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Asian Crisis: a Financial Safeguard or
Financial Bonanza?**

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June 2001

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Revisiting the Case for a Tobin Tax Post Asian Crisis: a Financial Safeguard or Financial Bonanza?

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All dollars refer to US dollars.

“It would be a tragedy if we were to continue business as usual. I think it is crucial to establish a cooperative mechanism for monitoring progress and coordinating our activities to meet the international development goals for 2015”
(IMF Managing Director, Horst Kohler, 2001, p.4).

1. Introduction

The East Asian economies have experienced a rapid rebound in regional economic activity since the crisis of 1997-98. While this is frequently taken as a sign of the region’s oft-repeated economic “strengths” (such as their high saving rates), in actuality, such a post-crisis “V-shaped” recovery is not unique to East Asia, typifying financial crises in developing economies in general (Eichengreen and Rose, 2001). What is somewhat atypical is the severity of the crisis (i.e. outright economic collapse) in the regional economies. This is due to the so-called capital account nature of the crisis, i.e. the initial crisis-induced devaluation and the concomitant appreciation of external liabilities (which are often foreign currency based and unhedged) appear to act as triggers that perpetuate large-scale capital outflows¹. In turn this causes a further decline in the currency’s value that was anticipated, leading to a vicious spiral of devaluation leading to *illiquidity* and *insolvency*. The rise in interest rates and collapse in asset prices that tend invariably to accompany currency devaluations only aggravate this situation. Dornbusch (2001) refers to this scenario as a “new-style” crisis. As he states,

(a) new-style crisis involves doubt about credit worthiness of the balance sheet of a significant part of the economy - private or public - and the exchange rate...when there is a question about one, the implied capital flight

¹ Over fifty percent of long-term external debt in developing economies (for which data are available) is held in US dollars, with the remainder being held primarily in euros and Japanese yen. This inability by developing economies to borrow externally in their local currency has come to be referred to as the “original sin” hypothesis, a term attributed to Hausmann (1999). It is unclear why many developing countries are afflicted by this original sin phenomenon. McLean and Shreshta (2001) explore this issue using a case-study approach involving Australia, New Zealand and South Africa, all small and open economies that borrow internationally in domestic currencies. They conclude that countries where domestic long-term government debt is widely held by residents are more likely to convince non-residents to hold debt denominated in local currencies. They further suggest that the development of the Eurobond markets for debt denominated in Australian dollars, New Zealand dollar and the South African rand were instrumental in fortifying international access to domestic currency denominated debt.

makes it immediately a question about both...the central part of the new-style crisis is the focus on balance sheets and capital flight...Because new-style crises involve the national balance sheet they involve a far more dramatic impact on economic activity than mere current account disturbances..(p.2).

An important point underscored by these new-style or capital account crises is that sound macroeconomic policies and robust domestic financial systems are certainly *necessary* but clearly *insufficient* to make a country resistant to sharp reversals in capital flows. As noted recently by Fischer (2001),

(t)he huge expansion of international capital flows of the last decade has delivered significant economic benefits to borrowers and lenders alike. But as we have seen all too often in recent years, this silver lining has a cloud. Countries have been exposed to periodic crises of confidence when large inflows of capital suddenly go into reverse. As capital flows have increased relative to the size of national economies, so too has the disruption that such reversals can cause. The spread of financial crisis is far from random: contagion tends to hit weaker economies more quickly and more forcefully than strong ones. But even so, it is hard to believe that the speed and severity with which crises spread can be justified entirely by economic fundamentals (p.2).

Sound economic policies must be supplemented with appropriate financial safeguards against liquidity crises (Bussiere and Mulder, 1999, Feldstein, 1998 and World Bank, 2000). Financial safeguards can be broadly divided into three categories, viz. access to "adequate" liquidity support (via reserve holdings and contingent credit lines), prudential regulations, and restraints on external financial flows (Figure 1). Such restraints can be further subdivided into those that focus on capital account transactions and those that pertain to foreign currency transactions per se. The latter in turn could involve quantitative/administrative restrictions, such as limits on offshore currency trading and non-internationalization of currencies, or could be market or price based, such as in the form of an international currency tax. This is where a Tobin tax fits in. This paper analyses whether international currency taxation would be effective in calming exchange rate volatility and avoiding currency crises. It discusses the manner in which such a tax ought to be implemented and relates the discussion to the important issue of resource mobilization for developing countries.

The remainder of the paper is organized as follows. By way of background, the next section highlights recent dynamics of the boom and bust in international capital flows in East Asia, as well as steps taken by the regional economies in developing self-help mechanisms against future liquidity crises. Section 3 turns to the issue of the Tobin tax, reviewing available research on the tax and developing a simple model to provide insight into how the Tobin tax ought to be implemented, an issue that the literature has largely tended to ignore. To preview the main conclusion, it is argued that, contrary to conventional wisdom, the currency tax should be aimed at *crisis prevention* rather than *crisis management*. In other words, it ought to be aimed at preventing or moderating the precrisis boom rather than attempting to counter the bust that inevitably follows. Building on the conclusion, there is a simple analytical issue that appears to make such an international currency tax an appealing idea. If the tax proves relatively futile in limiting a capital inflow boom it could be relatively effective at mobilizing the necessary resources for developmental purposes. Section 4 briefly examines how much revenue might be expected to be generated from an international currency tax and how it might be disbursed. As will be noted in the concluding section, the need to raise additional resources is of particular importance for developing countries at a time when the process of economic globalization is making it increasingly difficult for governments to tax the full range of economic activities, consequently making fiscal sustainability ever harder to attain².

2. Dynamics of Capital Flows in East Asia in the Late 1990s

There are by now some comprehensive discussions of the East Asian crisis and we do not intend on going over well-traveled terrain³. Suffice it to note that the region-wide contagion in East Asia may be broadly divided into four sub-periods. The devaluation of the

² Persistent or anticipated fiscal deficits in turn could lead to balance of payments crises (Krugman, 1979). In fact, Culpeper (2001) has suggested that “an early causality of global financial instability was funding for official development cooperation, simply because of the perceived need to reduce donor government expenditures and eliminate deficits” (p.7).

³ For detailed accounts of the East Asian crisis, see Berg (1999), Corsetti et al. (1999), Radelet and

Thai baht was the first period (July 1997). The second period was when the contagion spread to the other Southeast Asian countries (Indonesia, Malaysia and the Philippines specifically) between July and mid October 1997. The third period was when the crisis engulfed the larger East Asian region (Hong Kong, Singapore, South Korea and Taiwan) following the pre-emptive devaluation of the New Taiwan dollar in October 1997. Once the South Korean won was devalued in November 1997, this then reverberated back to Southeast Asia and eventually emerging economies in general. This was the fourth period (Berg, 1999). The crisis did intensify in mid 1998, but this was due to a pronounced liquidity crunch in emerging markets as a whole following the Russian debt moratorium.

2.1 Crisis Scenario

Balance of payments data from the IMF reveal that the Asia-5 economies (viz. Indonesia, Korea, Malaysia, Thailand and the Philippines) experienced sharp reversal in net private capital flows of almost \$96 billion between 1996 and 1998 (Table 1). This reversal was largely due to the “other net investment” category which primarily consists of short term bank lending. The entire \$60 billion of inflows into the Asia-5 economies of this category in 1995 and 1996 were lost in the next two years as international banks became unwilling to roll over existing short term debts to the region, let alone extend new ones. The sudden reversal in bank lending from the region is often portrayed as strong evidence of a bank panic model (Chang and Velasco, 1998, 1999)⁴. Another important aspect of the sharp contraction of private market financing is the decline in portfolio flows in 1997-98 following the initial bank panic, as investors too tried to scale down their regional financial exposures (“flight to quality”). Net portfolio investment saw a sudden and sharp turnaround of almost

Sachs (1998) and Rajan (1999).

⁴ Of course, these *ex-post* swings in bank flows are only *necessary* and not *sufficient* evidence in support of a bank panic model. Accordingly, at least in the case of Thailand, Rajan (2001a) has provided data on the foreign asset and liability positions in order to determine its *ex-ante* vulnerability to an external shock (such as a devaluation) and then discusses the movements in capital withdrawals from the country following the shock.

\$34 billion between 1996 and 1998 (from \$25.5 billion in 1996 to -\$8 billion in 1998). In contrast to bank and portfolio flows, FDI flows have remained very stable during the crisis period, averaging about \$10 billion⁵.

2.2 Stabilization and Recovery

While capital flows have varied significantly across the Asia-5 economies, in aggregate, net private capital outflows, which totaled \$42 billion in 1997 and 1998, slowed down to \$19 billion in 1999 and 2000. The growth performance in the regional economies broadly mirrored the dynamics of capital flows (Figure 2). Having contracted markedly in 1998, due mainly to drops in capital investment and private consumption, the regional economies bounced back in 1999 and consolidated their respective positions in 2000. The economic revival essentially began in early 1999 as monetary and fiscal policies remained highly accommodative (Boorman et al., 2000).

a) *Bank Flows*

Closer examination of IMF data on recent capital flows to the Asia-5 economies reveals some important points. First, bank-related outflows have continued unabated (i.e. the “other net investment” component). The sustained bank outflows from the regional occurred despite a renewed willingness of lenders to maintain, if not slightly increase, exposures to the region because of repayments of external liabilities to commercial banks. These repayments were largely concentrated in Thailand and Indonesia (IIF, 2001). It is important to note that a central difference between the outflows in 1997-98 and 2000 was that the former was largely unanticipated and thus highly disruptive. In the latter, the loan repayments had been anticipated and scheduled. According to the IIF (2001), net repayments by *all* Asian economies to banks totaled almost \$100 billion in 1998 and 1999. Additional insight might be obtained from the BIS data on nationality of creditor banks (Rajan

⁵ We do not discuss possible interactions between the various types of capital flows (see Bird and Rajan, 2001c and references cited within).

and Siregar, 2001). While all major creditor banks between December 1997 and June 1998 reduced their stocks of outstanding loans to the region, this trend continued between June 1998 and June 1999 only in the cases of Japanese and UK banks, as most of the repayments by Asian borrowers were focused on these two creditors. In contrast, outstanding loans by US, French and German banks stabilized.

b) Equity Flows

What about equity investments? Portfolio equity investment flows appeared to have stabilized and turned positive (\$7 to \$8 billion in aggregate in 1999-2000). FDI flows continued being positive mainly due to sharply depreciated asset values and exchange rates and relaxation of foreign ownership rules which spurred merger and acquisitions (M&As) activities in Korea. However, Asia-5 economies' share of FDI to the whole of the developing East Asian region has been on a declining trend, particularly so in the case of Southeast Asian-4 (Tables 2 and 3). The decline appears to be a reflection of growing concerns by international investors about the commitment by some of the economies to structural reforms, along with heightened political uncertainties in a number of these countries (ARIC, 2001). While it is certainly revealing that FDI has *not* been stimulated in the regional economies despite large currency depreciations and reductions in domestic asset values, Indonesia was the only country where the actual *stock* of FDI continued to be eroded with net outflows since 1998. Two way Granger-causality between direct investment and GDP for Indonesia using quarterly data from second quarter of 1986 to the fourth quarter of 1999 is instructive. The causality test reveals only one direction causality to be significant, viz. movements in direct investment Granger-cause currency variations in GDP growth (with a two period lag). In other words, the collapse of direct investment in Indonesia (both domestic and foreign) may have contributed significantly to a worsening of the country's growth (Rajan and Siregar, 2001).

2.3 Reserve Accumulation and Developing Financial Resilience

Large-scale reserve holdings accumulated by the East Asian economies in the early 1990s helped to somewhat cushion the exchange rate depreciations in 1997-98. Also of importance is the fact that the regional economies began re-accumulating international reserve holdings following the sharp declines in 1997, implying that the current account surpluses exceeded the total capital outflows (Table 1; Figure 3). The replenishment and accumulation of international reserves, on the one hand, as well as the lengthening of the average maturity profile of external indebtedness of the regional economies (Table 4), on the other, has significantly improved the external positions of the regional economies. As a result the region's vulnerability to the destabilizing effects of volatile and easily reversible capital flows has been substantially eased⁶. The regional economies have also taken efforts to buttress available resources through regional initiatives such as the creation of a network of bilateral currency swaps and repurchase agreements as a "firewall" against future financial crises. This has since come to be termed the Chiang Mai Initiative (CMI) following an agreement in Chiang-Mai, Thailand on May 6, 2000 (Rajan, 2001b,c).

Beyond liquidity enhancement and attempts to implement prudential measures on banks' borrowing in foreign currency and to diversify financial systems (i.e. move away from the hitherto over-dependence on banks), the regional economies have also taken steps to impose restraints on capital flows unilaterally⁷. For instance, as is well known, Malaysia imposed capital controls in September 1998. While the Malaysian controls have since been modified and somewhat loosened, an exit tax remains in place to try and prevent the buildup of "hot money". Other countries have taken steps to curb currency speculation through the

⁶ The extent of short-term indebtedness has been found to be a key indicator of (il)liquidity indicator and a robust predictor of financial crises (Bussiere and Mulder, 1999, Dadush et al., 2000, Rodrik and Velasco, 1999 and World Bank, 2000). According to Dadush et al., on the basis of data for 33 developing economies, the elasticity of short-term debt with GDP growth is 0.9 when there is a positive shock to output and -1.8 when there is a negative shock. This extreme reversibility of short-term debt in the event of negative shock exposes borrowers to liquidity runs and systemic crises.

⁷ See Johnston and Otker-Rube (1999) and Abrams and Beato (1998) for in-depth discussions of prudential regulations.

imposition of quantitative restrictions on foreign currency flows; Thailand is the most prominent example in this regard (Ishii et al., 2001). The IMF has been fairly supportive of such unilateral actions to restrain international financial flows. For instance, a recent study on offshore trading of foreign currencies has in fact concluded that measures to limit the offshore trading of currencies “could be effective if they were comprehensive and effectively enforced, and were accompanied by consistent macroeconomic policies and structural reforms.” (Ishii et al., 2001, p.1). This leads to the following question: if such ad hoc, unilaterally imposed quantitative restrictions and administrative curbs on foreign currency and capital flows are viewed as being effective financial safeguards and have received the open support even by the IMF, would not a preferable alternative be market-based controls on financial flows that are applied uniformly across countries? This is where international currency taxation comes in.

3. The Economics of International Currency Taxation

A tax on international foreign exchange (forex) activities was originally proposed by James Tobin (1978) and has been extensively discussed since then⁸. The so-called Tobin tax is essentially a permanent, uniform, ad-valorem transactions tax on forex flows. Unlike quantitative restrictions on currency flows or price and administrative capital restraints, the Tobin tax cannot be applied unilaterally as this will merely lead to a migration of forex transactions to untaxed countries (i.e. avoidance via migration)⁹. As long as the Tobin tax is levied on the trading site rather than the booking or settlement site, the high fixed costs

⁸ Various aspects of the Tobin tax are explored in the papers collected in a United Nations Development Program-sponsored book (ul Haq, et al., eds., 1996), by papers in the *Economic Journal Policy Forum* (volume 105, 1995), and in Davidson (1997), Spahn (1996) and Raffer (1998) provide fairly detailed reviews of the ul Haq et al. book. Kasa (1999) is a succinct summary of some of the main issues pertaining to the Tobin tax.

⁹ A subtle, but conceptually useful distinction to make is that between tax *evasion* and *avoidance*. The latter is a situation in which the taxpayer makes use of all available loopholes and ambiguities in the statutes, including leaving the country altogether (if there is no control on capital flows). Tax avoidance is entirely legal (if not always moral), and is therefore also referred to as tax *planning*. Tax evasion is illegal and carries with it the possible imposition of penalties if caught. Thus, if there existed capital controls (on outflows) and capital flight were done through the parallel market, that would be tax evasion.

involved in developing the human and physical infrastructure, ought to act as a disincentive against migration. - The top two financial centers (UK, US) accounted for half of global forex turnover in 1998, while the top ten accounted for 86 per cent. - Of course, this could lead to a steady erosion of effectiveness over time insofar as new trading sites ("tax havens") gradually develop and strengthen¹⁰.

If the Tobin tax is limited to spot transactions (as originally suggested by James Tobin), this will lead to a tax-saving reallocation of financial transactions from traditional spot transactions to derivative instruments. As such, to prevent tax avoidance via "asset substitution" or "changed product mix", it ought to be applied on all derivative products such as forwards, futures, options and swaps. There is broad consensus that the tax must be levied at a rate designed to minimize the incentive to undertake synthetic transactions in order to evade the tax (i.e. geographical or asset substitution) or to alter the forex market structure from a decentralized, dealer-driven market to one that is centralized and customer-driven (Garber, 1996 and Kenen, 1996). Suggestions of the "most appropriate" rate of taxation have generally ranged between 0.1 and 0.25 percent.

Proponents of a Tobin tax have often suggested that it might have a useful role to play in reducing foreign currency outflows. In contrast, detractors of the Tobin tax correctly emphasize that, with sizeable prospective devaluations, a marginal tax on currency transactions will be ineffective. What matters is the expected returns from speculation relative to the costs defined to include payment of the tax. In circumstances where expectations of currency devaluation increase, a tax will become progressively less effective. Indeed, it will be in the midst of a currency crisis, when its stabilizing properties are most required, that a currency tax will be at its least effective because of the large anticipated gains from speculation. As Dornbusch (1998) points out, "(a)nyone who contemplates 30 per cent

¹⁰ In what is currently a minority opinion, Spahn (1996) argues that taxes could be levied unilaterally, though global implementation was seen as preferable (also see fn 12). While punitive taxes exist on world stock markets without apparent problems, the only way individual countries can unilaterally apply taxes on international financial transactions is if they simultaneously impose quantitative prohibitions, as in the case of Brazil exit tax on capital flows, for instance (Ariyoshi, et al., 2000).

depreciation will happily pay 0.1 per cent Tobin tax” (p.2). Davidson (1998) and Kasa (1999) make similar points. The comparison of expected exchange rate change and size of a currency tax is an important issue that has largely been ignored by the Tobin tax literature. It warrants deeper exploration and is the focus of the next section.

3.1 A Simple Model

In what follows, we provide a simple formalization of the potential effects of a Tobin tax. We consider the simplest case of only two countries. Let:

i_h = home country nominal interest rate;

i_f = foreign country nominal interest rate;

s = spot exchange rate (domestic currency per unit of foreign currency);

s^e = expected exchange rate;

y = duration of investment measured as the number of years;

t = currency tax per transaction (the Tobin tax)

We assume that both the principal and interest earnings are subject to the tax (paid in domestic currency). We follow Frankel (1996) in modeling the Tobin tax as a levy on interest earnings on foreign income¹¹. By arbitrage, the after-tax returns should be equalized between both countries. Thus,

$$[(1 - t)/(1 + t)](1 + yi_f) (s^e/s) = (1 + yi_h). \quad (1)$$

The left-hand side of equation (1) is the after-tax returns on investing in the foreign country. Note that the tax on foreign interest income earned will be penalized twice, once when

¹¹ While this definition is broadly also consistent with Ariyoshi et al. (2000), strictly speaking, the Tobin tax ought properly to be applied to international currency trading, i.e. creating some friction for all gross forex transactions.

entering and once when leaving the country. The right-hand side is simply the return from investing at home. Solving for the foreign rate of return gives:

$$i_f = (1/y)[(s/s^e)(1+t)/(1-t) - 1] + i_h[(1+t)/(1-t)](s/s^e). \quad (2)$$

Dropping the second term on the right hand side in equation (3), without loss of much generality, and assuming $s = s^e$, we have:

$$i_f = (1/y)[2t/(1-t)]. \quad (3)$$

This equation implies that, *ceteris paribus*, the longer the investment-duration, the lower the “required” foreign rate of return (i.e. $\partial i_f / \partial y < 0$). In other words, the burden of the Tobin tax is inversely related to the duration of the foreign investment. For instance, assume $t = 0.1$ (10 basis points) for an investment lasting one year, the required return on investment needed to attract foreign capital is about two per cent a year, while it is a massive 115 per cent for an investment with a one week horizon. However, this result is based on a special case of $s^e = s$ (as implicitly assumed by Frankel, 1996), and is not generalizable.

Using equation (2) and taking the first derivative of it with respect to y , yields:

$$(\partial i_f / \partial y) = -(1/y^2)[(1+t)/(1-t)(s/s^e) - 1]. \quad (4)$$

The more general case is shown by equation (4). As long as the condition in equation (5) below is satisfied, the result that $(\partial i_f / \partial y) < 0$, goes through:

$$(s^e/s) < (1+t)/(1-t). \quad (5)$$

For $t = 0.1$ (10 per cent), this implies that (s^e/s) should be less than 1.2. If the home country is faced with a currency crisis, the downward pressure on the home currency implies that $(s^e/s) > 1$. It is not uncommon to expect a currency under attack to depreciate by over 20 per cent and the condition shown by equation (5) is therefore violated. The model suggests that if a Tobin tax is applied at a punitive rate during a crisis period (i.e. a period of “sharp” expected currency depreciation), it will in fact have the perverse effect of being more onerous on longer term capital flows. This conclusion stands in sharp contrast to Tobin (1996) who has noted that:

the essential property of the transactions tax - the beauty part is that this simple, one-parameter tax would automatically penalize short-horizon round trips, while negligibly affecting the incentives for commodity trade and long term capital investments (p.xii).

Certainly the preceding model is overly simplified, abstracts heavily from reality, and is open to various forms of criticisms. It is not meant to be an authoritative, let alone, the final word on the subject. Nevertheless, it does stress the important point that the possibility of “perverse” effects of such a tax cannot be discounted. Davidson (1997) has argued that, insofar as agents engaged in international trade in goods and services, foreign direct investment (FDI) and other “productive” cross-border activities hedge their financial transactions, while those engaged in flows that are short term in nature (“speculators”) do not, it is possible for the Tobin tax to be relatively more burdensome on the former. He reaches this conclusion by assuming that each hedging operation requires four or more financial transactions (each of which will be taxed). In contrast, speculative transactions involve only two cross-border flows, i.e. a single round trip (also see McMahon, 2001).

3.2 How Should a Tobin Tax be Implemented?: Pro versus Counter-cyclical?

If anything, a policy implication from the model outlined above appears to be that the international currency tax ought to be designed as a *crisis prevention* instrument rather than

one for *crisis management*¹². This is consistent with the discussion of financial safeguards noted in section 2 as well as with other empirical studies on financial restraints in general which indicate that they are more effective at preventing “excessive” capital inflows than at stemming capital flight (for instance, see Ariyoshi, et al., 2000, Mathieson and Rojas-Suarez, 1993 and Reinhart and Montiel, 1999). To the extent that during a boom there will be an anticipated upward pressure on the domestic currency, the burden of the Tobin tax will in fact vary inversely with the maturity of the capital inflow. This result indicates that a Tobin tax ought to be applied counter-cyclically, i.e. stiffened during a boom and loosened during a bust. This stands in sharp contrast to the general argument for a tightening or imposition of temporary controls during a crisis, but is consistent with the Chilean experience with interest free deposit requirements, as well as the more general literature which has shown restraints to be more effective in preventing booms than at mitigating a bust. The fact that a Tobin tax is relatively ineffective during a crisis period implies that a tax levied at a “moderate rate” will not be able to defend a regime that is inherently unsustainable. In other words, the discipline of the market will remain in operation despite the levy; it does not advance policy failures. Taking this conclusion a step further, a Tobin tax or any form of restraints on currency and capital flows imposed in the midst of a crisis could lead to a self-validating panic and crisis (for instance, see Dellas and Stockman, 1993). They should therefore best be introduced during a period of relative calm¹³.

Skeptics may suggest that such a tax would still be ineffective as a preventive measure, arguing that the elasticity of foreign currency flows is low. Parallels could be drawn with the Chilean experience with and management of its interest-free deposit requirement which seem to indicate the restraints have not significantly affected the aggregate *level* of capital inflows and therefore the extent of real exchange rate appreciation (Table 5 compares

¹² This is at odds with Tobin (and Keynes before him), Spahn (1996) and others who recommend raising of tax rates during a crisis, seeing it as a preventive measure. More precisely, Spahn (1996) has proposed a two-tier currency tax - a basic tax that remains constant and an extraordinary surcharge imposed during crisis episodes to deter speculative attacks. See Stosky (1996) for a critique of the Spahn proposal.

¹³ The Dellas-Stockman argument applies equally to suggestions that while the Tobin tax ought to be reduced during a crisis, administrative controls might be used to counter steep downward pressures

the main characteristics of the Chilean reserve requirements with the Tobin tax). Two points should be noted in this regard, One, insofar as the Chilean case of unilateral capital controls is applicable to a multilateral tax of foreign currency flows, studies suggest that the controls do appear to have been effective in altering the composition of capital flows. Specifically, they appear to have extended the *duration* or maturity structure of overall capital inflows (for instance, see Ariyoshi et al., 2000 and De Gregario et al., 2000). Two, even if one accepts that the price elasticity of capital flows is rather low, this raises the effectiveness of the instrument as a revenue generator¹⁴. As such, rather than focusing on the impact of aggregate capital flows and volatility, the strength of the argument for currency taxation lies in cashing in on it. We turn to the issue of resource mobilization in the remainder of this paper.

4. Revenue Generation and Utilization

From the perspective of revenue generation, the low elasticity is exactly what is needed. After all, governments tax many activities that could have negative externalities, such as liquor and tobacco. If such “sin” taxes are effective in stopping people from taking up such activities, that is good news. If they are ineffective, that is also good news to the extent that the tax will generate revenue, part of which may be used to finance the cost of providing health care. Can the analogy be applied to currency taxation? The key point is that the case for the Tobin tax does not depend centrally on sophisticated and complex calculations of tax rates and elasticities. If the elasticity with respect to the tax turns out to be relatively high, the effect will be to stabilize forex markets and its preventive role will be significant. If the elasticity turns out to be relatively low, while the tax may not be an effective financial

(also see fns 10 and 11).

¹⁴ Low net elasticity of capital flows to taxation is compatible to high gross elasticity. In other words, while capital inflows may in fact be responsive to price disincentives, insofar as they make an economy more durable (by lengthening the composition of the flows), this may attract more capital into the economy. See Cordella (1998) for a simple formalization of this often overlooked point.

safeguard, it could generate a relatively large amount of revenue that may then be used for development purposes, i.e. a financial bonanza¹⁵.

Estimating the revenue from currency taxation is a complicated methodological exercise since much depends on the rate and coverage of the tax, the level of transactions costs, the elasticity of capital movements with respect to the effective increase in transaction costs associated with the tax, as well as the extent to which it is avoided or evaded. Table 6 summarizes the estimates from various studies. Given these studies, it may not be unreasonable to assume that a transactions tax of 0.25 per cent will generate annual revenues of about \$150 billion. These are certainly conservative estimates, particularly so as the computations are based on 1995 forex figures of US\$ 1.2 trillion as opposed to the more recent figure of US\$1.5 trillion (BIS, 1998).

Kaul and Langmore (1996) argue that high-income countries would have to be allowed to retain 80 per cent of the revenue to encourage their participation, whereas poorer countries would be allowed to retain more. Given their assumptions about how the proceeds from a 0.1 per cent Tobin tax would be shared, they suggest that \$27 billion could be available for "international purposes", although their idea of capping international contributions at \$2 billion reduces this figure to \$24 billion. There is clearly plenty of room to debate the numbers and assumptions used by Kaul and Langmore. Nevertheless, the important analytical point here is that the more compelling financial centers find the uses to which the revenue from an international currency tax will be put, the more prepared they will be to retain a smaller proportion of the proceeds.

As the numbers in Table 1 reveal, revenue from an international currency transaction tax, even if one were to take the \$24 billion suggested by Kaul and Langmore (1996), would be large relative to other resource flows. It would have been about the same size as official

¹⁵ The "sin tax" analogy is also useful in understanding the need for currency taxation to be global. For instance, the significant revenue losses on beer and spirits as a number of Britons made their purchases in France to avoid the excise duties levied in their home country, led to the British government setting a cap on the excise duty on these products. Similarly, Canada's attempts at a steep tax hike on cigarettes to discourage smoking had to be revoked in 1994 because of their *de facto* ineffectiveness due to smuggling from the US (The Economist, May 31, 1997, p.21).

grants in 1997 and would have been about a third more than loans from the multilateral institutions. The revenue from a currency tax could help deal with a foreign aid “crisis”, and assist in halting if not reverse the persistent downward trend in aid flows (Culpeper, 2001 and World Bank, 1998)¹⁶. But if donor countries have chosen to cut conventional forms of foreign aid, why should they favor introducing a currency tax designed to raise revenue to finance aid flows via an alternative route? Much depends on whether the fall in foreign aid has reflected a budgetary constraint in donors due to the process of economic globalization discussed above, or a perception amongst them that aid is ineffective. Evidence suggests that the problem lay more with “aid fatigue” due to the perceived disappointing results of programs over the last two or three decades (Culpeper, 2001 and World Bank, 1998).

A currency tax would remove the domestic budgetary constraint, but it would do little for aid effectiveness, except in as much as aid channeled through multilateral institutions has generally been more effective than bilateral aid. Moreover, with growing evidence that foreign aid *is* effective when combined with good domestic economic policies (i.e. aid does work in the right circumstance”), the global political environment may become less hostile to using global taxation as a way of bringing about global income redistribution aimed at poverty reduction. To use the revenue from a currency transaction tax to augment multilateral aid flows would, in these circumstances, have the appeal of assisting countries that are largely by-passed by private international capital markets. Thus, a policy directed towards offsetting the inefficiencies of markets could also be used to mitigate inequity, i.e. a global tax for global purposes.

A proposal that has gained currency has recently been that of a “common pool” approach to foreign aid disbursements. This pool-based approach to foreign aid has been nicely described by Culpeper (2001), who we quote at length below:

the recipient country would develop its own strategy, programs and projects primarily in consultation with its own people but also in dialogue with donors. It

¹⁶ Overseas development assistance (ODAs) to developing countries declined from 0.08 per cent of the OECD’s Development Assistance Committee (DAC) GNP in 1988-9 (amounting to US\$ 11.3 billion) to 0.05 per cent by 1999 (US\$ 10.7 billion), a third of the 0.15 per cent UN target (Culpeper, 2001).

would then present its plan to donors who would put unrestricted financing into a common pool, which, along with the government's own resources, would finance the development plan. A multi-year commitment would build in latitude to draw greater amounts from the pool when economic shocks and/or natural calamities strike – in other words, it would build in a compensatory (or countercyclical) financing capacity...Donor commitments to a common pool would necessarily involve providing budget support, since the resources would also be used to provide for budgetary shortfalls and not just for project financing. While budgetary support used to be anathema to donors, there is a growing recognition the donors that such support plays a vital role in development co-operation. But in order to build donor confidence in the usefulness of budgetary support, the budgetary and fiscal management systems of recipients need to be enhanced or even reconstructed..In other words, in the face of external shocks, recipients would be enabled to compensate by drawing more heavily...(p.15)¹⁷.

5. Summary and Concluding Remarks

The 1990s have seen accelerated progress towards the liberalization and integration of global financial markets, a process that began in earnest in the 1980s. The potential benefits due to globalization of finance and capital flows, assuming that the necessary pre-conditions are met: i) static resource allocation gains through international specialization in the production of financial services; ii) static financial gains through appropriate portfolio diversification internationally; iii) dynamic or x-efficiency gains through the introduction of competition in the financial sector; iv) gains from intertemporal trade through access to global financial markets; v) absence of rent-seeking and other costs of capital restraints; and vi) imposition of market discipline on policy makers by ensuring that profligate policies, such as unsustainable external or fiscal imbalances and debt accumulation, trigger capital outflows and balance of payments/currency crises (for elaborations of these benefits, see Mathieson and Rojas-Suarez, 1993).

The problem arises when an economy suffers from such crises even when the macroeconomic imbalances are not necessarily unsustainable due to abrupt capital reversals or cessation of flows and resulting sharp changes in asset prices. The East Asian debacle was one of many crises to have affected global financial markets in the 1990s,

¹⁷ The Indian Prime Minister, Atal Behari Vajpayee, has recently reportedly favored a Tobin Tax style levy on international capital flows, with the proceeds placed in a so-called "Global Poverty Alleviation Fund" (www.globalpolicy.org/socecon/currtax/atta0214.htm).

attesting to the severe costs of financial globalization. An important but belated lesson that has emerged from the crisis is the need for developing economies to develop financial self-help mechanisms against volatile capital flows. Unilateral restraints on capital movements transactions and/or the associated payments and transfers of funds have become widely accepted as a possible instrument in this regard. The imposition of ad hoc unilateral policies could have damaging effects on regional economies (Dornbusch, 1998). A systematic, internationally orchestrated approach in the form of a Tobin tax may be a preferred alternative. An international currency tax could enhance financial international stability by extending the composition of capital flows and reducing the speculative element in forex flows if applied counter-cyclically (i.e. raised during the boom and reduced during a bust). One of the arguments made against currency restraints is that, through the law of large numbers, inasmuch as such levies successfully reduce the volume of trading, they may in some circumstances increase volatility (Davidson, 1998 and Willett and Wihlborg, 1990)¹⁸. While this is a valid and important reminder, the focus of this paper has been primarily on introducing a financial transactions tax in order to prevent booms and busts by lengthening the duration of capital inflows as opposed to reducing day-to-day forex volatility.

However, if a properly designed Tobin tax is unsuccessful in this regard, it must be because international capital flows are relatively inelastic with respect to such taxes. The low elasticity that limits the effectiveness of the tax in reducing capital volatility increases its capacity to raise much-needed revenues. In other words, if the international finance case for a Tobin tax proves ineffectual, this could paradoxically enhance the public finance case for the tax. While the quantity of revenues that can be expected to be raised from a Tobin tax are open to debate, what is certainly true is that a Tobin tax may be expected to raise a lot of money. While leakages via evasion and avoidance are real concerns (as they are with any tax), the problem can, as noted, be reduced significantly if the tax rate is "punitive" and the participation is broadly multilateral. Beyond, this, just as there appears to be international

¹⁸ The sharp gyrations in the thinly traded Indonesian rupiah ever since its floatation in mid 1997 are a good example of this (Rajan, 2001b).

political will to stop money laundering, so there ought to be if and when leakages threaten to make a currency tax “too porous” in the event it is put in place¹⁹. The issue of tax evasion via tax havens is not unique to the Tobin tax. For instance, the Financial Stability Forum has identified unregulated and offshore centers as a source of international financial instability.

The revenue generating potential of such a tax is of particular importance at a time when the process of economic globalization appears to be gradually eroding the ability of governments to generate tax revenues (Asher and Rajan, 2001). Table 7, borrowed from Hufbauer (2000), succinctly summarizes the effects of economic globalization on the mobility of various tax base items. Some have argued that one of the benefits of tax competition is exactly that it ought to lead to a reduction in tax bases and public spending, which is often unproductive and wasteful. Consequently, tax competition is argued to be net welfare enhancing. However, political economy compulsions will almost inevitably mean that the burden of such adjustments fall on the social sector and on public infrastructure expenditure at the time when the need for both is quite great. Indeed, the 1997-98 economic crises in East Asia has emphasized the need for social safety nets if social cohesion is to be maintained in times of adversity. More generally, Rodrik’s (1998) empirical study, which reveals a positive correlation between openness and government consumption, may be interpreted as suggesting that government consumption plays a cushioning role in more open countries (which are) subject to external shocks²⁰.

Given the increased mobility of various sources of the tax base, along with other developments that might reduce government revenues, the implication is that there needs to be intensified dependence on a narrow base consisting of immobile factors such as the less-

¹⁹ However, the recent US unwillingness to work with other OECD countries to “reign in” tax havens (Mutume, 2001) makes one pessimistic about the prospects of garnering international support for a Tobin tax.

²⁰ Alseina and Wacziarg (1998) have argued that Rodrik’s result may be capturing a spurious relation, as smaller countries have a larger share of government consumption in GDP and more open trade. They however confirm that Rodrik’s result (and thus insight) go through if government expenditures are limited to transfer payments.

educated workforce and the rural sector (Tanzi, 2000)²¹. To the extent that these may be the groups most vulnerable to the effects of globalization, Vito Tanzi, the former Director of IMF's Fiscal Affairs Department and an authority on international tax policy has noted, "(a)lthough the economics of this conclusion is right, the politics of it is surely worrisome" (Tanzi, 1998a). Grunberg (1998) refers to this increasing difficulty in mobilizing revenues (due to a shrinking tax base) and the growing need for fiscal expenditure concurrently as the "fiscal squeeze" model due to globalization. Tanzi (1998b) has further suggested that a "Global Tax Organization" (GTO) along the lines of the WTO may be necessary to enable systematic thinking on the need for international cooperation. Activities under the umbrella of the GTO could include identification of main tax trends and problems and compilation and/or generation of relevant statistics and tax information, provision of technical assistance to countries; acting as a catalyst for the development of international norms in tax policy and administration; and acting as an arbiter and provider of surveillance over individual country, regional and global developments. Such an organization, which is not meant to supersede national taxation systems or authorities, may be an appropriate body to implement multilateral taxes such as the Tobin tax, collect revenue proceeds and oversee the "common pool" approach to aid disbursement with the United Nations and other relevant multilateral bodies.

²¹ This is a restatement of the inverse elasticity rule (so-called Ramsey Rule) which suggests that, on efficiency grounds, the marginal tax rate should be inversely related to the elasticity of factor supply.

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Table 1
Net Capital Flows to Emerging East Asian Economies, 1995-2001
(billions of US dollars)

	1995	1996	1997	1998	1999	Proj 2000	Proj 2001
Asia-5 Economies:							
Private Capital Flows	53.9	67.4	-15.6	-28.2	2.9	-22.4	10.6
Direct Investment	8.8	9.8	9.8	10.3	13.1	9.1	9.0
Portfolio Investment	18.8	25.5	8.4	-8.2	12.8	13.20	3.3
Other Investment Flows	26.3	32.0	-33.8	-30.4	-23.0	-44.6	-1.7
Official Flows	0.7	-6.1	15.7	19.5	-6.7	5.0	-2.1
Reserves ^a	-18.5	-5.6	39.5	-47.0	-38.8	-19.2	-30.6
Other Asian Emerging Economies:							
Private Capital Flows	38.3	52.6	22.3	-12.5	-0.6	4.6	13.0
Direct Investment	39.3	44.4	45.3	49.6	41.1	38.4	38.9
Portfolio Investment	2.6	3.9	-0.1	-7.2	-8.9	-8.0	-0.2
Other Investment Flows	-3.5	4.3	-23.0	-54.8	-32.8	-25.8	-25.8
Official Flows	-3.8	-7.6	-8.3	-1.1	-0.1	-8.1	-4.2
Reserves ^a	-26.2	-43.1	-46.8	-16.9	-20.9	-16.4	-30.8

Notes: a) Minus sign denotes a rise and vice versa

Source: IMF (2001)

Table 2
FDI inflows, 1985-99 (billions of US\$)

	1985-89	1990-94	1995	1996	1997	1998	1999
World	128.5	200.5	328.9	377.5	473.1	680.1	865.5
Developing Economies	22.3	61.1	106.2	145.0	178.8	179.5	207.6
East Asia	10.3	34.5	63.4	81.3	82.1	75.8	83.5
China	2.5	16.1	35.8	40.2	44.2	43.8	40.4
Hong Kong	1.6	4.5	3.3	10.5	11.4	14.8	23.1
Singapore	2.4	5.2	7.2	9.0	8.1	5.5	7.0
Taiwan	0.8	1.2	1.6	1.9	2.2	0.2	2.9
Asia-5	3.0	9.4	13.9	19.7	19.2	16.7	17.4
Indonesia	0.4	1.7	4.3	6.2	4.7	-0.4	-3.2
Korea	0.7	0.8	1.8	2.3	3.1	5.2	10.3
Malaysia	0.8	4.2	4.2	7.3	6.5	2.7	3.5
Philippines	0.4	0.8	1.5	1.5	1.2	1.8	0.7
Thailand	0.7	1.9	2.1	2.4	3.7	7.4	6.1

Source: ARIC (2001)

Table 3
Country Composition of FDI Inflows to East Asia, 1990-99 (percentage)

	1990-94	1995	1996	1997	1998	1999
East Asia	100.0	100.0	100.0	100.0	100.0	100.0
China	44.2	58.0	49.4	51.9	54.1	44.5
Hong Kong	12.4	5.3	12.9	13.4	18.3	25.4
Singapore	14.2	11.7	11.1	9.5	6.8	7.7
Taiwan	3.2	2.5	2.3	2.6	0.2	3.2
Asia-5	26.2	22.4	24.2	22.4	20.5	19.2
Indonesia	4.7	7.0	7.6	5.5	-0.5	-3.5
Korea	2.3	2.9	2.8	3.6	6.4	11.3
Malaysia	11.5	6.8	9.0	7.6	3.3	3.9
Philippines	2.3	2.4	1.8	1.4	2.2	0.8
Thailand	5.4	3.3	3.0	4.3	9.1	6.7

Source: ARIC (2001)

Table 4
External Debt of the Asia-5 Economies, 1995-2000 (percentage of GDP)

Country	1995	1996	1997	1998	1999	2000
Indonesia ^a	56.3	53.4	63.9	149.4	95.5	93.8
Malaysia	37.6	38.4	43.8	58.8	53.4	49.3
Philippines	54.9	55.0	61.6	81.7	75.7	78.9
Thailand	49.1	49.8	62.0	76.9	61.4	51.7
Korea	26.0	31.6	33.4	46.9	33.4	26.5
of which: Short Term Debt						
Indonesia ^a	8.7	7.5	27.5	76.4	5.9	5.7
Malaysia	7.2	9.9	11.1	11.7	7.6	6.4
Philippines	8.3	12.0	14.0	15.6	11.3	7.5
Thailand	24.5	20.7	13.3	21.0	11.4	6.8
Korea	14.6	17.9	23.1	9.7	9.3	7.7

Notes: a) The data for Indonesia exclude trade credits
Source: IMF (2000)

Table 5
Summary Comparison between the Chilean Deposit Requirements and the Tobin Tax

	Chilean Deposit Requirements	Tobin Tax
Motive	Prevent over-indebtedness	Reduce forex volatility (and raise revenues)
Tax applied to	Capital inflows	All forex transactions
Paid Immediately by	Foreign investors	All traders (mainly interbank trade)
Paid Immediately to:	Central bank (foreign currency earnings)	Global Tax Authority?
Relationship of tax amount to interest rate	Rises with foreign interest rate	Invariant to interest rate
Relationship to maturity	Fixed amount (falling with maturity in per cent per year) when maturity is less than one year	Fixed amount in per cent terms, falls continuously with maturity (if applied countercyclically)
Where imposed?	Single country (faced with inflows)	Must be world-wide or major financial centers
Probable level of tax rate	Low-to-Moderate	Low

Source: Frankel (1996)

Table 6
How Much Revenue Can the Tobin Tax Generate?

Study	Tax Rate Assumed (per cent)	Annual Tax Revenue Derived (billions of US dollars)
Felix and Sau (1996)	0.25	290
Felix and Sau (1996)	0.10	140 - 180
D'Orville and Najiman (1995)	0.25	140
Frankel (1996)	0.10	170

Source: compiled by author

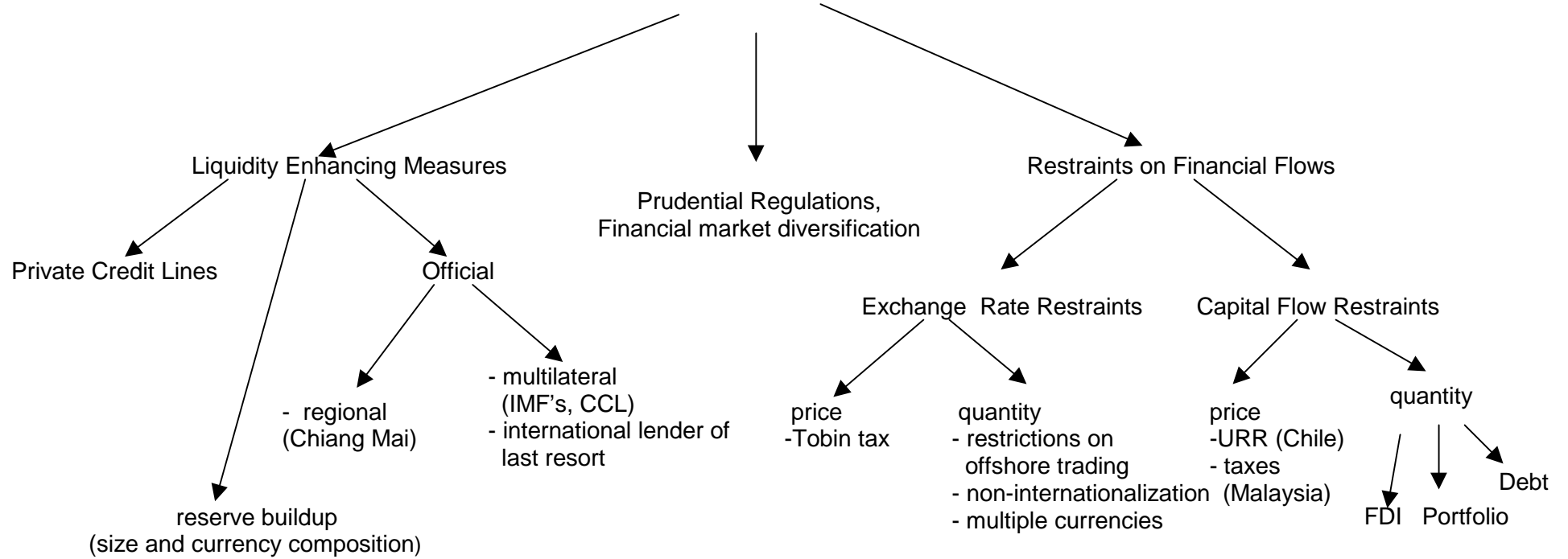
Table 7
Effects of Globalization on the Mobility of Tax Base Items

Tax Base Item	Mobility in 1970	Mobility in 2000	Mobility in 2030
Wages and Salary Income	Low	Low	Moderate
Consumption of goods	Low	Moderate	Moderate
Consumption of services	Low	Low	Moderate
Investment income	Low	Moderate	High
Corporate profits	Low	Moderate	High

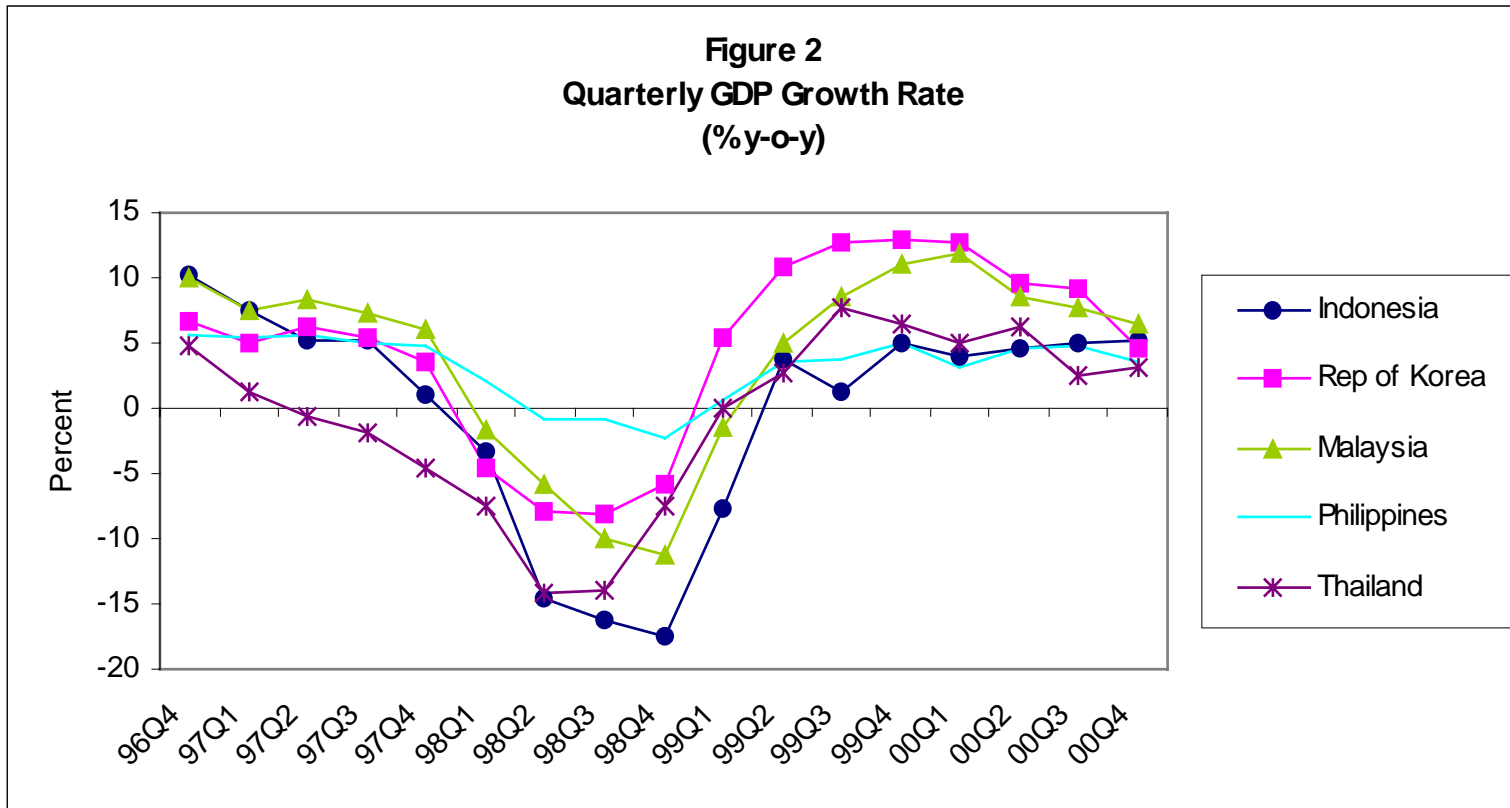
Source: Hufbauer (2000)

Figure 1

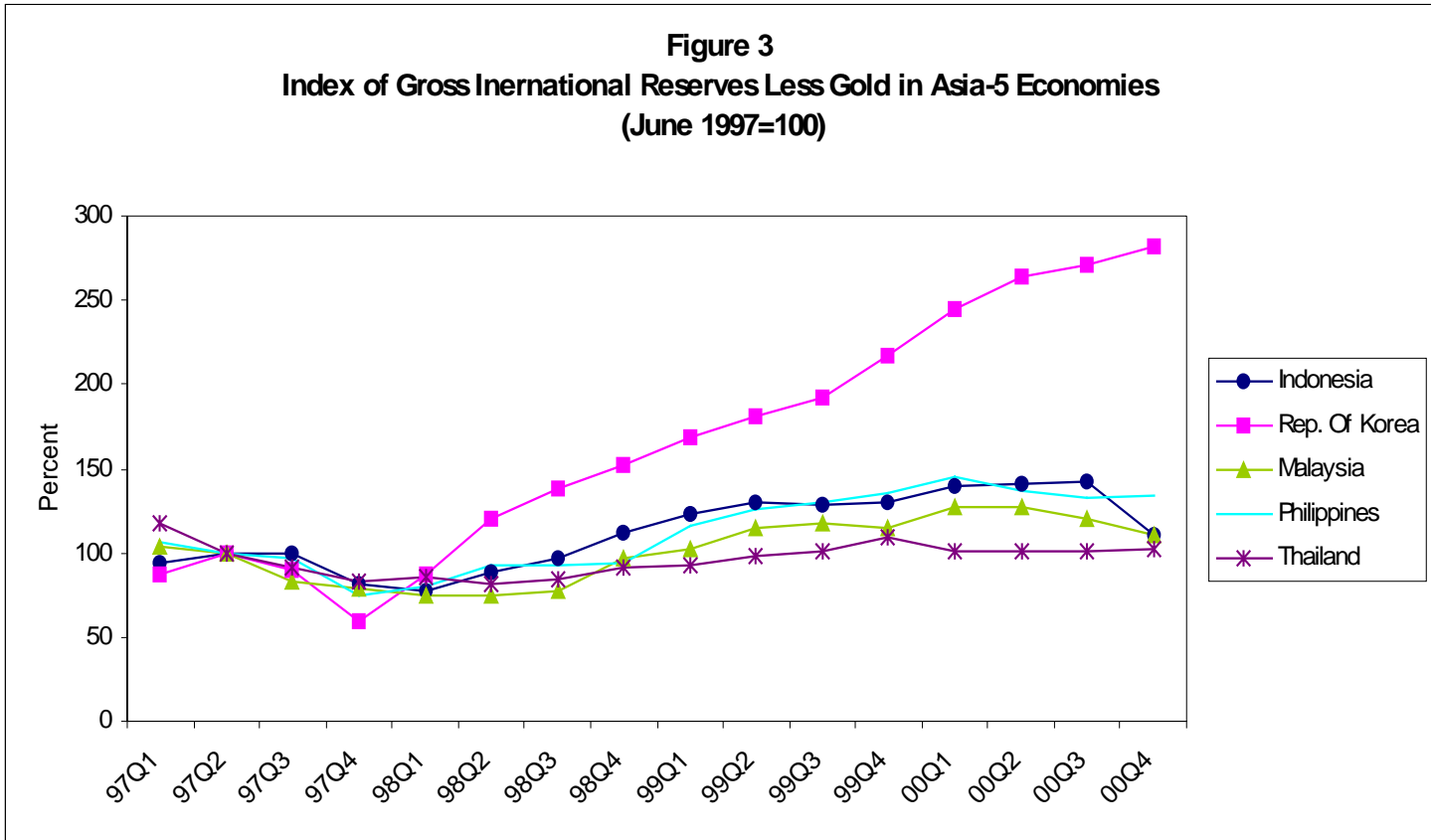
Safeguards Against Financial Crises



Source: Author



Source: ARIC website (www.aric.org)



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