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THE INDONESIAN CRISIS REVISITED

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Aide-memoire on a series of meetings in Jakarta
(December, 1998),
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1. The series of meetings being reported on here came only a little over three months after an earlier visit, on which I reported in "Notes on the Indonesian Crisis". It would be useful if the readers of the present report could have become familiar with the content of that earlier aide-memoire. However, being mindful that many readers will be subject to severe time constraints, I will try to make this presentation as self-contained as I can, while maintaining the conciseness demanded by these very same readers.

2. My greatest surprise, on my return to Jakarta, came from the rapid fall in the real price of the dollar and that had taken place since mid-September. The nominal price of the dollar had been as high as Rp 15,000 in June of 1998, and had averaged over Rp 10,000 during the month of September. This average had fallen to almost Rp 7500 by the end of November, and had fluctuated about that

level through the first three weeks of December. This fall in the nominal rate was something that I had expected to happen, but not so rapidly as in fact occurred.

3. The next surprise was the near-constancy of the consumer price index since September. This I had not anticipated nor was it something that "should" have been expected. To put it bluntly, the constancy of the consumer price index in the period following September, 1998 was a fortuitous event, not one that resulted from fundamental economic forces.

The easiest way to see this is to visualize the general price level as being a composite of the prices of its tradable and nontradable components. The price level of most tradable goods is determined by their world-market prices, translated to domestic currency using the market exchange rate. Since world prices of tradables were generally quite stable during this period, the main influence in their rupiah price came from the nominal exchange rate. Its dramatic fall should be reflected in the tradables component of the consumer price index. By the same token, the nontradables component of the general price level should be continuing to rise, as a result of increases in nominal wages, whose equilibrium level is almost certain to rise as a consequence of the price inflation that has already occurred), as a result of the lagged effects of the ongoing inflation upon nontradables prices as such, and as a result of the additional inflationary forces that are

likely to be generated over the next year or two.

4. More important than the precise reasons for the observed stability of consumer prices of the past few months is the likelihood that the CPI will exhibit significant increases during the next couple of years, if not over a still longer period. During 1998, the Indonesian government was the beneficiary of a major (roughly U.S. \$8 billion) aid package that effectively covered the current fiscal deficit. I do not foresee similar aid packages during the next few years, yet the prospective fiscal situation for those years is not much improved. The troublesome factors include:

- The general tendency for real tax revenues to fall as a consequence of inflation (the so-called Tanzi effects).
- A tendency of tax collectors and administrators to feel they have "done a good job" by bringing in nominal tax revenues well above last year's level, when in fact they have not kept pace with the price level.
- The fact that a major new source of expenditures has been (or will be) added in the form of the costs of bailing out the banking system, plus perhaps some corporate debtors with important debts in foreign currency (this usually occurs via a preferential exchange rate for the servicing of such debts).

5. I had no opportunity whatsoever to embark on an explicit projection of future revenues and expenditures. More important, I do not feel that such a projection, made at this time, would be very accurate. The main message that I want to convey is that policymakers must be prepared for the contingency (I would say likelihood) that the price level will exhibit significant upward movements in the near and middle-term future. In other words, the present circumstances demand a strategy that will be flexible and adaptable to "whatever inflation might turn out to be", rather than rigidly conditioned on the hope that the price-level stability that has characterized the past few months will somehow be maintained.

A flexible strategy does not and should not imply any diminution of efforts to close the fiscal and monetary gaps. The message is quite in the other direction. These gaps present such a huge challenge as to demand the greatest of efforts to close them. And even with such efforts, the possibility of a near-term full victory is quite remote.

6. The likelihood of continued increases in the general price level of Indonesia gives rise to the concerns about the future evolution of the real exchange rate. There can be no denying that the Indonesian economy is now in a deep recession. The greatest positive force operating to mitigate that recession is the high real price of the dollar (or real exchange rate, RER). I firmly believe that

the single most important "strategy" for surmounting the recession is to build on the positive forces that we see before us, and aim at a recovery based on mounting production of tradable goods and on thriving export activities. It should be the aim of the Indonesian authorities to provide an economic environment in which such a recovery can take place "naturally".

This opens the whole question of "targeting" the real exchange rate. The first point to be made here is that the real exchange rate is not something that policymakers can directly manage. Policymakers can devalue the nominal exchange rate, but the internal price level can then move upward to annul the effect of that devaluation on the real exchange rate. There are many examples of devaluations whose effects on the real exchange rate were totally annulled by subsequent price rises within a year or two (and sometimes in just a few months). And history is replete with examples of devaluations with very low efficiency. These are devaluations whose effects are not fully but very substantially annulled by subsequent price level increases. (The efficiency of a devaluation is defined as the percentage change in the real exchange rate divided by the percentage change (over the same period) in the nominal rate. Thus a devaluation which raised the nominal rate by 200%, but saw the real exchange rate rising by just 50%, would have an efficiency coefficient of $50/200$, or 0.25.)

7. My fear is that, if an attempt were made to stabilize the nominal exchange rate now or at any time in the near future, the internal price level would continue to rise, eroding still further the efficiency of a nominal devaluation of around 200%. This fear is based on historical evidence. History abounds with cases in which the nominal exchange rate was stabilized, unsuccessfully. Unsuccessful cases are those in which the stabilization held for only a short time -- typically just a few months -- after which the nominal exchange rate either was sharply devalued or else "floated" up sharply after events proved that it could no longer be held at the level at which it was initially "stabilized".

Three Failed Stabilization Plans

Figures 1, 2, and 3 depict three such experiences from Argentina. In Figure 1 the stabilization of the nominal rate began in July of 1985 (85:07) and was maintained until March of 1986 (86:03). The real exchange rate, however, plummeted almost continuously, even after the nominal rate was allowed to drift upward. The real rate only started rising after November of 1986, as a consequence of the continued rapid increase in the nominal price of the dollar.

Figure 2 depicts the situation in Argentina from June, 1988 to May, 1989. Here the nominal exchange rate underwent a very gradual upward drift, which was viewed by all as a stabilization in light of the rapid inflation that Argentina had

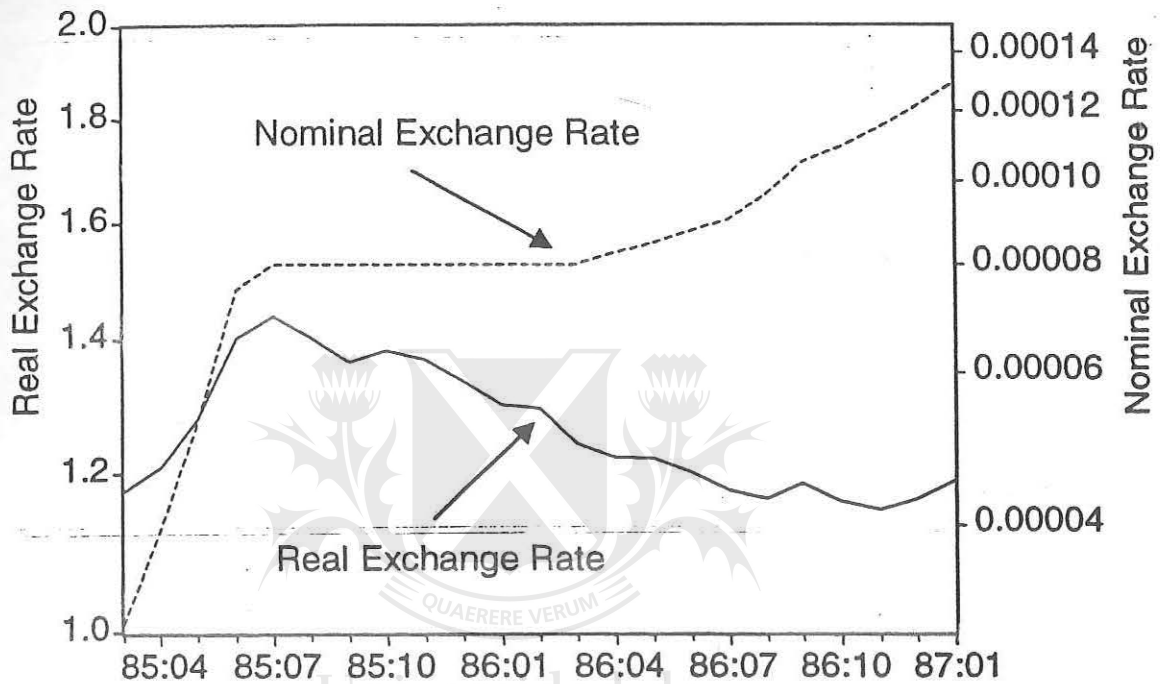
been and was still undergoing. This inflation is what causes the real exchange rate to go down by something like 50% between June, 1988 and March, 1989. Finally, in this latter month, came a very sharp devaluation of the nominal exchange rate, which caused the real rate to more than triple. This marked the end of that stabilization effort.

Figure 3 shows the case of Argentina between May and December of 1989. The stabilization of the nominal rate dates from August of that year, and lasted only until November, when once again a major devaluation sharply lifted both the nominal and real rates.

Why did these stabilization plans all fail, so quickly and so dramatically?

There can be no doubt that the underlying cause was the failure of Argentine economic policy to provide a full (or nearly full) package of preconditions for stabilization. While there can be no doubt that fixing the nominal exchange rate can help keep the price level down (so long as people are free to buy tradable goods at prices reflecting the stabilized exchange rate), it can only be a temporary palliative if the "fundamentals" of stabilization (fiscal discipline and monetary restraint) are not present.

Figure 1
Argentina: March 1985 - January 1987



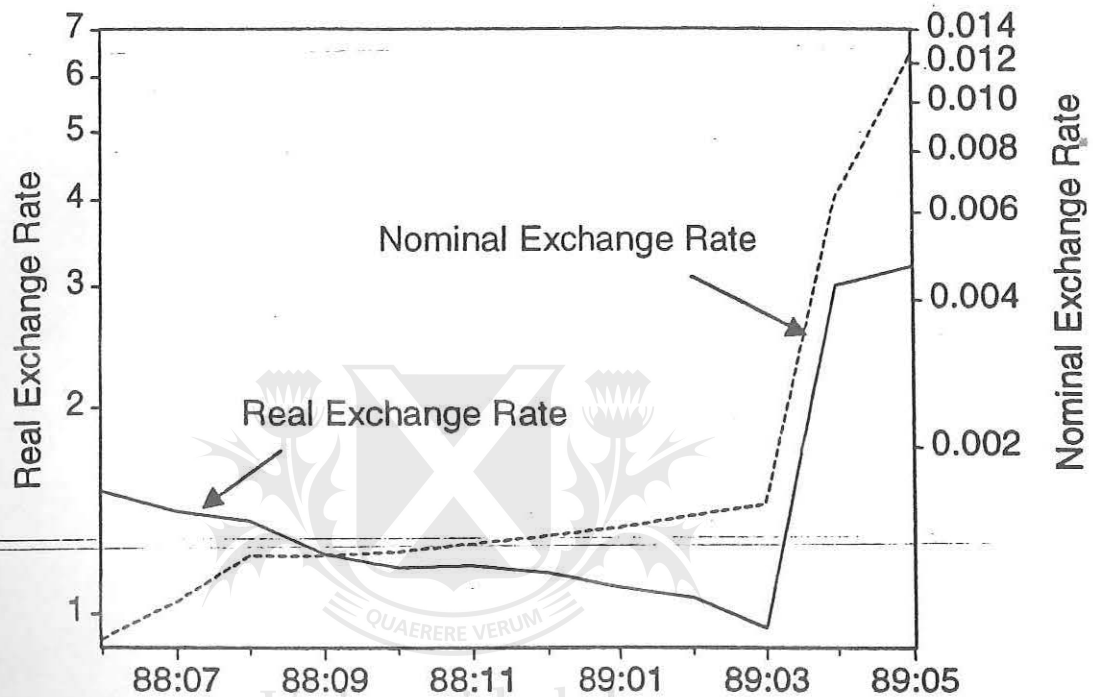
Source: International Financial Statistics. Real Exchange Rate Index based on Argentine CPI and SDR-WPI.

Note: The SDR-WPI was calculated with the following weights: USA 40%, Germany 21%, Japan 17%, UK 11%, France 11%. Country wholesale price indexes were converted to dollars using the prevailing exchange rate. They were then shifted to index form with 1965=100. Finally the weighted average index was constructed using the weights indicated above. These are the weights that were used by the International Monetary Fund to calculate the value of its Special Drawing Rights (SDRs) during the period 1991 through 1995.

I believe that the SDR-WPI is a good and easily-calculated index, aimed at reflecting movements in the world price level (in dollars) of tradables. I recommend using this index for converting nominal dollars into real dollars in most international trade applications. This includes converting the dollar value of exports into real dollars, as in this Figure. It also includes use of the SDR-WPI as p^* in the formula for the real exchange rate, $RER = E p^*/p_d$. Readers should know that in graphing the real exchange rate for Brazil and Chile in Figures 4 and 5, the US Consumer Price Index rather than the SDR-WPI was used for p^* . This is due to the fact that we believe that the real exchange rate targeting of these countries was based on this alternative (and we feel inferior) definition of the real exchange rate.

Figure 2

Argentina: June 1988 - May 1989



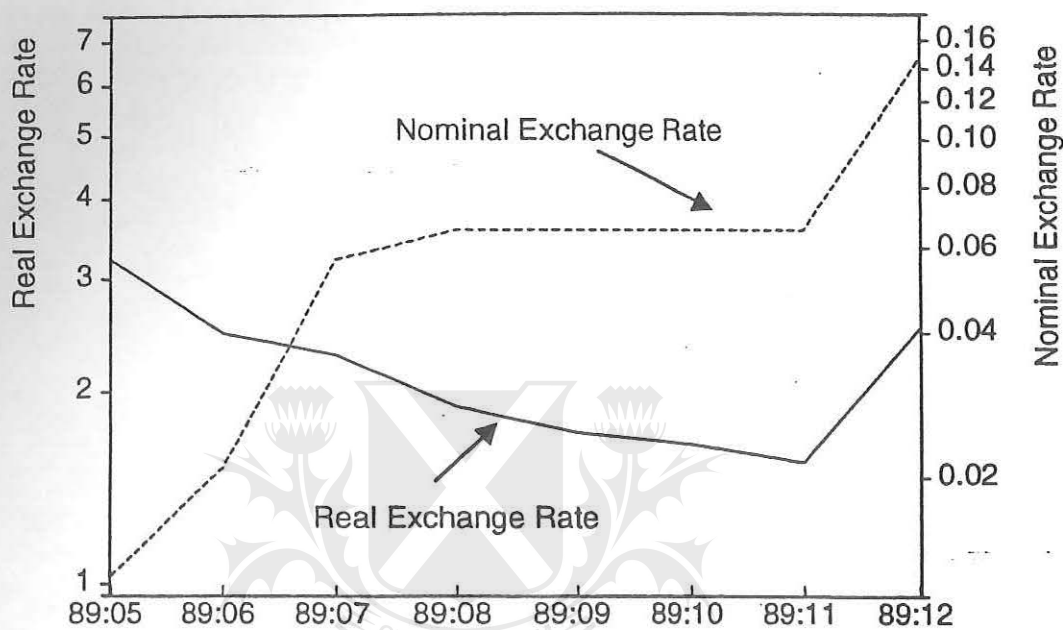
Source: International Financial Statistics. Real Exchange Rate Index based on Argentine CPI and SDR-WPI.

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Figure 3

Argentina: May 1989 - December 1989



Source: International Financial Statistics. Real Exchange Rate Index based on Argentine CPI and SDR-WPI.

Note: The SDR-WPI was calculated with the following weights: USA 40%, Germany 21%, Japan 17%, UK 11%, France 11%. Country wholesale price indexes were converted to dollars using the prevailing exchange rate. They were then shifted to index form with 1965=100. Finally the weighted average index was constructed using the weights indicated above. These are the weights that were used by the International Monetary Fund to calculate the value of its Special Drawing Rights (SDRs) during the period 1991 through 1995.

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Two Cases of Successful "Real Exchange Rate" Policies

8. We shall here review the cases of Brazil (1968-79) and Chile (1985-95).

Both these cases were characterized by efforts to base economic growth on a thriving export sector by trying to maintain a real exchange rate that made exports an attractive and profitable economic activity. In both cases the policy was successful beyond anybody's initial hopes.

Brazil's real GDP grew at an average rate of over 9% during 1968-79. Her exports grew from less than \$2 billion in 1968 and over \$15 billion in 1979. Since world prices (measured in dollars) increased somewhat less than 150% in that interval, one can safely say that exports more than tripled in real terms.

This period in Brazilian economic history is known as the "Brazilian Miracle". Without a doubt it was the most successful economic performance, in any period of comparable length, in the whole of Brazilian history. What is important to note here are three key facts:

- a) that the Brazilian Miracle represents a period in which economic growth was very clearly export-led;
- b) that Brazil's policy of keeping the price of the dollar high, in real terms, so as to provide a powerful incentive for exports, played an important role in creating and sustaining the "miracle"; and

c) that the "miracle" was achieved in spite of its being accompanied by a rate of inflation that averaged somewhat over 20% per annum during the period.

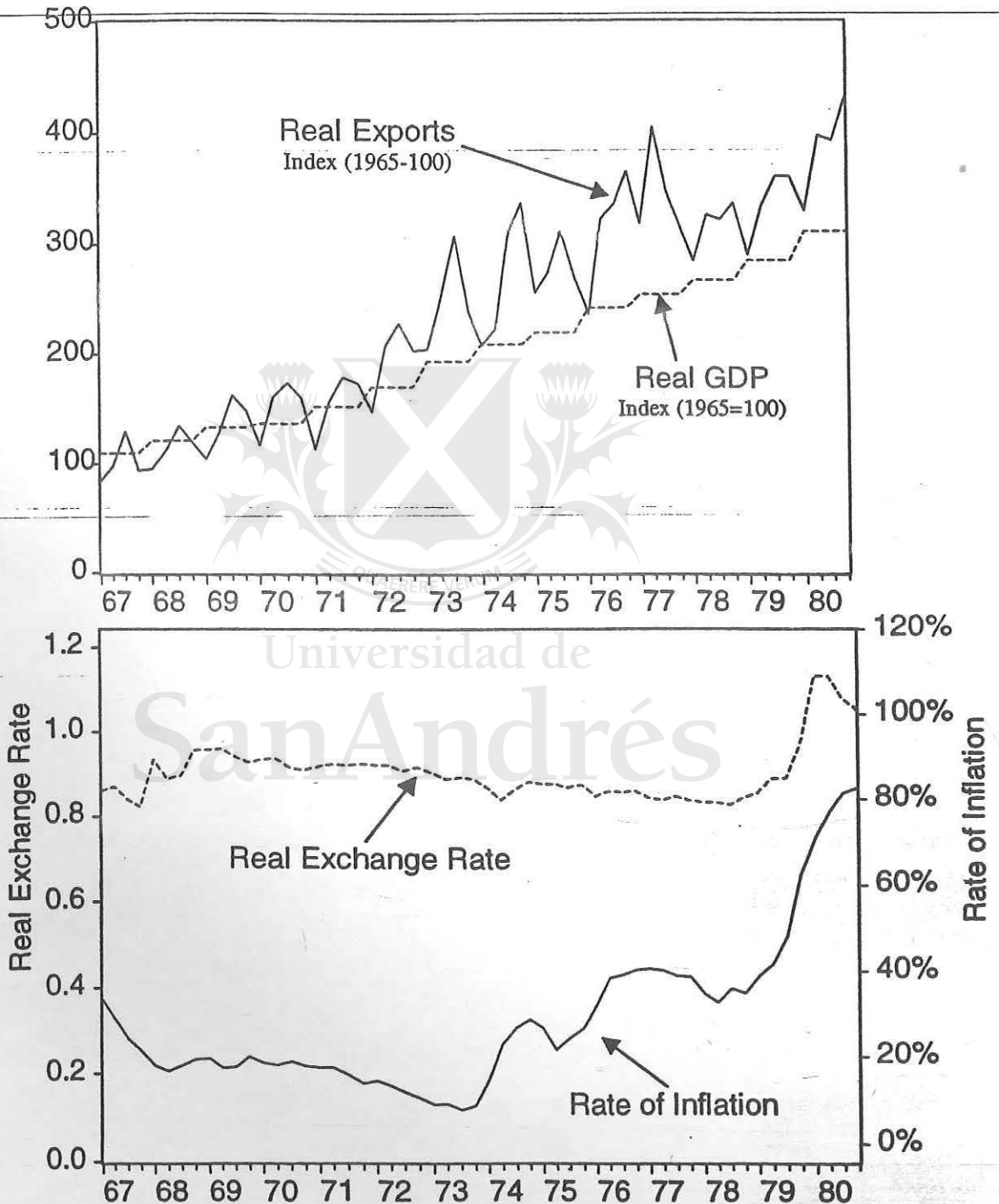
9. The Chilean experience since 1985 has many similarities to that just described for Brazil. Real GDP growth averaged almost precisely 7% per annum, with real GDP somewhat more than doubling over the period 1985-96. Meanwhile, exports of goods and services more than quadrupled in terms of nominal dollars and nearly tripled in terms of real dollars. Just as in the Brazilian case, this outstanding export performance came in the wake of a conscious (and constant) effort by the Chilean authorities to maintain the real exchange rate at a level that would provide a strong incentive to export. And finally, similar to the Brazilian case, Chile's successful performance was accompanied by an inflation rate that averaged almost 20% from 1985 to 1990 and almost 12% from 1990 to 1996.

10. Figures 4 and 5 show the history of the inflation and real exchange rates of Brazil and Chile during the periods in question. The nominal rates are not put on the same graph, simply because their growth would dwarf the movements of the real exchange rate. But the inflation rate is shown (using the right-hand scale) on the same graph as the real exchange rate; just to emphasize that the relative stability of the real exchange rate was maintained in the face of a continuing, not insignificant inflationary process.

11. It is instructive to examine Brazil's real exchange rate history immediately prior to the adoption of real exchange rate targeting in 1968. Brazil was during 1964-70 recovering from a crisis that occurred in early 1964 -- a crisis that led to a military takeover in that year. The high real exchange rate that we observe in 1964 bears a considerable similarity to the rates of Rp 15,000 and up (per dollar) that were reached in the midst of Indonesia's current crisis -- at a moment when foreign exchange supplies were most stringent and speculative fevers most acute. The real exchange rate fell sharply as Brazil came out of this "overshooting" of the real exchange rate. The notion of stabilizing the real exchange rate arose precisely because the need was felt to somehow bring this downward drift of the real exchange rate to an end. That is when the Brazilian authorities entered with the explicit goal of preventing a further significant fall in the real price of the dollar. But -- readers should be very aware of this -- the Brazilians did not attempt to stabilize the real exchange rate simply by devaluing the nominal rate. The key to their success was the use of a real policy instrument in their pursuit of a real policy target. The instrument in this case was eliminating or relaxing a whole set of restrictions on imports. The mechanics of the operation went as follows. The Central Bank of Brazil would move the exchange rate every few days, in what they called "mini-devaluations". The purpose of these mini-

devaluations was to keep the real price of the dollar from falling below some target level or range. Now, since the target level was set in the hope of stimulating exports, it should come as no surprise that, as export growth took place, the Central Bank began to accumulate dollars. This showed that the target real exchange rate was above the equilibrium level, given the existing set of trade restrictions. What the Brazilians did was to move the equilibrium level upward -- each time they relaxed or eliminated a set of restrictions, the demand for imports increased. In doing this I doubt that they thought at all about precisely where the equilibrium real exchange rate was at each point in time. Rather, they operated the system like a servomechanism, moving to relax import constraints whenever they felt compelled (by their real-exchange-rate policy) to buy more foreign exchange than they really wanted to buy. The mini-devaluations policy pursued a real exchange rate target, with the stimulation of exports as the main underlying objective. When this policy led to what were deemed to be excessive purchases of dollars, and/or excessive stocks of international resources, the response was not to modify the real exchange rate target, but to stimulate the private sector to import more, thus siphoning off unwanted reserves and/or damping their further accumulation.

Figure 4 Brazil: 1967 – 1980



Source: International Financial Statistics. Real exports equal exports in nominal dollars deflated by SDRWPI. Real Exchange Rate equals nominal exchange rate deflated by Brazilian CPI (nominal dollars converted to real dollars using US CPI). Rate of Inflation equals percentage change in CPI between quarter t-4 and quarter t.

12. The real exchange rate became a central consideration in Chilean economic policy in early 1985, immediately after the appointment of Hernán

Biichi as finance minister. Chile was then still in the throes of the debt crisis, which had struck Chile in 1981-82, and which was compounded by a banking and financial sector crisis that began in 1981 and reached its most critical stage in early 1983. Biichi's team resolved that the most promising path to recovery lay in a further expansion and diversification of exports, within the framework of a general policy of continuing modernization and liberalization. In Chile, as in Brazil during the "miracle period", a real exchange rate "target" was set at a level that was destined to produce surpluses in the trade balance. Like Brazil, Chile used the reduction of import restrictions as one device for preventing unwanted reserve accumulations. But this device had its limits in the Chilean case, because so much trade liberalization had already taken place during the latter part of the 1970s.

In the event, the Chilean policy team found (or invented) another way to deal with the threat of undesired accumulations of international reserves. This was a highly ingenious scheme for "orchestrating" the orderly repatriation of Chilean private debt that was held abroad at the moment in 1985 when real exchange rate targeting was adopted. The debt in question was the legacy of the 1981-82 debt

crisis. In the runup to that crisis, mainly during 1979-81, the major private banks of Chile had borrowed heavily from leading banks in the United States and

Europe. In the complicated series of agreements and renegotiations that came in the wake of the debt crisis, an important share of this debt ended up being transacted at a discount in what was called the "secondary market" in New York. The Chilean debtor banks were precluded from buying up their own paper at a discount, but no such prescription applied to other Chileans. All of a sudden, some of these other Chileans became aware of an interesting money-making possibility. The idea was to buy up discounted debt in the New York market, and then repatriate this debt, entering into an agreement in which the old dollar debt was exchanged for new peso debt of the issuing banks. In this way both the issuing banks and the empresarios who organized the transaction could end up with a profit; in effect, they could divide between them, in some proportions, the discount (which initially ran to 40% or more) at which the bonds in question were being transacted in New York.

Once a few empresarios discovered this very attractive operation, others soon followed. The operation came to the attention of the Chilean authorities because of the unexpected surge in demand for dollars that was created as more and more empresarios rushed to cash in on this "arbitrage" opportunity. At the

Central Bank, in particular, there arose a fear approaching panic, that the operation would very soon grow to "unmanageable" proportions, bringing about unwanted volatility in the foreign exchange market.

It was at this point that the Chilean authorities hit upon what I would classify as a "stroke of genius". Chile had lived with foreign exchange controls for a long time. With the military coup of September, 1973, these controls underwent vast modification and liberalization, but they were not eliminated. This created the possibility for the Central Bank to enter the stage as the "regulator" of the process of debt repatriation. Since the debt in question was owed by Chilean banks, whose transactions had to be reported in any case, the Central Bank was able to require that such debt repatriation take place under license. The licenses in question were not only issued by the Central Bank, but actually auctioned off, at (I believe) roughly biweekly intervals, to the highest bidders.

One can imagine the celebration that must have taken place at Chile's Central Bank, the day that the idea surfaced of having periodic auctions of the right to undertake the operation of repatriating the discounted debt of Chile's private banks. For now, instead of panic about an uncontrollable flood of such transactions, the Central Bank had the assurance of being able to bring back this debt at a pace that would strengthen its capacity to pursue and achieve its own

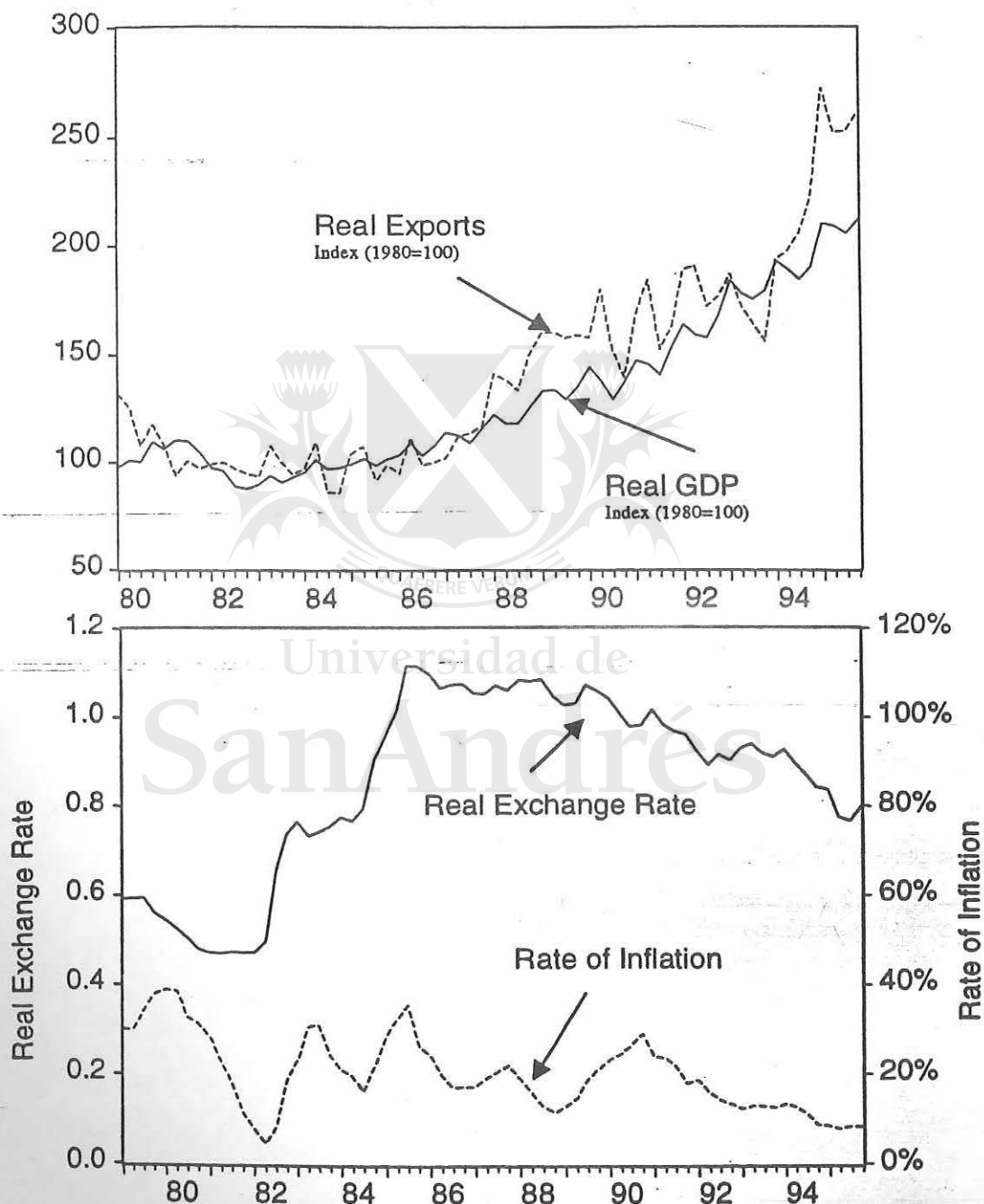
real-exchange rate objective. And in addition, the Central Bank was making money at each stage (each biweekly auction)!!

Thus it came about that for a period of something like five years, the Central Bank of Chile was virtually able to set the real exchange rate of the country at the level it decided. It would not have been able to choose any level whatsoever, and still achieve this goal, but it happened to choose levels at which, typically, the supply of dollars coming to the Central Bank exceeded the "normal" demand for dollars to go out. That meant that, in a typical biweekly period, the Central Bank was left with more dollars than it wanted. With the new auction policy, however, all it had to do was decide how many dollars it wanted to get rid of, and auction off precisely that quantity of "rights to repatriate discounted debt". In effect, the Central Bank was able, every few weeks or so, to shift the demand curve for dollars so that it intersected the supply at its (the Central Bank's) chosen price, and to make money in the bargain.

13. It is said that all good things must come to an end; that is certainly what happened in the case of the Chilean Central Bank's policy of auctioning the right to repatriate discounted debt. The short version of the story is that after a certain amount of time under the policy, the "supply" of discounted debt simply ran out. The longer version of the story is that very gradually, and more or less continually,

Figure 5

Chile: 1980-1995



Source: International Financial Statistics. Real exports equal exports in nominal dollars deflated by SDRWPI. Real Exchange Rate equals nominal exchange rate deflated by Chilean CPI (nominal dollars converted to real dollars using US CPI). Rate of Inflation equals percentage change in CPI between quarter $t-4$ and quarter t .

two things happened. First, as debt was repatriated tranche by tranche, less and less remained to feed the secondary market in New York. Second, as the Chilean economy recovered and entered on a vibrant growth phase, and as demand in the secondary market made itself felt week after week, month after month, even year after year, the discount at which the discounted bonds transacted also fell, i.e., the market placed ever-increasing faith in the quality of those bonds. The end result was that the Central Bank could still influence the demand for foreign exchange through the auctioning of permissions, but to a considerably lesser degree than before. This is probably part of the explanation for the downward drift of the real exchange rate starting in 1988. Other parts of the explanation were a boom in exports, both traditional and non-traditional, and a rise in direct and portfolio investment coming into Chile.

By the time of Patricio Aylwin was elected as Chile's next President at the end of 1989, one can say that the permissions-auction idea had run its course. Yet the new government firmly believed in the idea of trying to keep the real exchange rate at an export-incentive level. But how to do it? Here they took a clue from the earlier, highly successful policy. That policy had in effect amounted to the replacement of discounted foreign debt denominated in dollars by newly issued domestic debt (of the Chilean debtor banks) denominated in pesos. That is, during

1985-89, the policy had fostered a reduction of foreign dollar liabilities plus a rise in peso liabilities of these banks. A very close counterpart of this could be achieved, it was thought, by effecting a rise in dollar assets of the country (held abroad) compensated by a rise of peso liabilities. Thus began a systematic policy of the Central Bank issuing bonds on the local market, and using the proceeds to build up dollar balances abroad.

The policy of building up dollar balances abroad certainly "worked" in the literal sense. The international reserves of Chile's Central Bank stood at \$3.6 billion just after President Aylwin's election in December, 1989. By the end of 1990 they had risen to \$6.1 billion; they reached \$9.2 billion by the end of 1992, \$13.1 billion by the end of 1994, and \$17.3 billion by the end of 1997. This success, however, masked two problems, one of "Central Bank losses", the other of the "reflux of capital".

14. Although the "new" policy, under which the Central Bank of Chile borrowed in the home market, then demanded dollars (in order to prop up the real exchange rate), and finally placed those dollars abroad in the world financial markets) bore a close resemblance to the old policy (of repatriating discounted debt), it differed dramatically in its effect on Central Bank earnings. Whereas the "old" policy brought a regular flow of cash (the proceeds of the biweekly auctions)

into the coffers of the Central Bank, the "new" policy generated nothing but losses. These stemmed from the fact that the interest rate paid on the peso bonds issued by the Central Bank was significantly higher than that yielded by the dollar denominated securities and deposits that were acquired using the proceeds from the sale of the bonds. Interest rates on both sides of this equation varied through time, but they always signified losses for the Central Bank. An example of the discrepancy can be drawn from recent experience -- with the Central Bank paying 7 to 8 percent on peso bonds indexed to the Chilean price level, while the proceeds of those bonds were being used to buy securities yielding an average nominal return (in dollars) of only 4 to 5 percent. Since over the period since 1990 the peso has appreciated significantly in real terms (in spite of the Central Bank's efforts), the loss was significantly greater than the 2-4 percentage point differential between the real peso rate paid and the dollar rate received. Moreover, the Central Bank loss in this borrowing-cum-placement operation has an automatic tendency to grow through time, so long as the operation is itself continuing. This can be seen by contemplating the growth in Chile's international reserves. If all of the growth from \$3 billion in 1989 to \$17 billion in 1997 was a reflection of operations of this type it would mean that the Central Bank would be taking its loss on an outstanding stock of bonds equal to the full increment (\$14 billion) of

reserves that those bonds had financed. Taking an illustrative figure of 5 percentage points as the net loss per annum, we would calculate the loss at $.05 \times$ \$3 billion, or \$150 million during 1991 (when total reserves were about \$6 billion), rising to $0.5 \times$ \$14 billion, or \$700 million by 1997, when Chile's foreign reserves had grown to \$17 billion. The cumulation of these losses, and the prospect of future losses that would be linked to the extent of future reliance on similar operations, was certainly partly responsible for the acceptance, by Chile's Central Bank, of the downward drift in the real exchange rate in the years after 1989.

15. The "reflux" problem was related to the operation just described. As the Central Bank sold additional bonds on the local market, the interest rate within Chile tended to be driven higher -- i.e., above the level where it otherwise would have found its equilibrium. This higher interest rate within Chile made it more attractive for both foreigners and Chileans to shift money from, say, New York to the Santiago market. Thus, if the Central Bank were adding \$4 billion to its international reserves in New York, perhaps a quarter or a third or half of that amount would flow back to Chile as an "induced" private capital flow. We do not know the precise fraction of funds put abroad that came back to Chile as an induced "reflux". But we do know that the Central Bank took the problem very seriously.

The response of the Chile's Central Bank to the "reflux" problem was to institute what was in effect a tax on flows of short-term capital into the country. This was accomplished by a requirement that 30% of any inflow of short-term funds be placed in a zero-interest deposit at the Central Bank, for a period of a year. Thus, if these funds could have earned a 10% interest rate in the local market, the effect would have been the same as a tax of 3 percentage points. (Indeed, in the latter part of the period, investors could simply pay the Central Bank an "up front" fee of three percentage points of the capital flow in question, thus "buying out" of the deposit requirements).

The 30% deposit requirement (and more recently the option of a 3% fee in lieu of a deposit) stayed in effect until very recently. In the wake of the so-called Asian crisis, however, the deposit was first reduced from 30 to 10 percent, and subsequently (late in 1998) eliminated entirely. By that point the Chilean authorities were more interested in attracting capital to the country than in preventing too much of it from coming.

Some Lessons for Indonesia

16. I have described these recent Chilean experiences in some detail, because they provide examples that may be particularly relevant in the current setting in Indonesia. I would particularly note that trying to influence the real

exchange rate by the route of issuing debt in the national marketplace and accumulating international reserves abroad (bidding up the real exchange rate in the process of such reserve accumulation) ended up having significant costs in the Chilean case. We have denominated these costs as: a) Central Bank losses, and b) the "reflux" problem. These two problems are related, in that the reflux problem makes it necessary for the Central Bank to create a larger buildup of reserves for a given effect on the real exchange rate (the capital that returns to Chile by the back door offsets the effect of an equivalent amount of reserve buildup). But quite clearly the biggest costs came, in Chile's case, from Central Bank losses.

At this moment in time, however, I still consider the building up of reserves to be Indonesia's first-line policy instrument for influencing the real exchange rate. I say this in particular because it is an instrument that works almost automatically as one tries to implement a real-exchange-rate policy. This is very clear if one follows the Brazilian example of a very tight real-exchange-rate target. This entails the Central Bank buying and selling foreign exchange every day, at a rate that is estimated to give the desired real rate (estimated, because today we only know last month's, not today's price level). In this case, reserves accumulate automatically so long as there is an excess supply of dollars on the market.

The Chileans did not operate with such a tight real-exchange rate target, but worked instead with a "band" on the nominal exchange rate, which was set so as to span a desired range for the real exchange rate. In this case the Central Bank would do nothing if the exchange rate were in the middle of the band, but would start buying as the rate approached the bottom of the band. This was the way the "automatic" process of reserve accumulation worked in Chile.

17. I would urge some such system for Indonesia at the present time, simply because what happened automatically under the system -- an accumulation of international reserves -- is something that wise economic policy would call for, even in the absence of a primary policy of keeping the real exchange rate high enough to foster a thriving or even booming export sector. Assuming that the authorities accept such a primary policy, the reserve accumulation that ensues can be looked on as, up to a point, a virtually free "dividend" of that policy.

I say "up to a point" because one cannot tell the complete story without exploring how the Central Bank gets the money (in this case the rupiah) to buy the incremental reserves. Most economists would probably say that the "natural" way for the Central Bank to get these rupiah is simply to print them. This is what would happen under a gold standard, or under a currency board, or under a "tablita" system in which the Central Bank buys and sells dollars at a given rate



each day, but with the rate changing from day to day or week to week according to some prearranged table (tablita), or schedule. A mini-devaluation policy of the Brazilian type is in fact quite close to a tablita, the main difference being that the rate at which dollars are being bought and sold by the Central Bank today were not published or known well in advance.

There is, however, a quite subtle but extremely important difference between the workings of a Brazilian-type real-exchange-rate-targeting system and the other three systems (gold standard, currency based, and tablita) mentioned above. That difference resides in the fact that the real exchange rate is free to adjust under the other three systems, but not under a system of RER targeting. I will illustrate for the case of a currency board system. Under such a system, a surplus in the trade balance or an inflow of capital leads to a purchase of dollars by the Central Bank with a corresponding expansion of the monetary base (high-powered money, H). This expansion of H leads to an expansion of broad money M_2 . Unless people's desire to hold real cash balances (M_2/p_d) has increased, they will be led to spend some or all of their excess balances. The part of this spending that goes to buy tradable goods or services or assets will add to the demand for foreign exchange, thus tending to offset the inflow of dollars. The part that is spent on nontradables will operate to raise the domestic price level,

\bar{p}_D , thus tending to reduce the real exchange rate, which we define as $E\bar{p}^*/\bar{p}_D$,

where \bar{p}^* is an index of the world price level of tradables, and can be taken as given for the present exercise.

A sale of dollars by the Central Bank under a currency board system works in the opposite direction, first reducing high-powered money H , which then tends to produce a consequent fall in M_2 , which in turn brings M_2/\bar{p}_D below the level people want to hold. This shortfall of real monetary balances below their desired level causes people to try to rebuild those balances. In the process they are likely to reduce their demand for tradable goods, services and assets, tending thus to offset the initial drain of dollars from the Central Bank. At the same time they will tend to reduce their demand for nontradable goods, services and assets, which operates to reduce the domestic price level, \bar{p}_D . This, in turn, causes the real exchange rate to rise.

The point of this brief exercise is that even though the nominal exchange rate is fixed under a currency board or gold standard or other fixed-exchange-rate system, the real exchange rate is free to move as a consequence of the influence of economic forces on the domestic price level, \bar{p}_D . In the real exchange rate formula

$RER = E\bar{p}^*/\bar{p}_D$ one can say that in a flexible-rate system RER adjustment takes

place principally through the nominal rate E , while in a fixed-rate system it takes place mainly through \bar{p}_d . Under both systems, movements of the world price level of tradables, \bar{p}^* , can work to either help or impede a given country's carrying out a needed adjustment of its real exchange rate.

18. Let me now contrast the situation of a fixed nominal rate with that of a fixed (or targeted) real exchange rate. Assume that the process begins with an inflow of dollars at:

- a) a given (high) nominal fixed rate, or
- b) the same high nominal rate, produced by a targeted real exchange rate policy at a given moment in time.

We saw above how a high nominal fixed rate would lead to an induced outflow of funds (through increased purchases of tradables) and to an induced fall in the real exchange rate (through the effect of increased spending on the price level of nontradables).

What happens in such a case if a policy of real exchange rate targeting is in effect? Actually both of the mechanisms of correction that come into play under a fixed nominal rate are substantially or fully "aborted" if a real exchange rate target is pursued. Quite obviously, if the policy fixes the real exchange rate, it will not "allow" the real exchange rate to adjust. The way this happens is that, as nontrad-

ables prices start to rise, pushing up the general price level \bar{p}_d , the authorities will raise the nominal exchange rate E so as to keep the real price of the dollar from falling. In the process more high-powered money will have been created than in a similar scenario with a fixed exchange rate, and tradables prices will have moved (up in this case) to keep pace with nontradables prices (this is implied whenever the RER itself kept constant).

Now let us consider whether there will be an induced loss of reserves during this process. Recall that in the fixed nominal rate scenario there is a very strong presumption that real cash balances will rise above the desired level, causing additional spending on tradables and inducing a loss of reserves that partly offsets the initial reserve purchase by the Central Bank. This presumption simply disappears, once we shift to a fixed real rate, under comparable initial circumstances.

The simplest case here is that in which all measures of money (H , M , and M_2), plus the nominal exchange rate and hence the price level of tradables, plus the nontradables price level and hence the general price index \bar{p}_d , all move up in the same proportion. In this case we can clearly see that real cash balances remain unchanged, so that compared to their original level people have no excess cash balances to get rid of. This is the "easy answer" for the case of a fixed RER.

Making assumptions that are even slightly different, we would get answers that

were not so simple, and that in particular could entail some reduction of real cash balances. But in the end we would surely have bought more reserves than under the similar scenario with a fixed nominal rate. This should be clear simply because the new equilibrium price level and money supply will be higher under the real rate scenario than under the fixed rate scenario. The path by which the money supply gets to be greater is through the Central Bank purchasing more reserves. Q.E.D.

19. Another way to view the comparison between systems with fixed real rates on the one hand and systems with fixed nominal rates on the other is to recognize that in the latter type of system the exchange rate serves as a "nominal anchor", helping to contain inflationary forces and pressures. The classic scenario here is that when, for whatever reason, "too much" money is issued, people will spend some of the excess, and some of that spending will be directed to tradable goods, services, and assets. This extra spending in tradables will cause a loss of reserves, which should, if the "rules of the game" of a fixed-rate system are observed, result in a reduction of the money supply, tending to eliminate the initial problem of "too much" money. A fixed real rate system has no such built-in nominal anchor. If the price level is to be "anchored", the anchor must be the money supply itself. Thus it is not at all surprising that the showcase periods of

real exchange rate targeting came from countries where fiscal discipline prevailed.

In Brazil, the central government was the recipient of more than a quarter of the total domestic credit portfolio of the banking system at the outset (in 1968) of the stable RER episode, but by the end of the episode in 1979 it had paid off all this debt and was, in fact, a modest net lender to the Brazilian banking system. Chile's case is less dramatic, but nonetheless sends a similar message. There, the central government was the beneficiary of 35% of total domestic bank credit in 1985 at the beginning of the period of RER targeting. By the mid-1990s this fraction was down to less than 10%.

20. If, for whatever reason, the pursuit of a real-exchange-rate policy by simply buying dollars leads to a larger stock of M_2 than is considered desirable or wise, the authorities can resort to mechanisms that work in the opposite direction.

In such a case, I believe first priority should be given to policies like import liberalization, because these policies do not carry an ongoing financial or fiscal cost. The second line of defense consists of mechanisms of sterilization which typically do entail such a cost. The Chilean policy from 1990 onward, of selling peso bonds to finance the purchase of additional dollar reserves, is a perfect example of sterilization. (The idea of sterilization is to take an operation like the

purchase of dollars, which in normal circumstances would involve the expansion

of the monetary base. H, and link it with another operation, like the sale of

Central Bank bonds, which in effect "undoes" that monetary expansion, thus "sterilizing" it.)

Other ways of sterilization include the reduction of Central Bank credits to the private sector, the reduction of its rediscounts to commercial banks, and the sale of part or all of its portfolio of public sector obligations. All these mechanisms of sterilization lead in one way or another to Central Bank losses. If the Central Bank issues bonds or shorter term obligations, it has to pay interest on these. If, on the other hand the Central Bank sells assets like government bonds or commercial paper from its portfolio, it ceases to receive interest on these. The same goes for the case where the Central Bank reduces the amount of credit it gives (through rediscounts) to the commercial banks.

One way of making sterilized reserves less costly is to invest them more profitably in the capital markets of the world. I have for several years tried to persuade Chileans (in and out of government) that their Central Bank would be well advised to accept somewhat greater risks on its overseas portfolio, in exchange for higher expected returns. This suggestion runs afoul of a long-standing tradition in international financial circles, of keeping international

reserve funds extremely liquid and extremely safe. There are good reasons for this tradition, so long as the reserves in question are performing the function traditionally assigned to reserves. But in the Chilean case, no more than half of the \$17 billion of funds that they were holding in 1997 was really needed for the normal functions of international reserves. Nor had they been accumulated for that purpose. On the contrary, they had been accumulated simply as a by-product of the government's real-exchange-rate policy. Why not, then, sequester these funds, and call them not "international reserves" but something else, like an "exchange stabilization fund". Of course, the label shouldn't matter, but in this case calling them international reserves runs up against all the tradition and mythology that has come to surround the form in which those reserves should be held, and the types of assets in which they should be invested. Having a different label, like "exchange stabilization fund" should help to free the authorities from those traditional constraints surrounding reserves, and should enable them to make more money. It would not be fair for me to act as if the recent performance of world markets is typical, but the fact remains that had the Chilean Central Bank, starting in 1990 or 1992, put half of its overseas holdings into index funds, there would have been large gains (on the Central Bank's total portfolio, i.e., after paying all the interest on its domestic obligations) rather than the billions of dollars of losses it actually

sustained. What is fair is to point out that by accepting moderate stock-market-type risks, one can reasonably work with expected real returns (in real dollars) of 7 to 8 percent per annum as distinct from real returns of no more than 2-3 percent on a typical international reserves portfolio.

At the moment, I would not extend this Chilean piece of advice to Indonesia, because Indonesia's international reserves are currently still well below the level that prudence would dictate, particularly in light of all the uncertainties that now prevail. Nonetheless this message is something that should be kept in mind, in case international reserves grow, say, to 10% or more of GDP. Certainly foreign assets beyond that point should not be subject to the risk and liquidity constraints that have traditionally been applied to international reserves.

Another important point concerning sterilization operations is that they invariably work to raise internal interest rates. In the Chilean case reported on earlier, the sale of Central Bank bonds caused interest rates to rise in Santiago's capital market. This is what then stimulated the "reflux" of induced capital inflows from abroad. In Indonesia's current situation, I believe the reflux problem to be of minor importance (due to the wariness of foreign financial institutions vis-à-vis the Indonesian market). But that only means that the rise in interest rates that would be induced by a sterilization operation would be all the more important.

Just as the sale of Central Bank bonds tends to raise local rates of interest, so too do the other forms of sterilization -- reducing Central Bank credits to the private sector, to banks (typically through rediscounts) or to the government.

They either add to the demand for loanable funds (via the sale of bonds or other obligations) or reduce the supply of credit at the source. Moreover, since all of them work through reducing base money, H , they also would tend to produce a general contraction of bank credit, as commercial banks will have to accommodate the size of their operations to a smaller base of bank reserves (one of the main uses of H).

Mention should be made of one device of sterilization that does not directly involve H , and that does not, in and of itself, lead to Central Bank losses. This is the modification of the reserve requirements imposed on the commercial banks.

By increasing reserve requirements, the Central Bank can reduce the size of the so-called money multiplier, forcing the commercial banks to contract the amount of loans and deposits that they carry on the basis of any given amount of reserves.

Yet even though the Central Bank does not in this case suffer a cash drain, the interest rate that firms pay for loans will go up as a result of the credit restriction forced on the commercial banks by a higher reserve requirement.

Thus we can say that no matter what form sterilization takes, it will typically entail higher interest rates than if the reserve accumulation (that is being sterilized) simply had not taken place. And the other side of the same coin is a lower real volume of domestic bank credit, which typically will mean a lower real volume of lending by the commercial banks to the private sector. This is not something to be lamented. It should be taken as the simple and natural counterpart of a sterilization operation -- the price to be paid, as it were, for the benefits that one was seeking by entering the foreign exchange market in the first place (presumably with the goal of maintaining the real exchange rate).

21. I hope I have said enough about the consequences of pursuing a policy of real-exchange-rate targeting for readers to realize: a) that this is not a policy for everybody, all the time, and b) that even where it is the best policy, the target real exchange rate (or the target band for the RER) should be set in recognition of the attendant costs of potential Central Bank losses, and of higher interest rates and restricted volumes of domestic credit.

As alluded to earlier, I believe that consideration concerning these costs were the main reason why the Chilean authorities permitted the real exchange rate to drift downward beginning around 1988. Some might say that this drop in Chile's real exchange rate occurred because the authorities simply couldn't

maintain a higher one. But I do not believe it makes sense to think that the RER that actually prevailed at each moment of time was the highest rate that could possibly be achieved at that moment. On the contrary, one can be almost certain that a higher time path of the RER could have been attained if only the authorities were willing to pay the price in terms of higher Central Bank losses, higher interest rates, and lower volumes of real credit to the private sector.

I believe that a real exchange rate policy, probably a band rather than a fixed target, is what is indicated for Indonesia now and for at least two or three (and most likely more) years to come. I believe the target should be set quite high initially, with the aim in mind of guaranteeing that the export sector, taken as a whole, will prosper and will lead the rest of the Indonesian economy back to prosperity. But from what has been said above it should be clear that the authorities should remain flexible, and sensitive to new evidence as it emerges. Setting the target high in the beginning is an easy step to take because of the desirability of building up additional international reserves. As these reserves come in the question would arise of whether to sterilize. In the luckiest of cases, people's desired cash balances may grow through time, as a result of economic recovery together with greater confidence on the part of the public. In this case perhaps no sterilization will be needed.

But the most likely outcome of setting a target band for the real exchange rate is that at some point or points along the way, the course of wisdom will be to sterilize all or part of the ongoing reserve accumulation. Such sterilization may serve its purpose for a time, but if the reserve accumulation is "too" rapid, the necessary (or indicated) degree of credit contraction may be deemed to be too great. That is the point at which the authorities ought to consider the pros and cons of additional measures such as import liberalization. And finally, having used these options as much as is deemed appropriate, consideration should be given to allowing the real exchange rate band to drift downward (much as the Chileans did after 1988) rather than be locked into a situation of continual money-printing to buy the dollars to support a real exchange rate that has turned out to be "too high" to be maintained over the long pull.

Avoiding Severe Contraction of Real Monetary Balances

22. It has always been true that serious inflation causes people to reduce their "real cash balances". This makes a great deal of sense, because inflation operates to erode the real value of those balances. Historically, we have many instances in which, in the face of an inflation of huge proportions, the fraction of GDP held in the form of money fell to a half, a third, or a quarter of what it had been before. Obviously, such a sharp monetary contraction has to have an effect

on the other side of the balance sheet of the banking system. Very broadly speaking, one can say that M_2 (or some close counterpart) represents the main liability of the consolidated banking system, while its principal assets are credit to the private sector, credit to the public sector, and "net foreign assets". Thus, in an old-fashioned inflation, as people reduced their real cash balances (M_2/P), the country was simultaneously and almost automatically subjected to a huge real credit squeeze. Typically, the asset that suffered most was real credit to the private sector.

23. One of the important lessons that economists have learned over the last half century of inflationary experiences in many different countries is that both the contraction of real money balances and its consequent squeeze of real credit can be kept under much greater control than used to be the case. The key element of this partial "solution" to an old problem is paying adequate interest rates on bank deposits. A minimal objective here is to see to it that at least some important types of bank deposits actually pay (and are perceived by the public to pay) positive real interest rates. This has been done using indexed deposits, using deposits denominated in dollars, pounds, francs, or some other relatively stable currency, and simply by having ordinary local-currency deposits carry nominal interest rates that exceeded the contemporaneous rate of inflation.

In my opinion, these simple lessons have been very positive, for to the extent that by following them one can limit the reduction in (M_2/P) , one also reduces the degree to which real credit to the private sector has to be squeezed. And even though we economists do not have a clear vision of the precise mechanism by which major credit squeezes bring on overall recessions and depressions, there is ample historical evidence to support the proposition that a genuine causal connection exists. This makes it a matter of high priority for the authorities to attempt to find sensible ways of checking any major tendency for people to "run away" from real money balances.

24. The obvious corollary to banks paying positive real interest rates on their deposits is that they must then (to remain solvent) receive positive real interest rates on their loans and investments. It is a matter of quite broad consensus among professional experts in this area that bank laws and regulations should require that banks should lend or invest "in dollars" the deposits they receive "in dollars", and "in indexed loans" the amounts they receive "in indexed deposits". In this way the banks are covered in the event of unexpected changes in the exchange rate (in the case of dollar deposits) or in the rate of inflation (in the case of indexed deposits). Also, in a healthy banking system there will be a positive spread between the interest rate on dollar deposits and that on dollar loans, and

correspondingly positive (but not necessarily equal) spreads between the rates on indexed deposits and loans, and, of course, between those on nominal local currency deposits and loans.

One important change that took place in Latin America between the 1950s and the 1980s was in the degree to which interest rates were kept positive in real terms, even during inflationary episodes. In some countries one has seen in recent years all three mechanisms -- indexed deposits, dollar deposits, plus nominal peso interest rates that were above the rate of inflation. In other cases with significant inflation at least two of these mechanisms were operative. These mechanisms prevented huge collapses of (M_2/P) , and helped greatly to keep private sector credit from being slashed in real terms. In a few cases (notably Argentina 1974-76, Bolivia 1982-85, and Peru 1987-90) the mechanisms of defense were not yet in place, thus conducing to "old fashioned" contractions of real money and real credit -- down to a fifth, a quarter, or a third of their earlier level.

25. The healthiest way for positive real interest rates to emerge, in a setting of inflation and uncertainty, is for business firms -- in their role as demanders of credit -- to create the market. This implies a relatively free market for bank credits, governed by the forces of supply and demand (with due allowances for risk). In such a market, the driving force setting interest rates is the competition

among the borrower firms for the supply of loanable funds that is forthcoming, under the market conditions prevailing at each given moment. A "good" scenario here would meet the following conditions:

- a) the demand for loans should be genuine, i.e., the demand should come from solvent and viable firms and the loans should have a high probability of being paid back at the agreed interest rate at the time they are due;
- b) the uses to which the loans are put by the borrowing firms should be sufficiently productive that their real "yield" to the firms is greater than the real interest rate the firms are paying for the funds; and
- c) the real interest rate that emerges in the market should be one that is not so high as to force important numbers of firms to go out of business, or to impede economic growth by choking off a large amount of what would normally be considered to be economically productive investments.

In countries with sound economic policies and healthy economies, these conditions will almost automatically be met. But we have in recent years witnessed a number of cases where they were quite obviously, even blatantly violated. In all these cases, bad loans played a critical role.

The Cancer of Bad Loans

26. It should be clear from the outset that even extremely healthy banking systems are not immune to the phenomenon of bad loans. Risk is inevitable in the world of business; as a consequence some fraction of existing enterprises is likely to fail each year. Hence banks cannot be 100% certain that their commercial loans will be repaid. All participants have therefore come to expect, in the normal course of events, that a modest share of all outstanding loans will run into trouble, that some of these will end up being renegotiated, and that a smaller fraction will be closed out with a loss for the lending bank. This happens all the time, and should be no cause for alarm.

Trouble can start, however, when non-performing loans move up to occupy far more than their "normal" fraction of banks' portfolios. Usually some outside force or event helps trigger the emergence of such an episode. Natural disasters, the collapse of a major export market, an abrupt flight of capital from the country -- these form a partial list of trigger events. But often the scene for a crisis has already been set by lax banking practices and regulations. A critical element in such cases is the almost automatic "rollover" of bad loans -- with the lending bank simply adding the unpaid interest to the amount of the loan, and continuing to carry the loan on its books as if it were a "good" asset.

Readers should realize that most of the time banks will find it in their interest to roll over bad loans rather than "recognize" them as bad. The reason is that when a bank recognizes a bad loan it typically must declare a loss, which reduces the bank's capital and surplus. And since the legal and regulatory framework usually limits the size of the bank's operations (its deposits, its loans, etc.) to some multiple of its capital and surplus, the simple act of recognizing a bad loan keeps the bank from engaging in other, potentially profitable operations.

27. One of the important functions of bank regulation is to force relevant banks to recognize bad loans where they exist, and make adequate provision for them. Once one starts down a road where many banks are hiding their bad loans through the rollover mechanism, and where the regulatory authorities fail to require the needed adjustment, one risks building a snowball of ever-increasing vulnerability to a crisis.

28. My own version of the snowball effect works like this. Let us suppose that in a normal situation the country in question would have capital market equilibrium with real bank credit to the private sector at, say, 1000 and with a real interest rate of 10% per annum. Now let it occur that, say, 200 of these bank loans turn bad, and are rolled over in the portfolio of the banks. These represent loans which in effect should not exist, yet they are occupying a fifth of the loan portfolio

of the banks. The healthy firms that are demanding good credits now have to content themselves with only 800 of bank loans. As a consequence, the real interest rate (equating healthy demand with the reduced loan supply of 800) will rise, maybe to 15%. At this point some of the healthy firms run into trouble because of the higher real interest rate, and these loans too get rolled over rather than "recognized" as non-performing. Now there are, say, only 700 of funds available to carry good loans, and the real interest rate equating supply and demand goes still higher, say to 20%. I am assuming here a competitive banking system in which the great bulk of the increase in interest rates is passed through to depositors, so one cannot look to this as a major "blood transfusion" to strengthen an already weakened banking system.

The "snowball" thus works with real interest rates getting ever higher, with a greater and greater fraction of the portfolios of the banks being represented by "bad loans disguised as good ones", and with more and more business firms being shifted (via the higher and higher real interest rates they have to pay) from the healthy category down to doubtful, then precarious, then "technically bankrupt".

It is enough to see how, once a country starts down this path, it could end up with a major banking and credit crisis, just through the endogenous accumulation of more and more bad loans, through the operation of the "snowball". But a more

correct description would be that the snowball process operates to weaken both the banking system and the business sector of the economy, leaving them much more vulnerable to outside forces and events, and that in the end it is one of these outside forces or events that actually triggers the crisis.

Strengthening The Banking System

29. I chose to comment on strengthening the banking system before talking about "rescuing" it, simply because the guidelines are clearer, simpler, and more straightforward. A sound banking system cannot, in my opinion, be self-regulated, or regulated by the forces of competition alone. Maybe this would work in some utopian society with a highly efficient system of enforcing the legal liabilities of financial and other institutions. But this is not the world we live in, or have seen up to now. To me the big observable fact that one has seen in country after country, the world over, is that governments tend to bail out banking systems, when such systems get into real trouble. This is the language commonly used to describe what governments do, but it is not the language I prefer. I would rather say that when government intervene, they are bailing out the depositors rather than the banks themselves. In particular, I do not believe that any payment should go from the government to the shareholders or other owners of banks that have been rendered technically bankrupt. But I definitely believe that a centuries-

old tradition is correct in holding that in a crisis situation, the depositors should be assured that their money is safe. Otherwise one invites a run on all the banks in the system, and a consequent collapse of the entire credit structure.

This is what governments (or Central Banks) by and large, have done in crisis situations. This is what I believe is meant by the "lender of last resort" function of a Central Bank. My position is that in thinking about the organization of a banking system we should take this type of intervention (the bailout of depositors in time of crisis) as given. Our next step is to pursue what this indicates or implies with respect to other elements of the puzzle.

30. The main "implication" I draw from the principle of bailing out depositors in time of crisis is that since the taxpayers end up paying a large share of the ultimate cost of such bailouts they (the taxpayers) definitely deserve and should have a "seat on the board of directors". This is, to me, the strongest justification for the regulation of banking operations. This implication also provides guidelines as to the nature of such regulation: it should be to eliminate (or at the very least impede) the type of bank behavior that makes the system vulnerable to crises.

The first step in this direction is to ensure that banks make adequate provision for the risks to which their portfolios are subject. The modern tendency

is to classify the different assets in a bank's portfolio according to risk categories, and to require banks to "provide" for these risks. This provision can take many different forms. The holding of reserves against deposits is one such form -- and one with a long tradition behind it. But contemporary analysts point to the fact that two banks with the same deposit structure can have very different riskiness if one of them holds most of its assets in the form of treasury bills and high-grade-commercial paper, while the other has mainly loans to consumers and small businesses. This type of thinking is what led to the conclusion that in deciding what provision should be made for risk, we should look mainly to the asset side of a bank's portfolio. One strong implication concerns the term structure of the portfolios of banks. Since bank's liabilities are typically on sight (demand deposits) or for short terms of say, thirty or ninety days, banks really have no business holding financial assets with durations of two and five years and more. They certainly have no business holding ten- or twenty- or thirty-year mortgages. (Savings and loan institutions, which receive deposit money and lend on mortgages, are "accidents waiting to happen". They simply have no way of coping when the market interest rate rises above the rate they are receiving on their long term assets.)

But standard, modern provision for risk is, in my opinion, not enough.

Risks analysts work with given probability distributions, which are based on

recent and maybe longer-term experience. The problem is that many crisis situations are precipitated by events that involve drastic shifts of those risk distributions. Using the old economic distinction between risk and uncertainty, prudent banking regulation should require provision for the latter as well as the former. The mechanism of deposit insurance is perhaps the most natural way to deal with this type of contingency. A good rule is that provision for risk can be made within each individual bank, while provision for uncertainty should be system-wide.

31. One problem that may seem of minor importance but is in fact a major challenge in the area of bank regulation concerns how to "properly" compensate bank inspectors and other regulatory personnel. The problem is that, if ordinary government salary scales apply, the regulators will be earning very much less than people of similar skills and talents in the banks they regulate. It will be, and is, quite natural for commercial banks to offer good jobs to bank inspectors, not as a bribe or a payoff, but simply because the bank inspectors have shown themselves to have knowledge and skills that are highly valued by the banks. The ever-present danger is that by this route the most able and energetic inspectors will end up as employees of the individual commercial banks, leaving the regulatory body staffed with professionals of lower capacity and energy.

The situation described above is very real. Indeed, it is hard to find a country where it has not emerged at one point in time or another. The solution to the problem is very simple -- to pay the bank inspectors the same or more, not less, than similarly qualified bank personnel are earning. This "objective" solution is easy, but implementing it can be exceedingly difficult in a setting where a very large bureaucracy exists, whose salaries are governed by uniform scales and norms. The best way by far to get around this problem is to separate the Superintendency of Banks (or whatever the regulatory agency is called) from the regular bureaucracy. One convenient mechanism would be to establish it as an autonomous or semi-autonomous body, in which the government and/or its agencies would have majority control, but of which the commercial banks would be members. They would be required to defray a good share of the costs of the agency, and it would be part of the agency's charter that its personnel should be compensated on a scale equal to or greater than the prevailing salaries paid by the commercial banks to staff members with equivalent qualifications.

Rescuing a Banking System

32. I have already noted (in para 30) that the avoidance of a collapse of deposits is perhaps the prime responsibility of the Central Bank (and/or other relevant authorities) at the moment of crisis in a banking system. This entails the

Central Bank's standing ready to pay the depositors, even in circumstances where the individual banks are unable to pay.

There are different mechanisms through which such a guarantee can work. One is for the Central bank to advance funds to commercial banks "as needed", in exchange for obligations of those banks to repay the advances within a certain time and at a certain interest rate. Another is the exchange of "good paper for bad", with the Central Bank (or some other agency, perhaps constituted for this purpose) giving a commercial bank its good obligations in exchange for that bank's bad loan portfolio. The first of these is appropriate in circumstances where a run might occur, but one does not know either how big the run will be or when (or if) it will take place. Handling this situation directly calls for something like a line of credit, which can be used as needed. The second mechanism, the exchange of good paper for bad, is indicated when the confidence of depositors has been weakened by their knowledge (or belief) that the bank in question may not be able to pay all its depositors because too many of its loans have "gone bad". Once a rumor to this effect starts to circulate, it is virtually certain that a run on the bank will follow. In such circumstances, it can be very helpful for the bank to get rid of the bad paper, and have 100% solid Central Bank bonds or similar obligations in its place. If the "exchange operation" is extensive enough so that the public is

quite certain that the portfolios of the individual commercial banks are now safe, the threat of runs on these banks can be beaten back.

33. The "exchange of good paper for bad" can assuage the threat of a run and can put the balance sheets of the commercial banks in a much sounder condition, but it does nothing to ameliorate one important effect of the "snowball" of bad credit; referred to in para. 28 above. For this exchange of paper does nothing at all to alter the consolidated balance sheet of the banking system. All it does is shift the location of the bad loans from the commercial banks to the Central Bank. This helps, with respect to convincing the public to maintain their deposits in the banking system. It does not do anything to ease the scarcity of credit that healthy firms have to face.

Suppose, for example, that the "snowball" of our earlier example had driven the real volume of "good credit" to the private sector down from 1000 to, say, 600, and that the real interest rate that "rationed" this volume good credit among the good demanders was 25% per year. If now the 400 (= 1000 minus 600) of bad paper held by the commercial banks is exchanged for Central Bank bonds, that by itself does nothing to augment the 600 that is available for demanders of "good credit". There is therefore no reason for the real interest rate to drop from its earlier level of 25%. The credit squeeze is still on; healthy firms may still find

themselves put in peril through the high interest charges they have to pay; and manufacturers will still be forced to postpone or scrap investment projects that would be interesting in normal times, but now are not viable simply because they are not productive enough to withstand a 25% real interest rate.

This places in stark relief the unvarnished truth -- that once a banking system is saddled with a large mass of bad credit, there is no easy way out. The road back to normal times is long and arduous, and has implications not just for the banks but for business firms and for the economy as a whole.

Many people have wondered how an economy can live through a period when bank loans carry real interest rates as high as 2, 3, 4, or even 5 percent per month. The answer is that it is not at all easy, but it has happened. Such rates have prevailed in Argentina, Brazil, Chile, Mexico, Ecuador and Peru, among others. In some cases they have stayed above 20% per annum, in real terms for two or three years in a row. How does this occur? The bad news is that such high rates may in fact end up causing otherwise viable firms to fail. The good news is that many borrowing firms are able to survive, even in the face of those interest rates.

The secret of these firms is that they "find" investments whose yield is even higher than the huge real rates they are paying for bank loans. But they do not

find many such investments, and even those that they do find carry an aura that is not so happy. A perfect example of a high yield investment is a new set of tires for a small firm's only truck. The old tires have worn out. The truck is useless without them. Hence by "investing" \$300 or \$400 in a new set of tires, the firm is in effect "buying" the use of its truck. Compared with the alternatives available to it, the firm may be making a real return of several hundred percent per year, simply by buying that set of tires.

This example should convince readers: a) that there really are investments of sufficiently high yield to justify borrowing at real rates of even 40 or 50 percent per year; b) that by the nature of these investments there is not likely to be a large volume of them, and c) that typically these investments will be "defensive" or "preventive" in nature, helping to obviate a fall in production and unemployment rather than stimulating a rise.

It is very difficult to write the script for a scenario in which an economy directly rebounds from a huge credit crunch in which the volume of "good" credit to the private sector is sharply cut in real terms, with a consequent sharp rise in real interest rates. As the economy grows, coming out of the trough of its depression, new and increased savings will add to the supply of loanable funds. If the central government runs budget surpluses, it may be able to use them to buy the

bad paper from the Central Bank (or other places where it may have come to rest).

In this case the lending power (for "good" loans) of the banking system can be

expanded by a corresponding amount. As a recovery gets started and gains momentum, perhaps foreign funds will once again appear to feed the capital market, working either within or alongside the banking system.

All the above ways of escape from a credit crunch require both time and the gradual rebuilding of confidence. They are very far from being a "quick fix".

34. I should mention a very common way of carrying out an "exchange of good paper for bad". In this scenario it is not the Central Bank that intervenes, but some new authority, like a Reconstruction Finance Corporation. Such an authority could issue its own bonds in exchange for the "bad paper" it was acquiring. So long as these bonds are credible assets, depositors might be satisfied to keep their money in the banks. But again, this switch of assets does nothing to add to the power of the banks to extend additional amount of loans to "good" borrowers. It does nothing to alleviate the shortage of funds or the high real interest rates that these firms face.

Moreover, it is unlikely that these bonds of an RFC or similar entity would be considered by depositors to give sound backing for their deposits unless some entity (presumably the Central Bank) were willing to turn them into cash to help a

commercial bank meet a series of withdrawals by depositors. It would work equally well if an entity like the country's treasury or, for that matter, the IMF were to be the guarantor of the bonds, but these entities are far less plausible candidates than the Central Bank for such a role. So even when the Central Bank is not directly involved in the exchange of good paper for bad, it is likely in any case to play an important part in the scenario.

The Costs of a Banking Bailout

35. People are often lulled into a false sense of security by the ease with which the first steps of a banking bailout are carried out. The simple switch of "good paper for bad" costs essentially nothing in the first instance -- just printing the Central Bank (or RFC) obligations, transporting them to the banks, and taking the "bad paper" to wherever it will be stored.

But the costless nature of the first step masks very serious costs still to come. The bonds issued by the Central Bank or (the RFC) have to bear interest, else the banks will be left with no income on an important part of their portfolio. That interest is a real cost to the entity and to the society at large. In most cases, it is the taxpayer who will end up paying this bill.

Second, if these bonds are to be retired (ultimately) without adding to inflationary pressures it must once again be with "outside funds" (like the

proceeds of taxes) that this is accomplished.

Operating in the opposite direction we have only what little juice can be squeezed out of the "bad paper" acquired by the Central Bank or the RFC, or what can be obtained from the commercial banks themselves after, at some point in the future, their operations become profitable again. The history of banking bailouts shows that these offsetting sources of funds do not come close to covering the direct costs mentioned earlier.

This is true even if the existing owners of the affected commercial banks lose all of their equity in the process. The story goes something like this. A commercial bank has a portfolio with an important fraction (say 30 or 40 percent) of bad loans. These are exchanged for Central Bank bonds at some point with the existing owners of the bank accepting liability for the difference between the face value of the bad loans, and what will ultimately be collected on them. When the portfolio of the bank is valued, the loss on the bad paper turns out to be large, substantially exceeding the owner's equity. So the Central Bank (or the government or some other entity) dispossesses the owners (who lose everything) and temporarily takes over the bank. But the Central Bank does not want to own and operate a lot of failed commercial banks, so it tries to auction them off (or otherwise sell them) as going concerns. But the bidders in those auctions are not

in there for charity. They are not going to pay positive prices for entities with negative net worth. So really the only way the failed banks can be sold is for the auctioning body (Central Bank, RFC, or other) to assume the loss on the bad paper (to the extent that it has not been already absorbed in the wipeout of the owners).

The costs borne by the taxpayers can turn out to be exceedingly high. An IMF report lists such costs for thirteen cases of banking system bailouts. Of the thirteen cases, six had estimated taxpayer costs equal to more than 10% of a year's GDP (and this does not count Finland, for which the estimate was 9.9%).

Moreover all but one of the thirteen cases had estimated taxpayer costs equal to at least four percent of a year's GDP.¹

Special Aspects of the Indonesian Case

36. I was struck on my visit to Indonesia of December 1998, by an assertion that was made by a wide variety of informants. Their story went something like this:

At some point in time during the early months of the crisis, the Indonesian commercial banks, beset by demand from their own creditors, virtually shut their "new loans window. Their determination was to collect on their "old loans" to the extent that these were amortized, and then to use the proceeds either to pay their own creditors or to strengthen their very precarious liquidity positions.

¹Claudia Dziobek and Ceyla Pazarbasioglu, "Lessons From Systemic Bank Restructuring," International Monetary Fund, Economic Issues, #14 (1998), p. 4.

The response of the commercial banks' customers to this new policy was simply to stop making amortization payments on their debts to the banks. Some customers continued to pay interest, others did not. Of those debtor companies that paid neither interest nor amortization, some were solvent and able to pay, simply choosing not to pay under the special circumstances of the moment. Others were truly unable to pay; their loans would be "bad loans" under any circumstances. Unfortunately it was not easy to discriminate among the non-payers, so that one did not have a clear idea of how many of them were in one category and how many in the other.

The situation of a wholesale "borrowers' strike" against paying off existing loans came as something new to me. It adds new complications to the problem of bailing out the banks, and may greatly magnify the cost that ultimately has to be borne by the taxpayers.

37. A problem related to the "borrowers strike" phenomenon is the apparent absence (or near absence) of an active market for loanable funds from the banking system. That is, whereas in earlier sections of this paper I divided the portfolios of troubled banks into "good loans" and "bad loans" (either classified or non-performing or being continually rolled over), here, it seems, we only have varying classes of bad loans -- those that pay interest but no amortization, those that pay neither but are really able to pay, and those that pay neither and are unable to pay. In this trichotomy, I see no group of loans that serves as a true revolving fund --

being paid off by old borrowers and then being lent to new ones.

Once banking operations lose this aspect of a revolving fund, they cease to perform one of the most fundamental functions of an active capital market. In fact, one is dealing with an "ossified" or even "dead" capital market.

38. Another attribute of the Indonesian capital market, as of December 1998, were the high real rates of interest that had been and were still prevailing. As I read the evidence relayed to me, these high rates of interest looked like a very large payment being made to depositors and holders of short term paper, whose main purpose was to keep M_2 from falling too much.

In point of fact, M_2 appeared to have performed rather well through the months of the crisis, falling only by a little more than 10% in real terms from July 1997 through October 1998. But this figure masks a sharp fall in dollar deposits from \$19.12 billion in June of 1997 to \$12.85 billion in October of 1998, with this fall being reflected in the rupiah accounts as an actual rise, from Rp. 46.8 trillion in June, 1997 to Rp. 97.0 trillion in October 1998. The difference between these two figures is explained by the great rise in the rupiah price of the dollar in the interim. Meanwhile, the part of the M_2 money supply that was denominated in rupiah fell somewhat more than the 10% fall revealed by the aggregate M_2 figures.

But the success of the authorities in keeping M_2 from falling came at a huge cost in terms of the interest rate paid on SBIs (short-term obligations of Bank Indonesia). The SBIs found their way into bank portfolios by a roundabout route, being issued for the purpose of absorbing expansions of high-powered money (H) that came as a by-product of liquidity credits granted by Bank Indonesia in pursuit of its commitment to guarantee the safety of bank deposits.

The situation of the Indonesian banking system at this point in the crisis is quite complicated, but it boils down to a quite simple picture. The public has maintained its M_2 holdings quite well, in real terms, but it is also being paid handsomely to do so. The SBI rate was above 50% for most of November and was around 40% in mid-December. Meanwhile the rate paid by banks on 3-month time deposits was rising steadily from June of 1997 onward, reaching over 50% in early November, 1998. Inflation spurted during this period but, as mentioned earlier, the general price level was almost stagnant after September, 1998. Hence one can say that the banks were paying very high real rates, measured using the contemporaneous rate of inflation. And I believe that these real rates would still be high if a reasonable expectation of the 3-month future inflation had been used.

39. All this gives rise to the question of what are the authorities, in effect, getting in return for the high real interest rates being paid on SBIs and on bank

deposits. In other countries my own explanation of high interest rates is that these rates were the result of healthy firms bidding for a very short supply of real bank credit available for the private sector. But it appears that in Indonesia's case such an active market for commercial loans simply does not exist. Indeed, the reported loan rate of Indonesia's commercial banks is below both the 3-month deposit rate and the rate on SBIs.

My interpretation is that the high real interest rates that we observe are really a price that is being paid for keeping (M_2/P) from falling by much more than the modest decline it has already experienced. But this price -- particularly the enormous rate on SBIs, is very high, especially when one considers that it is not supporting an active market for commercial loans to healthy firms.

40. What would happen if the SBI rate and the deposit rate were lowered significantly in real terms? I would expect that M_2/P would be reduced, though this tendency might be offset by the effects of increasing confidence, once recovery got underway. The reduction of M_2/P by itself should have positive effects on spending -- something that should be welcomed rather than feared under the current depressed condition of Indonesia's economy. The negative aspect -- and this is potentially very serious -- is the degree to which a reduction in M_2/P would be reflected in an increased flight of capital out of the country.

My own view is that the authorities ought very carefully and very gingerly to "test the market" along these lines. First, by allowing SBI and hopefully bank deposit rates to drift down, testing to see if a serious fall in M_2/P ensues, and/or if a serious pressure on the country's international reserves is precipitated. I would be surprised to see either result occur so long as expectations of continued sound policy are maintained.

Many more very difficult steps stand between the Indonesian economy of today and the robust and confident recovery we all hope for. But at the present moment I feel a sense that huge costs in terms of high real interest rates are being borne (or "paid") with relatively little being acquired in return. Seeking ways of reducing these costs or raising the recompense obtained in return seems to me to be a matter of very high priority at present and in the months immediately ahead.

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