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*Policy Responses to Currency
Crises*

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Policy Responses to Currency Crises*

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1. Introduction

Currency crises have been the most striking feature of world finance in the closing decade of the 20th century. Once relatively rare and confined to exotic countries with obviously bad policies, they have recently become common and seemingly capable of affecting everyone –even countries blessed with apparently virtuous behavior. That is perhaps why the Asian crisis continues to confound experts: a region whose countries had long been considered paragons of successful economic development is mired in financial collapse and a deep recession.

Currency crises are also becoming larger, and their real consequences more dramatic. As World Bank chief economist Joseph Stiglitz has written of the Asian episode, "...what many expected to be no more than a slight blip has instead become the largest threat to the stability of the world's market economy since the Great Depression."¹ At the time of writing, the crisis seems to have engulfed Brazil, and pundits are now forecasting a severe contraction in that country and stagnation in much of Latin America for 1999.

But the larger and more common place currency and financial crises become, the less sure of how to deal with them are economists and governments. The alleged failure of the medicine administered by Washington in Asia has generated much hand wringing. Anxiety went up after Russia crashed in August 1998 and the Russian virus began to spread. The collapse of the Brazilian exchange rate peg in January 1999 has reignited the debate yet again.

Discussions rage about what went wrong, and what should be done differently when the next meltdown begins. Disagreements about the proper monetary, exchange rate and fiscal responses are particularly sharp. It is on those issues that this paper focuses, hoping to extract lessons of particular use to Latin America.

¹ Global Economic Prospects and the Developing Countries, 1998-99 issue.

2. Internal and External Imbalances

What are the policy dilemmas facing a country that has suffered a shock and is a potential candidate for a currency crisis? A good place to begin is Swan's 1955 analysis of the possible tradeoffs between *internal balance* (i.e., more or less full employment) with *external balance* (a "financeable" current account deficit). With the help of a Swan diagram one can analyze the effects of two kinds of policies: those that affect the overall level of domestic expenditure, such as the fiscal deficit; and those that affect the relative demand for domestic and foreign goods.

Figure 1 shows a standard Swan diagram. The "expenditure level" policy variable is on the horizontal axis. Under fixed exchange rates and capital mobility, it can least controversially be interpreted as an index of fiscal policy. On the other axis we show the real exchange rate: the cost of production at home relative to that abroad.

Figure 1 involves two curves. One curve represents conditions under which the country has "internal balance". It is upward-sloping, because a rise in the country's relative costs would tend to reduce exports, increase imports, and thus reduce employment; to compensate, to keep employment constant, the country would need to have a fiscal stimulus – a larger budget deficit. At any point to the right or below this internal balance curve, the economy will suffer from *too much* demand for its goods, and will experience inflationary pressures. At any point above or to the left, it will suffer from unemployment.

The other curve shows conditions under which the country has "external balance". It slopes downward, because an increase in spending would other things equal increase the current account deficit; to offset this the relative cost of production in this country would have to fall. At any point below or to the left of the external balance curve, the country will have a current account surplus (or at least a deficit *below* what is really appropriate), at any point above or to the right an unacceptably high current account deficit.

These two curves delineate four regions of economic imbalance. Swan stressed that the difficulties facing a country depend on where --in which region-- it finds itself. Only at the point where the two curves cross is the economy without internal or external problems. A country may have a current account surplus or deficit; it may be in a recession or overheating. Different cases call for different policy actions.

[Insert Figure 1 around here]

Imagine, stretching the truth quite a bit, that East Asian countries were initially (say, in 1996) at the intersection of the two curves. Demand for domestic goods was growing very quickly but so was supply, given these countries prodigious savings and investment rates; neither overheating and inflation nor recession and unemployment were a problem. The current account was certainly not in balance (in fact, countries like Thailand had large deficits), but in most cases it could be plausibly argued that these were natural and “healthy” deficits for capital-poor economies, and these deficits could readily be financed via plentiful FDI.

But in 1994 and thereafter a number of things changed. China devalued; Japan’s recession deepened, cutting demand for exports from the middle-income East Asian countries; and the dollar appreciated sharply against the yen pulling up most currencies in the region, which operated *de facto* or *de jure* dollar pegs. This moved countries such as Thailand and Indonesia from a point near A to a point such as B in the upper quadrant. In the new situation the external deficits grew (to the point where they became “unsustainable”) and demand for home goods weakened (though some countries continued to grow fast until early 1997).

The classic prescription --and the assessment on which IMF programs were based from the 1950s until recently-- would have involved two corrective policies. First, a reduction in relative costs and in the real exchange, to move the economy South from point B This could be accomplished slowly and painfully via a fall in nominal prices and

wages or quickly via a nominal devaluation; until recently, most economists would have preferred the latter. Second, and to the extent necessary, an increase in domestic demand to move the economy East from point B. Under fixed exchange rates and capital mobility, monetary policy is relatively ineffective; according to conventional analysis, fiscal policy would be the weapon of choice to fight the nascent recession.

But, remarkably, the Asian countries, counseled by the IMF, did exactly the opposite. Most resisted, to varying degrees, the pressure for depreciation of their currencies. With the exception of Indonesia (and of Singapore and Taiwan, which were much less severely hit), they only let their exchange rates go when reserve losses became “too large” to tolerate. And, even more remarkably, they went in (again, with the partial exception of Indonesia) for the fiscal adjustments called for by the standard IMF package.

To no one’s surprise, both sets of policies have proven tremendously controversial. The perception that high interest rates and tight money were being used to prop up doomed currencies elicited accusations that the IMF was wrecking those countries’ productive structures. Similarly, the required budget cuts were blamed with unnecessarily deepening the recession. And the charges have stuck for recession we have, and a huge one: countries that had been growing at 7 per cent per year or more suddenly began shrinking at comparable rates. The depth of the collapse in Indonesia makes it the largest peacetime contraction since at least 1960 (excluding the post-Communist economies).²

Were authorities in these countries unaware of the simple lessons of Swan’s analysis? Was the IMF suffering from a case of amnesia and forgetting the policies it had foisted on country after country for decades? Or were there new circumstances that rendered the old policy package obsolete and required a change of strategy? To those questions I now turn.

² Furman and Stiglitz (1998).

2. Exchange Rate Policy: Costs and Benefits of Devaluation

The first policy issue that arises is stark and simple: why not simply devalue in response to Asia-style shocks? If a real depreciation is needed, as suggested by our previous analysis, is not a nominal depreciation the easiest way to accomplish it? After all, one does not have to be an unreconstructed Keynesian to recognize that achieving a real depreciation via declines in nominal prices and wages is likely to be slow and painful –and may eventually backfire. As Paul Krugman (1998) has recently put it, in discussing Brazil’s options:

(One option is to) hold the line on the exchange rate, and rely on gradual reductions in relative costs – via productivity increases and deflation relative to the rest of the world – to restore internal balance. In principle this should eventually work. However, the operative word is "eventually": all experience (Britain in the 1920s; France since 1987) suggests that this is an extremely protracted process. Even aside from the sheer economic cost, can the social and political fabric stand the strain?

More systematic evidence points in the same direction. Goldfajn and Valdes (1998) analyze “the aftermath of appreciations,” and ask how often in the last quarter century have countries been able to achieve real depreciations without touching the nominal exchange rate. Their answer: almost never. Sri Lanka in the 1950s and Argentina in the 1990s are noteworthy cases. Elsewhere political and economic pressures brought about the end of exchange rate pegs.

But if devaluing to gain competitiveness and adjust to shocks is apparently such an attractive option, why are authorities nowadays so reluctant to embrace it? Possible answers to this question are many. It helps to organize them into two categories. The first has to do with *ex ante* issues. Given what we know about the institutions and structure of a given economy, and about the kinds of shocks that typically buffet it, should authorities

there adopt a policy that leaves open the possibility of a devaluation in some circumstances? This is the classic question of the choice of exchange rate regimes.

The second approach has to do with *ex post* issues. Even if *ex ante* analysis suggested that an exchange rate peg is optimal, when (if at all) should this policy be abandoned? What are the costs and benefits of doing so?

A digression on exchange rate regimes

The question of the optimal exchange rate regime has long occupied the economics profession. This is not the place to revisit some of the classic arguments for and against different arrangements. Reasons marshaled by Milton Friedman (1953) and Harry Johnson (1969) in favor of flexible rates remain valid, as does Mundell's classic analysis (1963) of optimal currency areas. For a modern review of these and other arguments, see the special chapter in the IMF's 1997 *World Economic Outlook*.

Professional preferences for flexing or fixing have oscillated over the last few decades. Since the outbreak of the Asian crisis, the pendulum of fashion has been swinging toward fixing –even more drastically, toward currency boards or dollarization. This is in part to the overshooting of nominal exchange rates in those countries in Asia that decided to float in response to the crisis. It is also a reaction to the relatively strong performance of the Argentine currency board in this episode: in 1998 Argentina managed with lower interest rates and less anxiety than Latin neighbors on flexible or semi-flexible rates such as Chile and Mexico. After the collapse of the Brazilian band on January 13, 1999, Guillermo Calvo and Rudiger Dornbusch –two men who seldom agree on these matters-- both called on Brazil to adopt a currency board.

Two arguments are behind this recent popularity of fixing in one of its (preferably more extreme) versions. Both have much truth in them, but are also less watertight than current fashion seems to assume.

- a) *Credibility*: If you cannot build credibility for monetary policy at home, then you can presumably import it by fixing the value of your currency to a hard-money country. This is what Club-Med countries attempted by pegging to the DM, and what Argentina has tried with the US dollar. Many theoretical objections to the argument are well known. Where the political costs of abandoning a peg come from and whether they are large enough to prevent unpleasant surprises is less than clear. Many an “irreversible” peg has come undone; the EMS troubles in the early 1990s are but one example.

And greater credibility, even if achievable via fixing, does not come free. As Rogoff (1985) convincingly showed (see also Velasco, 1996), there is a clear tradeoff between credibility and flexibility. An irrevocable fix robs a country of one adjustment tool. If shocks buffeting an economy are sufficiently large (technically, if their variance exceeds some threshold), then fixing is not *ex ante* welfare-improving.

- b) *Discipline*: This is a close cousin of the credibility story. Presumably, fixed rates induce more discipline –whether fiscal or monetary-- because adopting lax fiscal policies must eventually lead to an exhaustion of reserves and an end to the peg. Presumably, the eventual collapse of the fixed exchange rate would imply a big political cost for the policymaker --that is to say, bad behavior today would lead to a punishment tomorrow. Fear of suffering this punishment leads the policymaker to be disciplined. If the deterrent is strong enough, then unsustainable fiscal policies do not occur in equilibrium.

But, as Tornell and Velasco (1995, 1998) have argued, the conventional wisdom fails to understand that under flexible rates imprudent behavior –especially fiscal laxity-- has costs as well. The difference with fixed rates is in the intertemporal distribution of these costs. Under fixed rates unsound policies manifest themselves in falling reserves or exploding debts. Only when the situation becomes unsustainable do the costs begin to bite. Flexible rates, by contrast, allow the effects of unsound fiscal

policies to manifest themselves immediately through movements in the exchange rate and the price level. All of this means (as Tornell and Velasco 1995 and 1998 show formally) that if inflation is costly for the fiscal authorities, and these discount the future heavily, then flexible rates --by forcing the costs to be paid up-front-- can provide more fiscal discipline.

The empirical evidence supports this revisionist view. Tornell and Velasco (1998) and Gavin and Perotti (1997) show that in Latin America fiscal policies have been more prudent --after controlling for a host of factors-- under flexible than under fixed rates. Tornell and Velasco (1995) show the same for Africa, comparing the experience of francophone countries that have pegged to the franc (in the CFS zone) versus the rest.

Hence, it is less than clear that fixed rates deliver the nirvana of stability that some of their advocates promise. In addition, some recent experiences --particularly that of Argentina after the Tequila effect of 1995-- suggest that fixed rates and particularly currency boards, can perform quite poorly in one key area: that of dealing with financial sector instability in general and bank runs in particular.

a) *Bank Runs and the Lender of Last Resort*: The essence of a currency board is that it severely limits the ability of the authorities to extend domestic credit. This may be good for inflation, but it can be bad for bank stability: the financial sector is left without a lender of last resort, and in a world of fractional banking and imperfect deposit insurance it amounts to an invitation to self-fulfilling bank runs. As Chang and Velasco (1998a) show formally in a model of the Diamond and Dybvig (1983) type, a currency board makes balance of payments crises less likely only at the price of making bank crises more likely.

b) *A stabilizing role for flexible rates*: Chang and Velasco (1998a) also show that a regime in which bank deposits are denominated in domestic currency, the central bank stands ready to act as a lender of last resort, and exchange rates are flexible, may

help forestall some types of self-fulfilling bank crises. The intuition for this is simple. An equilibrium bank run occurs if each bank depositor expects others will run and exhaust the available resources. Under a fixed rates regime, those who run to the bank withdraw domestic currency, which in turn they use to buy hard currency at the central bank. If a depositor expects this sequence of actions to cause the central bank to run out of dollars or yen, then it is a best response for her to run as well, and the pessimistic expectations become self-fulfilling. On the other hand, under a flexible rates regime plus a lender of last resort there is always enough domestic currency at the commercial bank to satisfy those who run. But since the central bank is no longer compelled to sell all the available reserves, those who run face a depreciation, while those who do not run know that there will still be dollars available when they desire to withdraw them at a later date. Hence, running to the bank is no longer a best response, pessimistic expectations are not self-fulfilling, and a depreciation need not happen in equilibrium.

In my view this represents a strong (though surely not overwhelming) case in favor of flexible exchange rates. But there are caveats. One is that such a mechanism can protect banks against self-fulfilling pessimism on the part of domestic depositors (whose claims are in local currency), not against panic by external creditors who hold short-term i.o.u's denominated in dollars. To the extent that this was the case in Asia, a flexible exchange rate system would have provided only limited protection.³ And proper implementation is subtle. If they are to be stabilizing, flexible rates must be part of a regime, whose operation agents take into account when forming expectations. Suddenly adopting a float because reserves are dwindling, as Mexico did in 1994 or several Asian countries have done recently, may have the opposite effect by further frightening concerned investors. In fact, the case has been made that

³Floating is not totally useless in this case, for panic by foreign creditors could perfectly well be triggered by a run by domestic depositors, with the outcome being self-fulfilling. For details on this line of argument, see Chang and Velasco (1998a).

it was precisely the sudden (but late) abandonment of the peg that pushed Mexico to a "bad equilibrium."⁴

In short, the jury is still out –considering both theoretical and empirical questions— on the issue of which exchange rate regime is best. In spite of recent popularity, currency boards are clearly not best for all countries at all times. What is best for Argentina (and maybe even for Brazil) need not be desirable for countries with stronger fiscal and monetary institutions and a less inflationary history. Political leaders should think long and hard before settling for the flavor of the month.

When is devaluation optimal?

In the previous section we discussed at length whether a regime of fixed rates is *ex ante* optimal. Here we assume that it is. That means that, except for very exceptional circumstances, defending the peg is desirable, and that may well take high rates of interest. What are, then, those exceptional circumstances in which defending the peg is *ex post* (that is after a shock or an attack has taken place) not a good policy? There are two such cases:

- a) *All is lost*: when defending the peg, even if desirable, becomes infeasible, for the country runs out of reserves and has access to no loans from abroad. In this case the choice is not so much one of whether to abandon the fixed rate, but how and when to do so with the least pain.

While at first appealing, this view has to be taken to with a grain of salt. As Obstfeld and Rogoff (1995) have forcefully argued, in a technical sense governments always have to capacity to defend a fixed exchange rate. A speculative attack is an attempt by

⁴See Calvo (1994) and Sachs, Tornell and Velasco (1996a).

private investors to exchange the government's monetary liabilities (assets from the point of view of investors) for other assets whose value is not dependent on the nominal exchange rate. Giving these investors dollars or yens is the easiest and most direct way out. But in principle at least, the government could satiate the jittery investors by exchanging domestic money for a share of the country's national resources, or even of its territory. Less unrealistically, the government could mortgage that same oil or copper in order to get a dollar loan to be used to pay off the investors attempting to dump domestic currency. If governments shrink away from these options it is not because they are infeasible, but presumably because they are judged politically to costly.

- b) *Escape clauses*: when the short-term pain of defending the peg is so large enough that it outweighs the long-term benefits of retaining the fixed rates regime, the country could exercise an "escape clause," or engage in "excusable devaluation." According to this view (first formalized by Flood and Masson, 1990), a fixed exchange rate is an implicit contract in which the Central Bank commits to retaining the peg unless one or more of several unspecified but painful factors kick in. If they do, devaluation need not be punished by a loss of credibility, for in devaluing the authorities have adhered to the implicit contract.

Whether this is a plausible view of the world hinges on difficult implementation problems. It is not clear there are "excusable devaluations" in emerging markets, just as there may be no "orderly devaluations" either. This is probably because the exogenous shocks that could render them so are not fully observable –or perhaps not even fully exogenous, in the sense that governments could try to manipulate economic variables to justify an abandonment of the peg. When in doubt, a weary public may justifiably choose to be skeptical. Still, there may be shocks that are so clearly observable and exogenous that they pass the test. For instance, Sachs, Tornell and Velasco (1996) argue that the assassination of presidential candidate Luis Donaldo Colosio in Mexico in March 1995 could have plausibly have justified the abandonment of the exchange rate band.

Obstfeld (1991) has raised an additional argument against escape clauses in fixed exchange rates: they can open the door to multiple equilibria. The government is allowed if the situation gets too nasty. But the expectation that the government could devalue could lead the private sector to take actions (demand large wage increases and high nominal interest rates) that make the situation nasty. Self-fulfilling prophecies of devaluation can readily set in. This means that governments should think long and hard before hinting that it views devaluation in some circumstances as “excusable.” In the past couple of years the Brazilian government has come close to doing this. That may be one source of its many troubles.

So much for arguments in favor of devaluation. The story clearly does not stop there. In recent years emerging market governments have been extremely reluctant to exercise that option, and with some reason. Three are the most convincing justifications for such reluctance.

- a) *Ineffectiveness*: If contracts in the labor and financial markets are indexed --the argument goes-- or, worse, denominated in foreign currency, then nominal devaluation is all pain and no gain: it causes inflation without affecting relative prices or real quantities. Why then devalue?

But indexation is almost never perfect, or instantaneous, or formal. With partial or lagged nominal adjustments, devaluation can have effects, albeit temporary. Informal indexation can be abandoned if circumstances change, and even formal contracts can be abrogated or altered. Much, depends, of course, on the state of aggregate demand and the tightness of labor markets. If devaluation is adopted in a recessionary environment, or if fiscal and monetary contraction is undertaken alongside the end of the peg, real effects are likely. Real world confirmations of this conjecture abound:

Chile 1982, Britain in the early 1990s and Mexico in 1995 are among them. Systematic empirical evidence points in the same direction.⁵

- b) *Financial Distress*: Suppose that domestic firms have borrowed in dollars. Suppose, in addition, that at least some of them are in the non-traded goods sector and have earnings in local currency, and that the same is true of the government. Then a nominal devaluation, if successful in the changing relative prices, drastically increases the carrying costs of this debt, and can generate a wave of corporate bankruptcies along with a fiscal crisis. This danger has been stressed in some interpretations of the Asian crisis –particularly that of Corsetti, Pesenti and Roubini (1998).

But, as we discuss in more detail in subsequent sections, the alternative is not necessarily more palatable. Avoiding a devaluation may mean living with high nominal and real interest rates for a long time, and this can wreck corporate and bank balance sheets just as surely as a devaluation. How steep the real devaluation/real interest rate tradeoff actually is we do not know, and this is certainly a point that cries out for more empirical work. What seems certain is that the answer will depend heavily on specific country circumstances: strength of banks, currency denomination of assets and liabilities, maturities, degree of hedging, etc. A real depreciation may be lethal in Korea and Indonesia, where unhedged short-term foreign debt was the norm; the same is not true of Chile, for instance, where unhedged short-term foreign debt is minimal.

A related and key point is that the circumstances that affect the steepness of this tradeoff are not God-given, but often the result of deliberate policy design. One

⁵ Kiguel and Guei (1993) study a large sample of devaluations in economies with reasonably low inflation, and show that –if supported by adequate demand policies—a 50 devaluation typically depreciates the real exchange rate by 30 percent, without leading to a permanent increase in inflation.

common culprit is financial liberalization. Radelet and Sachs (1998) and Chang and Velasco (1998c) have argued, for instance, that changes in financial and tax policies in Thailand and elsewhere created incentives for taking on dollar debt. Similarly, an insistence on fixing, accompanied by frequent official assurances that exchange rates would never be devalued, may have discouraged prudent hedging by private firms.

Policies to endow monetary and fiscal policies with *credibility* can have the same deleterious effect. How can a government signal it will never devalue? One way is to borrow in dollars, making devaluation costly for itself. Which is fine, but only as long as devaluation never becomes inevitable. This is the old analogy about the spike in the steering wheel revisited. Surely, such a strategically placed spike can encourage prudent driving. But it can also kill the driver that has to brake unexpectedly. As long as there remains some probability that emerging markets may have to brake, they should think twice before placing stakes too close to their hearts.

c) *Multiple Equilibria*: If financial illiquidity or time inconsistency problems make more than one equilibrium possible, then unexpected shocks --for instance, to the exchange rate-- can cause investors to panic and push the economy to the bad equilibrium.⁶ This is what reportedly happened in Mexico in December 1995: the surprise decision to float the peso caused a massive flight from all Mexican assets, including dollar-denominated government bonds. Mexico came to the verge of default, and asset prices plummeted. Guillermo Calvo had foreseen this in his prescient comments to the April 1994 Brookings Panel: ““In my opinion, this is not the time to implement the Dornbusch-Werner devaluation.”⁷ The forces that have held

⁶ For models in which liquidity issues cause multiple equilibria, see Chang and Velasco (1998a and b). For models in which the multiplicity is caused by government’s inability to precommit, see Calvo (1988) and Obstfeld (1994).

⁷ Rudi Dornbusch and Alejandro Werner (1994) had advocated a 20 percent devaluation at the same meeting of the Brookings panel.

together the "good" equilibrium...may dissipate overnight. A 20 percent devaluation (outside the present band) may get U.S. investors up in arms about the fall in the real value of their Cetes....The Dornbusch-Werner solution --taken without prior consultation and support from its NAFTA partners-- may thus prove to be a poison pill for the ruling political party or its successor."

In short: there seem to be few "orderly depreciations" in emerging markets: devaluation can trigger financial panic, expectations of new depreciations, and hence monstrous interest rates. This is in contrast to the experience of many developed economies --Britain in the early 1990s is the case most often mentioned--where investors sigh in relief and put their money back in, with the consequent fall in interest rates. All of which begs the question: how was Mexico in 1994 different from the UK in 1991? One answer is that there was another equilibrium "out there" in the Mexican case, but not in Britain. After all, and as some recent literature has stressed, multiple equilibria occur only for some intermediate (neither too good nor too bad) range of fundamentals.⁸ The large (relative to international reserves) stock of short-term government debt which investors could suddenly refuse to roll over was the chief vulnerability in Mexico, as it is in Brazil today.

The other obvious objection to the multiple equilibria case against devaluation is that in principle *anything* can serve as a coordinating device that takes the economy from the good to the bad equilibrium (or viceversa). The Mexican story seems to suggest that devaluation can play that role; but so could very high interest rates that cause a massive recession, or many other factors that led to generalized pessimism.

⁸ See Velasco (1996 and 1997) and Obstfeld (1994).

What is to be done?

Surely, there are cases where a sudden devaluation seems dangerous. Markets may treat the country in question as they treated Lawson's Britain in the early 1990s, but again they may not. Certain aggravating factors make it likely that devaluation will trigger a panic. Large stocks of dollar-denominated, short-term or floating rate debt – whether private or public-- as Mexico had in 1994, several Asian countries in 1997, and Brazil more recently, seem particularly dangerous.⁹

There are also cases where a devaluation would seem to be too costly, almost regardless of circumstance. Those are the cases of financially infamous countries –such as Argentina-- which have found that currency boards or other, even more rigorous arrangements, are the only way to kick the inflationary habit. Having gone to the trouble of setting up one such system, it is unlikely a country would want to undo it and pay the attendant costs.

But we should not construct iron rules on the basis of a few, perhaps atypical, observations. Not all emerging markets have short-term liabilities that exceed international reserves by a factor of five or six. And not all have the checkered financial histories that cause investors to run for the exits at the first sign of trouble. In the rest of cases, devaluation remains a potentially useful response to large shocks affecting economic fundamentals.

⁹ On Brazilian internal debt, see , Bevilacqua, Dias-Carneiro et al., 1998.

3. Tight Money: How Effective?

The conduct of monetary and interest rate policy is perhaps the most contentious aspect of the Asian policy response. Many analysts, led by the IMF's Stanley Fischer, have contended that stopping the depreciation was priority number one. Confidence and a reversal of capital flows would follow. Enthusiasts of this policy pointed to the 1995 example of Mexico. Rudi Dornbusch (1998) *dixit*:

Mexico...fully implemented a stark US-IMF program of tight money to stabilize the currency and restore confidence.... Starting in a near-meltdown situation, confidence returned and within a year the country was on the second leg of a V-shaped recovery.... The IMF is unqualifiedly right in its insistence on high rates as the front end of stabilization.

Not everyone agrees. The attack on high rates has been spearheaded by Joseph Stiglitz and his team at the World Bank, who have not been shy about making the headlines with criticisms of the sister institution. Their objections have gone far the "traditional criticism" of tough policies to defend a fixed exchange rate: that they are too costly in terms of output or employment. In much of East Asia the policy seemed not only to be painful, but also ineffective. The recent *Global Economic Prospects* published by the World Bank (1998) frets that

...one of the great surprises in East Asia was how little immediate effect the initial policy responses appeared to have had in reducing pressure on currencies or stabilizing investor confidence.... This was the case whether the initial package entailed new agreements with the multilateral institutions (Indonesia, Korea, Thailand) or not (Malaysia and the Philippines).

It is clear that, when implemented, the tight money policies were not fully effective. But arguably this lack of effectiveness resulted from policies that were “too little, too late.” Corsetti, Pesenti and Roubini (1998), in particular, have maintained that the common perception that high interest rates were the prevalent East Asian response to the crisis is a half-truth at best. The Fund has insisted on the policy, but whether countries have followed it is a different matter. There is also an issue of timing. Tight money was adopted with much delay. In their words:

The stance of monetary policy remained quite loose well into the crisis. Despite the initial round of sharp depreciations, for many weeks national authorities were determined not to let domestic interest rates increase.... Only after the currencies had fallen considerably –and after the increase in real external liabilities had pushed a significant fraction of firms into financial difficulties—did monetary authorities switch to tight monetary and credit conditions.

The case for tight money

The case in favor of tight money and high interest rates is simple. Placing a floor below the price of domestic money requires making domestic money relatively scarce. High rates are not just the inevitable, but the desirable consequence of this policy.

The argument is predicated on the standard uncovered interest parity condition:

$$(1-\delta)(1+i_t) = (e_{t+1}^e/e_t)(1+i_t^*) \quad (1)$$

where i and i^* are the contractual domestic and foreign nominal interest rates, e is the nominal exchange rate, the superscript e denotes an expectation, and the parameter δ is the portion of the domestic obligation that is expected to be defaulted on (alternatively, the probability that a total default will take place). Taking i_t^* , δ and the future expected

exchange rate e_{t+1}^e as given, an increase in the domestic nominal interest i_t must cause a fall in e_t —that is, a nominal appreciation of the currency. The increase in domestic rates is naturally accomplished through tight money. Equilibrium in the money market can be written as

$$i_t = h(m_t/p_t, y_t, s_t) \quad (2)$$

where m_t is nominal money, p_t and y_t are the exogenously fixed price level and level of output, and s_t is a shift parameter. The $h(\cdot)$ function is such that an decrease in m_t/p_t or s_t raise i_t .

Of course, many things have to be held constant for the unambiguous connection between a fall in m_t/p_t and a fall in e_t to hold. The assumptions that the future expected exchange rate e_{t+1}^e and the default rate δ are invariant to the policy change are particularly crucial—and particularly implausible. Arguments against tight money rest largely on the questioning of those assumptions.

In addition to this basic case for tight money, one important refinement often comes up in policy discussions:

Signaling: Where the role of future expected exchange rates is concerned, the argument for tight money can be taken one step further. Suppose that the future policy stance is unknown, and that the preferences of policymakers (for instance, their tolerance of inflation or unemployment) are unknown. Then, tight money and high rates today may serve as a signal of the policymakers' anti-inflationary mettle, and hence cause investors to expect more of the same tomorrow. This, in turn, pushes down the future expected exchange rate e_{t+1}^e , further strengthening the value of the currency today.

Whether this signaling argument is persuasive or not depends on two factors. First, whether there is indeed substantial residual uncertainty about the preferences of

policymakers. In Latin America, with its checkered inflationary history, toughness today may well convey much information about the future behavior of the new generation of (supposedly) technocratic policymakers. As Furman and Stiglitz (1998) stress, this is less likely in Asia, where governments have long been committed to monetary prudence.

Second, one should ask whether high rates are a *cost-effective* signal, in the sense of being costly to the party emitting the signal (as required by theory) while relatively costless to society at large. Neither requirement is necessarily satisfied. Newly independent central banks may be relatively indifferent to the ensuing unemployment (though not to financial disruption), while firms and workers will naturally wonder whether there is a less noxious way to convey to investors the government is prudent.

The case against the effectiveness of tight money

There are three reasons why a policy of tight money and high rates could be counterproductive, and *weaken* the currency instead of strengthening it.

- a) *Financial Fragility*: As emphasized by Furman and Stiglitz (1998) among others, is that high rates may weaken the financial position of the domestic entity that has promised to pay the contractual interest rate i_t , and hence enlarge the portion δ that is expected to be defaulted on (alternatively, the probability that a total default will take place). If the increase in default risk is large enough, it is easy to see that the left-hand side of equation (1) would fall, and e_t would have to rise (that is, the currency would have to weaken) to retain interest parity. This channel is a particularly relevant concern when the borrowers are weak domestic banks, as was the case in Mexico 1994 and has been the case in Asia more recently. Policy makers in the region appear to have been aware of this potential problem. According to Corsetti, Pesenti and Roubini (1998): “A policy of low rates in Thailand, Malaysia, Indonesia and the Philippines can only be understood in the light of fragile financial conditions...”

The obvious question is whether an alternative course of action is any better for the banks. A policy of loose money inevitably means a devaluation –and potentially a very large one, as the Asian cases showed. If domestic borrowers had borrowed in dollars –whether directly abroad or because domestic banks had lent at home in foreign currency-- to invest in projects yielding baht or pesos (as was the case for anyone in the non-tradables sector –think of the massive real estate projects in Malaysia), then the real devaluation means a sharp increase in the real value of the debt, and possible insolvency. There is evidence of this problem in Mexico in 1995, as well as throughout Asia more recently.

- b) *Public Finance Effects*: In countries where there is a sizeable domestic debt, either short term or at floating interest rates, a period of high nominal (and real) interest rates can severely increase debt service requirements. This potentially perverse channel has been stressed by Calvo (1991) and Velasco (1993). If, in turn, investors come to expect that the higher public debt will be monetized, then they will rationally expect a weaker currency in the future, which will affect the exchange rate today. In terms of equation (1), the increase in i_t would lead to an increase in the expected e_{t+1} ; if the effect is large enough, e_t might have to rise to preserve equality.

Such an effect is less relevant for the Asian case than for a country like Brazil, where a tremendous stock of very short-term debt has recently been at the center of the policy discussions. Indeed, until the January 13, 1999, devaluation, most analyses of the sustainability of the Brazilian program focused on whether interest rates could come down quickly enough to ensure a swift convergence of the debt-to-GDP ratio.

- c) *Political Credibility*: This is the dynamic opposite of the signaling argument. As Drazen and Masson (1994) have insightfully argued, holding tight in the face of speculative pressures against a currency has two effects. It increases that policymakers are tough, as in standard signaling theory; but it also worsens the situation (unemployment goes up, debt accumulates), thus making it more likely that

even a tough policymaker will devalue in the near future. The net effect on the exchange rate can go either way. Again in terms of equation (1), the increase in i_t could lead to a loss of credibility and an increase in the expected e_{t+1} ; for a large enough loss, a rise in e_t would be called for as well.¹⁰

Drazen and Masson offer an appealing story that provides intuition: “One afternoon a colleague announces to you that he is serious about losing weight and plans to skip dinner. He adds that he has not eaten for two days. Does this information make is more or less credible that he will really skip dinner?”(1994, p. 736) Yet the analogy also illuminates the limitations of the argument. Most importantly, a loss of credibility will occur when the rise in rates is sustained. Most interest rate defenses of a peg are temporary, or at least are announced as such. Indeed, in some countries such as the Philippines interest rates quickly returned to pre-crisis levels.

What is to be done?

In sorting through this array of arguments it helps to stress two key points. The first is that, if a fixed exchange rate is *ex ante* for a country, the circumstances under which it should not be defended are few and far between. Only very large shocks to the fundamentals that are perceived to be permanent qualify. Temporary shocks, or speculative waves that are perceived as incipient moves to a “bad” equilibrium, when one exists, should be fought with all available policies.¹¹ In addition, since at first the

¹⁰ Technically, for the story to hold the variable that enters the objective function has to be serially correlated: for instance, high unemployment today, *ceteris paribus*, raises the chances of high unemployment tomorrow. Velasco (1997) presents an equivalent argument that does not rely on imperfect information about policymakers’ preferences.

¹¹ Fundamental shock --such as a temporary fall in money demand—can be captured by a decrease in the shift parameter s_t in equation (2). This would be a

authorities are unlikely to know what motivates the attack, and much less whether a shock is permanent or transitory, tight money and high rates should be first line of defense. This stance can always be modified later on, as more information becomes available.

Time can also be necessary to carry out measures that shore up the sustainability of the fixed exchange rate. Emergency financing can be secured from abroad; fiscal measures can help defray the cost of a high-interest rate defense; structural reforms can change the underlying equilibrium real exchange rate and ease the adjustment. In all these cases, temporary exchange rate stability bought by doses of tightening can buy valuable time.

As far as the effectiveness of tight money is concerned, none of the criticisms considered above claim that higher interest rates aren't a deterrent to speculation *within a reasonable range*. The claim is, rather, that *very high rates*, sustained over *a long period of time*, can *eventually* become counterproductive. This has led some analysts to postulate a kind of Laffer curve. Imagine that we plot equation (1), with $1/e_t$ in the vertical axis and i_t on the horizontal axis, recognizing that both the default probability δ and the future expected exchange rate e_{t+1}^e are functions of i_t as described. Then, plausible functional specifications could yield a hump shape, as depicted in Figure 2: starting from a low domestic interest rate the currency strengthens as i_t rises, but eventually begins to fall as the interest rate becomes very high.

[Insert Figure 2 around here]

movement of the money demand schedule, not *along* it. On the other hand, an attack associated with a self-fulfilling prophecy would be a movement along the money demand schedule.

But this Laffer curve has the problem that all Laffer curves have: the abnormal, downward sloping portion of the relationship may potentially exist, but deciding that a country is actually in that range and designing policy on the basis of that assessment is a wholly different matter. That in many circumstances tight money does work is clearly seen in country experiences. Recently the focus has been in those countries like Indonesia where tight money, belatedly applied, failed to secure stabilization. But in Argentina, Chile and Hong-Kong in 1998, the conventional medicine yielded the conventional cure. What do these successful countries have in common? The absence of serious structural weaknesses (large short-term debt, generally wobbly banks) that could have made tight money non-credible.

More systematic empirical evidence is limited, but some of it points in the same direction. Goldfajn and Gupta (1998), in a multi-country study, find evidence for a positive link: in their sample, tight monetary policy after an attack increases the probability of a recovery of the real exchange rate (via a nominal appreciation) by 10 percentage points. As our discussion above would predict, this relationship is reversed for countries simultaneously undergoing banking crises.¹²

In conclusion: tight money works except in very exceptional circumstances. It should be the rule in responding to sudden speculative attacks. A loosening of monetary policy should be the unusual and delayed exception.

4. Fiscal Policy: Contractionary or Expansionary?

The conduct of fiscal policy has been the other chief source of controversy in the policy response to the Asian crisis. IMF-sponsored programs have been accused of forcing fiscal retrenchment where no retrenchment was needed –most Asian economies

¹² Kraay (1998), on the other hand, is unable to reject the hypothesis of no significant relationship between monetary policy and the success or failure of speculative attacks.

had strong fiscal positions before the crises-- and hence needlessly deepening the crises. Advocates have responded that some fiscal contractions was necessary in order to stabilize expectations and release fiscal resources to face growing interest payments and banking crises in most countries.

Before reviewing these arguments and their theoretical validity (or lack thereof), a quick detour to stress some facts or *factoids* appears necessary. The first *factoid* is implicit in what was just said. The initial (pre-crisis) fiscal position of most East Asian countries was indeed strong. Moderate fiscal deficits in a few countries (Korea, Malaysia, especially the Philippines) in the early 1990s were virtually eliminated by 1996. In fact, these countries were so prudent that they were often lauded for their tightening fiscal policy in response to capital inflows and incipient overheating.¹³ Two other reassuring features of the Asian economies resulted from this strong fiscal stance. The first is that public debt as a share of GDP was low, both if compared to other emerging markets and to OECD countries. The other is that monetary growth could be kept reasonably tight, resulting in low inflation: in the Asean 5 countries (Indonesia, Korea, Malaysia, the Philippines and Thailand) inflation in the nineties was held at 10 percent or below, with no clear tendency to increase in any of them.

But this strong fiscal position changed endogenously with the outbreak of the crisis. Cyclical effects on output reduced government income in conventional fashion; Talvi (1996) effects set in: the end of consumption booms and the need to reduce current account deficits meant a collapse of consumption-based tax revenues (VAT and tariffs); and, most importantly, banking crises created a new and unexpected fiscal whose cost is still not fully known, but which surely amounts in present value terms to many percentage points of GDP. All of this leads to a point that is relatively obvious, but which still needs to be emphasized: fiscal contraction, to the degree that it took place, was largely the response to a sharp and exogenous shock in fiscal conditions.

¹³See, for instance, Corbo and Hernández (1994).

It is also important to clarify whether the fiscal contraction was as large as conventional wisdom would have it, and whether the stress on fiscal probity remained unchanged as the crisis deepened. On both points one should be careful. As Stanley Fischer (1998) has argued, fiscal tightening was largely related to the (at that point) unavoidable costs of cleaning up financial crises:

“...the fiscal programs vary from country to country. In each case, the IMF asked for a fiscal adjustment that would cover the carrying costs of financial sector restructuring—the full costs of which is being spread over many years—and to help restore a sustainable balance of payments. In Thailand, this translated into an initial fiscal adjustment of 3 percent of GDP; in Korea, 1.5 percent of GDP; and in Indonesia, 1 percent of GDP, much of which will be achieved by reducing public investment in projects with low economic rates of return.”

Moreover, such adjustments were allowed to become less severe a circumstances in some of the countries deteriorated. Even the usually critical World Bank (1998) admits that

“From the onset of the crisis through early 1998, fiscal policies (contrary to their design and with benefit of hindsight) were contractionary. If the initially announced fiscal targets had been implemented they would, indeed, have been severely contractionary. As the severity of the recessions became apparent, however, the aim of achieving fiscal balance or surplus was quickly relaxed and more stimulative measures adopted.”

Still, it is clear that fiscal policy played a procyclical role, at least at the outbreak of the crisis. Can this policy stance be rationalized? Conventional views on fiscal policy --whether Keynesian or Neoclassical-- suggest not, although with some caveats. Begin by reviewing this conventional wisdom, before considering more complex theories that can

potentially justify the kind of procyclical fiscal policy we have recently seen not just in Asia, but also in Latin America.¹⁴

The conventional case for a countercyclical fiscal policy

The traditional Keynesian case is well known: a larger-than-average fiscal surplus at times of economic expansion and a smaller-than-average surplus at times of contraction serve as automatic stabilizers of aggregate demand and hence income. The neoclassical case, built on the seminal paper by Barro (1979), calls for a smoothing over time of the distortions created by high tax rates; hence, governments should optimally run a deficit and borrow when output and hence revenues are exogenously low, and run a surplus and repay when good times return. Hence, both sets of theories call for a pattern of fiscal deficits and surpluses that move counter to the economic cycle.

There is an important caveat to the neoclassical view, however, that is key in applying it to real world events: such a view does not call for full smoothing of either taxes or spending in response to shocks, even if all shocks are known to be transitory and short-lived. Consider the extreme case of an oil-producing nation that knows with full certainty that the price of government-owned oil (its only source of fiscal revenue) alternates every period between low and high levels. Hence, if the price of oil today is low, it is sure to be high again tomorrow. Suppose the country only consumes food, whose nominal price is constant. Keep also the relevant real rate of interest (in terms of food) constant. Is it optimal in for this country to keep spending the same every time a bad oil price shock hits? No. The present value of government income is lower at times of low prices than high prices. Spending should be lower, accordingly.

¹⁴ Argentina and Mexico reacted with large fiscal contractions to the Tequila crisis in 1995. Almost every Latin country implemented spending cuts and/or tax increases in response to the spread of the Asian flu in 1998.

In practice, then, even transitory shocks call for a tax hike and/or cuts in government spending. All that the neoclassical view recommends is that the cuts, say, be smaller than the revenue effect of the shock, so that the fiscal deficit should optimally rise during those bad times.

Limits to countercyclical policy

For many developing countries, though, these prescriptions are a far cry from reality. As a series of papers produced by the Office of the Chief Economist of the Inter-American Development Bank showed, fiscal policy in Latin America has been clearly procyclical, in contrast both to theory and to observed behavior in the OECD.¹⁵ In the words of Gavin and Perotti,

“Fiscal outcomes have been far more volatile in Latin America than in the industrial economies. And, in sharp contrast to the industrial economies, fiscal policy has been procyclical, and particularly so in recessions, casting doubt in the applicability of the Barro (1979) tax-smoothing hypothesis for Latin America.”

There are two families of explanations for this seemingly puzzling fact. They both stress weak institutions and/or political economy considerations:

- a) *Credit ceilings and precarious creditworthiness*: in this view policy makers do not run a countercyclical fiscal policy because they can't. Doing so would involve borrowing large amounts at times of trouble. And, given political institutions, past record of repayment, the volatility of terms of trade, etc., lenders simply do not lend when the money is most needed. Formalizations of this story rely on the pitfalls of

¹⁵ See Gavin et. al (1996) and references therein.

sovereign borrowing much studied in the 1980s. For a recent and interesting attempt, see Aizenmann, Gavin and Hausmann (1996).

Gavin et al (1996) provide a useful illustration focusing on the post-Tequila effect experience of Argentina and Mexico:

In 1995 both countries found themselves in the midst of severe recessions. Despite this, both countries implemented strongly contractionary fiscal policies, almost certainly contributing to the depth of the recession and postponing recovery. This was not done because officials in both countries would not have liked to implement a more countercyclical policy. It was done because, in light of investors' loss of confidence in short-term prospects, financing of the deficits that would have been implied by a countercyclical policy was simply not available.

While there is undeniable truth to the view that emphasizes credit constraints, its policy implications are less than obvious. In particular, if the private sector will not lend, should the multilateral institutions lend to make up the gap? Perhaps. Some smoothing would doubtlessly be desirable. But official lending has problems of its own. One is that as the country's debt stock goes up, private creditors could think that their chances of repayment go down, and this would cause them to reduce their exposure. In the limit, there could be a full *crowding out* of private monies by official monies.¹⁶

But what if the intervention of the multilaterals puts a "seal of approval" on the country and hence raises its overall credit ceiling? Perhaps, again. Whether public funds crowd in or out the private sector will depend crucially on what *signal* the additional borrowing sends private investors. These typically operate in an

¹⁶ Indeed, this is exactly what should happen if the country's government is at its credit ceiling.

environment of great policy uncertainty, which is aggravated at a time of adverse shocks that worsen the fiscal position. They will therefore typically endeavor to infer future policies from current ones. If the loan by a Washington IFI is coupled with a package to strengthen institutions and hence policy performance thereafter, then it can be taken as a signal of increased creditworthiness; but if it is interpreted simply as delaying the inevitable (think of Russia in mid 1998), then it may exacerbate capital flight.

- b) *Voracity Effects*: According to Tornell and Lane (1997), who build on the model of the government as a commons of Velasco (1995), good times whet the appetites of powerful groups with access to government resources, who may extract transfers when there are transfers to be had. An implication is that not only the government budget, but the current account, will respond pro-cyclically to windfalls in the terms of trade. The fiscal policy of Mexico appears to replicate this pattern faithfully, with expenditures rising disproportionately at times of high oil prices.

Once again, the policy implications are complex. The first best, of course, would be to change political institutions and curtail the fiscal privileges of powerful groups. Short of that, however, things are unclear. Loans by IFIs could potentially exacerbate this pattern and reduce aggregate welfare, for instance. In fact, in this context a “benevolent” fiscal authority hemmed in by these lobbies may optimally choose to run a procyclical fiscal policy. As Talvi and Vegh (1996) show in some detail, lowering taxes and hence revenues in good times may be the only way to prevent resources from being diverted to the lobbies.

Can fiscal contraction be expansionary?

So far these arguments that suggest that fiscal policy is procyclical because it cannot be otherwise. But could it be the case that it moves with the cycle for a good reason? Perhaps to mitigate the cycle itself?

- a) *Expansionary contractions*: theories of expansionary fiscal contractions gained credence in Europe on the basis of the Danish and Irish experiences, as described by Giavazzi and Pagano (1990). These two countries undertook deep fiscal consolidations, and at the same time experienced increases in consumption in economic activity. The mechanisms behind this anti-Keynesian reaction are twofold. *Direct* effects result from the presumably lower interest rates (nominal and potentially also real) that follow fiscal consolidation, and which stimulate consumption demand. *Indirect effects* are expectational: lower expenditure today may signal lower expenditure and taxes tomorrow, enhancing the present value of private wealth and also stimulating consumption. Direct and indirect effects naturally interact, because today's interest rates plausibly depend on future expected deficits, expected marginal utilities of private consumption, and future monetization.
- b) *Stepping away from the fiscal abyss*: Blanchard (1990), and Bertola and Drazen (1993), among others, take the argument one step further. Suppose that, beyond a certain level, higher taxes have a large negative effect on output. Suppose also that, for standard *monetarist arithmetic reasons*, the longer it takes to close a deficit the higher taxes will eventually have to be: the accumulated debt will be larger. In that case a sharp expenditure cut or tax increase today may render a larger, later cut unnecessary. Hence future output is higher, and so are private wealth and consumption.

What is one to make of these paradoxical theories of expansionary contraction? At one level they have an undeniable ring of plausibility. When public debt is accumulating as quickly as it did in Brazil in 1998, and when interest payments begin to consume the lion's share of public revenue, a country seems headed for a fiscal abyss. In that situation, a fiscal consolidation would doubtless have a positive impact on expectations, and possibly even on private demand. But the quantitative impact, if at all present, is likely to be minor. As Giavazzi and Pagano (1990) are the first to stress, the expansionary effects rely on well functioning capital markets that can allow consumers to turn future income into current consumption. But consumers in Asia or Latin America are likely to be much

more liquidity constrained than their counterparts in the OECD, particularly at times of external shocks and economic crisis. A large positive response of private demand to budget cuts seems highly unlikely.

What is to be done?

Whether fiscal contractions in East Asia were too large is a point likely to be debated for years. But what seems clear is that, in emerging markets buffeted by exogenous shocks and confidence crises, some degree of fiscal retrenchment seems both *inevitable* and *desirable*. *Inevitable*, because full tax and expenditure smoothing is very seldom optimal, and because even if it were private capital markets would be unlikely to finance it. *Desirable*, because some adjustment today is probably needed to signal more adjustment tomorrow. This is a particularly complex signaling problem, for the information to be transmitted is not just about government preferences (as in simple inflation examples), but about the likelihood of outcomes in the messy political process of legislating fiscal policy. It is hard to imagine another way to convince investors that future fiscal policies will be prudent than to make them so today. Of course, the severity of the signaling problem will depend on the size of the necessary fiscal adjustment and on the past record of prudence. On both fronts Asian countries were better off than most of their Latin counterparts, and hence could have plausibly afforded greater fiscal laxity in recent years.

Official lending can mitigate, but not eliminate, the private capital market problem. As we saw above, loans from Washington can *crowd in* or *crowd out* private monies, depending on how future repayment probabilities are believed to change with greater official assistance. Institutional reforms and policy precommitment can help. This, incidentally, is a key reason why the IMF should not just “stick to its knitting,” and should foster structural reform along with short-term lending for macro purposes. Contrast this view to currently fashionable arguments to limit the Fund’s role; see for instance by Feldstein (1998).

5. Where Do We Go From Here?

What is perhaps most striking about the policy tradeoffs analyzed in this paper is how stark and unappealing they are: almost no matter what governments do, the odds of success are low and the likely costs are high. That suggests that perhaps we should be thinking less about crisis management and more about crisis prevention.

Much could be done to make economies less vulnerable to exogenous shocks and shifts in investor sentiment. These are a few of the possible ways forward:

a) *Financial liberalization and fragility*: In their (1996) paper on the "twin crises," Kaminsky and Reinhart found that: a) Of the 26 banking crises they study, 18 are preceded by financial sector liberalization within a five year interval and b) Financial liberalizations accurately signal 71 percent of all balance of payments crises and 67 percent of all banking crises. The experiences of Chile, Mexico, and now East Asia, strongly confirm this general tendency. Freeing interest rates, lowering reserve requirements, and enhancing competition in the banking sector are sound policies on many grounds --and indeed, countries in which they are applied often experience an expansion in financial intermediation. But they can also sharply reduce the liquidity of the financial sector, and hence set the stage for a potential crisis. This is the main finding in Demigurc-Kunt and Degiatche (1998).

Beyond the effects of liberalization on liquidity, a host of other potential ills have been mentioned in the literature. In particular, deregulation coupled with explicit or implicit guarantees on banks and inadequate oversight can generate a serious moral hazard problem. Overlending and excessive risk taking are likely results, as argued by Velasco (1990) for the case of Chile and by Krugman (1998) for the recent Asian episode. A lending boom and growing share of risky or bad loans often result. As Hausmann and Gavin (1995) persuasively argue, the empirical link between lending booms and financial crises is very strong. Rapid growth in the ratio of bank credit to GDP preceded financial troubles not just in Chile and Mexico, but also in Argentina

(1981), Colombia (1982-83), Uruguay (1982), Norway (1987), Finland (1991-92), Japan (1992-93), and Sweden (1991).¹⁷

The moral of the story is the same in both cases. Financial liberalization should be undertaken cautiously. Reserve requirements can be a useful tool in stabilizing a banking system, as the experience of Argentina in 1995 showed. Lowering them to zero, as Mexico did in the run up to the 1994 crash, smacks of imprudence.

b) *Capital inflows and short-term debt*: Short-term government debt proved to be dangerous in the case of Mexico; short term external debt has proven to be risky in the case of Asia. What can be done about it?

Restraining short-term borrowing involves no free lunch, for both governments and banks have perfectly sound reasons for wanting to make at least some of their liabilities short-term. At the same time, it is not clear that decentralized decision-making delivers the optimal debt-maturity structure: governments may rely too much on short-term debt if they suffer from time inconsistency or high discounting; foreign creditors may only be willing to lend short because of imperfect information or monitoring, or because of coordination failure with other creditors (if each creditor expects the others will only lend short, thus making a crisis possible, his best response is also to lend short in order to have a chance to get out if the crisis comes). These conjectures suggest that there may be a case for a policy discouraging short-term debt.

¹⁷In Mexico and Chile, as in the case of some Asian countries more recently, the perception of government guarantees may have created a moral hazard problem and led banks to take on excessive risk. Velasco (1991) discusses evidence for this in the case of Chile. Krugman (1998) stresses the role of moral hazard and over-investment in Asia.

What policy, exactly, is a tricky matter. High required reserves on bank liquid bank liabilities (whether in domestic or foreign currency, and whether owed to locals or foreigners) is an obvious choice. It may be sound policy even if it has some efficiency costs or if causes some disintermediation. An obvious caveat is that if banks are constrained firms will do their own short-term borrowing, as it happened massively in Indonesia. Taxes on capital inflows where the tax rate is inverse proportion to the maturity of the inflow (and where long term flows such as FDI go untaxed at the border) have been used by Colombia and Chile in the 1990s. They are often justified in terms of findings such as those of Sachs, Tornell and Velasco (1996c), who found that a shorter maturity of capital inflows was a helpful predictor of vulnerability to the Tequila effect in 1995, while the size of those inflows was not. Empirical studies by Valdés-Prieto and Soto (1996) and Cárdenas and Barrera (1997) find that such taxes (actually, non-interest bearing reserve requirements) in Colombia and Chile lengthen average maturity while leaving loan volumes unaffected. If so, they may also be effective in reducing vulnerability.

- c) *Improving fiscal institutions*: we saw above that excessively procyclical fiscal policies are the inevitable consequence of weak and deficit-prone fiscal institutions. Lenders do not lend when times are bad because they do not think they will be repaid when times are good. This informal view is corroborated by the formal evidence suggestive of fiscal borrowing constraints provided by Gavin and Perotti (1997). And the weaker the country's budgetary institutions the greater the problem, as shown by Gavin, Hausmann et al (1996).¹⁸

A simple and first step forward is to reduce public indebtedness levels. With less initial debt there is more room to expand in bad times without running into borrowing constraints. The ratio of public debt to GDP of East Asian and Latin American

¹⁸ The quality of fiscal institutions is measured by the index developed in Alesina et al (1996).

countries is low by OECD standards; but so are probably their credit ceilings, for obvious political and institutional reasons.

A second step is to reform fiscal institutions to make spending less cyclical and repayment more likely. One possibility is the National Fiscal Council proposed by Eichengreen et al (1996), which would give responsibility for the broad trends in fiscal policy to an autonomous body modeled after independent central banks.

Finally, the unattractive choices faced by countries also suggest that there are problems what is nowadays called the *architecture* of the world financial system. The apparent prevalence of contagion and herd behavior calls for reform. If financial crises such as those in East Asia were at least partially caused by self-fulfilling liquidity squeezes on banks (as argued by Radelet and Sachs, 1998, and Chang and Velasco 1998c), there is a role for an international lender of last resort that can help overcome a financial system's international illiquidity. Funds from above to prevent unnecessary credit crunches and avoid costly liquidation of investment can increase welfare.

The usual (and valid) objection is moral hazard. But this need not be a rationale for policy paralysis. Fire insurance and bank deposit guarantees also risk inducing moral hazard, but the risk can be minimized by proper contract design and appropriate monitoring. No one advocates banning fire insurance simply because it leads some homeowners to be careless with their fireplaces. The same is true of an international lender of last resort.

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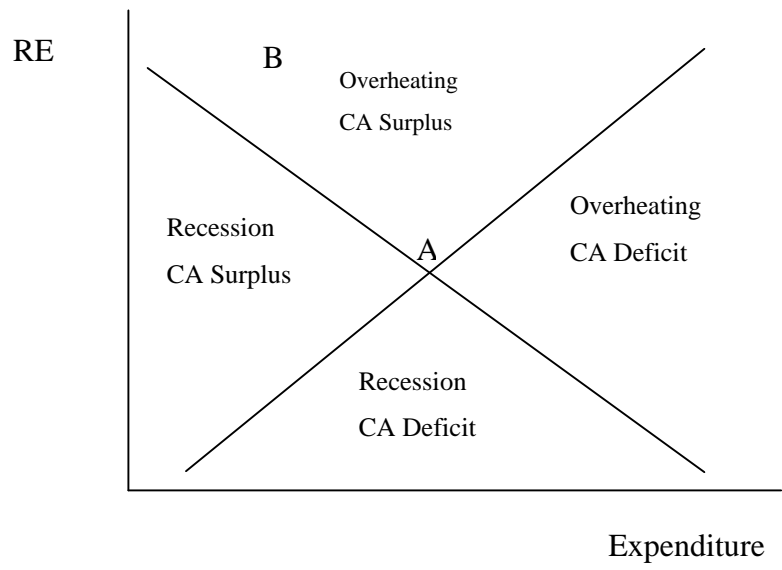


Figure 1

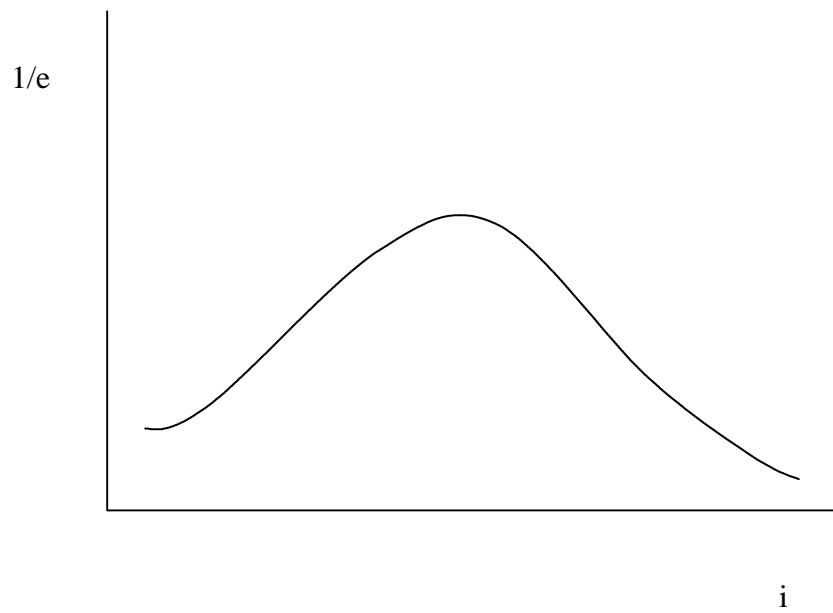


Figure 2