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## **HELPING TO UNDERSTAND CRISES**

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by

Arnold C. Harberger  
Chief Economic Advisor to USAID

8283 Bunche Hall, UCLA  
405 Hilgard Avenue  
Los Angeles, CA 90095-1477  
Telephone: 310-825-1011  
Fax: 310-825-9528  
e-mail: [harberger@econ.ucla.edu](mailto:harberger@econ.ucla.edu)

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## **HELPING TO UNDERSTAND CRISES**

### **Some Vignettes from the Experiences of Developing Countries**

Arnold C. Harberger  
Chief Economic Advisor to USAID

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This paper recounts some of the events that I have had the opportunity to witness, connected with crisis experiences in developing countries. I think the best use of this material is to inform economists and other interested parties who are concerned with present and future crisis situations in developing countries. Some of the lessons shown here will also have some bearing on current and future crises in advanced countries, but I will not attempt to explore such linkages in detail. That would take us too far afield, owing to the important institutional, historical, cultural and yet other differences between developing and advanced countries. Still, those whose interests are mainly in advanced countries shouldn't go away empty-handed. They should be alert to parallels to their own countries as they read through this paper. Many lessons carry through virtually intact, others need only minor footnotes to apply. Still others must be treated with great care in shifting to focus from the developing world to the advanced countries.

#### **I. Major Shifts in Expectations**

Many characteristics of crisis situations have their roots in human nature, and in that sense are as old as the hills. One of the absolutely key characteristics of most crises is that expectations undergo a radical change. Those who analyze data and make forecasts or projections work daily with probability distributions concerning future events -- interest rates, stock prices, property values, inflation rates, employment levels, sectoral, industrial and aggregate growth, etc. These are sometimes reflected in a range of estimates for a variable --

high, medium and low, for example, or a given number plus or minus 20 percent. A forecast or projection will typically not be regarded as “wrong” if the actual future value turns out to be within such a range. That would be regarded as an “actual” drawing from the probability distribution that the forecaster had in mind.

Often, the characteristics of the forecast distribution are directly revealed in our economic data. They are implicit, for example, in the prices of puts and calls in the markets for commodities and securities. You might have to pay quite a lot for a future call at a strike price of 120 (with a present price of 100) when the distribution of future expected prices has a wide variance. But such a call would be quite cheap if the distribution of future probabilities was packed closely around the present price.

What I meant above by a radical change in expectations was a genuine shift in the entire probability distribution of expectations, rather than a situation in which a given observed event is taken as just another drawing from the “old” probability distribution.

The present U.S. recession is a good example. Prior to the crisis, when the Dow Jones Average stood at around 14,000, the actual market assigned in very low probability to it falling to 12,000 within, say, six months. But when 12,000 was reached, the market assigned a very low probability of its recovering to 14,000 in the next six months. The center of gravity of our market expectations had simply shifted downward. In fact, the entire probability distribution of expected prices had shifted in a downward direction.

This element of huge shifts in the distribution of market expectations is characteristic of most crises. It is what people have in mind when they talk about the “herd instinct” or about “waves of optimism and pessimism” in a market.

Obviously, the above seems to be run counter to the idea that crises “can be foreseen”. We can recognize that any given crisis is likely to have been predicted by some few people -- but not by the market as a whole. Why did the market not listen to these lucky few? Mainly because a coterie of doomsayers seems always to be present in just about all important markets. The trouble is that most of the time their predictions of doom don't happen. As we look back at the current recession, one has to go back over 25 years to 1982-83 before one finds one of this sort of magnitude. And before that one has to go back to the great depression of the 1930s, which of course was much worse than the present crisis, which only goes to show that most of the time the prophets of doom have turned out to be wrong.

Now it's really hard to learn about things that happen only once in 25 or 50 or more years. Moreover, much of the evidence dating from 50 to 100 years ago is of little use today given all the changes that have taken place in technology and in the national and world economies. Thus, to gain insight, we have to piece together evidence that we believe still has relevance, drawn from whatever experience we can tap.

Here's a story from Chile at the time of the 1980s debt crisis. Chile's economy had become totally chaotic during the Allende period, 1970-73. That period ended with a deep drop in GDP, with price controls on several thousand products, with ubiquitous black markets, and with multiple exchange rates that ranged from 25 escudos to the dollar all the way to 1325 escudos per dollar (and with a black market exchange rate of over 2500). Inflation was roaring ahead at an annual rate of over 400%.

The military government that followed lifted nearly all the price controls, unified the exchange rate, reformed the tax system, and gradually brought the inflation rate down to 100,

then 60, then 30 percent per year. To finish the job they adopted a fixed exchange rate in 1979, which helped to bring the inflation rate down to below 10% in 1981.

Then came the debt crisis, a product of an unholy mix of external and internal factors. Unemployment rose from 8% in June, 1981 to over 25% in June of 1982. The need to devalue the currency was evident, but during the fixed-rate period President Pinochet had stated publicly that “it would be suicide to devalue”. After that statement, there was little or no discussion of the possibility of devaluation, even within the public sector.

How did this play out? A very interesting ploy. Over a weekend in June of 1982 General Danus, the Minister of Economy, appeared on national television. It was interesting to note that it was he who made the announcement rather than the “more important” Minister of Finance or President of the Central Bank. It soon became clear why the announcement had fallen to the unlucky General Danus. For he not only announced on national television that, starting Monday, the exchange rate would no longer be 39 pesos per dollar (the rate that had been fixed for the past three years). Now, he said, starting Monday, the rate would be 46 pesos per dollar.

Then came the punch line, “Chileans should be reassured” the general said, “that this does not represent a devaluation!!!” Instead, he said, it was merely the correction of a prior error. “We made a mistake,” he said, “in fixing the peso to the dollar. What we should have done is to fix it to a basket of currencies”. Had they done so, he added, the current rate with the dollar would have to be 46, “so that is where we are setting it starting Monday, and starting Monday it will be fixed to a currency basket rather than to the dollar.”

It should come as no surprise that the rate of 46 lasted only a few weeks. It was, to be sure, the maximum rate that was “conceivable under the circumstances”, but it was far from what was necessary to produce equilibrium in Chile’s balance of payments. There ensued a long

period characterized by successive degrees of devaluation of the peso, and also by a veritable revolving door at the Ministry of Finance. A favorite joke at the time told of a waiter at the Ministry of Finance, who entered the office bearing a tray, and stating “Mr. Minister, here are the eggs and coffee that you ordered”. To this, the Minister responded, “How could that be? I don’t eat eggs and I don’t drink coffee.” And the waiter then answered “Oh, it must have been the last minister who ordered them.”

This is just to emphasize how hard it is to make moves that go beyond what fits with the public’s present assessment of what is likely or plausible -- i.e., with their present distribution of probabilities. Think of the U.S. at the present time (July, 2009). By now we have seen huge rescue packages totaling some \$2 trillion or more. But the first package, of “only” \$700 billion or so, was viewed as shockingly large by many, and was clearly about as big a package as could be sold to the Congress and the public at that time.

## **II. Housing and Stock Prices -- The Asian Crisis of 1997-98**

Another case of a crisis representing a major shift of people’s distribution of expectations can be found in the Asian crisis of 1997-98. In all the countries that suffered that crisis, a major precipitating factor was a tremendous fall in their stock markets and housing prices. This had been preceded by a period during which housing prices reached something like 100 times annual rents, and many stocks were selling at something like 100 times annual earnings. One asks, how can such multiples emerge in a market? The answer, unfortunately, is, “quite easily”.

In housing, you can get a 5% real return on your investment by receiving 1% in the form of rent, and 4% in the form of appreciation. The Asian countries had experienced even faster appreciation than that in their housing market. So prices equal to 100 times rents can have emerged through people building into the housing market the expectation that future appreciation

would amount to something like 4% per year in real terms. The story is quite similar with respect to stocks. It does not take an expected long-run rate of future appreciation in the double digits to generate a price/earnings ratio of 100 to one.

But now to the vulnerability that is inevitably present in such situations. That vulnerability stems from the fact that consequences can follow from changes in expectations that themselves appear quite modest, and certainly not at all scary. Following on the example presented above, suppose that the public's expected rate of real appreciation dropped from 4% to 2% per annum. At first glance that seems quite innocuous, by no means a portent of disaster. But if you are only going to get 2% per year from appreciation, you must get annual rents amounting to 3% of the value of the house in order to generate a real rate of return of 5%. This is indeed what will happen, but not by rents being tripled from one month or year to the next. No, it will come about by house prices falling in real terms to something like a third of their prior value, over a short period of time.<sup>1</sup>

The story is basically the same with respect to stocks. The point is that the driving element behind expected appreciation of houses is an expected rise in their real rental value, and the driving force behind the expected appreciation of stocks is an expected rise in their annual

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<sup>1</sup>Market rents are determined by the supply and demand for housing space. The prices of existing houses are determined in a capital market which values the stream of income that is expected to flow from an asset over its future economic lifetime. All capital assets are like bonds in this respect. A bond that will pay \$50 a year forever will be valued by the market at \$1,000, using a 5% discount rate. [ $P = A/r$ , in financial lingo, where  $A$  is the annual payment,  $r$  the discount rate, and  $P$  the prices of the asset.] But if the payment is programmed to grow at the rate of  $g$  per year, the market will place a much higher value on the bond. The financial accounting formula is  $P = A_0/(r-g)$ . So if  $r$  is 5% as in our example above, and  $g$  is 4%,  $P$  will equal 100 times  $A_0$ , the current rate of initial payment. But if  $g$  is only 2%,  $P$  will be just 33.3 times  $A_0$ .

Thus the driving force for the fall in asset prices is really a drop in the expected rate of increase of rents in the case of housing, and of earnings in the case of stocks.

real earnings. When the expected rate of rise in rents or earnings falls, the prices of houses or stocks can take a huge tumble. And this can easily happen without the expected rise in earnings or rents turning negative. It's enough for the expected rate of rise just to slow down significantly.

This vulnerability is present even with well-ordered capital and financial markets. If you are looking for a reason to support the claim that serious economic fluctuations can come from quite natural operations of the system, this is it!! But please do not conclude from this that real-world downturns stem only from natural forces. No, unfortunately, manmade as well as natural forces are typically present. My point is that the underlying economics leads us to expect that fluctuations of considerable magnitude in asset prices should be expected to occur, even in cases where no obvious policy mistakes or similar human errors are involved.

### **III. Maturity Mismatch in Chile**

Let me now turn to the story of the Chilean savings and loan crisis of 1976. Once again, the story starts much earlier. Through the 1940s and 1950s Chile underwent an inflation process that was both of significant magnitude and quite continuous through time. One of the consequences was that the mortgage market basically dried up, because no one had a clear view of what the future rate of inflation would be, in order to build it into the mortgage agreement. Lenders wanted a high nominal interest rate, in order to be covered if the future rate of inflation was high. Borrowers, looking forward, saw a very great likelihood that they would be unable to afford those high rates, especially if the future inflation rate turned out to be low, but even if it reflected just a continuation of recent past inflation experience.

The Alessandri government (1958-64) faced up to this problem by introducing, in 1962, a savings and loan system based on indexed mortgages. These automatically solve the problem of

lenders demanding high interest rates to protect themselves against high inflation and borrowers demanding low interest rates in order not to be in big trouble if the inflation rate turned out to be low. Indexation of the mortgage instrument meant that the real interest rate was the same, regardless of the ups and downs of the rate of price inflation. If inflation was high, the nominal rate would be high (reflecting the fixed real rate plus the immediately past rate of inflation) but it can be broadly assumed that people's nominal incomes also rise with the inflation rate, so there was a good chance that borrowers could continue to make the required payments. Likewise, if the inflation rate were low, lenders would get a low nominal interest rate, but the purchasing power of that payment would not have been eroded at all.

Everybody welcomed the savings and loan scheme at the moment when it was introduced. Mortgage borrowers would now get long-term financing at a real interest rate of 7%. And depositors in the savings and loan institutions got a real interest rate of 4%. This they regarded as a wonderful opportunity, as previously no instrument was available that was guaranteed to maintain its purchasing power in Chilean pesos and at the same time pay a quite decent (in this case 4%) real rate of interest. Actually, the availability of this new outlet contributed to a rise in the rate of household saving in Chile. Economists, including myself, were delighted, for this system opened the door for a big chunk of the capital market (the residential housing segment) to function normally, in response to real economic forces, in a fashion that was insulated from the ups and downs of the ongoing inflation rate.

Chile's savings and loan system worked like a charm for well over a decade, even through the tumultuous years (1970-73) of the presidency of Salvador Allende. But Chile suffered a major recession in 1975. As recovery began in 1976 there was a pronounced shortage of loanable funds. The forces of demand and supply generated short term interest on bank

deposits that exceeded the ongoing rate of inflation by 1, 2, and at times even 3 percent per month. Annualized, these reflected real rates of 12, 24 and 36 percent. People with savings and loan deposits that paid just four percent real, per year, had no trouble figuring out what to do. They simply shifted their deposits out of the savings and loan system, and into 30-day renewable time deposits at the commercial banks or their close cousins, the financieras. It was as if a vacuum cleaner had swept over the entire savings and loan system, sucking up its deposits with frightful power and efficiency. But with real interest rates high in the open market in Chile, the market value of the mortgages held by the savings and loan institutions fell dramatically. I do not have access to quotations of actual market transactions in these mortgages, but at that time newly-introduced Central Bank indexed bonds of middle and long maturities had real yields-to-maturity of around 20%. At that rate a 7% mortgage with 8 years to run would have a market value less than half its par value. In short, the high-interest-rate “vacuum cleaner” had rendered the entire savings and loan system bankrupt, from one year to the next.

Thus the whole savings and loan system was bankrupted, practically in the blink of an eye. There really was no solution other than a massive government bailout, sufficient to enable the system’s depositors to claim their money.

The big questions are, what was the ultimate source of the trouble, and what lessons can be learned from the experience? To my mind, the ultimate source of the trouble was the huge, built-in mismatch between the maturity of the system’s assets (its mortgage portfolio) and its liabilities (mainly deposits claimable with 30 days’ notice, at most). The lesson that I drew is that a system with assets at 20 or 30 years, and liabilities at 30 days, is an accident waiting to happen, a bomb waiting to explode. The scene can remain quiet for many years, as it did in Chile from 1962 through 1975, only to explode with a bang when market interest rates rise to the

point where receipts from existing mortgages are insufficient to attract and maintain the deposits that are the counterpart of those mortgages. Savings and loan systems that specialize in mortgage lending on the basis of short-term deposits are not a natural part of the economic landscape. The natural holders of mortgages are entities like pension funds, life insurance companies, universities and similar long-lived nonprofit institutions. The admission ticket to this list is that the mortgage-holding entity should have long-term liabilities (in the cases of pension funds and insurance companies) or long-term expected disbursement streams (in the cases of universities, hospitals, etc.) that render them hedged against adverse changes in the structure of interest rates.

That is Lesson #1 from the Chilean S&L crisis. The second is perhaps better called an observation than a lesson, but it is an observation that tells us to be continuously en garde. The problem in a sense, arises out of the fact that institutionalized S&L schemes like the Chilean one, regardless of whether they happen to be indexed or not, have a very good chance of having a happy, thriving existence for a long period of time -- just as the Chilean system did. It's not "normal" for market interest rates to rise above what existing S&L's can afford to pay, but this is something that happens occasionally. More than that, it is something that quite predictably will happen occasionally. Thus the prudent thing to do is to avoid the practice of using short-term deposits as the funding base for mortgages.

That means cutting off an important component of what is the standard supply of mortgage funds in any country starting out with a substantial S&L system, or any country in which commercial banks routinely hold mortgages as a substantial part of their asset structure. If this component of the supply of funds is indeed cut off, as economic analysis suggests, the natural result would be a higher price for the remaining components of supply -- say typical

mortgage rates in the U.S. in the range of 7 or 8 percent, rather than 5 or 6 percent. That would mean a higher cost for home owners (and renters, too), but it would be a boon to pension plan holders, to buyers of life insurance, to universities and hospitals, etc.

The worrisome element is how this would all play out on the political scene. Just suppose that such a shift were made in the U.S., and that the system chugged along in fine shape for 5, 10, maybe 15 years, with no crisis emerging. I would bet a fairly sizeable sum that long before year 15 there would be cries all through our political landscape, complaining about high housing costs, high mortgage rates, about why mortgages have to cost 8%, when depositors in savings accounts only get 2 or 3. The pressure would be to tap these savings in order to feed the mortgage market, thus making housing more affordable for everybody, and enabling more people in the lower economic strata to enjoy the fruits of home ownership. That is to say, the pressure would be to reconstitute an S&L system, or something that matched its characteristics, especially its Achilles' heel -- a huge maturity mismatch between its assets and its liabilities.

I truly believe that temptations of this type are ever-present on the political scene, and that strong pressures exist that lead political leaders and political parties to yield to those temptations. So when I say we know how to avoid savings and loan crises, that does not mean that we will see major long-lasting institutional changes in response to this knowledge.

While the above story focused on the Chilean savings and loan crisis of 1976, the U.S. faced a similar S&L crisis in Texas in the 1980s, and there have been many other similar experiences in other countries. I believe that these phenomena are in the first instance due to the maturity mismatch, but in a much deeper sense derive from the propensity of political establishments to yield to the perennial temptations to make housing more affordable, and extend

the range of home ownership. Maybe the next step should be to seek different ways of pursuing these goals -- ways that somehow avoid the ticking time bomb of maturity mismatch!!

#### **IV. Currency Mismatches**

My next topic deals with another kind of mismatch, this one having to do with currencies. Let me start by saying that it is quite common for developing countries to permit their banks to accept deposits and to make loans in currencies other than their own. Thus U.S. dollar deposits are ubiquitous throughout the globe; and deposits in British pounds are common all over the British Commonwealth. Since the birth of the Euro, Euro deposits have also gained currency.

Just as the Achilles' heel of a maturity mismatch is an unexpected rise of market interest rates, so the Achilles' heel of a currency mismatch is an unexpected major change in the country's exchange rate. But first we must explore what is meant by a currency mismatch.

The easiest starting point is to consider a commercial bank which accepts deposits and makes loans both in pesos (the national currency) and in dollars. It could easily happen that such a bank might receive, say, two thirds of its deposits in dollars, but would end up making two thirds of its loans in pesos. That would clearly represent a currency mismatch on that bank's own books. The bank would be in genuine trouble if, all of a sudden, the exchange rate was devalued, say, from 10 pesos to 15 pesos per dollar. This would increase the dollar-deposit liabilities of the banks by 50% (in peso terms), while the gain on the asset side (from its dollar loans) would only be half as big (we here assume total loans = total deposits). The extra liability stemming from the devaluation would end up eroding the equity of the bank's owners (shareholders). A big move like the one we've outlined could very easily, I would say even very likely, render the bank insolvent, i.e., cause it to fail.

The scenario above is very obvious, very easy for people to discover and comprehend. Thus it should come as no surprise that bank regulations in most countries have been designed to guard against any major currency mismatch between a bank's assets and its liabilities. Such regulations basically say that when a bank receives dollar deposits, it should lend them in dollars or invest them in dollar-denominated securities. And they say the same in the peso side. Peso deposits (or other liabilities) should have their counterpart in peso loans or other peso-denominated assets. Such regulations insulate banks from exchange-rate risk. If the peso price of the dollar goes up, a bank's greater liability to its dollar-depositors is matched by the greater peso value of its dollar-denominated assets.<sup>2</sup>

As a consequence of such basic regulations, then, the banking systems of most countries seemed to have been well insulated against currency mismatch. The regulations, however, typically did not deal with a second-order type of vulnerability, linked not to the currency denomination of the bank's own financial assets and liabilities, but to the nature of the businesses to which it provided financing. To get a sense of how this played out in real-world cases, one should accept the fact that, for a variety of reasons, dollar denominated loans tend to carry much lower interest rates than loans denominated in a developing country's own currency (peso, rupiah, ringgit, etc.) At the same time the interest rate differential is typically much smaller as between local-currency and foreign currency deposits. Thus it turns out in many (though by no

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<sup>2</sup>For practical reasons, most such regulations do not require a precise match of dollar assets with dollar liabilities. They typically allow a small margin of difference, called the bank's "position in foreign currency," the position being either of net assets or net liabilities. Thus, a regulation might say that a bank's net foreign currency position shall not exceed, say, 5% of its capital and surplus, or, say, one percent of its deposits. As long as the fraction of the "position" in the bank's balance sheet is small, it does not pose a significant danger to the bank's overall solvency.

means all) cases, that the banks receive more dollar deposits than they can prudently convert into dollar loans. This is the origin of most real-world troubles linked to currency mismatch.

I am not personally aware of commercial banks taking second-level currency mismatch into account, prior to the emergence of such a crisis. So I will proceed here on that assumption. Indonesian banks prior to the Indonesian crisis of 1997-98, Mexican banks prior to the Mexican crisis of 1994-95, Chilean banks prior to the Chilean crisis of 1982-83 -- all had extended dollar-denominated loans across a wide spectrum of firms in the economy. Some of these loans went to export-oriented firms, whose main income streams actually came in the form of foreign currency. Other borrowers would be in nearly the same position, even if they didn't actually export, so long as the price of the product that they produced was basically determined in world markets. Its domestic price, then, would move up and down with the country's exchange rate, and the firms' peso revenues would surge as a consequence of a devaluation. The vulnerable firms are those that produce nontradables -- goods and services whose local prices do not move up and down with the exchange rate. Retail chains, restaurants, hotels, bars and taxi companies, construction firms, etc. -- these are good examples of companies which can be very hard hit if they have lots of dollar-denominated debt and if then, all of a sudden, the price of the dollar rises dramatically.

That is precisely what happened in the cases mentioned, plus a number of other Latin American countries during the 1980s debt crisis and a number of other Asian countries during the 1997-98 Asian crisis. The shock was probably most dramatic in Indonesia, where the rupiah price of the dollar shot up from 2,500 to over 15,000 very quickly, then gradually settled down to around 10,000 rupiah per dollar. In Mexico the leap was almost as great, the exchange rate moving from a little over 3 pesos per dollar before the crisis to a range of 8-10 pesos per dollar

as the crisis played out. You can imagine the plight of a company with a large debt denominated in dollars, as its monthly payment, as well as its outstanding debt level multiplied, almost overnight, by three or four, measured in local currency.

The second-level mismatch hit the banks when company after company to which they had lent dollars suddenly proved unable to keep up payments on those loans. If only a few companies were involved, the banks might have weathered the storm easily, but it was not just a few, and currency mismatch hit the banks through a widespread wave of defaults on their dollar (or other foreign currency) loans.

What actually tended to happen in some of these cases was a “patch” which enabled the debtor companies to have access to a special exchange rate as they provide payments on their dollar debt. This obviously ameliorated their situations, but it also meant that the country’s taxpayers were picking up much (often most) of the extra cost imposed by devaluation.

A more serious question is whether policies can easily be devised that will prevent or at least render unlikely the outbreak of new banking crises based on currency mismatch. The solution that comes first to mind is simply to enforce a regulation that banks can only lend in foreign currency to companies or other entities that have income in dollars -- sufficient income to render them well-hedged with respect to their debt liability. That solution sounds good, but it is extremely hard to implement. Many companies have volatile, often unpredictable fractions of their output going to export; export prices are also often prone to wide fluctuations. Then comes the question of how to deal with companies producing tradable goods, which provide almost as good a hedge.

A better solution to this problem might be to require that entities that borrow from banks in foreign currency should seek insurance, where the insurance company guarantees the debt

service payments. This allows for wide variations -- insurance would (or should) be cheap for healthy export firms but expensive for those selling nontradable goods and services, particularly if their balance sheets looked shaky to begin with. What worries me about this possible solution is that in the pre-crisis situation when the firms would be buying that insurance, it is quite likely that everybody would estimate the probability of devaluation being quite low, and that the premiums on the required insurance would also be quite low, or at least “reasonable”.

Certainly nobody, in Indonesia in 1996, thought it even conceivable that the exchange rate with the dollar would reach over 15,000 rupiah, or that its new longer-term equilibrium would be around 10,000 rupiah. The same goes for Mexico in 1993 -- nobody foresaw the dollar costing 8 to 10 pesos in any near-term future. So what would have been the likely scenario in a world with insurance schemes in place in Indonesia and Mexico? I think the result would have been much the same as what actually happened -- only in this case the insurance companies would be the first to go bankrupt. The rest of the denouement would follow when it became clear that they could not meet their obligations to their policyholders (the companies with dollar-denominated debts). Those companies would then end up just as they did in actuality -- unable to meet their loan payments to the banks.

It should be clear, on the basis of what has been said already on this topic, that there is no simple, easy-to-implement, answer to the problem of currency mismatch. One answer, which has the advantage of keeping the banking system quite secure, is to have regulations that allow banks to make loans in foreign currency only to enterprises that can very clearly demonstrate an income in dollars (or Euros, etc.) sufficient to provide an adequate guarantee against default (even in the case of a large devaluation). That would be combined with the idea that any foreign currency deposits that did not get lent out under this criterion would be invested in foreign

financial assets, ideally denominated in the same currency as the deposits. These financial assets should themselves be subject to risk classification so that each bank's foreign currency portfolio can be held to an acceptable standard.

The previous paragraph shows that a quite "safe" solution to the currency mismatch problem does indeed exist. And it is a solution that might well be adopted in a country that has just passed through a currency mismatch crisis, or that is regularly subject to wide swings in its real exchange rate. But this would not characterize Indonesia in the years leading up to the crisis of 1997-98, and maybe not even Mexico, in the years leading up to 1994-95. Here we come back to the main point of the first section of this paper -- most crises involve a huge shift in the pattern of expectations, not just of a few groups or segments of the economy, but of the market as a whole. Thus, at times when everything seems to be going fine, and where future exchange rate expectations are very stable, the idea of denying dollar loans to lots of firms which want them is not likely to gain wide acceptance. Nor is this the kind of thing that is likely to produce a political consensus leading to tough new laws or regulations, at any time when the economic climate is sunny and the economic seas are calm. So my prediction is that the phenomenon of crises arising out of genuine currency mismatch problems will not soon disappear from the world economic scene.

## **V. The Collapse of Credit During Crises**

Sharp reductions in bank credit, and in private sector credit of other types, are a characteristic of almost all financial crisis situations. And side-by-side with these reductions come, almost as a echo, calls for banks and other institutions to lend more, and thus help stimulate economic recovery. At times these calls can get so shrill as to attribute some sort of guilt to the banks for not beefing up their loan portfolios.

The aim of this section is to put this problem in a proper perspective -- to add a dose of realism to the preceding sketch. The first thing to bear in mind is how lending institutions make their decisions. They assess the riskiness of each possible loan, and each possible borrower. At any time, there will be borrowers who are judged to be too risky to warrant lending to them. But among the less risky borrowers there will still be gradations. Banks will be willing to give some firms loans equal to 100% of their equity. For others that percentage will be 80, 60, 40, etc.

Now one of the most characteristic features of crises is that equity values go down. Stock prices plummet, real estate values drop sharply. For unincorporated firms, the price that they could get from an outside "buyer of the firm" also experiences a steep fall. Thus, one important basis in which banks decide how much to lend, and to whom -- the value of the firm's equity -- suffers a sharp reduction in a crisis. It is the same with the other two most important indicators -- the potential borrowers' flows of sales and of profits. All these elements typically drop sharply - - that seems to be an integral part of real-world crisis scenarios.

Thus, it is clearly to be expected that in a crisis many, probably most firms, will experience increases in risk such that banks will want to be somewhat more cautious in lending to them. Loan limits might go from 80 to 60 percent of equity, or from 60 to 40 percent. and some firms will almost certainly fall off the list of borrowers that are acceptable from the point of view of the financial institution.

So the first thing we have to recognize, as we try to be realistic, is that it is totally natural for lending institutions to want to reduce their loan portfolios during a crisis. Now what about the borrowers? Here we also find a decline in demand for what we might call "normal" loans. These are loans to finance new investments, or to provide standard working capital. In crisis situations, demand for final products is usually down from the pre-crisis level, so the urge of

firms to add new capacity naturally becomes weaker. What I would call standard working capital would also fall along with a drop in sales.

What goes up is “distress demand” -- firms trying to meet their payroll and pay their rent and utility bills, despite a fall in sales. Quite obviously, this distress demand will be bigger, the worse is the situation of the firm. It is not a natural part of the function of banks to lend in order to meet distress demands on the part of borrowers. They may do so at times, especially if a distress loan will save a firm from bankruptcy and permit continuing payment on its prior obligations. But it is certainly not part of the responsibility of banks to rescue failing firms. They should do so when they think it is in their interest, and when they think it will work, but it is certainly not part of their duty.

So there are good reasons why we typically see the loan portfolios of banks being reduced, often sharply reduced, during crisis periods. What tends to happen is that banks are worried about their own solvency, about the riskiness of their own portfolios. They therefore tend to use new deposit money to buy treasury bills or similar zero-risk government paper. The Mexican crisis of 1994-95 was notable for the extent to which bank credit dried up, for Mexican firms. It was said at the time that the main source of credit for Mexican firms was the U.S. banking system. But those loans only went to big Mexican firms with established international credit ratings. Medium and small firms were pretty much excluded from the international credit market. Meanwhile, Mexican banks loaded up on CETES, their equivalent of treasury bills.

I like to call what happened in Mexico a “lenders’ strike”, where Mexican banks, looking to control the riskiness of their portfolios, virtually shut down their loan windows. Much the same sort of thing happened in Indonesia in 1997-98 as Indonesian banks turned away from commercial loans and toward government paper in an attempt to control their portfolio risk. But

in the Indonesian case there was an interesting twist -- which I called a “borrowers’ strike”. The situation here was that Indonesian borrowing firms quickly became aware of what the banks were doing. In particular, they were pretty sure that as they paid off their old loans, they would find it quite hard, if not impossible, to get new loans to replace them. So they resorted to tricks in an effort to keep their credit lines open. Some, feigning financial distress, pretended they could not pay, and remitted nothing as payment on their basic loans became due. Others, perhaps more honest, paid interest as it became due, but withheld any amortization payments on their loans. They, in effect, unilaterally “renewed” their own loans. Finally, there was a goodly number of firms which were really in trouble, and really could not pay.

This Indonesian experience, of a “borrowers’ strike” is quite unusual, but the reluctance of banks to maintain loans at their earlier levels, while in the middle of a crisis situation -- that reluctance is, so far as I can tell, universal.

## **VI. The Importance of Keeping the Broad Money Supply (M2) From Falling During a Recession**

One of the most useful tools of economic analysis at the macro level is the consolidated balance sheet of a country’s banking system. This balance sheet considers the banking system as a whole, and focuses on its dealings with “rest of the economy”, consisting of households, businesses and, of course, government. A loan from the Central Bank to a commercial bank thus has no effect on this balance sheet, nor does a merger between two commercial banks.

The main assets of the consolidated banking system are typically classified as “credit to the private sector”, “credit to the government sector,” and “net foreign assets”, the latter being typically dominated, for developing countries, by the international reserve holdings of the Central Bank.

The main liabilities of the consolidated system are paper currency (usually issued by the Central Bank), plus demand, time and saving deposits. Together, these add up to a broad money concept, which the IMF's International Financial Statistics, calls "money plus quasi money", and which is virtually identical to what economists call M2.

Now one of the greatest lessons from the Great Depression (and from many other economic declines all over the world) is that allowing reductions in broad money supply to take place during such periods just tends to exacerbate the crisis. This lesson can be looked at from at least two angles. First, from the aggregate demand point of view, we can take it for granted that both private consumption and private investment expenditures will be declining during an economic downturn. If any component of domestic demand is going to actually go up, that will be government expenditures on goods and services. Since tax revenues will themselves be falling during an economic decline, an actual increase in government purchases will typically entail an increased fiscal deficit, for which one important source of financing would be increased purchase by the banking system of government obligations. Looked at from this angle, the main function of the increased credit to the government is to stimulate government spending.

The second angle for viewing the importance of at least maintaining the level of M2 during a recession focuses on the private holders of monetary balances. This angle builds on the fundamentals of monetary dynamics. How does "too much money" create inflation? By people finding their current holdings of currency and bank deposits to be bigger than they really want to hold in that form. They therefore try to get rid of some of these holdings, which can only be done by extra spending. Readers should realize that this extra spending does not always cause inflation. On the contrary, in periods of economic decline it can provide a welcome stimulus to aggregate demand.

At the very least, the rule keeping M2 from falling during a recession operates to prevent monetary dynamics from working perversely. This could easily happen if the collapse of private credit were not offset by increased holdings of government securities, the broad money supply (M2) could fall to the point where people's monetary holdings were below their desired level. In such a case, their efforts to rebuild their balances would lead to additional cutbacks in their spending in goods and services, thus generating an extra downward push on GDP.