on the economic fundamentals of the country, and a variety of policy and institutional arrangements are made to keep the actual rate sufficiently close to it over the medium-term.[18)]

The classification of foreign exchange rate systems is presented in Table 2. This is the functional breakdown of the systems according to the methodology proposed by Stanley Fisher of the IMF.

While the independently floating was the main feature of the developed market economies (including Japan), the emerging developing economies display a more structured pattern (see Table 3).

The picture becomes clearer if we group these economies into appropriate categories (see Table 4 and 5).

According to Table 4, the most common system seems to be independent floating (13 economies), then other conventional fixed pegs (7 economies), crawling bands exchange rates (5 economies), and currency boards (3 economies).

The "rest of the world" displayed a significantly different pattern (see Table 5). Here the currency board and other arrangements without a seperate legal tender predominate. The fixed pegs follow and the managed float is much less practiced. Independent floating is used by less

18) Active management of the exchange rate under these regimes can provide a developing country with an additional strong policy tool to correct misalignment and to influence the balance of payments, trade flows, investment, and production. The earlier debate about exchange rate regimes was largely about their influence on monetary discipline and credibility, and the trade-off between flexibility and credibility. Floating regimes provide maximum discretion for monetary policy, but discretion comes with the problem of time-inconsistency. That is, if a government tends to misuse its discretion and cannot keep its promise of low inflation today, it will be difficult to get people to believe its future policy announcements. Therefore, restraints need to be put on government to ensure that discretion is not misused and economic polices are consistent and sustainable and that there is not going to be inflation. (See for example P. Krugman remarks of open market economies, ibidem)

Table 2 Forex Systems in Developed Market Economies (pre-Euro)

Euro Area countries	Exchange Arrangement	**Other Area** countries	Exchange Arrangement
Austria	**NS**	Australia	**IF**
Belgium	**NS**	Canada	**IF**
Finland	**NS**	Denmark	**HB**
France	**NS**	Hong Kong	**CBA**
Germany	**NS**	Japan	**IF**
Ireland	**NS**	New Zealand	**IF**
Italy	**NS**	Norway	**MF**
Netherlands	**NS**	Singapore	**MF**
Portugal	**NS**	Sweden	**IF**
Spain	**NS**	Switzerland	**IF**
United Kingdom	**IF**	United States	**IF**

Note: Economies listed in the MSCI Developed Markets index.
Key:
NS = Arrangements with no separate legal tender
CBA = Currency board
FP = Other conventional fixed pegs
HB = Pegged rate in horizontal band
CP = Crawling peg
CB = Rates within crawling bands
MF = Managed float with no pre-announced exchange rate path
IF = Independently floating
Source: IMF, *Annual Report 2000*

than 20% of all countries under review.

It was generally agreed that floating regimes would have an inflationary bias, and that the degree of discipline and credibility would increase with a decline of flexibility. The main argument in favor of fixed rates was their ability to induce discipline and make the monetary policy more credible because adoption of lax monetary (and fiscal) policy would eventually lead to an exhaustion of reserves and collapse of the fixed exchange rate system implying a big political cost for the policy makers. The nature of debate has changed significantly with the steady increase in international capital flows. Soft peg regimes in a number of emerging market economies open to global financial markets have collapsed in the 1990s. Difficulty in maintaining credibility under soft pegs when the capital account is open is a key factor that brought

Table 3 Forex systems in Emerging Market Economies

Africa	Exchange Arrangemen	**Asia**	Exchange Arrangemen	**Europe & Middle East**	Exchange Arrangemen	**Latin America**	Exchange Arrangemen
Morocco	FP	China	FP	Bulgaria	CBA	Argentina	CBA
Nigeria	MF	India	IF	Czech Republi	MF	Brazil	IF
South Africa	IF	Indonesia	IF	Egypt	FP	Chile	IF
		Korea	IF	Greece	HB	Colombia	IF
		Malaysia	FP	Hungary	CB	Ecuador	IF/NS
		Pakistan	FP	Israel	CB	Mexico	IF
		Philippines	IF	Jordan	FP	Panama	NS
		Sri Lanka	CB	Poland	CB	Peru	IF
		Taiwan	MF	Qatar	FP	Venezuela	CB
		Thailand	IF	Russia	IF		
				Turkey	CP		

Note: Economies listed either and/or in the MSCI Emerging Markets and EMBI + indices.
Key: Every key is the same as in the Table 2.
Source: IMF, *Annual Report 2000*

Table 4 Forex Systems in Emerging Market Countries Grouped by Exchange Rate Arrangement (2001)

Exchange Rate Regime	**Countries**
NS/CBA (3) (*3)	*Argentina, *Bulgaria, *Panama
FP (7) (*2)	*China, Egypt, Jordan, *Malaysia, Morocco, Pakistan, Qatar
HB (1) (*1)	*Greece
CP (1)	Turkey
CB (5) (*2)	Hungary, *Israel, Poland, Sri Lanka, *Venezuela
MF (3) (*1)	Czech Republic, Nigeria, *Taiwan POC
IF (13) (*7)	*Brazil, *Chile, Colombia, Ecuador, *India, Indonesia, *Korea, *Mexico, Peru, *Philippines, Russia, *South

Note: * indicates country whose weight in either the EMBI+ or MSCI index is 2% or greater. Numbers in parenthesis indicate number of countries in each group; asterisked numbers are self-explanatory.
Key: Every key is the same as in the Table 2.
Source: IMF, *Annual Report 2000*

Table 5 Forex Systems in All Other Countries Grouped by Exchange Rate Arrangements, 2001

Exchange Rate Regime	Countries
NS/CBA (31)	Antigua and Barbuda, Benin, Bosnia and Herzegovina, Brunei Darussalam, Burkina Faso, Cameroon, Central African Rep., Chad, Congo (Rep. of), Côte d'Ivoire, Djibouti, Dominica,
FP (38)	Aruba, Bahamas, Bahrain, Bangladesh, Barbados, Belize, Bhutan, Botswana, Cape Verde, Comoros, El Salvador, Fiji, Iran, Iraq, Kuwait, Latvia, Lebanon, Lesotho, Macedonia
HB (4)	Cyprus, Iceland, Libya, Vietnam
CP (4)	Bolivia, Costa Rica, Nicaragua, Tunisia
CB (2)	Honduras, Uruguay
MF (23)	Algeria, Azerbaijan, Belarus, Burundi, Cambodia, Croatia, Dominican Rep., Ethiopia, Guatemala, Jamaica, Kenya, Kyrgyz Republic, Lao PDR, Malawi, Mauritania, Paraguay,
IF (29)	Afghanistan, Albania, Angola, Armenia, Congo (Dem. Rep.), Eritrea, Gambia, Georgia, Ghana, Guinea, Guyana, Haiti, Kazakhstan, Liberia, Madagascar, Mauritius, Moldova,

Key: Every key is the same as in the Table 2.
Source: IMF, *Annual Report 2000*

these pegs down. To achieve credibility quickly, some authors argued that these countries need to move either to hard pegs or floating rates.

4.3 *Balance between exchange rate stability and flexibility*

Institutionally binding monetary arrangements under hard pegs tie a government's hands to provide irreversible fixed rates and maintain maximum credibility. The long-run equilibrium real exchange rate is the real rate that, for given values of "economic fundamentals" (openness, productivity differentials, terms of trade, public expenditure, direct foreign investment, international interest rates, etc.) is compatible with the simultaneous achievement of internal and external equilibria.

The other way to solve the credibility problem is to float the currency: that is, not make any promises about the exchange rate at all. The floating regimes may exhibit high short-term exchange rate volatility and medium- term swings that are only weakly related to economic fundamentals. This is largely explained by the fact that the exchange rate is also an asset price

influenced strongly by short-term financial flows which are subject to speculation, manias, panics, herding, and contagion. As capital market integration deepens, capital market transactions increasingly dominate changes in exchange rates. Determined in this manner, exchange rates may develop their own short-term and medium-term dynamics that overwhelm the goods and services market transactions. Volatility is substantially higher in developing countries with thin foreign exchange markets usually dominated by a relatively small number of market participants, and may be compounded by a lack of political stability and disciplined macroeconomic environment.

In a world with high capital mobility, even small adjustments in international portfolio allocations to developing economies can result in large swings in capital flows creating large volatility in exchange rates. Because their financial markets are poorly developed, hedging possibilities are limited in developing countries. High exchange rate volatility creates uncertainty, increases transaction costs and interest rates, discourages international trade and investment, and fuels inflation. The medium-term swings are identified with substantial misalignment. This is a particularly serious concern for developing countries because persistent real exchange rate volatility and misalignment have been associated with unsustainable trade deficits, and lower economic growth over the medium and long run (Ghura and Grennes 1993, Razin and Collins 1997, Elbadawi 1998, World Bank 2000).[19)]

Persistent overvaluation is usually identified as a strong early warning for currency crisis (Kaminsky and others 1998). It is also recognized that, with high volatility in exchange rate, it is very hard to develop long-term domestic financial markets. The degree of volatility of the nominal exchange rate decreases as one moves along the exchange rate spectrum towards decreasing flexibility. The hard peg regimes with their strong and credible institutional arrangements guarantee nominal exchange rate stability. Under a currency board arrangement, successfully aligning the exchange rate to a large and stable country minimizes exchange rate risk, and encourages international trade and investment. If country circumstances allow it, going one step further and actually adopting the neighbor's currency as one's own, would eliminate transactions cost as well promoting further trade and investment. The soft peg regimes can maintain stable and competitive exchange rates only if the authorities set the rate at a

19) World Bank, "Global Economic Prospects and the Developing Countries", Washington DC, 2000. 27; Ghura, D. and Grennes, T. "The Real Exchange Rate and Macroeconomic Performance in Sub-Saharan Africa", Journal of Development Economics, Vol. 42: 155–174, October 1993; Elbadawi, I., "Real Exchange Rate Policy and Non-Traditional Exports in Developing Countries", *WIDER*, The UN University, Helsinki.

sustainable level consistent with the economic fundamentals and convince the markets with disciplined macroeconomic policies and credible institutions of their ability to keep it there. However, they can not guarantee an absence of misalignment, particularly in countries open to international capital flows. As shown so many times in the past, lack of monetary and fiscal discipline, inappropriate financial policies, and real external and domestic shocks can lead to misalignments and devastating currency crises under the soft peg regimes.[20)]

The intermediate regimes provide scope for setting an appropriate balance between exchange rate stability and flexibility. If supported by sound macroeconomic policies, they can keep the variations in the exchange rate within reasonable bounds, dampening the degree of uncertainty while permitting enough flexibility to adjust the parity (the center of the band) to economic fundamentals. They are therefore less susceptible to volatility and misalignment than soft peg and floating regimes if the authorities are not committed to defending the edges of the band and, when the need arises, allow the exchange rate to go outside the edges.

High volatility of the exchange rate in the floating regimes gives rise to a phenomenon called "fear of floating". According to recent studies, few developing countries that claim to be implementing a floating exchange rate policy, do in fact allow their exchange rate to float (Calvo and Reinhart 2000). Compared to the United States and Japan, international reserves, reserve money, and interest rates in these countries have been more volatile, and their exchange rates more stable, which indicate that they effectively maintain some kind of managed or pegged regime. "Fear of floating" is explained largely by the fact that exchange rate volatility is more damaging to trade, and the pass-through from exchange rate swings to inflation is far higher in developing countries. Fear of appreciating because of short-term capital inflows and losing competitiveness is also a factor for not letting the exchange rate float freely. A key problem of fearful floating is its lack of transparency and verifiability which heights uncertainty.[21)]

Floating its exchange rate permits a country to use its monetary policy (and other macroeconomic policies) to steer the domestic economy because monetary policy does not have to be subordinated to the needs of defending the exchange rate. Given that cyclical conditions differ significantly among countries, the ability of a country to run an independent monetary pol-

20) Kaminsky, G., Lizondo, S., and Reinhart, C. "Leading Indicators of Currency Crisis", *IMF Staff Papers*, Vol 45, No. 1: 1–48, March 1998.

21) See Calvo, G. A. and Reinhart, C. M. "Fear of Floating", 2000a. Calvo, G. A. andReinhart, C. M. "Fixing for Your Life", 2000b.

icy adapted to local conditions is very important, particularly in industrialized countries where monetary policy is the main policy instrument for macroeconomic management. Under floating regimes, a nominal anchor is needed to guide monetary policy. A widely used anchor is a clearly articulated monetary rule such as to achieve a target growth rate for some monetary aggregates (reserve money, M1, M2, etc.).

An alternative anchor, increasingly adopted in the period of 1990–2005 is a publicly announced medium-term target for inflation. Under both arrangements, the anchor becomes the intermediate target for monetary policy to which the monetary authority commits itself to achieve. Independence of the monetary authority and strong institutional commitment are critical requirements for both options to be effectively implemented. However, these conditions hardly exist in most developing countries. The degree of monetary policy discretion is very limited in the soft peg regimes because monetary policy is reserved almost exclusively to defend the peg to ensure credibility. The monetary authority stands ready to buy and sell foreign exchange to maintain the pre-announced rate or band. This commitment provides a clear and easily monitored nominal anchor for monetary policy particularly in countries trying to stabilize after a period of high inflation.

Experience has shown that reducing high inflation with a traditional money-based stabilization can be maintained for a short period only. The lender of last resort role of the central bank exists in a soft peg regime, but it could be inconsistent with the nominal peg in a country open to international capital flows. The loss of confidence following a liquidity crisis could start a currency crisis, and the new liquidity created by the central bank would support the run on international reserves; the central bank would effectively finance the run on the banks by pumping in credit only to repurchase the liquidity in selling foreign exchange (Indonesia in 1998, Thailand in 1997, Turkey in 2000). Among emerging market economies five countries have adopted inflation targeting: Brazil, Czech Republic, Israel, Poland, and South Africa.

By dampening and guiding price expectations, a fixed exchange rate allows a quicker control on inflation without excessive contraction of aggregate demand. In fact, there are few instances in which a successful disinflation from triple digit inflation has taken place without the use of an exchange rate anchor. The main disadvantage of a fixed exchange rate regime as a nominal anchor is that the link between the parity and the fundamentals may be broken, which would lead to overvaluation, currency crisis, and eventually abandonment of the stabilization program.

An exchange rate based a disinflation program should include a smooth exit strategy from

its pegged arrangement once prices are adequately stabilized. Introducing and gradually widening a band when stabilization gains credibility and the currency is strong would be an appropriate exit strategy (Debelle and others 1998, Eichengreen and others 1998). In hard peg regimes monetary autonomy is either fully surrendered to another country (currency union or dollarization), or monetary policy is tied to rigid rules under legislation (currency board). The ability of the monetary authority to act as lender of last resort in the face of system-wide liquidity crunches is very limited.[22)]

Therefore, the hard peg regimes are more prone to bank runs and financial panics than countries with full-fledged central banks. This inability can be compensated for by creation of a banking sector stabilization fund as has been done in Bulgaria or contingent international credit line such as Argentina's repo facility to help buffer potential financial sector problems. Another weakness of the hard peg regimes, particularly dollarization, is the loss of seigniorage which may amount to 2–3% of GDP in developing countries. This may be offset by political arrangements for transferring seigniorage from the anchor country to the dollarizing country. Such arrangements are in place in the Rand area.[23)]

The intermediate regimes impose some constraints on monetary policy with the degree of policy independence being determined by the width of the band. In a crawling band regime, the parity that is pre-announced acts as a nominal anchor only in an attenuated way; it compels the correction of excess short-run monetary emission, but the endogeneity of the crawl in the longer run may not sufficiently pin down the price level. Therefore, a stronger nominal anchor may be needed to guide the monetary policy in the longer-term.

A key merit of floating regimes is that they help deflect or absorb the impact of adverse external and domestic shocks (deterioration in terms of trade, increases in the international interest rate, reversals of capital flows, contraction in world demand, natural disasters), and avoid large costs to the real economy. These shocks usually necessitate an adjustment in the real exchange rate. Because domestic prices move slowly, it is both faster and less costly to have

22) Eichengreen B., "International Monetary Arrangements for the 21st Century, Brookings Institutions", 1994; also Crocket, A.. "Monetary Implications of Increased Capital Flows". *In Changing Capital Markets: Implications for Policy*, Federal Reserve Bank of Kansas, 1994. Debelle, G., Masson, P., Savastano, M. and Sharma, S. "Inflation Targeting as a Framework of Monetary Policy", *IMF Economic Issues 15*, 1998.

23) For the detailed data on Rand area see the IMF paper (ibidem). Also, Eichengreen, B, P. Masson, H. Bredenkamp, B. Johnston, J. Haman, E. Jadresic, and I. Otker, "Exit Strategies: Policy Options for Countries Seeking Greater Exchange Rate Flexibility", IMF Occasional Paper 168, 1998.

the nominal exchange rate respond to a shock. Strong wage indexation may increase the degree of pass-through from exchange rate to prices and limit the shock buffering capacity of the floating regimes.

The shock absorption capacity of the pegged regimes, particularly the hard peg regimes, is very limited. Given the nominal exchange rate is fixed, the shocks are largely absorbed by changes in economic activity and employment which may be a painful and protracted process. Wage and price flexibility, and factor mobility are therefore essential in these regimes to moderate the impact of adverse shocks. Because monetary policy subordinates the need of maintaining the peg in these regimes, the fiscal policy must be flexible enough to mitigate the impact of the shocks. The intermediate regimes provide some exchange rate flexibility to help deflect or absorb an important part of the shocks. The shock absorption capacity of the regime would depend on the width of the band.

The degree of economic integration among countries has important implications for the exchange rate regime they choose. Countries that are highly integrated with each other with respect to trade and other economic and political relations, and have high labor mobility, symmetric shocks, and high income correlation are likely to constitute an optimum currency area (OCA). It is beneficial for these countries to establish regional cooperation on exchange rate policy. Because integration substantially reduces the benefits of their own monetary policy, small countries are better off pegging their currencies to a large neighbor's or adopt a neighbor's currency as their own. These arrangements would reduce transaction costs and interest rates, eliminate exchange risks, and encourage further integration and growth. In countries satisfying OCA conditions, but where a regional common currency is not politically feasible, for example in East Asia, McKinnon (ibidem, 1999) advises establishing efficient common monetary rules to stabilize their exchange rates to avoid competitive devaluation under a common dollar peg.[24)]

The second approach is to create a regional currency union. This is a more ambitious approach because it may involve giving up national currencies and building regional monetary institutions and macroeconomic coordination. The largest currency union is EMU. Other examples include CFA franc zone, the East Caribbean dollar area, and the Common Monetary Area. The CFA franc zone consists of two separate monetary unions of sub-Saharan African countries and the Comoros.

A third approach is common links to an outside currency or a basket of currencies as the

24) McKinnon, R. I., "Euroland and Asia in a Dollar-Based International Monetary System: Mundell Revisited", 1999.

monetary standard for the regional group. This approach avoids the need to create complex intra-regional institutions such as a central bank, but requires very close policy coordination among the members of the group. This may be an option in the longer term for ASEAN countries. For these groups a currency union does not seem to be feasible at this time because intra-regional trade links, while important, are weaker than in Europe, and countries in these groups seem to be subject to much greater asymmetry of shocks.

4.4 *Macroeconomic Policy Objectives and the choice of foreign exchange rate system — A Reevaluation*

Considerations affecting the choice of an exchange rate regime may change over time. As country's circumstances and international environment change, so does the exchange rate regime appropriate for the country. When a country has a long history of high inflation, for example, a pegged exchange rate may be the best option for the country to guide expectations and reduce inflation quickly and without excessive cost to the economy. As inflation is brought under control, confidence is built, and the country gradually integrates into international capital markets, more flexibility would be needed in the exchange rate regime to reduce vulnerability to currency crisis and free the monetary policy to steer the domestic economy. Moving from one regime to another requires careful preparation to avoid economic disruption.

In general, countries can make a successful transition if they make the shift during a period of calm in the foreign exchange market or when there is a tendency for the exchange rate to appreciate (Eichengreen and others 1998, ibidem). Moving from soft pegs towards more flexibility requires an alternative anchor for monetary policy and inflation expectations to ensure a credible commitment to low inflation. Improvement in institutional arrangements for a successful implementation of the new anchor, such as granting operational independence to the monetary authority, should be completed before the transition starts. Moving to a hard peg regime requires a different set of preparations. The need for flexible wages, prices, and fiscal policy is greater under a hard peg regime because the exchange rate is not available for adjusting to an adverse shock. Therefore, it is important to put these policy pre-conditions in place before the switch is made.[25)]

25) This refers to countries such as: Antigua and Barbuda, Dominica, Grenada, St Kitts and Nevis, St Lucia, St Vincent and the Grenadines, Anguilla, and Montserrat; ASEAN countries: Brunei, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, THailand, and Vietnam; and members of Mercosur: Argentina, Brazil, Paraguay, Uruguay, Bolivia (associate member), and Chile (associate member).

During the Asian currency crisis, the affected countries let their currencies float when they could no longer defend their pegs. Substantial loss of policy credibility and economic disruption were probably unavoidable in such circumstances. Nevertheless, the disruption can be minimized if the exit is combined with a firming of monetary and fiscal policies, and improving prudential supervision and transparency in the financial sector to restore confidence and credibility. International financial assistance to replenish foreign reserves can play a critical role to stabilize the foreign exchange market during the transition.

According to the theorem of the impossible trinity, a country cannot have simultaneously a fixed exchange rate, free capital mobility, and an independent monetary policy dedicated to domestic goals. Only two of these three objectives can be achieved at a time. Which one should be given up depends on the country circumstances. For example, countries satisfying on optimum currency area criterion would give up monetary discretion, while countries strongly integrated in the global capital markets would likely give up the fixed exchange rate. Some authors argue that the impossible trinity poses a false dilemma because there is no reason why developing economies have to permit free mobility of capital (Bhagwati 1998a and 1998b, Rodrik 1998, ibidem).[26)]

The fact that currency crises are almost invariably the result of private capital flow reversals, has led these authors to argue that some restrictions on capital mobility, especially when the banking sector is inadequately regulated or supervised, can reduce the risk of a currency crisis or strongly moderate its impact. Selective capital inflows would discourage highly volatile "hot money" but facilitate the longer-term capital inflows. Therefore, with capital controls, it may be possible to give up a little bit of all three objectives and achieve in-part all three simultaneously.

The exchange rate is but one of the macroeconomic policy instruments available to the government to help maintain external and internal balances simultaneously. It could be an effective instrument only if it is used in coordination with other instruments and supported by requisite institutional and regulatory structures. Monetary policy is an integral part of the exchange rate system. As noted earlier, constraints on monetary policy are particularly stringent under a pegged regime: with substantial openness to international capital markets, mainte-

26) Rodrik, D., "Who Needs Capital-Account Convertibility", in: Should the IMF Purse Capital-Account Convertibility, Essay in International Finance No. 207, 1998; Bhagwati, J., "Why Free Capital Mobility May be Hazardous to Your Heath: Lessons from the Latest Financial Crisis", November 1998a. Bhagwati, J., "The Capital Myth", Foreign Affairs, May/June, 1998b.

nance of exchange rate pegs requires full commitment of monetary policy. Failure to establish fiscal discipline will lead a country to crisis under any exchange rate regime. A sounder, better managed, and better supervised financial system and prudent foreign exchange exposure of the banking sector and domestic businesses are also important requirements for an exchange rate regime to successfully maintain competitiveness and avoid a currency crisis. Under some circumstances, capital controls can be a useful complement to macroeconomic policies to limit short-term speculative flows, reduce the vulnerability of soft pegs to currency crisis and contagion, and help insulate the real economy from excessive movements in the exchange rate.[27)]

For capital controls to be effective a number of general principles need to be observed. First, price-related controls are preferable to prohibitions and quantitative controls because they allow agents in the market to freely determine whether or not a particular transaction is worth undertaking. Taxing inflows would also be an effective alternative. Second, it is useful to distinguish between controls on capital outflows that are imposed to resist downward pressures on the exchange rate and controls on capital inflows that are intended to discourage particular forms of inflows (short-term speculative inflows, or hot money). Experience shows that inward controls would be more effective. Third, restrictions should be imposed on short-term portfolio inflows of a speculative nature which pose particular risks of currency crisis rather than longer-term inflows and direct investment. Evidence on effectiveness of capital controls is limited and to some extent contradictory.[28)]

Controls on capital inflows are not free from costs. They reduce a country's access to foreign savings and create incentives for corruption and evasion. But the short-term benefits may outweigh these longer-term costs (for example Malaysia in 1997–98). They may be helpful if used as an addition to rather than a substitute for sound macroeconomic policies. However, such controls lose their effectiveness over time. The main danger is that they may tempt governments into excessive reliance on them. Therefore, controls should be removed gradually in an orderly way as the economy develops, the financial sector is strengthened, and prudential

27) China, India, and Chile, avoided contagion in the 1990s in part because of selective use of controls on capital inflows. It was argued that the East Asian crisis is explained partly by the overly-rapid liberalization of capital account — liberalization before upgrading risk management capacity in banks and businesses, strengthening prudential supervision and regulation, and reinforcing transparency and market discipline in the financial sector.

28) One recent study indicates that Chile with its selective controls has managed to lengthen the maturity of capital inflows and its foreign debt significantly thereby reducing the country's vulnerability to contagion. See Edwards, S. (2001): "Exchange Rate Regimes, Capital Flows and Crisis Prevention", *NBER Working Paper No. w8529* Issued in October 2001.

guidelines are put in place. To facilitate a smooth exit from the controls, it is desirable to begin easing the controls when the exchange rate is not under pressure, financial markets and regulatory framework are strengthened, and the necessary institutional arrangements are made to switch to a new anchor for monetary policy which is needed as monetary policy gains independence with increased flexibility in the exchange rate system.[29)]

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