Yes, "It" Did Happen Again—
A Minsky Crisis Happened in Asia

by

J.A. Kregel*

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THE FRAGILITY OF THE INTERNATIONAL FINANCIAL SYSTEM: OPTIONS FOR POLICY

*Visiting Senior Scholar, The Jerome Levy Economics Institute; Professor of Economics, University of Bologna and The Johns Hopkins University

— The St. Louis Cardinals and the Asian Crisis

The Asian financial crisis is doubly unfortunate, first of all because it has set income and wealth levels in these countries back some ten years. But, it is also unfortunate because had Hy Minsky been alive to point out to policy makers that they were dealing with a debt deflation the worst excesses might have been prevented. Those of you who knew Hy might instantly object that Hy knew virtually nothing about Asia. But, that has not stopped hundreds of our colleagues from mistaking what went wrong in Asia. And in Hy's case it probably would not have made much difference. Hy only claimed to be an expert in one thing — the St. Louis Cardinals. But, I think we can make a good guess at what he would have said about the crisis, for it was a clear case of the Minsky instability hypothesis.

As you may remember, Hy spent a good deal of time explaining why "It", that is, the Great Depression, Can't Happen Again. But, in the case of Asia it did. And this is also a lesson for why it might happen again, outside the Far East. First, Hy insisted on the beneficial impact of Big Government in providing a floor under aggregate demand. Free falls in asset prices could not happen if there was a guaranteed floor under incomes. The Bigger the Government, the firmer that foundation and the more stable the economy. Not that this didn't cause other problems, but it meant that you could only go down so far. If we take a look at the vital statistics of the Asian economies, we see in general that they have small governments. And those governments tend to run persistent surpluses. There are no firm foundations here. This is not to say that government played no role. We have heard a lot about "crony capitalism' in Asia. But, this sort of income support does not provide the kind of aggregate demand support that Hy thought was beneficial to avoiding instability.

Hy also thought that a Big Bank, an active central bank willing to intervene actively by lending at the discount window in support of asset prices, and thus of bank solvency, was of crucial importance. Hy did not believe in tying one's hands or currency boards or other forms of shooting financial markets in the foot. It is true that central banks are common in Asia, and in some countries they are active on the policy front. But, in the current crisis a major portion of the lending to firms and financial institutions was in foreign currency, Yen and US dollars, which meant that the local central bank was constrained in its ability to act as lender of last resort by the size of its dollar reserves. They could not follow the Bagehot principle of lending without limit. Of course, they had the (non)-choice of adopting floating exchange rates, but this would have made their ability to act

that much weaker.

Thus, the two basic elements that preclude financial instability and have prevented "It" from happening in the post-war period, were both absent in the Asia economies. Detailed knowledge of the region would not really have been necessary to have allowed Hy to reach the conclusion that these economies were subject to financial instability.

But, Hy would have been curious to discover the sources of the financial fragility that produced the financial breakdown in the Asian region. I think he also would have been particularly critical of the analysis that was used as the basis for the policy conditions that were attached to international support measures in the aftermath of the crisis. The rest of the paper seeks to outline these two points.

— *Financial Fragility and Development*

We all know the aphorism that says bankers should only lend to people who don't need the money. This seems to reflect the experience of most developing countries. When they need to borrow, they find it difficult to do so; but when they are receiving foreign investment funds it is difficult to stop them coming in. What the aphorism presumably intends to convey is that bankers should only lend against good collateral, so that their loans are secured and credit risk is reduced to a minimum. But, as George Soros (1987, p. 81) has pointed out, in financial markets based on expectations of future values, the very act of lending may change expectations and thus the "fair" value of the collateral used to secure the loan. This suggests a positive relation between the value of collateral and the value of the loan it secures — lending may strengthen the firm and thus the bank. On the other hand, a firm that fails to secure lending may have to enter into distress sales or reduce activity, reducing the value of its assets that it had promised as collateral, as well as the value of collateral pledged against outstanding loans.

It is interesting that while this positive relation seems to apply to individual firms, it does not reflect the experiences of developing countries. Here the general rule has tended to be that the more that is lent, the lower the value of the country's assets. Why has lending created this difficulty? Before, Soros had become a household name, Hy (e.g. 1975) had set out an analysis of the risks involved in financial leverage that may help to explain why Soros's proposition tends not to work in many developing countries. Minsky's analysis is based on the sustainability of cash flows generated by the composition of assets and liabilities on company balance sheets. Borrowing the concept of a

"margin of safety" from Benjamin Graham, Minsky defined the financing of a firm's operations as "hedge" finance the asset side of the balance sheet produces expected cash inflows from operating projects that always exceed the financing costs and operating expenses, including dividends for shareholders on the liability side of the balance sheet, by a sufficient "margin of safety" or cushion capable of absorbing any unforeseen changes in cash inflows and outflows.

If the cushion covered say 2.33 standard deviations of the historical data on past gross operating returns, then the firm would be unable to meet its cash flow commitments on average only one time in one hundred. A company that is expected to meet its payments with 99% probability is close to what the banker's aphorism means when it says it does not need the money.

As the cushion of safety declines and the probability of being unable to meet cash flow commitments rises, there will be a point at which it is 99% probable that there will be some future periods in which the cushion will not be sufficient so that the firm will not be able to meet its payment commitments. Nonetheless, the cumulative cushion over the life of the loan may be sufficient to cover them, so that the project has a positive net present value. The firm may need an extension on occasion, but by the end of the loan it will have met all interest and principal payments. This is what Minsky calls a "speculative" financing position, for both the banker and the borrower are speculating that by the end of the project there will be enough money to repay the loan, even though there may be shortfalls along the way. This is really what we have in mind when we say that bankers should make good credit assessments.

Finally, when the cushion of safety is non-existent and there is a high probability of shortfalls in nearly every period, the firm may have to borrow additional funds just to be able to meet current commitments. This Minsky calls "Ponzi" financing, making reference to a well-known pyramid investment scheme. These are companies that need to increase their borrowing just to stay in business, but to which, according to the aphorism and good credit assessment, bankers should not lend under any circumstances.

Minsky notes that in a capitalist economy in which the future cannot be predicted and is subject to unforeseen change, the value of the financing positions put in place by bankers will change with variations in macroeconomic variables. For example, a change in domestic monetary policy that causes interest rates to rise has two effects on leveraged financial projects. First, it reduces the present values of the cash flows expected to be earned from operating the projects. Second, it increases the cash flow commitments for financing charges when lending is primarily short-term or set on an

adjustable or rollover basis. For a firm with a high proportion of imported inputs, or export sales, or foreign borrowing, a depreciation in the exchange rate will have the same effect on cash flow commitments as an increase in interest rates. In addition, it may also reduce estimated cash flows if import costs rise by the full amount of the devaluation, while export prices in foreign currency are reduced in an attempt to increase market share or stimulate rapid sales. For countries operating in an open trading system these two exogenous changes usually occur together and reinforce each other since higher interest are often used to defend a weak currency and to stabilise a currency after devaluation. Cushions of safety would thus have to be larger for firms operating in countries with open capital markets.

For some borrowers the cushions of safety will not be sufficiently large to cover exogenous changes in both interest rates and exchange rates and may be sufficient to transform them directly from hedge units into Ponzi financing units. The result is an overall increase in the lender's credit risk on outstanding bank loans, since the borrower's cushion of safety is now smaller. There is also an increase in borrower's risk for the firms as they find it more difficult to realise their initially expected cash flows. The *fragility* of the domestic financial system thus increases with either a rise in interest rates, or a depreciation of the currency.

Obviously, this same reasoning can be applied to domestic banks that are allowed to borrow and/or lend in international capital markets. They will require higher cushions of safety to cover the possibility of changes in international interest rates or the exchange rate. But, a bank is in an even more exposed position. A rise in interest rates and a depreciation of the exchange rate not only reduces the present value of its domestic cash flows (represented by the interest payments received from its outstanding domestic loans) and increases the interest costs of its foreign funding, it also reduces the credit quality of its loans and reduces its own credit rating. It will thus have to pay higher credit spreads on its international funding which it will be unable to recover through higher interest rates charged to its domestic clients. If the change in rates is sufficiently large banks may also find themselves suddenly in the condition of a Ponzi unit in which cash inflows no longer cover cash outflows, and the value of assets no longer provides cover for its liabilities for any future date. The net present value of the bank falls below zero and it becomes technically insolvent.

The natural response of a banker would be to cut down on funding costs by reducing lending to firms classified as hedge and speculative units and by calling in lending to ponzi financing units. As noted, the speculative and ponzi firms need increased finance just to stay in business. But, the

bankers may have no choice but to cut off support if the banks themselves have become Ponzi units; they may be forced to reduce their lending because their own funding sources refuse to roll over or extend credits. Obviously, domestic banks will also be unwilling to lend to each other, so the domestic interbank market will also contract, leading to a generalised difficulty in completing payment of current cash commitments. As both firms and banks attempt to reduce their foreign currency exposure, market imbalances may occur, leading to a breakdown in the foreign exchange market as well. As a result a financially fragile system may be transformed into a financially ***unstable*** system.

In such conditions, ponzi financing firms have no choice but to reduce their own cash outflows, delaying current payments to suppliers, cutting back on expenditures, and by attempting to raise cash by selling out inventories, and what output they can continue to produce with current inventories of inputs, at distress prices. If this is insufficient to cover cash flow needs, they will be forced to sell any other assets they may have, or to generate liquidity by suspending current investment projects or even selling capital equipment. They will also layoff or fire workers who represent a cash drain. The result, in contradiction to Say's Law of Markets, is a generalised condition of excess supply in all markets, placing downward pressure on prices of both output and assets. Such conditions appear peculiar because generalised excess supply will also be accompanied by declining overall demand (which is usually thought to rise when prices fall) as a result of the suspension of investment expenditures by ponzi firms, the general decline in investment due to the tightening of monetary policy, and the fall in consumption caused by the fall in household incomes and increased unemployment. This will place additional pressure on short-term money markets, and may even push short rates upwards as credit conditions deteriorate, current payments are delayed and more financing units seek temporary financing to keep operating.

— *Endogenous Financial Fragility*

There is an alternative means of generating the same results. Rather then being produced by exogenous changes in economic variables that render cushions of safety insufficient to insure stable expansion, an endogenous process may lead to an underestimation of the risks associated with certain investment plans and thus to the provision of cushions of safety that are too thin. This may occur in periods of economic stability in which the weight of past positive experience increases the expectation of future success, and the memories of past crises fade from the collective memories of bankers and managers. This reduction in the estimates of probable loss will lead to a reduction in the cushion of

safety thought to be prudent. Usually both of these process work together, a "stable environment" is usually characterised as a period without major external shocks. Thus cushions of safety are reduced with the lowered expectations of negative shocks. Usually these shocks are identified in terms of changes in sales or financing conditions. But, as noted above, changes in exchange rates have a similar impact to changes in interest rates. Thus, a period of prolonged exchange rate stability may lead to over optimistic assessments of the stability of the domestic currency values of foreign commitments and similar reduction in margins of safety relating to foreign cash commitments or inflows. This endogenous change in margins makes the passage from a fragile to an unstable system that much more rapid in the event of an exogenous shock.

This combination of events in which rising supplies and falling prices leads to falling demand (rather than demand increasing with falling price as in the traditional analysis) is what Irving Fisher called a "debt deflation" process. Minsky's extension of the process emphasises the fact that the rising credit risks that result are reflected on bank balance sheets in the form of increased charge-offs and a general decline in asset quality which will eventually place some banks in difficulty as their capital cushion is overwhelmed by loan losses, and a full fledged financial panic is set off. This spread of fragility from the productive to the banking sector characterises the passage from financial fragility to financial instability and crisis.

—The Minsky Crisis in Asia

Minsky's original analysis of the passage from financial fragility to financial instability is based on a change in domestic monetary policy or the persistence of stable domestic conditions. But, as seen above, the analysis is easily extended to an exogenous shock in exchange rates for companies operating in open trading systems and to banks borrowing and lending in international markets. With increasingly interdependent capital markets and increased capital flows, the impact of a change in monetary policy would then have to be extended to a change in the monetary policy of the largest international lenders. Changes in interest rates of the major international lenders, especially the US and Japan, have been especially important in creating financial instability in developing countries during the debt crises of the 1970s and 1980s, and are a major factor in the current Asian crisis. However, the current crisis has been exacerbated by an additional element: the conditionality on the lending of the multilateral agencies.

— Why Is This Crisis Different from Other Developing Country Debt Crises?

As noted above, the normal scenario for a developing country financial crisis would involve domestic firms borrowing in foreign currency from foreign banks at interest rates which are reset at a short rollover period. Note that it makes little difference if the loans have a short or long maturity, the point is the change in interest costs on cash flows produced by the short reset interval for interest rates. Short reset periods mean that a rise in foreign interest rates is quickly transformed into an increased cash flow commitment for the borrower, instantly reducing margins of safety. If the change in international interest rate differentials leads to a depreciation of the domestic currency relative to the borrowed foreign currency, then the cushion of safety is further eroded by the increase in the domestic currency value of the cash commitments and the principal to be repaid at maturity. Finally, if the government responds to the weakness of the domestic currency in international markets by increasing domestic interest rates in order to stem currency speculation or to attempt to attract foreign demand for the currency, domestic demand may be adversely affected and domestic cash flows will be reduced and domestic financing costs will be increased. Firms may thus pass rapidly from hedge financing to Ponzi finance units as the result of a rise in foreign interest rates. Whether this increase in financial fragility turns to instability and crisis will depend on the willingness of foreign banks to extend additional foreign currency lending to cover the payment shortfalls on current commitments. If they follow the bankers' aphorism, they may be unwilling to do this. As a result, firms may be forced to attempt to improve their foreign earnings by increasing foreign sales. But, this usually leads to falling prices in international markets which compounds the losses from depreciation of the exchange rate, and any cutback in domestic operations simply makes domestic demand conditions worse. The knock-on effect thus hits both the domestic financial system and the foreign banks, who now have increasingly dubious loans on their books. If both foreign and domestic banks' capital cushion is insufficient to absorb the losses, then fragility turns to global systemic instability. In any case, the initial shock, as well as the recommended policies, combine to increase fragility and thus make instability possible in any exchange rate crisis.

The Asian crisis was slightly different, since most Asian countries sit uneasily between two international capital markets: Japan and the US. Japan is a major creditor to the area.[1] After a period of high interest rates introduced at the beginning of the decade to collapse its speculative bubble,

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[1] The share of Indonesia's long-term debt denominated in Yen is 38%, for Malaysia it is 40%, for Thailand 53%, and for the Philippines 38%.

Japanese domestic interest rates have recently been at historical lows. Likewise, the value of the Yen against the dollar has move from a high of around 80 Yen/$ to the current lows of Yen 135. Since most of the Asian countries have adopted policies of stabilising their currencies (this does not necessarily mean rigidly fixed rates) against the dollar (or against a currency basket in which the dollar is a major component), an appreciation of the Yen against the dollar is also an appreciation relative to Asia and represents an increase in Asian domestic currency cash flow commitments on borrowing from Japan. But this does not normally create a financing problem, since the rise in the value of the debt and current payments commitments is more than offset by Japanese producers increasing the outsourcing of their production into Asia in response to their loss of competitiveness. This is the famous "hollowing out" of Japanese manufacturing industry, and is visible in the large foreign direct investment flows into Asia earlier in the decade.

However, the reversal of the trend appreciation of the Yen relative to the dollar, along with historically low interest rates, has meant that Japanese investors placing short-term funds in Asia have benefitted from both a substantial interest rate differential and a possible exchange rate gain as the Yen depreciated. This has created incentives for substantial short-term flows from the Japanese financial markets as banks and other international investors borrow short-term funds in Japan and lend them to Asian banks or firms. Since the Yen had reached an historic peak against the dollar, there was also the distinct possibility of profit from any appreciation of the dollar. These flows were further supported by the creation in a number of countries, Thailand is an example, of special "offshore" financial centres to increase the role of domestic Asian banks in the intermediation of international capital flows in the region.[2] These made it easier for funds to be borrowed in low-interest rate markets, such as the US, and invested at higher Asian rates. However, these facilities did not retain a sharp division from domestic money markets and soon became a conduit for foreign lending to domestic banks and caused sharp expansions in domestic lending. Under pressure to liberalise their

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[2] Japan was not the only source of arbitrage funding. It was also profitable to borrow funds in the US to lend in Asia, as well as within Asia. For example, the crisis in Indonesia is reputed to have been aggravated by Korean investment banks' refusal to roll over lending to Indonesian corporates that they were funding with borrowing in Hong Kong. Korean investment banks also held substantial positions in Brazilian "Brady" bonds and Russian government bonds, all financed with funds borrowed in international markets. This is one of the reasons why the crisis had such widespread repercussions, as far away as Latin American and Eastern Europe. This should be seen as anything out of the ordinary — when Poland defaulted on its debt in 1982, leading to the 1980s debt crisis, Brazil was one of the creditors.

financial markets, many countries had lifted restrictions on lending, and with manufacturing industry showing declining profitability, most of these funds went into the more "remunerative" areas of property development and financial speculation.

This increase in short-term flows tended to further reinforce the strength of the Asian currencies and to further decrease their competitiveness relative to Japan, making them even more dependent on sales to US dollar markets. Thus the shift from Yen strength and high Japanese interest rates to Yen weakness and low interest rates has helped to bring about a shift from long to short-term flows. This created a situation in which the exchange rates were being supported by temporary capital flows, while domestic production was losing competitivity to Japan and other non-dollar markets. At the same time, Asian producers were being challenged by Chinese entry into many of their labour-intensive markets and their higher technology markets were rapidly becoming commoditized as prices were dropping rapidly. Thus, the strength of exchange rates did not really reflect the underlying strength of competitivity of the manufacturing sector. This was exhibited by the deterioration of foreign balance for most of the Asian countries throughout the 1990s.

The market's attention was attracted to the diverse behaviour of the real and financial sectors when the Bank of Thailand decided not to intervene to rescue the country's largest finance company, Finance One, in the Spring of 1997. The failure took on special importance because it occurred against the background of increased uncertainty in international capital markets concerning the evolution of international interest rate differentials. In the beginning of May 1997, the view that the Japanese economy was engaged in a full-fledged recovery gained increasing support (although there was virtually no hard evidence to support this belief[3]) and there was a sharp appreciation of the yen and a sudden rise in Japanese short-term interest rates on expectations that the Bank of Japan would move quickly to raise its discount rate.[4] Politicians who had long been pressing the Bank of Japan to raise interest rates (to increase the interest income on their retired constituents' savings) suddenly appeared likely to succeed and market opinion quickly shifted towards confident expectations of

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[3] The IMF World Economic Outlook for May 1997 gives a forecast for real GDP growth of 2.2%, down from 3.6% the previous year and suggests that "recovery is likely to continue at a moderate pace" (p. 15).

[4] The move was all the more important because it "was of a magnitude that market participants considered quite unlikely, even as late as 5 May. As the yen appreciated rapidly between 5 May and 9 May (the market) began to reflect a significant probability of large further appreciations" (IMF, November 1997: 19).

higher Japanese rates. As a result, funds that had been borrowed at low interest rates in Japan and Hong Kong, and invested at substantially higher rates in Asia, were quickly withdrawn and returned to Japan, supporting the appreciation of the yen and putting increasing pressure on Asian reserves and exchange rates.

These two factors together brought a sharp reversal of the short-term funds flowing into Asia, putting pressure on exchange rates. Domestic banks in the area facing a sudden decline in foreign funds responded by calling in their loans to domestic companies, primarily in the area of real estate and financial speculation. Of course, all this was a false alarm, the Japanese economy was in fact in a free fall decline, not a rapid recovery, the Bank of Japan had no intention of increasing rates and the Yen quickly reversed direction and moved back towards 130 Yen to the dollar.

It thus seems quite clear that the financial crisis in Asia is to a large extent the combined operation of the endogenous and exogenous factors cited above. The fact that exchange rates had remained generally stable relative to the dollar for so long clearly led to a reduction in margins of safety for both borrowers and lenders, domestic and international. And it is clear that this stability was self-reinforcing: the longer exchange rates remained stable, the higher the market considered the probability that they would remain so; the more funds international investors were willing to commit at lower margins of safety the higher were foreign exchange reserves which appeared to increase margins of safety. The capital inflows that kept the currencies stable thus implicitly increased fragility. They also decreased the ability to finance the commitments on those flows by reducing the competitiveness of manufacturing exports.

External shocks were represented by the volatility of the Yen-dollar exchange rate and the associated changes in relative interest rate spreads and the flow of arbitrage funds into and out of the region, which put increased pressure on the already thin and declining margins of safety. Further, some international regulatory factors played a role. When Korea joined the OECD, Korean government debt took on a special zero-weight status and led to improved rating for all Korean debt, which encouraged foreign inflows since Korean rates were substantially higher than other OECD country rates.[5]

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[5] From the discussion above of the reinforcing effect of interest rate and exchange rate changes, it should be clear that banks operating in open developing countries should have margins of safety that are higher than those operating in less open developed economies. Yet, the application of international capital requirements, which were being introduced (and were being met) by most banking systems in the region, apply a uniform minimum capital ratio.

Once the reversal of capital flows had exposed the fragility of the existing margins of safety, this brought attention to a series of other factors which had been present in the market for some time, including a series of prior bank failures (in Indonesia and Thailand) and corporate bankruptcies (in Indonesia and Korea), warnings from the Bank for International Settlements and rating agencies, rising real exchange rates, and current account deficits that had been higher than those which had brought grief to Mexico (Thailand had a current account deficit over 8% of GDP in 1995 as the Tequila crisis spread through Latin America). International funds started to be withdrawn from Thailand and there were a series of contained speculative attacks against the currency that were countered by the Bank of Thailand operating aggressively and successfully in the forward foreign exchange market. Unfortunately, it had to halt this policy when its forward commitments exceeded its reserves.

The central banks of the region first reacted with a concerted policy to defend exchange rates, but after the Thai baht was devalued, a number of countries, recognising the risk to competitiveness of remaining linked to an ever stronger dollar and fearing contagion of the speculative currency attacks, engaged in a series of rapid preemptive devaluations to delink from the dollar. In the space of less than three weeks, Thailand, Philippines, Malaysia, Singapore and Indonesia gave up exchanges rates that had been stable against the dollar for extended periods. The aim was to discourage speculators and thereby avoid the increase in interest rates that would have been required to protect the currency. But in the space of three weeks the movement in exchange rates wiped out the already insufficient margins of safety for domestic banks and corporate borrowers. Thus a policy which seemed sensible from the point of view of international currency markets, did not prove to be successful domestically. First, it placed both firms and banks in difficulty for the reasons already described above. Firms and banks were instantly transformed from speculative to ponzi enterprises. Second, as in the case of Mexico, the delinking from the dollar did not discourage, but rather encouraged, speculators and when countries did not initially respond with tighter monetary policies and actions to cut domestic demand the markets interpreted this as unwillingness to take strong measures in defence of their currencies.

However, from the point of view of most of these countries, and with the support of IMF Article IV consultations, they considered themselves to be dealing from positions of strong economic fundamentals or of having already taken the measures required to return their economies to sustainable positions. Indeed, most had government budgets in rough balance or in surplus, their

current accounts were improving (this was the case of Malaysia, Thailand and Korea) from their worst levels as the result of tighter domestic policies, inflation rates were contained and stable, growth was strong and most were taking actions to bolster their banking and financial systems with the help and express approval of the IMF.

Nonetheless, as currencies failed to stabilise interest rates were raised to punitive levels, reinforcing the negative impact of the exchange rate depreciation on the balance sheets of both firms and banks. At this point the elimination of margins of safety rebounded negatively on the foreign exchange rate as both banks and firms sought to limit the damage from the rising dollar and rising interest rates by repaying as rapidly as possible the outstanding foreign currency debt. Domestic banks and corporations thus joined the speculators in selling the domestic currency against dollars. But, in difference from Latin American crises, this was not so much a case of capital flight as simple covering of open foreign exchange positions. The result was a free fall in both the exchange rate and asset prices in many countries as financing units sought "to make position by selling position", selling anything possible to raise funds and reduce cash payment commitments and foreign exposure. A Minsky debt-deflation crisis, or a Soros-type reflexive process, thus got underway. Unfortunately it was not recognised as such, and the policies that were implemented actually accentuated the crisis.

— What Is To Be Done — What Has Been Done?

What would have been required to avoid a full scale debt crisis is a debt moratorium, and then a debt "workout" in which cash flows are rescheduled on a sustainable basis. But, such a "workout" is only possible if the deterioration in the cushion of safety is from hedge to speculative finance. If all positions have become ponzi positions, the firms will all have strictly negative net present values, and there is no rescheduling possible which can resolve the problem. To prevent cases of extended insolvency, policy must act to try to stem the downward spiral while firms are still in the stage of speculative financing. The obvious and direct way to do this is to underpin cash flows to firms by supporting domestic demand and by reducing their financing costs, either through debt standstills or reductions in interest rates. This leaves productive capacity in place that can increase export earnings to repay foreign debt, and prevents the gridlock of the banking system caused by generalised non-payment, default and credit downgrades. Hy has argued in favoured of such "workout" on an international scale for some time.

However, when the IMF was called in to provide support for the Asian economies it appears

to have judged the crises to have been caused by imprudent banking practices and excessive lending, leading to excessive balance of payments deficits. IMF support conditions were centred on the improving the balance of payments and patterned on the previous experience in the Mexican-Tequila crisis. In order to prevent erosion of the devaluation due to the price inflation that was expected to arise from the increased import prices and the increased demand from the bailouts of the banks, and to keep imports down, domestic demand was constrained through a reduction in government expenditures and tight monetary targets. To further cut domestic demand and stabilise the devaluation, interest rates were raised. Finally, financial institutions that did not meet international capital standards were ordered closed immediately or operations suspended pending plans for recapitalisation. The objective of the policy was to restore international confidence and bring about a return of short-term capital flows that would make the actual use of the IMF and other conditional funding from the multilateral agencies or governments unnecessary at the same time as it laid the basis for an increase in exports and a reduction in imports which would eventually make capital inflows unnecessary.

However, as noted above, the collapse of exchange rates had not been due to banks financing excess demand for imported consumption goods, but rather, financing imports of capital goods by firms. It was the firms' and banks' balance sheets that had to be supported. The IMF conditions only made their positions worse. First, the flight of foreign capital meant that they had to replace their short-term financing, but at sharply higher rates from domestic banks. Second, with falling global demand, firms became increasingly dependent on domestic demand, but fiscal policy was ensuring that demand would be falling. The original estimates were for small reduction in growth. All three IMF-assisted countries now will be in full blown recession for 1998 and most probably through 1999. Thus, firms had rising short-term financing costs and collapsing income flows to meet them. Third, firms that had borrowed abroad had to repay foreign lenders. Given the long period of relatively stable exchange rates, much of this borrowing had not been hedged, and thus had to be repaid in foreign currency. But, export receipts were falling and the value in domestic currency was rising daily. It was originally thought that the sharp devaluations would cause an export boom similar to that in Mexico. However, firms could no longer obtain finance to purchase imports or meet payrolls, they thus sold position to make position and started to sell from inventories. Just as Minsky's debt deflation theory predicted, the result was a rapid fall in the export prices, while import prices rose in step with the devaluation of the currency. Thus, although trade balances did improve, but only

because there were no longer any imports and exports were dumped in distress so that the price effect more than offset any quantity impact, leading to further reductions in the terms of trade . For example, in Korea, the index of export prices fell from an average of 72.4 in the third quarter to 60 in January, the lowest level since 1988.

In addition, tight monetary policies caused an increase in trade financing costs. Commission for letters of credit on domestic transactions in Korea increased from 0.065% to 0.1% and for foreign currency transfers increased from 0.5-0.1% to 0.3%. Credit lines have been reduced and payment penalties increased. Thus, the export capacity of most firms was constrained by the inability of get finance to continue current operations. Mexico had not experienced these problems, first because the majority of its debt was consumer and mortgage debt, and second because the majority of exports took place through the maquilladoras that did not depend directly on the domestic financial system.

Of course, these policies are exactly the opposite of what was required from the point of view of stopping a Minsky debt-deflation crisis. The conditions imposed by the IMF considered the crisis as a flow problem — imports were greater than exports, and tried to slow the first flow and accelerate the second on the expectation that a current account surplus along with capital inflows attracted by high interest rates would stabilise the exchange rate. But, the problem was a stock problem, as firms and banks tried to liquidate their stocks of goods and assets to liquidate their stocks of foreign exchange debts.[6] In Keynesian terms it was a problem of a shift in liquidity preference, not a problem of a shift in spending propensities that had to be achieved.

Thus, international investors reacted rationally, noting that a slowdown in domestic demand could only worsen the cash flows of firms, while the increase in interest rates could only worsen their financing costs. Since import prices would rise and export prices would in all likelihood fall it would become more difficult to earn foreign currency to repay foreign debt. The default on domestic debt would make it more difficult for the banks to finance current production to be sold for export and make it more difficult to repay foreign borrowing. Further, the decision to close banks meant freezing all existing financial arrangements. Solvent banks would be unable to recover any of the funds (partial payment is always better than no repayment at all) lent to suspended banks, and thus would be in even greater difficulty. The IMF conditions thus aggravated the financial fragility and initiated a debt deflation process that meant the crisis would be prolonged and have substantially greater costs in

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[6] Korean conglomerate carry debt ratios of from 400% to 700%, a large portion of which had become short-term and foreign funded, either directly or indirectly, over the last five years.

terms of bankruptcy and unemployment.

The market's implicit recognition that this was a "debt deflation" crisis and not just a "debt" crisis may be seen in the pressure on the Hong Kong currency and asset markets. According to any definition of economic "fundamentals", there was little reason to expect difficulty in Hong Kong, either in the asset market or in the foreign exchange market. Hong Kong has already had its experience with fraudulent trading and overexposed banks in the 1987 stock market break. Its banking system is regulated on standards that are at least equivalent to British standards. The currency is backed by a currency board holding US dollars in an amount that covers not only the circulating HK dollar notes, but all sight deposits, by a substantial multiple. Thus every HK dollar, and deposit created by banks lending HK dollars for speculation, could be redeemed in US dollars and there would still be something left over. Beyond that, China holds US dollar assets that are approximately three times as large as the Hong Kong Monetary Authority's holdings. Thus, the Hong Kong banks were not at risk, nor was the HK dollar. The cushions of safety of the banks were substantially higher than the minimum that was suggested by the International Risk-based Capital Standards. Nonetheless, both the Hong Kong stock market and the HK dollar came under heavy selling pressure that precipitated the October 27 sell off in other developed markets. Market Irrationality? Seen in the context of a Minsky crisis, not at all. The key again is the movement of rates. If there is full conversion of HK dollar liabilities into US dollars, there should be no impact on the exchange rate. However, if the HKMA is forced to convert substantial amounts of HK dollars, this puts direct pressure on domestic money market interest rate. Higher domestic rates will raise financing costs, and thus put pressure on construction companies and property developers, as well as the banks that finance them. These are the companies that make up the majority of shares in the Hong Kong stock market. Further, higher interest rates increase the carrying cost for borrowed stock. Thus, any pressure on the currency, even if successfully resisted, would instantly place pressure on stock prices as investors sold out position and property companies sought to raise liquidity by marking down prices. After the decision of the Taiwanese government to devalue the Taiwanese dollar international investors quite naturally looked for signs of weakness or hesitancy in defense of the Hong Kong dollar. It thus became impossible for Hong Kong (until then the only country untouched by the crisis) not to make a pre-emptive response by increasing interest rates. For a foreign investor, there was thus a near certainty that eventually either the Hong Kong dollar would come under pressure if interest rates were not raised, or the HK MA would be forced to increase interest

rates preemptively. If this prevented the anticipated depreciation of the currency it would be at the cost of a sharp fall in the stock market. Thus, even if an investor could be sure of exchange rate stability, he could also be virtually certain of stock price instability and falling domestic property prices. There was thus no way to avoid a loss on holdings in Hong Kong, and after the losses sustained in other Asian markets, investors sold out of the one market with perfect fundamentals on a perfectly rational understanding of the difference between stock imbalances and flow imbalances.

— Is the Crisis Over?

If the analysis of the crisis as a Minsky debt deflation rather than a simple balance of payments crisis is correct then the response is no, the crisis is not over and the success of IMF policies in restoring external short-term flows of funds will not be sufficient to resolve the crisis. This is because, at currently prevailing exchange rates, as mentioned above, most firms are still insolvent. The short-term paper, issued by the firms and held by the banks has simply been rolled over. If the restructuring of the banking system proceeds these credits will become non-performing and the firms will be in default. Thus, even in the case of Korea, where an international debt rollover has been arranged to resolve the dollar shortage for the current year, the problem of the outstanding corporate commercial paper held by the commercial banks remains. Further, the debt resolution has simply been pushed to the future. The Korean Institute of Finance predicts that starting in 2001 these debts will start coming due and will represent annual interest charges of around $10 billion. Further the reported commercial paper holdings of the best capitalised banks represents about 2% of equity. For other banks it will be substantially higher. Most of this paper was rolled over as the crisis broke at the beginning of December and has again been rolled over in March. Since most is expected to be in default, any real restructuring of the banks will have to write these loans off as total loss. Further, a large percentage of the loans are held by Japanese banks, and these may have to be recalled if Japan continues to encounter the clear symptoms of incipient debt deflation. In Indonesia, there has been little need for a roll over in order to provide dollar balances as Indonesian dollar reserves appear more than sufficient. The problem is that firms cannot afford to purchase the dollars that they need to repay their debts and remain solvent. Unless the exchange rate returns to more normal levels, they will eventually have to cease operations. It is interesting to note that the rates that were being quoted when the creation of a currency board was under discussion of 5,500-6,000 Rupiah are rates at which most major corporate borrowers are considered solvent.

Thus, there is a second stage of the crisis still to be played out involving the recognition of the ponzi nature of most of productive enterprise and the associated downward adjustment of their valuations. The same will be true of the banks holding the firms' short-term debts. Although the external financing crisis has been stemmed, the internal financing crisis still remains to be resolved. As an order of magnitude, at the end of 1996 the won/$ exchange rate was 844, short-term interest rates were 12.2%, and three-year corporate bonds bearing a bank guarantee paid 12.6%. After touching 2000, the exchange rate at the end of January was around 1800 and overnight interest rates are 25% and three year rates 21.2%. At the beginning of April the exchange rate is around 1400, overnight interest rates are around 22% and three-year around 19%. Thus despite the claims that the situation has stabilised, firms are facing both exchange rates and interest rates have increased by 75 to 90% respectively, after having roughly doubled from November to end December. This means that financing costs have roughly doubled in won terms, while the domestic value of foreign indebtedness is about three quarters higher, for about a three-fold increase in the interest charge on cash flows and on outstanding foreign indebtedness. This is far beyond any plausible margins of safety.

The first step in the third phase of the crisis will then be to restore stability to asset markets, which means having both buyers and sellers, borrowers and lenders. This will allow producers to increase exports and the process of adjustment to begin. However, much of the productive capacity will in fact be closed by bankruptcy. And the fall in prices will be less than the change in exchange rates due to the fact that most Asian exports are import-intensive, so that import costs will be rising in dollar terms, and domestic costs will also be rising as the impact of depreciation on the domestic price level works through to domestic costs. It is also likely that capital flows will also return, through foreign purchases of domestic productive capacity (to operate or to close, as occurred in East Germany). It is for this reason that it is difficult to determine appropriate exchange rates. At current exchange rates, this process should be extremely rapid, and will certainly bring calls from developed countries, swamped with imports, for protection measures.[7] This would preclude adjustment via the expansion of net exports and leave only the restoration of capital flows of the original IMF design. But, this implies increasing reliance on high interest rates and/or the sale of domestic assets at cut rate prices. Neither of which are capable of curing the current debt deflation.

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[7] Up to the present, US semiconductor manufacturers, such as Micron, European shipbuilders, such as Fincantieri, and numerous Japanese and Latin American producers have threatened anti-dumping measures in WTO or to unilaterally impose tariffs on goods from Asia.

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