Market Mechanisms for Avoiding the Next Currency Crash: Lessons from Asia

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The international financial system is failing us. At times, financial markets disappear, financial contagion sweeps away exchange rate arrangements that are fundamentally supported, and currency crises have real, worldwide economic impact. Disturbingly, these episodes appear more frequent and more ferocious than before. The solution is not to curtail portfolio flows, which have the potential to deliver scarce investment to developing countries, or for the International Monetary Fund (IMF) to do more of the same, just more quickly and with more money. We must try to work with the financial markets and not against them. Countries that meet simple, transparent criteria should be eligible to draw support from a superfund of pooled foreign exchange reserves whenever they choose. Currency crashes should be selectively avoided, not ameliorated afterwards. Countries that do not meet the criteria should be offered technical assistance and development support, but not bailouts. The moral hazard associated with bailouts is already acting as an obstacle to reform in a number of economies.

Under Strain: The International Financial System

The international financial system is failing its constituents: There are periods of severe dislocation when some financial markets disappear, financial difficulty in one country sweeps contagiously across regions, and the resulting financial turmoil impairs economic growth, worldwide. These features of the international financial system were visible during the Asian currency turmoil, triggered by a collapse of the Thai baht in July 1997. In the midst of the Asian currency crisis, the currency options

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Table 1
Currency Contagion

	Exchange Rates versus the Dollar			
	End-May 1998	End-May 1997	Percentage Fall	Inflation Rate May 97–May 98
Southeast Asia				
Indonesian rupiah[a]	10,500	2,443	76.7	33.3
Thai baht[a]	39.6	27.9	34.8	10.6
Malaysian ringitt	3.85	2.51	34.8	6.4
Philippine peso	26.4	39.1	32.4	10.1
Singapore dollar	1.67	1.43	14.4	2.5
North & Near Asia				
South Korean won[a]	1,413	893	36.8	8.5
Taiwan dollar	33.9	27.9	15.5	2.0
Indian rupee	41.4	35.8	13.5	8.6
Hong Kong dollar	7.75	7.74	.1	4.5
China yuan	8.28	8.29	−.1	1.8
Latin America				
Colombian peso	1,397	1,074	23.1	18.3
Mexican peso	8.88	7.91	10.9	17.3
Venezuelan bolivar	538	484	10.0	42.1
Brazilian real	1.15	1.07	7.0	4.6
Argentinian peso	1.00	1.00	.0	.6
Europe and Africa				
Hungarian florin	213	182	14.6	17.1
South African rand	5.16	4.47	13.3	7.4
Polish zloty	3.51	3.20	8.8	13.9
Russian rouble	6.16	5.77	6.3	11.1
Czech koruna	33.5	32.8	2.0	10.0

[a] Countries that received IMF assistance in 1997.

market of the Thai baht and Indonesian rupiah effectively ceased to exist for several days, and "onshore" and "offshore" exchange rates diverged sharply. Although countries in the region were proclaimed as enjoying the East-Asia growth miracle just a few months before, the collapse in the Thai baht on July 2 was followed in quick succession by crashes in the Philippine peso, Indonesian rupiah, Malaysian ringitt, and Korean won, along with considerable downward pressure—so far resisted—on the Hong Kong dollar, Russian rouble, and Brazilian real (Table 1).

The currency turmoil and related economic difficulties in the Asian region have had global impact. The crisis has led many forecasters to slash their forecasts for global GDP growth in 1998 by as much as 1 percentage point, from around 3 percent to around 2 percent. Concern over the economic ramifications of the developments in Asia has been cited by Chairman Greenspan of the Federal Reserve Board and Governor George of the Bank of England as one reason why their institutions have

Table 2
The Economist Commodity Price Index

	Percentage Change to End-May 1998 from	
	Last Month	Last Year
SDR Index	−2.9	−22.5
Dollar Index	−3.5	−25.4
Oil	−4.5	−28.6
Sterling Index	−1.6	−25.7

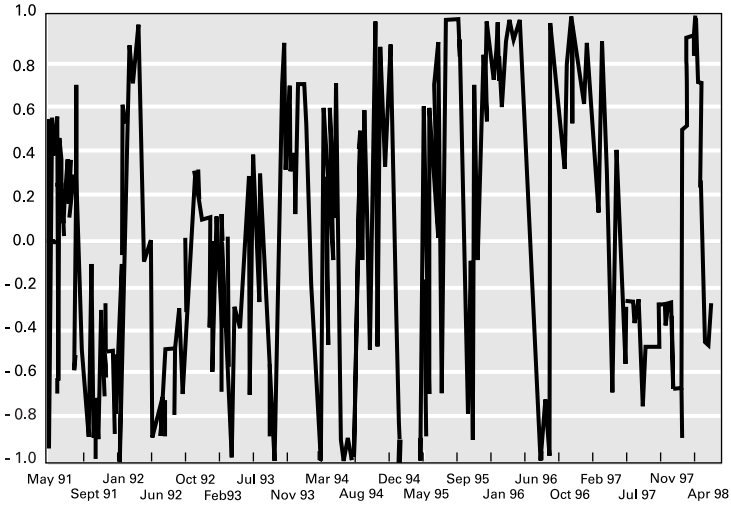
not sanctioned a tightening of monetary policy, despite strong domestic economic activity. This concern has also been reflected in strengthening bond markets and the dramatic weakening in commodity prices. Despite GDP growth in the first quarter of 1998 of over 4 percent, the U.S. 30-year bond is yielding less than 6 percent and *The Economist* All Items, SDR Commodity Index has lost 22.5 percent over the past 12 months (Table 2). In turn, this has accelerated weakness in commodity-linked currencies such as the South African rand, the Mexican peso, the Venezuelan bolivar, and the Australian, New Zealand, and Canadian dollars.

These far-reaching developments are not unique to the Asian currency crisis. They were also apparent, if for a shorter period, during the turmoil sparked by the devaluation of the Mexican peso in December 1994 and in the European Monetary System crises of September 1992 and July 1993. Disturbingly, periods of financial dislocation and contagion, leading to adverse economic impacts, appear to be more frequent and more ferocious than before.

A new measure of the instability of the international financial system can be obtained by looking at the rank correlation of short-term performance and long-term risk. Short-term performance is measured by the total return from borrowing dollars and depositing in a local currency over the past 20 days, and long-term risk is measured by the average outperformance of the spot rate versus its forward rate—a measure of the risk premium—over 100 of the past 120 months. We exclude the 20 most extreme values in order to arrive at a measure of the average risk premium over normal conditions.

Assuming that all of the information contained in the history of an exchange rate is already reflected in its level, we should not expect to see any strong relationship between today's performance of currencies and yesterday's risk premia. At any one time, we might expect to see roughly half of those countries with a high risk premium in the top half of the rank of performance and half in the bottom half. We would expect the coefficient of correlation between the rank of current performance and the rank of past risk to wander around the zero mark through time, only very rarely reaching above +0.7 or below −0.7 out of pure chance. Instead, we

Figure 1
J.P. Morgan Global Risk Appetite Index



Source: J.P. Morgan Co., Inc., Global FX Research. The J. P. Morgan Global Risk Appetite Index is a correlation coefficient between two ranks: The first is the rank of foreign exchange performance over the past month; the second is the rank of long term risk, measured using the average monthly volatility of the trade-weighted exchange rate across the previous five years (up to one month ago to ensure no overlap in time with the first rank). When the Index is at +1 for instance, it implies that all the traditionally "risky" markets have been strengthening over the past month versus "safe" markets and doing so in the order of their "risk." We interpret this as an occasion of high investor risk appetite. See "Investors Shifting Appetite for Risk," A. Persaud, July 1996, J. P. Morgan.

observe that for 30 percent of the time over the past 10 years, the correlation coefficient is either above +0.7 or below −0.7 and it is, in fact, rarely close to the zero mark (see Figure 1).

What does this mean? It would appear that for 30 percent of the time, almost all "risky" currencies are outperforming "safe" currencies and are doing so in the order of their past risk premia, or almost all "risky" currencies are underperforming "safe" currencies and, again, are doing so in the order of their past risk premia. This behavior is best explained by investors switching from a general preference for risk worldwide to an aversion to risk. This pattern of currency performance suggests that "contagious behavior," where exchange rates are driven more by international financial developments than by domestic fundamentals, is not rare but is a regular feature of the international financial system, only brought to our attention when currency movements are large. Given that international financial developments are unlikely to coincide neatly with the demands of the domestic economy, this behavior could lead to severe

resource misallocation over the long term and may represent one important obstacle to the narrowing of the gap between the developed and developing worlds.

What Is Wrong with Current Proposals?

In response to the Asian crisis, many are contemplating measures to curb portfolio flows or to put sand in the wheels of international finance. An old favorite, James Tobin's proposal for a tax that offsets a high interest rate differential, has rejoined the debate on how to reform the international financial system. Other variations of the Tobin Tax include a withholding tax that falls, the longer portfolio inflows stay in the country, in order to discourage short-term flows. It should be noted that levying a tax on capital flows is very difficult in practice.

But the real problem is that in erecting hurdles against portfolio outflows, we are implicitly erecting hurdles against inflows. When the freedom to exit a market is partially removed, investors are far more reluctant to enter in the first place. In the current environment of declining official assistance, curtailing portfolio flows into developing economies in an attempt to reduce the volatility of flows would be like cutting off your nose to spite your face. While inward portfolio investment does not always bring benefits, it does have the potential to accelerate investment and economic development. Certainly the likely dramatic decline in capital inflows to Emerging Asia, from $172 billion in 1997 to an estimated $99 billion in 1998, will be associated with a forecast decline of real GDP growth in the region from 6.4 percent in 1997 to 1.4 percent in 1998—despite the 30-odd percent turnaround in competitiveness.

Those who are reluctant to tamper too much with the free flow of portfolio money often look to the IMF to play a more aggressive role in supporting the international financial system. Instead of reforming the system, they want to reform the IMF to enable it to offer more speedy assistance, to extend larger loans, and to better anticipate currency crashes. Indeed, comparing the IMF's actions during the Asian crisis with its actions during the Mexican crisis of 1994–95 or the Latin American debt crisis of the mid 1980s, it is arguable that on this occasion they reacted more quickly, pledged larger loans than ever before, and successfully forestalled a sovereign default. However, more may be expected of the IMF than it can deliver or should deliver.

It is doubtful that the size of IMF loans could keep pace with the size of private capital flows. In the year before the Asian crisis, net capital flows to emerging economies grew by 15.5 percent to $310 billion (Table 3). At that rate of growth, IMF bailouts could become bigger and bigger while never being big enough. It should be remembered that even today, with the global fallout from the Asian turmoil as visible as could be, there is a lack of political consensus in favor of an enlargement of the IMF's

Table 3
Net Capital Inflows to Emerging Economies
Billions of U.S. Dollars

	1995	1996	1997
Total	262	310	208
Emerging Asia	147	172	99
Latin America	64	80	66
Emerging Europe and Africa	51	58	43
of which			
Net debt inflows	155	173	68
net short-term	60	48	−11
Net equity inflows	107	137	139
net portfolio	14	26	19

capital base. Moreover, it is by no means clear that quicker, bigger loans in the case of Asia helped. The exchange rates of the three countries aided by the IMF (Table 1) remain over 30 percent below their levels last year—over 70 percent in the case of Indonesia—and while a sovereign default has been avoided, portfolio inflows show little sign of returning. If this speedier, larger IMF assistance had not been forthcoming, would Asian economies be substantially worse off today? There are those who are unconvinced.

Further, large IMF bailouts raise a genuine problem of moral hazard: The more the financial markets are convinced that the IMF will offer sufficient funds to any large country to ensure the smooth functioning of the international financial system, the more private sector institutions will become reckless in their search for higher returns and, hence, the more the IMF will end up lending. At the extreme, the system will become self-defeating as creditor governments find the size of IMF bailouts politically impossible to support.

Moral hazard is not just a neat theoretical construct. It probably played a role in the exponential rise in foreign bank lending to Emerging Asia—a critical factor in the resulting turmoil. The more that banks saw other banks lending to Emerging Asia, the more they felt comfortable to lend more, in the knowledge that they would not all be allowed to fail (Table 4). Today the principal justification for the large inflows into Russian local currency debt over the past 12 months—despite a clearly unsustainable hole in the government's finances and a troublesome Duma—is the belief that Russia, with its nuclear arsenal, 150 million people, and strategic and economic links with the rest of Europe, is too important for the IMF to let fail. Given that the world is not in the mood to perpetually underwrite the Russian government, this belief will only serve to delay the eventual reform of domestic finances and to increase

Table 4
Bank for International Settlements—Reporting Banks' Net Claims on the Financial Sector in Asia
Billions of U.S. dollars, end of period

	1993	1994	1995	1996
South Korea	20.9	29.3	42.9	58.3
Indonesia	6.0	9.2	12.1	11.0
Malaysia	−5.6	2.4	2.9	4.1
Philippines	.4	.2	1.0	4.7
Thailand	22.2	39.5	69.9	77.4

the size of the eventual turmoil if reforms are not forthcoming soon and the rug is pulled from under Russia's fragile economy.

Both the curbing of international portfolio flows and the expansion of the IMF's role offer uncertain benefits and significant risks. To an extent, both of these approaches to avoiding the next currency crisis are designed to operate *against* the market. We need to think more about solutions that guide the market to better outcomes and help markets to become more immune to the contagious behaviour illustrated in Figure 1. A good starting point is an examination of what went wrong with the Asian economic miracle.

What Went Wrong in Asia: The Lessons

Undoubtedly, many factors contributed to the turmoil that erupted in Asia from July 2, 1997. For example, in terms of the market timing, the May 9 "crash" of the Czech koruna—a currency associated with a large current account deficit (6 percent in 1997)—may have turned the market's focus to Asia's large current account deficits. In terms of the longer-term causes, the political system will have played a part. If and where it existed, "crony capitalism" will have impaired the proper allocation of resources. However, listing all the causes of Asia's currency crisis runs the risk of losing sight of the key factors. Below we offer a stylized view of the key economic ills that set the crisis off.

In some ways, Asia was a victim of past, unbalanced success. A history of strong economic growth, low government deficits, high savings, and stable exchange rates encouraged the inflow of portfolio money and the buildup of short-term external debt. In 1996, Indonesia, for example, offered investors 13.3 percent interest rates—more than 7 percentage points above U.S. interest rates—and a monthly standard deviation of the dollar exchange rate of less than 0.5 percent, less than one-fifth the standard deviation of $/Yen (Table 5). These attractions were underpinned by a 7.8 percent growth in GDP, marginally down

Table 5
Exchange Rate Rigidity
Standard Deviation of Monthly Changes in U.S. Dollar Exchange Rate

	Jan 80–Dec 89	Jan 90–Jun 95	Jul 95–Jun 97
Japan	3.5	2.9	3.7
Germany	3.6	3.4	2.6
South Korea	.9	.6	1.2
Taiwan	1.1	1.0	1.1
Malaysia	1.3	1.4	.8
Singapore	1.7	1.1	.7
Indonesia	5.3	.2	.5
Thailand	1.9	.5	.4
Philippines	4.1	2.6	.3

from 8.2 percent in 1995, and a budget that was in balance in 1996 after a deficit of less than 1.0 percent in 1995. Except for large current account deficits, Asia looked very different from Mexico, and those current account deficits appeared less of a worry because they were being financed, not by overseas purchases of government debt, but by overseas purchases of private sector debt and equity (Table 6).

However, the shallowness of domestic markets meant that investment as a whole and the portfolio inflow in particular were concentrated into a few sectors which, before the crisis, showed strong signs of overinvestment. In the case of Thailand, for example, almost 90 percent of loans by overseas banks were to the financial sector (Table 7). The current account deficit increasingly was being financed by unproductive, short-term investment.

The absence of adequate supervision meant that the buildup of short-term external debt went unchecked and in many cases unmonitored. In the throes of the crisis, for example, the Korean government made substantial, upward revisions to its estimate of external debt. The

Table 6
The Fundamentals in 1997

	Current Account Balance Percent	Real GDP Growth Percent
Malaysia	−7.4	8.0
Indonesia	−5.0	7.0
Philippines	−4.1	5.1
Thailand	−3.5	.5
Korea	−1.9	5.5
Taiwan	1.8	6.8
Singapore	14.0	7.5

Table 7
Structure of Loans by BIS-Reporting Banks
Percent of Total Gross Liabilities, Mid 1996

	Indonesia	Malaysia	Philippines	Thailand
Total loans (US$ billions)	56.5	25.8	13.4	98.7
Maturity				
Less than one year (%)	60.3	49.4	27.2	69.0
Over one year (%)	35.5	38.2	72.8	27.3
Short-term loans (US$ billions)	34.1	12.8	3.6	68.1
Distribution by sector (%)				
Financial	38.8	62.8	70.1	85.9
Public sector	13.1	11.5	n.a.	3.8
Nonfinancial private	48.1	25.7	29.9	10.3

presence of large, short-term, external debt—large as a percent of GDP, exports, and reserves—and sizable current account deficits financed by increasingly unproductive, short-term portfolio investment, made the countries in the region very vulnerable to any economic shocks (Table 8). During 1996 and 1997, two external shocks came along.

The Japanese economy continued to perform poorly and Japanese interest rates now stood at close to zero. Between mid 1995 and mid 1997 the Japanese yen depreciated against the U.S. dollar by over 30 percent, from ¥80 to ¥115. By virtue of stable exchange rate arrangements versus the dollar, the yen depreciated by a similar amount versus Asian currencies, reducing the competitiveness of Asian goods in the important Japanese market and decreasing the attractiveness of East Asia as a production platform for Japanese producers. It is interesting to note that the three currencies to crash in Asia were those with the largest proportion of exports destined for Japan and the largest current account deficits before the crisis (Tables 6 and 9). The recent investment emphasis on electronics also hurt East Asia badly, given the plunge in semiconductor prices in 1996. In Malaysia, electronics as a proportion of total

Table 8
External Debt Indicators, End-1997 Estimates

	Debt/GDP (%)	Debt/Exports (%)	Short-Term Debt ($bn)	Foreign Exchange Reserves ($bn)
Indonesia	58	200	27	28
Korea	33	87	60	17
Thailand	61	126	32	29
Emerging Asia	31	89	237	353

Table 9
Share of Exports Going to Japan
Average over 1992–1996 (percent)

Indonesia	29.6
Philippines	16.5
Thailand	16.9
Korea	13.7
Malaysia	12.8
Taiwan	10.8
Singapore	7.7
India	7.6

exports more than doubled from 23.1 percent to 58.9 percent in just the four years from 1992 to 1996 (Table 10).

Contagion within Southeast Asia was powerful, for two reasons. First, these economies shared similar exports (electronics) and similar export destinations (Japan and the United States) and so a devaluation in one country caused a substantial worsening of competitiveness in another. But contagion ran along another route as well: shared investors. Investors in one country, observing a currency crisis next door, awoke to risks they had not fully priced; or, having lost money in one country, investors lost their appetite for risk. Both factors led them to leave the entire region, together and at the same time. This behavior determined the scale of the crisis. As investors ran for the exit, the resulting currency weakness caused short-term lenders to call in their loans, which led to further weakness as debtors sold local currency to pay back dollars at the same time. The cycle was vicious indeed. Were it not for these investor and debtor dynamics, some currencies would have fallen less and some might not have fallen at all.

New Mechanisms to Avoid the Next Currency Crash: A Blueprint

The power of financial contagion in deepening and spreading currency crises means that coming to the support of a country after its

Table 10
Electronics as a Percent of Total Exports

	1992	1996
Malaysia	23.1	58.9
Singapore	40.5	42.0
Philippines	20.0	40.0
South Korea	28.2	32.7
Thailand	24.2	29.0
Indonesia	.4	2.8

currency has crashed will not contain the resulting financial and economic difficulties locally and abroad, but will instead create moral hazard. The IMF's current focus is misplaced.

A better approach would be to selectively avoid currency crashes before they happen and selectively defend currencies from the contagion of a crash that has occurred elsewhere. The selectivity is necessary to avoid moral hazard. In those countries where a currency crash is allowed to occur, there should be no bailout of creditors, but technical assistance should be provided to help with the adjustment, and development assistance to ease economic hardships.

A small set of criteria should be developed under which, if a country meets all but one, say, it will be granted access to a large pool of reserves for the defense of its exchange rate. The criteria should lead to a selection of countries which have exchange rates that should be defended and can be defended. The criteria should be focused on ends rather than means, to give governments policy freedom and an incentive to develop effective policies that will achieve these ends. The precise criteria should be developed and monitored by regional development banks, but approved by the IMF. Setting the conditions at this level will allow the criteria to fit the different political and economic imperatives that operate in different regions.

The selection criteria could include the following:

(1) No excessive external debt.
Target for the ratio of short-term debt plus amortization payments to foreign exchange reserves. (100%?)

(2) No unproductive capital inflows.
Target for domestic rates of return, weighted by their exposure to portfolio inflow. (Perhaps calculated as an average of the past and countries around the world?)

(3) Competitive exchange rate.
Target for the real exchange rate, weighted by the currency of trade and of trading competitors. (Not more than 10 percent above the five-year weighted exchange rate?)

(4) Sustainable domestic finances.
Target for the government deficit as a percentage of GDP. (Less than 3 percent?)

(5) Open governance.
Regular, extensive collection and reporting of key economic and financial data.

The reserve pool could be made up of a call on a proportion of the reserves of those countries eligible for assistance within a region and agreements to borrow from other central banks, the IMF, and private banks. If such a fund had been in existence at the beginning of 1997 and all the Asian countries met the selection criteria, and the call on their

foreign exchange reserves was 50 percent, the Asian fund would have been in the region of $200–300 billion, an amount significantly greater than the entire net capital inflow into the region in 1996. The presence of such a fund would bring substantial credibility benefits to any country eligible to draw upon it.

The criteria should be public, clear, and transparent. This will allow the market to work with the authorities, not against them. Countries that meet the criteria would bask in the additional credibility of the fund and would attract the investment they require at reasonable rates—but not excessive investment, because that would raise the risk of the country losing its eligibility through falling rates of return (criterion 2) or an overvalued exchange rate (criterion 3). Indeed, a country experiencing strong inflows would have an incentive to broaden and deepen its financial markets to keep rates of return from falling. In similar vein, the criteria will represent a benchmark of good governance. Countries pursuing policies that will enable them to be eligible will be rewarded by the market, while those that are not may at times pay dearly.

It was hoped that credit-rating agencies would provide a similar, strong incentive for governments to pursue the right policies. This has not entirely happened because, if private credit-rating agencies made the credit-rating process totally transparent and public, they would find it hard to charge for their services. Second, an AAA rating does not guarantee anything, except that the next rating move is down. In this regard, the arrangements proposed here should be superior. The fund would be a public institution, and those administering it would lose nothing and gain much by making the selection process completely transparent. If eligibility carried the right to use a fund in excess of $200–300 billion, it would be a guarantee of substantial support.

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