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LAX PUBLIC SECTOR, DESTABILIZING PRIVATE SECTOR: ORIGINS OF CAPITAL MARKET CRISES

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Abstract

A principal message of this paper is that external financial crises are not caused by an alert private sector pouncing upon the public sector's foolish actions such as running an unsustainable fiscal deficit or creating moral hazards. They are better described as private sectors (both domestic and foreign) acting to make high short-term profits when policy and history provide the preconditions and the public sector acquiesces. This conclusion emerges from a review of balance of payments crises in the Southern Cone around 1980, Mexico in 1994-95, East Asia in 1997-98, and Russia in 1998 in light of existing theories -- speculative attack models and moral hazard -- and a synthesis of ideas proposed by Salih Neftci and Roberto Frenkel. The standard theories do not explain history well. The Frenkel-Neftci framework supports a better description of crisis dynamics in terms of five elements:(1) the nominal exchange rate is fixed or close to being pre-determined; (2) there are few barriers to external capital inflows and outflows; (3) historical factors and the conjuncture act together to create wide financial "spreads" between returns to national assets and borrowing rates abroad -- these in turn generate capital inflows which push the domestic financial system in the direction of being long on domestic assets and short on foreign holdings; (4) regulation of the system is lax and probably pro-cyclical; (5) stock-flow repercussions of these initially microeconomic changes through the balance of payments and the financial system's flows of funds and balance sheets set off a dynamic macro process which is unstable. Policy alternatives are discussed in terms of these five conditions and the present global macroeconomic environment, in particular the destabilizing interventions of the International Monetary Fund in East Asia.

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I. Tolstoy was wrong (about international capital markets, at least)

Everyone knows the epigraph to *Anna Karenina*, "Happy families are all alike; every unhappy family is unhappy in its own way." Tolstoy may well have been right about families, but the extension of his judgment to economies hit by capital market crises distinctly fails. Their causes and unhappy consequences in Latin America, Asia, and Eastern Europe over the past 20 years have many elements in common.

Most of these boom and bust episodes took place with the fiscal house in order. They pivoted around the government's withdrawal from regulating the real side of the economy, the financial sector, and especially the international capital market. This premeditated laxity created strong incentives for destabilizing private sector financial behavior, on the part of both domestic and external players. Feedbacks of their actions to the macroeconomic level upset the system.

At best, the past decades may be transitions toward a more "mature" public/private relationship in the developing world; at worst, they presage long-term stagnation or systemic collapse. The latter outcomes become ever more likely if the current incentive structure for private sector international financial transactions in both poor and rich countries remains unchanged.

To think about how the system can be rebuilt in more stable fashion, we have to understand why the crises happened in the first place. That is not an easy task. A plausible place to begin is with the models economists have designed to explain events such as Latin America's "Southern Cone" crisis around 1980, European problems with the ERM in 1992, Mexico and the "tequila" crisis in 1994, events in East Asia in 1997-98, and the Russian crisis of summer 1998. We start out in

Section II with a review of mainstream work -- accounting conventions, crisis models, "moral hazards," and other abstract niceties. Then we go on to a narrative proposed by people who operate close to macro policy choices and micro financial decisions. Reviews of Latin American (Section III) and Asian and Russian (Section IV) experiences show that the overlap between mainstream models and the reality they are supposed to describe is slight; the practitioners' framework fits history far better. In Section V, it is used as a basis for suggestions about reasonable policy lines to follow in wake of the recent disasters.

II. Existing theory

This section discusses existing crisis theories. It begins with relatively innocuous but important accounting conventions, and goes on to present mainstream models and a more plausible alternative.

A. Accounting preliminaries

A proper macroeconomic accounting framework is essential for disentangling the causes of financial crises -- this subsection is devoted to laying one out. Table 1 presents a simplified but realistic set of accounts for an economy with five institutional sectors -- households, business, government, a financial sector, and the rest of the world.

Table 1 here

How each sector's saving originates from its incomes and outlays is illustrated in the top panel. Households in the first line receive labor income W, transfers from business J_b (that is, dividends, rents, etc.) and from government J_g, and interest payments ζ_h on their assets held with the financial system. They use income for consumption C_h, to

pay taxes T_h, and to pay interest Z_h to the financial system. What's left over is their saving S_h. To keep the number of symbols in Table 1 within reason, households are assumed to hold liabilities of the financial system only. That is, their holdings of business equity are "small" and/or do not change, and they neither borrow nor hold assets abroad. The last two assumptions reflect a major problem with the data -- it is far easier to register funds flowing into a country via the capital market than to observe money going out as capital flight by numerous less than fully legal channels. Repatriation of such household assets is implicitly treated as foreign lending to business or government in the discussion that follows.

Similar accounting statements apply to the other sectors. Business gets gross profit income Π, and has outlays for transfers to households, taxes T_b, and interest payments to the local financial system (Z_b) and the rest of the world. The latter payment, eZ_b^*, amounts to Z_b^* in foreign currency terms converted to local currency at the exchange rate e. Business saving S_b is profits net of these expenditures. It will be lower insofar as interest payments Z_b and eZ_b^* are high. As discussed later, firms in Asia are said to suffer from constricted saving possibilities because their debt/equity ratios are high. Standard stabilization programs which drive up interest rates and currency values and thereby Z_b and eZ_b^* can easily lead to heavy business losses (negative values of S_b), culminating in waves of bankruptcy.

Government saving S_g is total tax revenue net of public consumption C_g, transfers to households, and interest payments at home

(Z_g) and abroad (eZ_g^*). For simplicity, the financial system is assumed to have zero saving, so that its interest income flows from households, business, and government just cover its payments to households. Finally, "foreign saving" S_f in local currency terms is the exchange rate times the foreign currency values of imports (M) and interest payments less exports (E). The implication is that the rest of the world applies part of its overall saving to cover "our" excess of spending over income.

This interpretation shows up clearly in the "resource balance" equation or the sum of all the savings definitions. Total saving results from the excesses of income from production $(W + \Pi)$ over private and public consumption $(C_h + C_g)$, and of imports over exports. Or in other words S_f equals total income minus total outlays and the sum of domestic saving supplies.

Likewise, the "investment-saving balance" shows that the sum over sectors of investment less saving must equal zero. Much of the macroeconomic drama in recent crises results from large shifts in these "financial deficits." They show up in each sector's accumulation of assets and liabilities in the penultimate panel of the table.

Households, for example, are assumed to finance their deficit ($I_h - S_h$) by running up new debt ΔD_h with the financial system, partially offset by their greater holdings of the system's liabilities or the increase ΔH_h in the "money" supply.[1] Business and government both cover their deficits by new domestic (the ΔD terms) and foreign (the ΔD^* terms) borrowing.

The accounts for the financial system and the rest of the world are slightly less transparent, but essential to the following discussion. The former's flow balances show that new money creation ΔH_h

is backed by increases in domestic debt owed by households, business, and government, as well as by increases in the system's foreign reserves $e\Delta R^*$. In the foreign balance, reserve increments and foreign saving are "financed" by increases in the foreign debts of business and government $e(\Delta D_b^* + \Delta D_g^*)$.

How the "spreads" in Table 1's last panel enter the analysis is taken up below. What we can do now is say something about how the public sector was supposed to be the prime culprit for "old" financial upheavals, e.g. the debt crisis of the 1980s. As will be seen shortly, this assertion is far from the truth, but it is so widely accepted that we must discuss it on its own terms.

B. Mainstream crisis models

The first post-World War II wave of developing economy crises in which external financial flows played a significant role took place around 1980. The countries affected included Turkey in the late 1970s, the Southern Cone in 1980-81, Mexico and many others in 1982, and South Africa in 1985. The Southern Cone collapses attracted great attention. They teach significant lessons about how market deregulation by the public sector and private responses to it can be extremely destabilizing.

The academic models underlying the belief that the public sector "caused" the early crises are built around a regime shift (or "transcritical bifurcation" in the jargon of elementary catastrophe theory). They emphasize how gradually evolving "fundamentals" can alter financial returns in such a way as to provoke an abrupt change of conditions or crisis -- a ball rolls smoothly over the surface of a table until it falls off.

An early model of this sort was set out by Hotelling (1931). It describes speculative attacks on commodity buffer stocks. Hotelling set

up a dynamic optimizing model that shows (obviously incorrectly) that prices of exhaustible resources should rise steadily over time at a rate equal to the real rate of interest. Suppose that the government tries to stabilize such a price with a buffer stock. So long as the potential capital gain from holding the commodity lies below the return to a risk-free alternative, speculators will let the government keep the stock. But when the gain from the potentially trending (or "shadow") price exceeds the alternative return, they will buy the entire stock in a speculative attack and let the observed market price go up steadily thereafter.

The regime change is triggered when the profit from liquidating the "distortion" created by the buffer stock becomes large enough -- investors choose their moment to punish the government for interfering in the market. Similar sentiments underlie balance of payments crisis models of the sort proposed by Krugman (1979) and pursued by many others.[2] They assert that expansionary policy when the economy is subject to a foreign exchange constraint can provoke a flight from the local currency.

In a typical scenario, the nominal exchange rate is implicitly assumed to be fixed or have a predetermined percentage rate of devaluation $\hat{e} = \Delta e / e$. Moreover, the local interest rate i exceeds the foreign rate i^*. Under a "credible" fixed rate regime, the *expected* rate of devaluation $\hat{e}^E = (\Delta e / e)^E$ will equal zero. From the last panel of Table 1, the interest rate "spread" $\Sigma_i > 0$ will favor investing in the home country.

Now suppose that the government pursues expansionary fiscal policy, increasing the fiscal deficit $I_g - S_g$. If the household and business sectors do not alter their behavior, the Investment-saving

balance in Table 1 shows that foreign saving S_f or the external current account deficit has to rise. A perceived "twin deficit" problem of this sort lies at the heart of traditional IMF stabilization packages that have thrown many countries (now including those in East Asia) into recession.[3] The external imbalance can lead to crisis via several channels. We describe two:

The first is based on the recognition that the government has to issue more debt, i.e. in the "Accumulation" panel of Table 1, ΔD_g or ΔD_g^* must rise when $I_g - S_g$ is increased. Assume that the government is credit-constrained in external markets so that ΔD_g expands. To maintain its own balances, the financial system can "monetize" this new debt so that ΔH_h goes up as well. If the domestic price level P is driven up by money creation (which does not always happen), then the real value of the currency eP^* / P (where P^* is the foreign price level) will appreciate or decline in absolute value. Imports are likely to rise and exports to fall, leading to greater external imbalance. With more borrowing ruled out by assumption, foreign reserves will begin to erode.

Falling reserves suggest that the trade deficit cannot be maintained indefinitely. When they are exhausted, presumably there will have to be a discrete "maxi"-devaluation, a regime shift which will inflict a capital loss on external investors holding liabilities of the home country denominated in local currency. At some point, it becomes rational to expect the devaluation to occur, making $\hat{e}^E$ strongly positive and reversing the spread. A currency attack follows. As with Hotelling's commodity stocks, the economically untenable fiscal expansion is instantly erased.

A second version of this tale is based on the assumption that the local monetary authorities raise "deposit" interest rates to induce households to hold financial system liabilities created in response to greater public borrowing. In the financial system balance in the first panel of Table 1, ζ_h will increase so that interest rates on outstanding domestic debts have to go up as well.

The spread Σ_i immediately widens. Foreign players begin to shift portfolios toward home assets, so that from the foreign accumulation balance in Table 1, reserves begin to grow. If the monetary authorities allow the reserve increase to feed into faster growth of the money supply, we are back to the previous story. If they "sterilize" a higher ΔR^* by cutting the growth of household (ΔD_h) or business (ΔD_b) debt, then interest rates will go up even further, drawing more foreign investment into the system. From the foreign accumulation balance, pressures will mount for the current account deficit S_f to increase, say via exchange appreciation induced by inflation or else a downward drift of the nominal rate as the authorities allow the currency to gain strength. A foreign crisis looms again.

C. Moral hazards

The notion of moral hazard comes from the economic theory of insurance. The basic idea is that insurance reduces incentives for prudence -- the more fire insurance I hold on my house, the more arson becomes an intriguing thought. Insurance companies frustrate such temptation by allowing homeowners to insure their properties for no more than 75% or so of their market valuations.

In the finance literature, moral hazard has been picked up in diverse lines of argument. Writing in an American context, the unconventional macroeconomist Hyman Minsky (1986) saw it as arising

after the 1930s as a consequence of counter-cyclical policy aimed at moderating real/financial business cycles. At the same time, "automatic stabilizers" such as unemployment insurance were created as part of the welfare state. As is always the case, these bits of economic engineering had unexpected consequences.

One was a move of corporations toward more financially "fragile" positions, leading them to seek higher short-term profitability. Absent fears of price and sales downswings, high risk/high return projects became more attractive. This shift was exemplified by increased "short-termism" of investment activities, and the push toward merger and acquisition (M&A) activity in the 1970s and 1980s.

Second, the intermediaries financing such initiatives gained more explicit protection against risky actions by their borrowers through "lender of last resort" (or LLR) interventions on the part of the Fed. The resulting moral hazard induced both banks and firms to seek more risky placements of resources. Banks, in particular, pursued financial innovations. Among them were the elimination of interest rate ceilings on deposits and the consequent creation of money market funds which effectively jacked up interest rates in the 1970s, the Saving and Loan (S&L) crisis of the 1980s, the appearance of investment funds and "asset securitization" at about the same time, and the later emergence of widespread derivatives markets and hedge funds.

To an extent all these changes were driven by gradual relaxation of restrictions on external capital movements (D'Arista, 1998). When Eurocurrency markets began to boom in the 1970s, the higher deposit rates they paid put pressure on US regulators to lift interest rate ceilings. Meanwhile, without reserve requirements off-shore banks (and off-shore branches of American banks) could lend more cheaply in the domestic market, leading to further deregulation. The US took the lead

in pushing for new regulatory mechanisms, e.g. the "Basle" standards for capital adequacy adopted in 1988.

Unfortunately, these changes introduced a strong pro-cyclical bias into regulation, just the opposite of the sort of system that should be in place. In an upswing, banks typically have no problem in building up equity to satisfy adequacy requirements. In a downswing, however, unless they already have the capital they can easily be wiped out. As will be seen, such regulatory structures helped exacerbate developing country financial crises.

So far, moral hazard looks sensible; it can be used to underpin plausible historical narratives. Extensions out of context begin to stretch verisimilitude. Deposit insurance, for example, certainly played a role in the S&L crisis in the US. In the Garn-St. Germain Act of 1982, depositors were allowed to have any number of fully-insured $100,000 accounts with an S&L. With their prudential responsibilities removed by the Act, S&L managers were free to engage in any high risk, high return projects they saw fit -- which they immediately proceeded to do.

However, a frequently stated extension of this observation to developing country markets makes less sense. For example, deposit guarantees have been accused of worsening the Southern Cone crises, but in Chile they had been abolished precisely to avoid moral hazard! Similarly, for (South) Korea Krugman's (1998) assertion that the government provided implicit guarantees for banks and industrial corporations holds no water. He argues that Korean conglomerates or *chaebol* engaged in reckless investment and had low efficiency as proven by their low profitability. But as Chang, Park, and Yoo (1998) point out, profitability was low only *after* interest payments, not before. Moreover, over the 1980s and 1990s the government did *not* bail out any *chaebol*; in the period 1990-97 three of the 30 biggest ones went

bankrupt. The government did have a history of stepping in to restructure enterprises in trouble, but that left little room for moral hazard -- managers knew they would lose control over their companies if they failed to perform.

Despite such shaky empirical antecedents, moral hazard is given a central role in mainstream crisis models. Dooley (1997), for example, argues that developing country governments self-insure by accumulating international reserves to back up poorly regulated financial markets. National players feel justified in offering high returns to foreign investors, setting up a spread. Domestic liabilities are acquired by outsiders (or perhaps nationals resident in more pleasant climes or just engaging in off-shore manipulations) until such point as the stock of insured claims exceeds the government's reserves. A speculative attack follows.

The leitmotif of an alert private sector chastising an inept government recurs again. This time it encourages reckless investment behavior. All a sensible private sector can be expected to do is to make money out of such misguided public action.

D. A more plausible theory

A more realistic perspective is that the public and private sectors generate positive financial feedbacks between themselves first at the micro and then at the macro level, ultimately destabilizing the system. This line of analysis is pursued by Salih Neftci (1998), a market practitioner, and Roberto Frenkel (1983), a macroeconomist. Both focus on an initial situation in which the nominal exchange rate is "credibly" fixed (setting the $\hat{e}^E$ terms equal to zero in Table 1's equations for spreads), and show how an unstable dynamic process can arise. A Frenkel-Neftci (or FN) cycle begins in financial markets, which generate capital inflows. They spill over to the macroeconomy via the

financial system and the balance of payments as the upswing gains momentum. At the peak, before a (more or less rapid) downswing, the economy-wide consequences can be overwhelming.

To trace through an example, suppose that a spread Σ_i (e.g., on Mexican government peso-denominated bonds with a high interest rate but carrying an implicit exchange risk) or Σ_Q (e.g., capital gains from booming Bangkok real estate, where $\hat{Q}$ is the growth rate of the relevant asset price) opens. A few local players take positions in the relevant assets, borrowing abroad to do so. Their exposure is risky but *small*. It may well go unnoticed by regulators; indeed for the system as a whole the risk is negligible.

Destabilizing market competition enters in a second stage. The pioneering institutions are exploiting a spread of (say) 10%, while others are earning (say) 5% on traditional placements. Even if the risks are recognized, it is difficult for other players not to jump in. A trader or loan officer holding 5% paper will reason that the probability of losing his or her job is close to 100% *now* if he or she does not take the high risk/high return position. The future, meanwhile, can take care of itself. Personal discount rates are ratcheted up by the spread; the caution that an exposed position may have to be unwound "sometime" becomes a secondary consideration.

After some months or years of this process, the balance sheet of the local financial system will be risky overall, short on foreign currency and long on local assets.[4] Potential losses from the long position are finite -- they at most amount to what the assets cost in the first place. Losses from short-selling foreign exchange are in principle unbounded -- who knows how high the local currency-to-dollar exchange rate may finally have to rise?

In a typical macroeconomic paradox, individual players' risks have now been shifted to the aggregate. Any policy move that threatens the overall position -- for example cutting interest rates or pricking the real estate bubble -- could cause a collapse of the currency and local asset prices. The authorities will use reserves and/or regulations to prevent a crash, consciously ratifying the private sector's market decisions. Unfortunately, macroeconomic factors will ultimately force their hand.

In a familiar scenario, suppose that the initial capital inflows have boosted domestic output growth. The current account deficit S_f will widen, leading at some point to a fall in reserves as capital inflows level off and total interest payments on outstanding obligations rise. Higher interest rates will be needed to equilibrate portfolios and attract foreign capital. In turn, S_b will fall or turn negative as illiquidity and insolvency spread a la Minsky, threatening a systemic crisis. Bankruptcies of banks and firms may further contribute to reducing the credibility of the exchange rate.

A downturn becomes inevitable, since finally no local interest rate will be high enough to induce more external lending in support of what is recognized as a short forex position at the economy-wide level. Shrewd players will unwind their positions before the downswing begins (as Mexican nationals were said to have done before the December 1994 devaluation); they can even retain positive earnings over the cycle by getting out while the currency weakens visibly. But others -- typically including the macroeconomic policy team -- are likely to go under.

The dynamics of this narrative differs from that of standard crisis models -- it does *not* involve a regime shift when a spread Σ_i or Σ_Q switches sign from positive to negative. Rather, movements in the

spread itself feed back into cyclical changes within the economy concerned that finally lead to massive instability. Reverting to catastrophe theory jargon, the standard models invoke a "static" instability such as a buckling beam. More relevant to history are "dynamic" or cyclical instabilities that appear when effective damping of the dynamic system vanishes. A classic engineering example is the Tacoma Narrows suspension bridge. Opened in July 1940, it soon became known as "Galloping Gertie" because of its antics in the wind. Its canter became strong enough to make it disintegrate in a 41-mile-per-hour windstorm in November of that year. Despite their best efforts, economists have yet to design a system that fails so fast.

Finally, a soupçon of moral hazard enters an FN crisis, but more by way of pro-cyclical regulation than through "promised" LLR interventions or government provision of "insurance" in the form of international reserves. After a downswing, some players will be bailed out and others will not, but such eventualities will be subject to high discount rates while the cycle is on the way up. In that phase, traders and treasurers of finance houses are far more interested in their spreads and regulatory acquiescence in exploiting them than in what sort of safety net they may or may not fall into, sometime down the road.

III. Latin American crises

All these theories can be put to empirical test. One effective technique for doing so is through history-based narratives. This approach is unabashedly "anecdotal," but it often allows a fuller appreciation of country situations than the most sophisticated econometrics. The following case studies should prove instructive.

A. What really happened in the Southern Cone?

The financial crises around 1980 in the Southern Cone, especially in Argentina and Chile, are important empirical referents for both

mainstream models and the FN narrative just sketched. As it turns out, the former elide much of the relevant history. That is, public and private sector actions clearly interacted to derail the external finances. Capital market upheavals originated in a domestic cycle, rather than as the consequence of an overnight change of heart (or the sign of a spread) of market players.[5]

In the mid-1970s Argentina and Chile were going through similar political and economic phases. *Peronista* and *Unidad Popular* governments had been succeeded by military dictatorships in the midst of domestic economic upheavals. Initially, macroeconomic policy did not deviate significantly from the traditional stabilization recipes that both countries had repeatedly applied since the 1950s (and which the IMF built into its standard practice). Price controls were lifted, wages were repressed, and the currency was devalued. After that, a crawling peg was adopted, aimed at holding the real value of the currency stable in the face of ongoing inflation. Fiscal adjustment was mainly based on reduction of the government wage bill. Real wages fell dramatically in both countries and employment dropped in Chile. The fiscal adjustment was deep and permanent in the Chilean case and less significant and lasting in the Argentine. An innovation in economic policy was domestic financial reform: the interest rate was freed and most regulations on financial intermediaries were removed.

Both economies had been isolated from international financial markets in the first half of the 1970s and did not have sizable external debts. Their external accounts had already been balanced by the stabilization packages. The orthodoxy of the military administrations gained credibility with the IMF and international banks despite the fact that both economies still had high inflation rates (160% and 63.5% per year in 1977, in Argentina and Chile respectively). High real domestic

financial yields which followed market deregulation attracted capital inflows even before controls were relaxed. Confronted with these pressures the authorities initially gave priority to controlling the domestic monetary supply and attempting to curb inflows with tighter regulations.

In the second half of the decade, first Chile and shortly after Argentina implemented new and similar policy packages. Liberalization of the exchange market and deregulation of capital flows were added to the domestic financial reforms. Trade liberalization programs were launched simultaneously. Exchange rate policy was the anti-inflation component of the package. Nominal rates were fixed by announcing predetermined paths for monthly devaluations, converging to a constant rate (the "tablitas"). The stylized facts about the outcomes of these maneuvers go as follows:

From that moment at which the exchange rate regimes were established, both countries suffered persistent real appreciation. The inflation rate fell but was systematically higher than the sum of the programmed rate of devaluation plus the international rate of inflation.

The launching of the packages was followed by injections of funds from abroad. In each country, the monetary base, bank deposits, and credit grew swiftly, as did the number of financial intermediaries. There was rapid appreciation of domestic financial and real asset prices. Domestic demand, production, and imports all expanded. The import surge, caused by trade opening, currency appreciation, and expansion in domestic demand, steadily widened the trade deficit. The current account deficit showed a more gradual increase because the external debt was small. At the outset, capital flows were higher than the current account deficit and reserves accumulated (see the foreign

accumulation balance in Table 1). No attempt was made to sterilize the inflows, so the money supply expanded.

The evolution of the external accounts and reserves marked a clear cycle. There was a continuous but gradual increase in the current account deficit, which after a time exceeded the level of inflows. Reserves reached a maximum and then contracted, inducing monetary contraction overall. However, the cycle was not exclusively determined by this mechanical element -- the size of capital flows was not an exogenous datum. Portfolio decisions regarding assets denominated in domestic currency and dollars were affected by the evolution of the balance of payments and finance. Both played a crucial role in boom and bust.

The domestic interest rate reflected financial aspects of the cycle. It fell in the first phase and then turned upward. Because the exchange rate rule initially enjoyed high credibility, arbitrage between domestic and external financial assets and credit led at the beginning to reductions in the domestic interest rate and the expected cost of external credit (which became negative in both countries). Lower interest rates helped spur real and financial expansion. It led to increased financial fragility in Minsky’s sense -- more players took positions in which their interest obligations were not covered by expected income flows in at least some time periods.

In the second phase, rising domestic interest rates and episodes of illiquidity and insolvency appeared, first as isolated cases and then as a systemic crisis. What explained the increase in nominal and real interest rates? Along the lines of Table 1, the nominal domestic interest rate can be expressed as the sum of the international interest rate, the programmed rate of nominal devaluation, and a residual (the

spread Σ_i in the notation of the table) accounting for exchange and financial risks.

Changes in the interest rate were driven by Σ_i. Risk rose in Chile and Argentina in conjunction with financial fragility. But, more importantly, the increase was driven by the evolution of the external accounts. Persistent growth of the current account deficit -- and at some point the fall in reserves -- reduced the credibility of the exchange rate rule. Higher interest rates were needed to equilibrate portfolios and attract foreign capital. This dynamic proved to be explosive in both countries. There were runs on Central Bank reserves, leading finally to the collapse of the exchange rate regime. The resulting devaluations deepened the financial crisis.

Fiscal deficits and public guarantees on bank deposits did not play significant roles. Both were present to some extent in Argentina, but Chile had a fiscal surplus and deposit guarantees had been eliminated with the explicit goal of making the financial system more efficient and less risky. Neither balance of payments attack models nor moral hazards had any relevance to these primordial developing country capital market crises. So much for received theory.

Destabilizing factors that *were* important included the rudimentary nature of the financial systems concerned and weaknesses in banking supervisory norms and practices. These are generic background features of capital market liberalization attempts in Latin America and elsewhere. If such packages had been postponed until financial systems were robust, diversified, and well-monitored, then they never would have been implemented, either in the 1970s or 20 years thereafter.

B. Mexico

For example, Mexico in the 1990s was no more financially sound than were the Southern Cone economies two decades earlier, even though it had

been an active laboratory for economic policy moves. The main success was an anti-inflation program which took advantage of favorable initial conditions created by a previously orthodox phase. The great failure, of course, was the financial crisis of 1994.[6]

The roots of the disaster of 1994 trace back to well before the debt crisis of 1982. Mexico then was faced with the problems unleashed by loan-pushing on the part of commercial banks and the country's too-ready acceptance of foreign credits to undertake expansionary policies aimed at putting into concrete the jump in national wealth which the massive oil discoveries in the mid-1970s had brought about. At least during the 1970s growth was rapid, but more disquieting developments included real currency appreciation with inflation rates that rose to 100% per year, capital flight, and a massive accumulation of external debt. Arguably, the 1982 crisis is well described by the mainstream models discussed above, although one should not discount the importance of loan-pushing by the foreign banks. When they retrenched, they led the speculative attack (as we will see, loan-calling by international banks was also a powerful component of the East Asian crisis 15 years later).

After the crisis broke in August 1982, Mexico was forced to transform an external current account deficit of about 5% of GDP into a 3% surplus within less than a year to compensate for the loss of "fresh money" in the form of new loans that the commercial banks had cut off. The economic team achieved the current account adjustment using the time-tested tools pioneered in the Southern Cone three decades earlier. They induced a recession by devaluing the peso and cutting the fiscal deficit and monetary emission. Such actions usually cause stagflation, as they certainly did in Mexico -- GDP growth averaged out at zero between 1982 and 1988, while by 1987 prices were rising 160% per year.

During the 1987-88 presidential transition, stagflation was attacked in two ways. A success was the implementation of an exchange rate-based inflation stabilization program. Despite IMF opposition, in 1987-88 an "Economic Solidarity Pact" aimed at stabilizing prices combined a pegged nominal exchange rate with a wage freeze, trade liberalization, and more austerity. This heterodox package did brake inflation, but at some cost. Real wages were reduced once again, and $10 billion in foreign reserves built up after 1982 was spent on supporting the fixed exchange rate and bringing in imports. The output growth rate, however, did not improve.

The authorities tried to stimulate growth by resorting to extreme market friendliness. They privatized state-owned industries, further liberalized foreign trade by dismantling export subsidies and an import quota system which had been built up over decades, and -- most importantly for the present discussion -- removed restrictions on inflows of direct and portfolio investment. The push to sign the North American Free Trade Agreement was the capstone of all these efforts. The macroeconomic outcomes were disquieting, on at least eight counts:

First, foreign capital came in, letting the trade balance shift from a small surplus in 1988 to a deficit of about $20 billion in 1993; the current account deficit was around 6% of GDP in 1993 and 9% in 1994. Output growth rose to 4.4% in 1990, but tailed off thereafter. The foreign credits were largely short-term, in part because of quirks in the Basle standards discussed below in connection with the Asian crisis.

Second, along the lines suggested by the FN model, capital inflows were enticed by a Mexico/USA interest rate spread Σ_i exceeding 10% (and an internal Mexican real interest rate of about 5%). Perhaps an even stronger incentive took the form of capital gains on the stock market or *bolsa*. The share price index rose from around 250 in 1988-89 to over

2500 early in 1994, setting up a large capital gains spread Σ_Q. After mid-year the *bolsa* index fluctuated erratically, as unnerving political events and interest rate reductions of a few percentage points around mid-year made Mexico a less attractive place to invest. Lustig and Ros (1993) suggest that the financial actors who determined movements of funds across the border comprised bulls (mainly foreign), bears (mainly Mexican), and "sheep" who wobbled in-between to generate a teeter-totter market with multiple equilibria -- a boom in the early 1990s, an unstable intermediate balance in 1994, and then a crash.

Third, there was substantial internal (peso) credit expansion, as banks accepted inflated securities as collateral for loans. Between 1987 and 1994 commercial bank credit doubled, with loans for consumption and housing increasing by 450% and 1000% respectively. The M_2 money multiplier also doubled, due to a reduction in reserve requirements and elimination of quantitative credit controls. Regulation was pro-cyclical, with a vengeance. After the crash, an upward spike in nominal interest rates decimated bank balance sheets -- bad debt within the system now amounts to around 15% of GDP. Local banks were not aided by Mexico's 1995 "rescue" package, which largely protected foreign creditors. How to refinance bad peso debt remains a flaming political issue to this day.

Fourth, while it lasted the external capital inflow had to enter the economy via the widening trade deficit already noted -- as shown by the foreign savings generation and accumulation equations of Table 1, there was no other channel. The deficit was engineered partly by a steadily appreciating real currency value, and partly by trade liberalization. The value of the peso in terms of both consumer and producer prices fell by about 45% between the mid-1980s and 1994, with most of the drop prior to 1991. One reason for depreciating the nominal

exchange rate more slowly than price growth was to restrain inflation, but Mexican authorities were also pushed toward a powerful peso by the outward-shifting supply curve in the foreign exchange market. In the midst of radical trade liberalization, allowing the peso to strengthen so markedly was a perilous policy to pursue.

Fifth, in contrast to external financial investment, real capital formation within Mexico did not rise much above 20% of GDP, despite increases in the early 1990s from the extremely depressed levels of the previous decade. From the side of demand, low domestic absorption was the basic cause of slow growth. Private investment was not robust for several reasons: real interest rates were high; profit margins of companies in the traded goods sector were held down in real terms by the strong peso; and public investment which historically had "crowded in" private projects was cut back as part of the liberalization/ austerity program. For both consumption and investment spending, the import content shot up.

Sixth, investment fell back from historical levels, but private (both household and business) saving dropped even more -- from roughly 15% to 5% of GDP in the 1990s, despite high interest rates. The resulting incremental increase in the private sector's financial deficit (or the sum of $I_h - S_h$ and $I_b - S_b$ in Table 1) was immediately reflected into a bigger "twin" trade deficit supported by the strong peso/high interest rate/trade liberalization policy mix already discussed. As in Chile before its financial crash early in the 1980s, somehow the allegedly beneficial effects of public sector thrift did not transmit themselves to private firms and households.

Seventh, while the game lasted, foreign money kept pouring in, blind to devaluation risk. The foundation for this house of cards was the ever-increasing stock of external debt, much of it short-term. It

began to crumble when prices on the *bolsa* stopped rising after the first few months of 1994 while American interest rates continued to increase. The collapse came with Mexico's devaluation the Tuesday before Christmas. It spread rapidly when investors began to compute the volume of short-term obligations due in 1995. The sum was $50 billion, as compared to Mexico's $6 billion in reserves. In terms of its international exposure, the economy was highly illiquid.

Finally, beyond the financial system's "locational" imbalance, one can argue that other "mistakes" in policy such as reduced interest rates in anticipation of the September 1994 presidential election worsened the situation by deterring capital inflows. A far more important point is that the balance of international financial power strongly influenced the endgame. When inflows slowed, the Mexican authorities issued a new instrument -- peso-denominated "*Tesobonos*" which were indexed to the peso/dollar exchange rate. Asset-holders switched en masse from non-indexed government debt to the *Tesobonos*, apparently on the belief that they could be cashed in for dollars freely. After the crisis hit in December, the US Treasury/IMF bail-out loans were made conditional on *Tesobono* convertibility. An alternative (permitted under Article 6 of the IMF charter) would have been for Mexico to redeem *Tesobonos* in pesos and impose controls to deter dollar flight. But that option was denied by Washington. The result was that *Tesobono* holders on Wall Street were bailed out, while Mexico incurred tens of billions of dollars of additional debt to pay them off. The widely circulated assertion that *Tesobonos* were *dollar*-denominated was a follow-up public relations move by the US financial community to cover its players who had guessed badly wrong in increasing their Mexican exposure.

Such a public relations "spin" cloaks but does not erase the basic

contradiction: By the early 1990s, Mexico had come as close as practical politics permits toward adopting a fully orthodox package of fiscal, monetary, and external adjustments. The fiscal account was in surplus and barriers to external transactions had been removed. Yet the foreign account was heavily in deficit because private savings had collapsed and hot money was flowing in.

All that an orthodox stabilizer could try to do to overcome such problems would be to increase the fiscal surplus (cutting back aggregate demand still more, and thereby private incentives for capital formation and capacity growth), raise interest rates (drawing in more short term external capital but amplifying macroeconomic pressures toward further recession, a stronger currency, and a greater trade deficit), or depreciate the value of the peso (dealing a capital loss to foreign investors and daring them to pull out -- as they did in December). The private sector was the principal source of macro imbalance, abetted by the government's insistence on full capital market liberalization, abandonment of reserve requirements and other supply-side restrictions on credit expansion, and the maintenance of an overvalued currency.

C. Summing up

Briefly, the Latin American experiences show that foreign capital market crises are intimately related with external liberalization exercises, coupled with lax financial regulation at home. A fixed or predetermined exchange rate seems central to the existence and persistence of spreads wide enough to draw substantial capital inflows, which are especially volatile when they are short term. They generate macroeconomic changes which play a fundamental role in driving investors' expectations. Their responses in turn feed in destabilizing fashion into local performance. Big public deficits and moral hazards

had at most secondary significance in generating the Latin crisis events.

IV. East Asian crises

With their importance varying from country to country, the same factors carry over to the pan-East Asian crisis of 1997-98. That Asia's typhoon was not foreseen is not surprising -- in the past, many if not most such gales have struck without warning. This one has already provoked an enormous retrospective literature. In Rakshit's (1997a) nice phrase, "... economists, proverbially adept at explaining why their forecasts go wrong, have drawn attention to quite a few sources of crisis ..." Here, we argue that the most relevant sources are just the ones that we (and the Latin Americans) have already met.[7]

A. Background on East Asia

There are marked differences in institutional structure between East Asian and Western (especially Anglo-American) capitalism, as numerous scholars have pointed out. In terms of an "ideal type" a la Singh (1998), one can point to four major Asian departures (especially prior to a liberalization phase that got underway around 1990):

First, especially in the "Northern tier" of Japan, Korea, and Taiwan, relationships between business and government were historically close and mutually interactive. "Administrative guidance" was the state's chosen means for microeconomic intervention, as opposed to legislation and/or judicial proceedings such as American anti-trust actions.

Second, corporate finance was largely channeled through banks, especially a "main bank" for each enterprise or conglomerate. Such durable relationships are said to allow business executives to take a long planning view because they are not threatened by hostile stock market take-overs. As discussed later, one implication of reliance on

bank finance is that, depending on the specific country concerned, corporations have carried high debt/equity ratios. Representative values are on the order of 3.0 in Korea now and Japan in the 1960s and 1.0 in Malaysia and Thailand now. The aggregate ratio in the US fluctuated between about 1.5 during the stock market slump in the late 1970s to about 0.35 now. In Asia, corporate debt loads depended on industrial policy, as the banks and the state coordinated provision of cheap, directed credits to targeted manufacturing sectors. Had cross-border capital movements not been strictly controlled, this sort of intervention would not have been possible.

Third, just as capital markets were far from open, product markets and investment decisions by firms were regulated. "Excess competition" in the sense of over-investment by firms and extreme cost/price cycles in sectors subject to economies of scale were avoided by the planning authorities. One corollary is that besides major investment decisions, import and export trade had to be regulated by the state. The goal was "strategic" as opposed to "close" integration with the world economy.

Finally, social tensions never spilled over into high inflation rates, and growth was relatively stable. Communist transitions in China, Indo-China, and North Korea aside, the region did not experience macroeconomic earthquakes after World War II, in sharp contrast to Latin America. This is one reason why the events of 1997-98 were an enormous psychological shock to both economic policy-makers and the general public.

Of course, not all the economies (not even Japan and Korea) followed the "Asian" model slavishly. Differences between the Northern and Southern tiers were significant. In Thailand and Indonesia, Japanese firms (collaborating closely with the Japanese government) played a big role in steering industrialization after the mid-1980s.

Aside from sporadic efforts at industrial intervention in specific sectors, local governments remained passive. The state took a more explicitly developmentalist stance in Malaysia, but again in collaboration with Japanese multinationals. All the Southern countries, nonetheless, retained trade barriers or "distortions" in support of their various versions of industrial policy.

The model changed somewhat over time. Asian intra-regional trade as a share of total trade grew from less than 40% in the 1960s to over 50% in the 1990s, with the volume concentrated around the continent's Pacific rim (the corresponding intra-trade share for Latin America is around 20%). Trade restrictions were gradually relaxed. Capital market regulations were removed much more abruptly in the 1990s, more or less simultaneously with decontrol of national financial systems. The Southern Cone experience, forgotten a decade after it happened, might have suggested the dangers that these deregulatory moves entailed.

The region's macroeconomic environment was also evolving. The Plaza Accord of 1985 marked a big transition when it set off substantial yen appreciation against the dollar. Japanese (along with Korean and Taiwanese) companies began to seek cheaper platforms for manufactured exports. The Southern tier was the natural place to go, especially because its economies pegged their currencies more or less tightly to the falling dollar.

Credit was relatively cheap in Japan, and after its stock market and real estate bubbles burst in 1990, the trade surplus soared as the real economy stagnated (that is, in terms of Table 1, S_f was strongly negative). Much of the resulting Japanese acquisition of foreign claims (negative values of ΔD_b^* and ΔD_g^*) took place in the Southern tier.

Some of this flow took the form of direct foreign investment from Northern tier companies, in effect turning the Southern countries into

subcontractors for third country export markets. By the mid-1990s their economies were running into skilled labor shortages and chronically inadequate infrastructure. Beginning in 1996, export growth dropped substantially from the 10% to 20% annual rates observed earlier in the decade. Part of this collapse can be attributed to exchange rate changes. The Chinese devalued the yuan by 35% in 1994. The dollar rose by 50% against the yen after 1996, strengthening Southern tier rates because of their dollar pegs and adding to the pressure. This latter shift was especially damaging because Japan was still the region's major trading partner.

The other capital flows into Southeast Asia were "financial" in nature. North Asian, European, and American players all invested heavily in short-term notes, in part because the Basle capital adequacy standards encouraged banks to lend in that fashion. They also masked transactions by using off-balance sheet accounting and derivatives. (Both this ploy and reasons for short-term lending are discussed in more detail below.) To a degree, the Americans may have been animated by moral hazard induced by the bail-out of Wall Street's exposed position in Mexico in 1995, but the same cannot be true of the Asians and Europeans. All were attracted by ample spreads and Southeast Asia's growth cachet.

According to published, and presumably perused, Bank of International Settlements (BIS) estimates, consolidated bank claims on South Korea, Thailand, Indonesia, and Malaysia were $202 billion at the end of 1995 and $248 billion a year later -- an annual increase of 23%! In mid-1996, about 70% of claims against Korea and Thailand had maturities of one year or less. The figures for Indonesia and Malaysia were 62% and "only" 47% respectively. As will be seen, the assets used as collateral for all this short-term borrowing were far from being rock

solid. Insofar as their prices were high as a consequence of speculative booms or were linked closely to nominal exchange rates which had been stable for a decade, their valuations were at risk.

Beginning in 1995, there *were* disturbing signs in East Asia -- a breakdown of traditional regulatory regimes, a major hiccup in export-led growth, substantial short-term borrowing backed by a shaky asset base, and exchange rates drifting out of line. Not enough bad news to back a strong forecast of crisis, perhaps, but in retrospect it is surprising that more people weren't scratching their heads.

B. Thailand

Thailand was the most "Latin" of the rapidly growing Southern tier economies. Its FN cycle beginning in 1993 bears an uncanny resemblance to events in Mexico and the Southern Cone. Early in that year, Thai companies were permitted to borrow in international capital markets. Together with lax financial regulation, this move led total credit to the private sector to leap from 39% of GDP in 1992 to 123% in 1996, a bigger increase than even Mexico's. A public sector fiscal error of commission was nowhere to be seen, but the government surely erred in omission by suddenly allowing businesses to borrow as much abroad, and with such a short maturity structure, as they did. The oldest story in the trade is about inexperienced financial players who seek high short-term returns and thereby set off a chain of events leading to a crash.

Over-expansion was most evident in loans for real estate investment, although the property market was beginning to slow down already in 1993. Prices fell drastically beginning in 1995, and the stock market crashed in mid-1996. The busts landed around two-thirds of the country's financial and securities firms into serious troubles, exacerbated by the facts that they had neither hedged their future

exchange risks with forward contracts nor attempted to assure future earnings flows in foreign currency. Belief in the immutability of the baht/dollar exchange rate apparently was universal. In terms of the spread equations in Table 1, a zero value for $\hat{e}^E$ created levels of Σ_i and (before the real estate and stock markets crashed) Σ_Q which were very appealing to foreign lenders. Thai financial intermediaries borrowed from them, mostly short-term. They may have thought they were hedged because much of their re-lending within the country was short-term also. But a portfolio balanced in maturities was no protection against foreign exchange risk.

By 1997, the economy as a whole had around $60 billion in short-term obligations and $40 billion in reserves -- not quite up to Mexican or (as we will see) Korean standards, but still a substantial liquidity imbalance. The current account deficit abruptly widened from just under 6% of GDP in 1992-94 to over 8% in 1995-96 when exports leveled out. Via the savings-investment balance, the internal reflection of this jump in S_f was an increase in the private sector's financial deficit, or $(I_h - S_h) + (I_b - S_b)$, while the government maintained a small fiscal surplus. The adjustment took the form of a 2% increase in the investment share of GDP, although the quality of the underlying projects may not have been high.

The crisis per se was triggered by the conjuncture: Japanese hints at an interest rate increase, the collapse of a leading financial house (Finance One), and growing fears of a maxi-devaluation which cut expected spreads. In July the baht was allowed to float and promptly sank as bulls metamorphosed into bears and the sheep stampeded. The IMF arrived with a package in August, which had only temporarily favorable

effects (as discussed in more detail later). The East Asian crisis was underway.

An interesting question to ask in retrospect is whether the Thai authorities should have intervened, say in 1995 as the IMF was then advising (Rakshit, 1997a). The problem is that at that stage they were already complicit in the upswing. Higher interest rates or a devaluation could easily have had an adverse impact on foreign investors' confidence, hastening the baht's downfall. The end of the export boom in 1996-97 added considerably to the problems besetting the financial firms and precipitated the downswing. With hindsight, it is fair to say that had the authorities slowed the economy in 1995, they could well have provoked a much deeper crisis in 1997.

C. Initial contagion

Thailand's troubles instantly focused the minds of the international financial community, as had Mexico's 30 months previously. Investors began to look at indicators such as ratios of debt coming due within one year to international reserves, debt/equity ratios in the business sector, and the currency composition of foreign liabilities -- all readily available data that had somehow previously been ignored. In Wade's (1998) words, "... *all* the Southeast Asian currencies suddenly looked vulnerable, since all the economies had a significant overhang of short-term debt."

Banks -- especially Japanese banks -- began to call loans. In 1996 there had been a net flow of capital into the five most affected economies[8] of $93 billion. There was a net outflow of $12 billion in 1997, with the most volatile item being commercial bank credit which shifted from an inflow of over $50 billion in 1996 to an outflow of $21 billion the following year. The overall turnaround of $105 billion was close to the five countries' total reserves of $127 billion and exceeded

10% of their combined GDP (about two percentage points higher than the impact of the 1982 debt crisis on the GDP of Latin America). It was a supply shock with sharp contractionary effects on the macroeconomy.[9] Taking advantage of the short-term nature of their credits, the banks ran from their borrowers before they had a chance to default, making default itself or a massive international bail-out a self-fulfilling prophecy.

D. Korea

Why did the Southern tier crisis jump North? Taiwan devalued by 12% in October despite its ample stock of international reserves ($83 billion at the end of 1997, or about nine months' imports), and there was a run on the Hong Kong stock market. The exchange rate held, however, after short term interest rates went up by about three percentage points. Both the Taiwan and Hong Kong wobbles were transitory, but redirected investors' concerns toward the Northern tier in general and Korea in particular. The main source of its vulnerability appears to have been a badly designed attempt at liberalizing the country's entire economic system, with (misplaced) emphasis on financial markets.

Korea's fundamentals in 1997 were far sounder than those of its neighbors to the South. The won was overly strong, but even so the current account deficit was only about 3% of GDP. The fiscal budget was largely in balance and gross public debt amounted to only 3% of GDP. There was little significant inflationary pressure. The main substantive change from the past was government emphasis on "deregulation," undertaken in part due to the intellectual convictions of the policy team but also in response to international (especially American) pressure.

In one key area, the government abandoned its traditional role of

coordinating investments in large-scale industries to avoid "excess competition." It allowed excess capacity to emerge in sectors such as automobiles, shipbuilding, steel, petrochemicals, and semiconductors, which eventually led to a fall in export prices and a run up of non-performing loans.

Second, in the name of financial liberalization, the government failed to monitor foreign borrowing activities, especially by newly licensed "merchant banks." These entities were very loosely regulated, and proceeded to acquire $20 billion in external debt. They operated with a large maturity imbalance -- 64% of their liabilities were short-term, and 85% of assets long.

The activities of the merchant banks and a general bias in the local regulatory system toward short-term international borrowing (administrative controls on long-term loans were more strict, etc.) were instrumental in a rapid buildup of $150 billion of external debt, with 60% of the obligations having less than one year to maturity and over 25% at 90 days. The major similarity with the Mexican and Southeast Asian crises rests here -- the government allowed the private sector to act in destabilizing fashion while holding its fiscal house in order.

Third, the authorities were sold on the ideas that inflation control was the most important objective of macro policy and that the exchange rate should be the principal anchor. The predictable real appreciation damaged export performance.

Finally, the government committed "mistakes" and suffered a run of bad luck as its economic troubles worsened. It dithered over the fate of the third largest car manufacturer, Kia, unnecessarily undermining confidence. As the crisis deepened, it wasted $10 billion (one-third of foreign reserves) trying to defend an indefensible exchange rate, exacerbating the foreign exchange shortage. External events also came

into play. Southeast Asia's slump reduced demand for Korean exports and dealt a blow to financial companies that had been speculating in that region's capital markets (more details later). The entrance of new Taiwanese semiconductor manufacturers drove down the prices of memory chips, which accounted for nearly 20% of Korean exports when their prices were high. But the main problem was a failure of oversight by a government priding itself on deregulation.

With panic in the air in late 1997, foreign investors could easily find reasons to worry about Korea. The growth rates of exports and GDP had slowed in 1996, there was industrial overcapacity, and interest on debt obligations was crippling savings of the business sector (the ratios of "operating income" and "financial expenses" to sales in 1996 were 6.5% and 5.8% respectively, leading to a very low aggregate value of S_b). The country had historically enjoyed stunning export growth and a high credit rating; its authorities (in contrast to those in the other miracle exporters Taiwan and China) had never felt the need to carry a big stock of international reserves. At the end of 1996 they stood at $34 billion, around one-third of the total of short-term external obligations the country had built up. The run against the won got underway in October 1997, and the IMF was called in by the government one month later.

E. Derivatives, asset prices, balance sheets, and bank incentives

Before going on to discuss how the IMF's and other international interventions transformed the regional bust into a pandemic, it makes sense to take up four issues bearing on how it unfolded -- the uses and misuses of derivatives; changes in the quality of national assets remaining (how their prices changed, and whether Asian enterprises are especially vulnerable because of high debt burdens); how bad debt can be

dealt with; and incentives for short-term lending by international banks.

Financial "derivative" contracts -- swaps, forwards, and options in the first instance -- have their vices and virtues. Among the latter is the ability they give financial players to reduce risk (from price volatility, at least) on their own positions by diversifying it to the broader market. Had Asian financial houses successfully hedged their exchange risks with forward contracts in currencies, for example, the crisis very well may not have happened.

The most notable vice of derivatives is that they can be used to *hide* risk (in a broad sense of the word) in financial transactions. Obscurity is deepened by the recent practice of placing many commitments "off" as opposed to "on" balance sheets (Neftci, 1998).[10] An example is a "special purpose vehicle" (or SPV). A bank can transfer some its stock to an SPV, setting up a corresponding counter-claim on its own balance sheet. The SPV can issue short-term paper in international credit markets using the stock as collateral (if the SPV defaults, the creditor will get the underlying stock). The SPV then uses the foreign exchange to take a position the bank desires. Fundamentally, the bank itself has assumed the foreign liability. Yet it will never show up on its balance sheet.

"Total return swaps" (or TRS) added derivative complications to such maneuvers, helping accelerate the Asian contagion. This is not the first time that new financial vehicles have worsened downswings (remember the margin calls in the 1929 Great Crash), but how the present crop can be dealt with is a contemporary regulatory problem. The following example is due to Neftci (1998):

During 1995-97, interest costs of long-term floating rate liabilities of Korean banks went up, due to tighter credit conditions in

Japan, various scandals, and the weakening of historically close relationships between the state and the *chaebol*. At the same time Indonesian companies were seeking funding, but lacked South Korea's credit standing.

Double swaps were thereby set up between the Indonesians and international investment banks on the one hand, and between those banks and the Koreans on the other. The Indonesians paid something like LIBOR+340bp[11] to the international banks, which in turn swapped the underlying paper to the Koreans at LIBOR+280bp (both differentials narrowed over time as more players entered). The counter-swap took the form of Korean liabilities at LIBOR+75bp. Payments on these obligations were made regularly, every six months or one year. As part of the package, the Korean banks committed themselves to compensate the international banks for the loss if the Indonesian companies went bankrupt.

The upshot, apparently, was that the Indonesians got credit market access while the Korean banks made a high return. All went well until the companies defaulted and the Koreans could not get credit in international markets to compensate the international banks for their bankruptcy loss; indeed they themselves began to default, mainly to their Japanese backers. In this way, part of the Indonesian crisis was transmitted to Korea and then to Japan. Meanwhile the international banks had to absorb their Indonesian losses.

What the swaps did, finally, was create highly opaque loan books. The TRS also failed to diversify Indonesian risk, which is what derivatives are supposed to do in the first place. Just "how much" of the Asian crisis can be attributed to off-balance sheet transactions and improper use of derivatives is a question that cannot properly be answered, in part because "appropriate" accounting procedures are still

being developed. What *is* known is that total transactions of this sort were large, in the tens of billions of dollars.

Turning to internal asset markets, two issues deserve discussion: changes in asset prices (and returns) and their effects on balance sheets. With regard to the former, when the currency in each country started to depreciate, the local share price index dropped in percentage terms just about in proportion (Rakshit, 1997b).[12] Short-term interest rates rose universally (sometimes to dramatic double or even triple digit levels), but were obviously unable to stem the depreciation of real currency values caused by departing capital.

What were the implications for business balance sheets? As noted above, corporations in some Asian economies have debt/equity ("gearing" or "leverage") ratios that are high by Western standards. A "representative" ratio in the West might be in the range of 0.5 to 1.5, with banks and their regulators becoming dubious about loans to firms when their ratios significantly exceed unity. The ratios in Asia have gone up since the crisis because of falling asset prices and depreciating currencies. The interest rate increases also cut into corporate cash flow.

Standard economics in the form of the Modigliani-Miller (1958) theorem suggests that such problems are of second order -- finance is a veil and the performance of business enterprises is independent of their liability structure.[13] This assertion is not completely true, as Minsky's work demonstrates. But it is not completely false either. The distinction between debt and equity is in part a matter of convention, and conventions can change.

In Anglo-American finance, for example, equity is beginning to look more like debt as rebelling stockholders call for assured dividend pay-outs. Similarly, debt can be made to look like equity if obligations

to pay interest are relaxed. One common method is to sell public debt to the non-bank private sector to pay for restructuring of weak balance sheets in the financial sector. The US dealt with its S&L crisis in this fashion (putting the public debt off-balance sheet for the federal government, incidentally). To clean up its banking system's non-performing assets to the tune of a third of GDP after the crisis in the early 1980s, Chile did the same thing via the central bank, which re-financed with the government which then re-re-financed abroad with the help of international institutions. For debt denominated in the local currency, how to set up such a package (a task which inevitably has to be undertaken by the government)is a political question. The Chileans and Americans apparently had no problems. The Japanese government is encountering political difficulty in cleaning up the remnants of the bubble economy and the Mexican government faces a similar problem with its post-1995 banking system bad debt -- the obligations amount roughly to 10% and 15% of GDP respectively. In both cases the public does not want to pay off the financiers.

Another way to deal with a debt overhang is for the government to step in and organize moratoria on domestic repayments and enforce roll-overs of short-term loans. This route was taken by the Korean government in 1972 to deal with a domestic debt crisis.

Finally, there is the option of running a "controlled" inflation to shrink the real value of debtors' obligations and force real interest rates below zero. On the financial side, banks have to "monetize" growth in some asset, e.g. credits to the private sector to cover the bad debt. On the cost side, there would have to be some agreement about margins vs. nominal wage growth. The inflation and forced roll-over strategies would almost certainly have to be accompanied by re-imposition of tough controls to restrain capital flight.

For the Asian economies, the harder question is what to do about foreign currency debt. Here, international support is needed. As discussed in the following subsection, initiatives along such lines have been strikingly unsuccessful to date.

A final financial point worth mentioning has to do with incentives for short-term lending by international banks. At present, the Basle capital adequacy provisions for *all* foreign bank loans of less than one year's maturity require only 20% backing as opposed to 100% for loans to non-OECD members with more than one year's maturity. This provision was apparently introduced to protect the inter-bank market, but for this purpose a low backing ratio for loans of three-month (or even one-month) maturity would probably be enough. As it stands, the provision offers considerable encouragement to OECD bankers to lend to developing economies short-term. This regulatory bias has certainly been as important as some sort of generalized moral hazard in affecting the volume and profile of international bank loans.

F. The IMF in action

So far, we have been describing an international financial crisis perpetrated by the private sector, operating under lax and ultimately complicit public supervision. The remaining actor on the stage is a "public" institution, the International Monetary Fund. Its interventions during the crisis made a bad situation far worse.

With regard to the substance of the stabilization policies it convinced countries to adopt, the Fund's behavior was completely predictable (even up to the ploys it utilized -- first junior staff/"hard cop" then senior staff/"soft cop" negotiators on successive missions). With regard to economic restructuring, it went well beyond its traditional mandate. We briefly review the first topic, and go on to raise questions about the second.

The Fund's specialty is running a recession to improve the balance of payments by cutting imports. The well-known twin deficits rationale for its "financial programming" exercises was sketched briefly above and can be developed fully in terms of accounting balances like those in Table 1 (Taylor, 1994). A familiar policy package always materializes: reduction of the fiscal deficit by expenditure reductions or tax increases; tight monetary policy; closing down ailing banks and other financial institutions; financial liberalization including removal of restrictions on entry of foreign banks; and trade liberalization. In exchange, the Fund disburses credits from time to time as the specific "conditionality" requirements attached to its package are satisfied.

Beyond trade balance improvement, such interventions are supposed to restore confidence of foreign investors so that they will start lending again to crisis-afflicted countries. In East Asia, the Fund's moves failed resoundingly in this regard. In the words of Rakshit (1997b), "... following the announcement of the IMF bail-out, for the country concerned there was an immediate improvement in stock and currency markets which generally pulled up markets in neighboring nations as well. However, the upswing did not last for more than a few days and soon currencies and share prices tended to resume their downslide. Quite clearly, after a more serious scrutiny the market recorded disappointment with the IMF package(s)."

Why such dismal results? Several factors can be mentioned. One is that as observed previously, East Asian economies are tightly linked in terms of trade and asset ownership. Contractionary effects in one spread readily to all others. Moreover, the trade-improving impacts of devaluation in one country will be dampened by its import dependence on its neighbors.

Finally, because of conditionality restrictions, the bulk of the credit attached to the bail-out packages was not in fact disbursed. As Helleiner (1998) observed in May, "It is striking that the amounts quickly supplied to Mexico during its crisis far exceeded the amounts slowly being made available to the East Asian countries ... Only about 20% of the financial package put together for East Asia has so far been disbursed." Given the contractionary impact of the international banks' capital strike in 1997, it is no surprise that GDP growth rates have fallen in tandem all over the region and are expected to be strongly negative in 1998.

Fund interventions may even have worsened the contagion. As Sachs (1998) observed, "... instead of dousing the fire the IMF in effect screamed fire in the theater." Investor confidence plummeted instead of being bolstered by the Fund's orthodox shows of force; outsiders can recognize a depressed economy and social unrest when they see them. The ultimate outcome may have been to transform a short-term "liquidity" crisis to one of "solvency" in which an economy can never stabilize its external debt to GDP ratio because its output growth rate has been driven below the real rate of interest.

All of this is depressing, but no surprise. The contractionary and distributionally perverse effects of IMF programs are achingly familiar in Africa and Latin America. A novelty in East Asia is how much worse the impacts can be when the package is applied jointly to a set of closely linked economies. The even more disquieting issue, however, is that the Fund is doing its very best to dismantle the Asian economic model discussed above, by insisting on wholesale restructuring of economic systems (witness the exceptionally heavy-handed interventions in Korea and Indonesia). Why? And what will be the outcomes?

To answer the first question requires walking a fine line between explanations based on interests and a conspiracy theory. On the side of the interests, there is at least some agreement among the OECD (or rich) countries that steps should be taken to liberalize the world economy in several dimensions: revision of the IMF articles to *require* member nations to remove all controls on capital markets, liberalization of trade in financial services and suppression of industrial policy interventions under the auspices of the WTO, and the OECD's own multilateral investment accord (recently blocked, for the moment, when the US representative objected to other countries' attempts to incorporate environmental and labor standards into the document). These initiatives all respond to a felt need on the part of international banks and transnational corporations to have relatively unfettered market access worldwide.

On the more conspiratorial note, American administrations always have close ties to Wall Street, but they are particularly strong (for both the Treasury and State departments) in the one now in office. Moreover, there are close personal and professional ties among high level people in Treasury and the IMF. As an institution, the Fund itself has recently ventured much more aggressively than before into wholesale rearrangement of economies. In this sense, its East Asian packages are a natural follow-on to the restructuring exercises it and the American government continue to support in the post-socialist corner of the world, most notably in Russia.

How the Asian story will end is completely unclear. Except for Poland, post-socialist rebuilding attempts have on the whole been failures, but those economies were in very poor condition to begin with. The Asians, on the other hand, had been successful for decades prior to 1997. A complete remake along Anglo-American lines will certainly not

happen; well-entrenched institutions are not readily removed. The real danger is that a long period of stagnation will ensue before the IMF and the Americans give up on the effort as a bad job. Military interventions aside, the staying power of the United States in external sanitizing exercises has never been great; more pressing political concerns always arise at home. But even a few years of unfettered market trumphalism is a prospect that few Asians care to contemplate.

G. Summing up

Just as in Latin America, the FN framework provides a useful way to think about what happened in Asia. As its real/financial cycles peaked, the region's fundamentals were shaky. Immediately after, the situation was rendered far worse by the flight of the international banks and the interventions of the IMF; new derivative-based financial instruments and off-balance sheet operations by all parties speeded the contagion. Massive attempts on the part of the Fund to restructure Asian economies will undoubtedly fail. But in so doing, they may doom the region to stagnation for an extended period of time.

V. The Russian crisis

Economic historians will need many years to sort out the tumultuous changes in Russia during the 1990s. It is certainly far too early to disentangle all the causes of the summer 1998 currency crisis. But its economic aspects do share striking similarities with the boom-bust episodes we have just discussed. As was true elsewhere, Russia had minimal restrictions on international financial transactions; a pegged exchange rate at a "strong" level; wide spreads between returns available domestically and costs of raising funds abroad; and a financial system long in ruble assets and short in dollars.

Russia's previously tightly controlled capital account had been thrown open when economic restructuring began in 1992, facilitating capital flight (funded by a consistent trade surplus and foreign capital inflows) to the tune of $20-30 billion per year. The nominal exchange rate was roughly stabilized as an anti-inflation anchor. The result was that from 1993 to 1998, depending on which price indexes are used in the calculation, the real exchange rate appreciated by a factor of between three and five. Finally, there was virtually no financial regulation so that balance sheet mismatches were unconstrained.

Money emission had been cut back sharply in the fight against inflation so that ratios of money and bank credit to GDP were very low by international standards. The government was paying high interest rates on its short-term bonds. Equity prices rose sharply beginning in 1996. Both interest rate and capital gains spreads were large and foreign investors poured in. As the relevant intermediaries, Russian financial institutions took on unbalanced positions. In particular, banks borrowed heavily abroad to speculate on the government's short-term liabilities. They did not hedge their positions, although some foreign investors are rumored to have hedged with *Russian* banks, which presumably plowed the resulting dollar assets back into rubles. The Russian players were effectively bankrupted by the devaluation in August. The collapse of the banking system resulted in the virtual disappearance of the already under-monetized domestic payments mechanism.

The main contrast with Mexico and East Asia was that due to a drastic fall in tax collection, there was a large fiscal deficit that supported the bond market. The strict monetary policy was the other side of that coin, in a Muscovite re-run of early Reagonomics. The resulting high interest rates and strong ruble were part and parcel of the

debacle, stimulating the acceleration and then speculative reversal of capital inflows.

What were the orthodox policy options available after the crisis? Prior to its dismissal in August, the Kiriyenko government was apparently planning to deal with the banking collapse by allowing some big banks to be taken over by their Western creditors. The idea was that one or more Western banks would be granted temporary license to run a retail banking network (for example, taking over a bankrupt bank and expanding it). The Western bank(s) could receive a fee for services, perhaps paid directly by the IMF. Such a move could in principle restore confidence in the banking system, maintain the payments mechanism, prevent a run, and encourage financial deepening. This proposal appears to have been politically infeasible; witness the fall of Kiriyenko.

Another set of concerns centered around the fiscal position, a direct cause of the crisis. For the public sector (central government, local governments, off-budget sheet funds) to be at least in balance, it would have had to run a "primary" surplus (before interest payments) of 4-5% of GDP. Even such stringency would leave unresolved the government’s arrears in public sector wages, pensions, and debts to firms. Fiscal balance may have been desirable, but it seemed most unlikely that any Russian government would be able to attain it, given the depression, difficulties in raising revenue, and pressures to boost expenditures.

A third possibility was to introduce a currency board, as implemented in Argentina in the early 1990s and Estonia and Bulgaria more recently, and as suggested by George Soros. But apart from technical difficulties and the very high cost, Russia quickly opted not to abandon its monetary autonomy.

The final option was a fudge. The IMF and the Russian authorities could have agreed on a set of conditions that would not be fulfilled - a familiar feature in IMF-Russian government agreements in the past. Both parties showed enough common sense not to pursue that option.

As of fall 1998, it appears that the Russian authorities will seek to resolve their problems by their own means. One step could be to impose controls on trade and international payments. A significant tariff surcharge on imports, say 20%, might be introduced. Together with a depreciated exchange rate, this would generate substantial ruble revenues quickly. On the export side, the main problem is that throughout the 1990s hard currency earnings were usually not repatriated, contributing to the enormous capital flight that Russia experienced. A requirement that a politically feasible 75% of export earnings be paid directly to the Central Bank appeared to be the remedy at hand. In addition, wide capital controls could be introduced and foreign exchange only made available to authorized importers at an administratively determined exchange rate. Such moves would short-circuit the "hot money" flows that were the proximate cause of the crisis. Indeed, capital controls of this form would be like those imposed by the UK and France in the immediate post-War period.

In many ways the situation in Russia in 1998 was worse than in Western Europe in the late 1940s - purely physical destruction was less but social and institutional dislocations were far greater. There was an advanced process of state collapse, economic life suffered from criminal activities, and there were corrupt links between business and political élites. But in a desperate situation, desperation measures of the sort just outlined should be judged by just two criteria - the preservation of democracy and the pursuit of long-run economic goals. How the

measures may fare in satisfying these ends is something only the future can tell.

VI. Policy alternatives

The principal message of this paper is that financial crises are not made by an alert private sector pouncing upon the public sector's fiscal or moral hazard foolishness. They are better described as private sectors (both domestic and foreign) acting to make high short-term profits when policy and history provide the preconditions and the public sector acquiesces. Mutual feedbacks between the financial sector and the real side of the economy then lead to a crisis. By global standards, the financial flows involved in a Frenkel-Neftci conflagration are not large -- $10-20 billion of capital flows annually (around 10% of the inflow the US routinely absorbs) for a few years are more than enough to destabilize a middle income economy. The outcomes are now visible worldwide.

A number of policy issues are posed by the experiences reviewed herein. It is convenient to discuss them under three headings: steps which can be taken at the country level to reduce the likelihood of future conflagrations; actions both an afflicted country and the international community can take to cope with a future crisis, when and if it happens; and how the international regulatory system might be modified to enhance global economic comity and stability.

A. Avoiding Frenkel-Neftci cycles

Rather than a formal model, Neftci and Frenkel provide a framework which can be used to analyze crisis dynamics. There are five essential elements: (1) the nominal exchange rate is fixed or close to being pre-determined; (2) there are few barriers to external capital inflows and outflows; (3) historical factors and the conjuncture act together to create wide spreads of the form Σ_i and Σ_Q in Table 1 -- these in turn

generate capital movements which push the domestic financial system in the direction of being long on domestic assets and short on foreign holdings; (4) regulation of the system is lax and probably pro-cyclical; (5) macroeconomic repercussions via the balance of payments and the financial system's flows of funds and balance sheets set off a dynamic process which is unstable.

To a greater or lesser extent, national policy-makers can prevent these components from coming together explosively.

1. The exchange rate

There are often very good reasons to have a pegged nominal rate (or one that is limited to fluctuations within a narrow band). It is anti-inflationary, which has been crucially important to Latin American stabilization packages beginning with Mexico's in the late 1980s. It can also enhance export competitiveness, as happened when countries in Southeast Asia pegged to the falling dollar after the Plaza Accord.

Problems with a pegged rate arise when it contributes to wide spreads and (especially) when it is over-valued. In the formulas of Table 1, for example, a positive value of $\hat{e}^E$ can reduce Σ_i and Σ_Q; this is a good argument for a thoughtfully designed crawling nominal depreciation. An even better argument is that such an exchange rate regime can help avoid real appreciation, which in turn can widen the trade deficit, bring in capital inflows or induce reserve losses, and kick off an unstable macro cycle.

2. Barriers to capital movements

Without international assistance, it is virtually impossible to prevent capital from fleeing the country in a crisis; it is much more feasible to construct obstacles to slow it down (at least) as it comes in. In the recent period, Chile and Colombia have had some success with prior deposits and taxes on inflows, especially when they are short-

term. In a not much more distant past, Asian economies had fairly effective restrictions on how much and how easily households and firms could borrow abroad. In non-crisis times, acquisition of foreign assets can also be monitored. The key task is to prevent a "locational" mismatch in the macro balance sheet, with a preponderance of foreign liabilities (especially short-term) and national assets. Local regulatory systems can certainly be configured toward this end, and even to cope with off-balance sheet razzle-dazzle.

If imbalances are detected, the relevant authorities can direct or encourage players to unwind their positions. Such guidance is routine (and usually undertaken by the *private* sector) in well-managed markets for securities and derivative contracts written on them. At the very least exposed players can hedge, although when push comes to shove, hedging in thin markets for developing country currencies can be more notional than real. In the TRS example discussed above, the international banks presumably thought they had hedged their Indonesian exposure through the Korean merchant banks. At the end of the day, they had not.

3. Spreads

In many instances, one does not have to be a financial genius to recognize a wide-open spread. Under a fixed exchange rate regime, it is easy to see a 10% differential between local and foreign short-term interest rates or a similarly sized gap between the growth rate of the local stock market index or real estate prices and a foreign borrowing rate. Such yields are an open invitation to capital inflows that can be extremely destabilizing. Whether policy-makers feel they are able to reduce interest rates or deflate an asset market boom is another question, one that merits real concern.

Another source of potential spreads is through off-balance sheet and derivative operations. Here, local regulators can be at a major disadvantage. They don’t necessarily know the latest devices and most (but one hopes not all) of the "really smart guys" will be on the other side inventing still newer devices to make more money. Staying up-to-date as far as possible and inculcating a culture of probity in the local financial system are the best defenses here.

4. The regulatory regime

There is of course a serious question as to whether many developing country regulatory systems can meet such goals, especially in the wake of liberalization episodes. Another difficulty arises with timing. It is very difficult to put a stop to capital flows *after* the financial system has a locationally unbalanced position; at such a point interest rate increases or a discrete devaluation can easily provoke a crash. The authorities have to stifle an FN cycle early in its upswing; otherwise, they may be powerless to act.

5. Unstable dynamics

Each balance of payments crisis is sui generis; to produce a set of formal descriptions one would have to write a separate model for each episode in each country. Many components, however, would be the same. The simplest classification is in terms of disequilibria between stocks and flows, along with more microeconomic indicators. Here are some examples:

(a) Flow-flow

One key issue here is identifying the internal "twin(s)" of an external deficit. In the country examples discussed above, the financial deficits were in the hands of the private sector -- business or households. The follow-up question is how they are being paid for. Are rising interest obligations likely to cut into savings and investment

flows? Are flows cumulating to produce locational or maturity mismatches in balance sheets? Another precursor of crisis is the relationship between the volume of capital inflows and the current account deficit. If the former exceeds the latter reserves will be rising, perhaps lulling the authorities into a false sense of security. It will rudely vanish when interest payments on accumulating foreign debt begin to exceed the amount of capital flowing in.

(b) Stock-flow

Have some asset or liability stocks become "large" in relation to local flows? East Asia's short-term debt exceeding 10% of GDP was a typical example; it was a stock with a level that could change rapidly, with sharply destabilizing repercussions. Rapid expansion of bank credit to the private sector as a share of GDP while booms got underway in the Southern Cone, Mexico, and Thailand might have served as an early warning indicator, had the authorities been looking. The causes included monetization of reserve increases and growth of loans against collateral assets such as securities and real estate with rapidly inflating values.

(c) Stock-stock

Besides lop-sided balance sheets in the financial sector, indicators such as debt/equity ratios and the currency composition of portfolios (including their "dollarization" in Latin America recently) become relevant here. They can signal future problems with financing investment-saving differentials of the sort presented in Table 1.

(d) Microeconomics

Micro-level developments go along with the evolution of these macro changes. Investment coordination across firms may be breaking down, leading to "excess competition," real estate speculation and luxury consumption may be on the rise.

The problem with all such indicators is that they often lag an unstable dynamic process. By the time they are visibly out of line it may be too late to attempt to prevent a crisis; its management becomes the urgent task of the day.

B. Coping with crises when they strike

Once a country enters into a payments crisis, it cannot cope with it on its own. International assistance has to be called in. Again, each situation follows its own rules, but there are a few obvious "dos" and "don'ts" for the actions of the rescue team.

1. "Dos"

The contrast between the Mexican and Asian "rescues" is striking: the first happened (at least as far as foreign creditors were concerned) and the second did not. Very slow disbursement of funds by the IMF may well have crippled the Asian effort permanently, pushing fundamentally healthy economies from illiquidity into insolvency. The first and most obvious "do" that emerges from crisis experience is to disburse rescue money fast. In Helleiner's (1998) words, "Finance that is supplied only on the basis of negotiated conditions and which is released only the basis of compliance with them ... is *not* liquidity." East Asian economies became highly illiquid in 1997. By mid-1998, their position had not significantly improved, despite more than six months of Fund psychotherapy accompanied by liquidity transfusions on a homeopathic scale.

In fact, the transfusions might not even have been required if the rescuers had "bailed-in" the countries' creditors in the sense of forcing them not to call outstanding loans instead of bailing them out. By appealing to G7 regulatory authorities if need be, the IMF presumably has enough clout to prevent international creditors -- especially large international banks -- from closing out Asian borrowers overnight. This

is a sort of "do" that should be built into rescue protocols before the next crisis strikes.

After a crisis, countries often also have an ample load of "bad debt," typically non-performing assets of the banking sector. Domestic re-financing via a bond issue to the non-bank private sector, an administratively enforced credit roll-over, and price inflation are three ways of dealing with the problem. The latter two would almost certainly require re-imposition of tight controls on outward capital movements, which the international community would have to abet.

Distributional questions also come to the fore. As nations, the Asians are big and visible. But what about small, poor, raw material or assembled goods exporters in sub-Saharan Africa, Central America, the Pacific, and the Caribbean? Several have been hit by rapid reversals of private capital inflows. Presumably they merit international help as much as Korea or Thailand. They are not now getting it.

Within all afflicted countries, income generation and employment problems are critical. The authorities can repress their peoples, up to a point, but ultimately will have to offer them a degree of social and economic support. Such an effort goes diametrically against the emphasis in Fund-type packages. As Singh (1998) puts it, "To provide such assistance effectively and on an adequate scale will require not only considerable imagination but also a large expansion in government activity and often direct intervention in the market processes. Such emergency safety net programs may include wider subsidies, food for work schemes, and public works projects. How to pay for these measures within the limits of fiscal prudence, let alone within IMF fiscal austerity programs, will be a major issue of political economy for these countries."

2. "Don’ts"

The most obvious "don’t" is *not* to liberalize the capital accounts of the affected countries further. If the single most apparent cause of crisis was a door three-quarters open, the last thing one wants to do is move it the rest of the way. As already noted, there is agreement among many rich countries that deregulated external financial markets are upon them now, and should be extended to poor countries as rapidly as possible. Given the experience of the past few years, this recommendation looks ill-timed at best.[14]

Similar observations apply to the timing and extent of the sorts of reforms the Fund is imposing on the East Asian economies. The best guess is that they will not "take." Economic engineering is an imprecise art, likely to give rise to large and largely unforeseen consequences, and societies are rarely amenable to massive change. But these observations don’t seem to deter Washington from trying to remake the world in its own perceived self-image. It shouldn’t.

C. Changing the global regulatory system

The foregoing observations lead naturally to five suggestions for restructuring international financial arrangements.

First, recent experiences demonstrate that the global macroeconomic/financial system is not well understood. "Miracle economies" one month turn into incompetent bastions of "crony capitalism" the next, and the commentators don’t skip a beat. Under such circumstances, an immediate recommendation is for humility on the part of the major institutional players (Eatwell and Taylor, 1998). There is *no* reason to force all countries into the same regulatory mold; international institutions should whole-heartedly support whatever capital market, trade, and investment regimes that any nation, after due consultation, chooses to put into place.

Second, international agencies should support national regulatory initiatives. There was a lot of information available from the BIS and other sources about the gathering storm in Asia; it was not factored into either the private or public sectors' calculations. If national regulators are made more aware of what is happening in their countries, perhaps they can take prudent steps to avoid a pro-cyclical bias in their decisions.

Third, the Fund seems unlikely to receive large additional sums of money to allow it to serve as a (conditional) lender of last resort. It will therefore have to become more of a signaller to other sources of finance, e.g. central banks and the BIS. That opens room for new forms of regional cooperation such as Japan's summer 1997 proposal for an Asian bail-out fund, which died after being opposed vigorously by the US government and the IMF. Such institutional innovations should be thought through seriously, and very possibly put into place.

Fourth, specific changes in international regulatory practices may make sense. One obvious modification to the Basle capital adequacy provisions is to permit 20% as opposed to 100% backing on loans to non-OECD countries for maturities of (say) only three months or less, as opposed to one year at present. Such an adjustment should substantially reduce incentives for banks to concentrate their lending to developing countries in the short term.

Finally, there is no independent external body with power to assess the IMF's actions. More transparency (especially regarding relationships between the American government and the Fund) and independent evaluations of the IMF are sorely needed in light of its largely unsuccessful economy-building enterprises in post-socialist nations and now in East Asia.

Notes

1. The "Δ" term signifies a change over time, e.g. $\Delta H_h = H_h(t) - H_h(t-1)$ where $H_h(t)$ and $H_h(t-1)$ are money stocks at the ends of periods *t* and *t - 1* respectively.
2. The following discussion concentrates on "first generation" speculative attack models. "Second generation" models make the fundamentals sensitive to shifts in private expectations, thereby allowing extrinsic, random "sunspot" shocks to generate multiple equilibria. The mathematical complications are intriguing to the professorial mind but add little to attempts to understand historical crises.
3. Pieper and Taylor (1998) present a fairly up-to-date review. In various numbers of its *World Economic Outlook*, the IMF is up front about attributing crises in both Latin America and Asia to "incompatibilities" between macro policies and the exchange rate regime as well as "excessive regulation" and "too little competition" in the financial sector.
4. There may also be problems with maturity structures of claims, especially if local players borrow from abroad short-term. Nervous foreign lenders may then compare a country's total external payment obligations over the next year (say) with its international reserves. Such ratios proved disastrous for Mexico in 1995 and several Asian countries in 1997. A maturity mismatch in which local players borrow short-term abroad and lend long-term at home may be less significant -- a property developer will default on his or her loan if the real estate market crashes, regardless of whether it is formally of short or long duration.
5. The following discussion draws heavily on Frenkel (1998) and ultimately on the model in Frenkel (1983). The latter paper was

written *before* Argentina's exchange crisis of 1981. It is available only in Spanish, but Taylor (1991) and Williamson and Milner (1991) provide English glosses, emphasizing cyclical implications.

6. The narrative for Mexico draws on Griffith-Jones (1997), Lustig and Ros (1993, 1998), and Pieper and Taylor (1998).

7. This section draws on many sources, most notably Chang (1998), Chang, Park, and Yoo (1998), Corbett (1998), Neftci (1998), Rakshit (1997a, 1997b), Singh (1998), and Wade (1998).

8. They were Indonesia, Korea, Malaysia, the Philippines, and Thailand.

9. In terms of Table 1, $\Delta D_b + \Delta D_g$ contracted sharply, with an impact in the foreign accumulation balance amplified by devaluation, or a higher value of the exchange rate *e.* Either reserves had to shrink ($\Delta R^* < 0$) or the current account deficit S_f had to decline. Both effects are contractionary, the former by cutting money supply growth and driving up interest rates, and the latter by forcing the private and public sectors to reduce investment relative to saving, cutting effective demand.

10. The standard convention is that claims must be included *on* balance sheets if they (or their antecedents) have been acquired with "hard cash." An example would be an automobile on a household's balance. *Off* the sheet would be contingent contracts on the underlying asset, collision insurance for example. For both the household and the insurance company, the policy sets out specific transactions that must occur if the car crashes. They will then show up on income statements and thereby balance sheets in due course.

11. LIBOR means "London interbank offered rate." It is the benchmark for international floating rate transactions. A "basis point" or bp is 0.01 of one percent, i.e. 340bp = 3.4%.

12. The exception is Hong Kong, where the stock market dropped in October. The currency board rules held the exchange rate steady, but credit contraction forced short-term interest rates to rise by over 300 basis points.

13. Quickly in algebra, let D and E be a firm's debt and equity, Z its value, r its rate of return, and Π its profit flow. Then $Z = \Pi / r = D + E$, with the last equality imposed by assumption (in practice, asset values of firms only equal their debt plus equity loads by a fluke). If i_d and i_e are the returns to debt and equity respectively, then $rZ = r(D + E) = i_d D + i_e E$. Rearranging gives $i_e = (r - i_d)(D / E) + r$. That is, the "required" return to equity (dividend payments, capital gains, etc.) rises linearly with the gearing ratio. This relationship does not fit the data badly. Of course it presupposes that $r > i_d$, or the firm's gross rate of return exceeds the interest rate at which it borrows; otherwise, it would technically be insolvent.

14. To borrow a thought from Polanyi (1944), the recommendation is highly ideological as well. The Utopian character of liberal arguments -- anything falling short of full deregulation is never enough -- comes out strikingly in this instance.

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Table 1: Macroeconomic accounting relationships

Generation of savings

Household: $S_h = W + J_b + J_g + \zeta_h - C_h - T_h - Z_h$

Business: $S_b = \Pi - J_b - T_b - Z_b - eZ_b^*$

Government: $S_g = T_h + T_b - C_g - J_g - Z_g - eZ_g^*$

Financial system: $0 = Z_h + Z_b + Z_g - \zeta_h$

Foreign: $S_f = e[M + Z_b^* + Z_g^* - E]$

Resource balance

$$S_h + S_b + S_g + S_f = W + \Pi - (C_h + C_g) + e(M - E)$$

Investment-saving balance

$$(I_h - S_h) + (I_b - S_b) + (I_g - S_g) = S_f$$

Accumulation

Household: $(I_h - S_h) = \Delta D_h - \Delta H_h$

Business: $(I_b - S_b) = \Delta D_b + e\Delta D_b^*$

Government: $(I_g - S_g) = \Delta D_g + e\Delta D_g^*$

Financial system: $0 = \Delta H_h - (\Delta D_h + \Delta D_b + \Delta D_g) - e\Delta R^*$

Foreign: $0 = S_f - e(\Delta D_b^* + \Delta D_g^*) + e\Delta R^*$

Spreads

Interest rate: $\Sigma_i = i - [i^* + (\Delta e / e)^E] = i - (i^* + \hat{e}^E)$

Capital gains: $\Sigma_Q = (\Delta Q / Q)^E - [i^* + (\Delta e / e)^E = \hat{Q}^E - (i^* + \hat{e}^E)$