

**The Mechanisms of
“21st-Century-Type”
International Financial Crises**

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- I Emerging Market Crises During the 1990s
 - 1 A Series of International Financial Crises
 - 2 The Growth of International Capital Mobility
 - 3 The Mexican Tequila Crisis
 - 4 The Asian Flu
 - 5 The Russian Virus
- II Crises as Self-Fulfilling Predictions
 - 1 The Dollar Peg as a Catalyst of Capital Inflows
 - 2 The Sustainability of Capital Inflows
 - 3 The “Twin” Crisis: Why Predictions Tend to Be Self-Fulfilling
 - 4 Limitations of Traditional Remedies
- III The Spread of the Russian Virus to the Industrial Economies
 - 1 The Differences Between the Asian Flu and the Russian Virus
 - 2 Convergence Trades and the LTCM Crisis
 - 3 The Flight to Quality and Liquidity
 - 4 The Effects on Japan
- IV The Open-Economy Trilemma

The 1990s experienced a series of international financial crises in places such as Mexico, Asia and Russia. These crises are seen as the result of sudden, large flows of international capital, and have earned themselves the name of “21st-century-type” international financial crises. They are characterized by a vicious cycle—triggered by currency depreciation (itself triggered by sudden capital outflows) and a domestic financial crisis—that spreads to other economies.

These crises occurred suddenly. However, they were preceded by huge capital inflows, which stimulated economic growth and yet further capital inflows. The sustainability of such inflows was called into question, however, and the conditions under which predictions of a crisis could become self-fulfilling fell into place.

The Russian crisis spread to the industrial economies. Russia’s default made international investors aware once again of credit risks that had been hidden by international safety nets and hedge fund convergence trades, causing them to seek to avoid risk and leading to a flight to quality and liquidity. Japanese government-guaranteed dollar bonds still have a risk premium.

International capital is fleet of foot, and risk can be transmitted instantly. At the same time, however, international capital mobility allows capital to be allocated efficiently at a global level and assists economic development. Crises should be seen as occurring because markets detect undisciplined and contradictory economic policies rather than as the result of markets going out of control. If financial and economic systems are to continue to be integrated, national governments need to adopt and maintain disciplined political and economic policies.

I Emerging Market Crises During the 1990s

1 A Series of International Financial Crises

The 1990s experienced a series of severe international financial crises in places such as Mexico (in December 1994), Thailand (in July 1997) and Russia (in August 1998).

Crises in developing countries involve a sharp fall in the exchange rate, a rise in interest rates, a sharp contraction in economic activity, a domestic financial crisis and an adjustment to the current account. Upheavals of this kind also occurred during the 1980s in Latin America, and both series of crises share certain features.

During the Latin American crisis of 1982 the exchange rate of the 15 countries affected (i.e., the 15 mainly Latin American countries defined in 1986 by the then Treasury Secretary, Nicholas Brady, as third world debtors) fell by an average of 80 percent against the dollar. This compares with an average decline of 60 percent for the Mexican peso and Argentine peso during the Mexican crisis of 1994, as well as for the Thai baht, Indonesian rupiah, Malaysian ringgit, Philippine peso and Korean won during the Asian currency crisis, which began with the devaluation of the baht in 1997.

In real, effective terms (i.e., adjusted for inflation and weighted according to the volume of trade), the decline against the dollar was about 40 percent during both the crisis of the 1980s and the two crises of the 1990s.

In all three cases (i.e., the crises of 1982, 1994 and 1997) the current account deficit rose to about 4 percent to 5 percent of GDP in the previous year.

Because these crises share so many features, some commentators have taken the view that the financial disruptions that occurred during the 1990s should not be regarded as special.¹ However, it is impossible to talk about highly contagious currency and monetary crises such as the tequila crisis, the Asian currency crisis and the Russian crisis without mentioning the sharp increase in international capital mobility that occurred during the 1990s.

The key feature of the crises of the 1990s is the way in which sudden movements of capital led to violent fluctuations in foreign exchange rates that caused domestic financial turmoil that then led to further fluctuations in exchange rates and spread to other economies. Financial and economic globalization combined with huge and sudden movements of capital are seen as the causes. Moreover, the fact that the crises of the 1990s are seen as having been caused by short-term capital movements, such as the way in which capital mobility has served to transfer risk instantly, has led to their being referred to as “21st-century-type” financial crises.

Let us therefore begin with an overview of international capital mobility during the 1990s.

2 The Growth of International Capital Mobility

The 1990s saw a sharp increase in capital inflows to emerging markets on a global scale. According to International Monetary Fund figures, net inflows grew from an average of \$18 billion during the 1970s to \$48 billion during the 1980s and \$130 billion during the 1990s.

As can be seen from Table 1, this increase in inflows to emerging markets as a whole continued in the early 1990s, rising (according to September 1999 figures from the International Monetary Fund) from \$48 billion in 1990 to \$210 billion in 1996. Following the Asian currency crisis of 1997, however, inflows to emerging markets slowed sharply.

Table 1 shows that these inflows to emerging markets have tended to be concentrated in two regions—Asia and Latin America. Until 1991–1992, inflows to Latin America exceeded those into Asia. Following the crisis in Mexico and until the Asian currency crisis occurred, however, inflows to Asia far exceeded those to Latin America. In the wake of the Mexican crisis, inflows to Latin America in 1994 and 1995 fell by about 30 percent from their 1993 level. And after the Asian currency crisis, which began with the collapse of the baht in Thailand, inflows to Asia as a whole fell sharply in 1997 and 1998, accompanied by particularly large outflows from the five countries most affected by the crisis. This also indicates that the effects of these currency crises spread to other countries in the same region.

There are three different types of capital inflow: (1) direct investment, (2) portfolio investment and (3) all other kinds of financial transactions (including bank lending and deposits by nonresidents).

Exactly what forms capital inflows take depends on the preferences of foreign banks and investors as well as on the policies of the recipient countries. Generally speaking, direct investment benefits the economy of a recipient developing country and is unlikely to be repatriated at short notice. Portfolio investment, on the other hand, is more sensitive to short-term investor perceptions. Meanwhile, the third type (bank lending, etc.) can be quite stable if short-term loans are rolled over. If foreign banks refuse to do this, however, the flow of capital can reverse quite abruptly. As can be seen in Table 1, bank lending tends to be more volatile than portfolio investment and was the source of major capital outflows just before and after the crises occurred.

Capital inflows to emerging markets as a whole during the 1990s show that direct investment continued to expand steadily. Inflows from portfolio investment also remained positive throughout, albeit with some variation. However, inflows from other kinds of financial transactions alternated wildly with outflows.

Capital inflows to Asia as a whole tended to be dominated by direct investment, while inflows to Latin America

Table 1. Net Private-Sector Capital Flows to Emerging Markets

	(\$ Billion)									
(CY)	1991	1992	1993	1994	1995	1996	1997	1998	1999	
All regions										
Total private-sector capital flows	118.1	112.6	172.1	136.3	226.9	215.9	147.6	75.1	80.5	
Direct investment	31.5	35.4	59.4	84.0	92.6	113.2	138.6	143.3	149.8	
Portfolio investment	24.7	56.1	84.4	109.6	36.9	77.8	52.9	8.5	23.3	
Other financial transactions	62.0	21.0	28.3	-57.3	97.4	24.9	-43.9	-76.7	-92.5	
Asia										
Total private-sector capital flows	32.2	20.7	57.4	63.6	105.0	104.1	-1.4	-42.6	-27.1	
Direct investment	14.5	15.7	33.9	47.1	46.6	53.0	55.4	58.3	49.8	
Portfolio investment	1.2	9.0	21.8	11.7	14.2	12.9	3.5	-17.9	-5.6	
Other financial transactions	16.6	-4.0	1.7	4.7	44.1	38.2	-60.3	-82.9	-71.3	
Five countries affected										
Total private-sector capital flows	24.8	29.0	31.8	36.1	74.2	65.8	-20.4	-25.6	-24.6	
Direct investment	6.2	7.3	7.6	8.8	7.5	8.4	10.3	8.6	10.2	
Portfolio investment	3.2	6.4	17.2	9.9	17.4	20.3	12.9	-6.0	6.3	
Other financial transactions	15.4	15.3	7.0	17.4	49.2	37.1	-43.6	-28.2	-41.1	
Latin America										
Total private-sector capital flows	24.1	55.6	66.8	49.4	53.1	72.1	85.5	70.0	54.1	
Direct investment	11.3	13.9	13.4	23.1	24.7	39.5	53.1	56.1	63.6	
Portfolio investment	14.7	30.3	44.0	66.7	3.0	41.0	19.2	14.7	10.6	
Other financial transactions	-2.0	11.4	9.4	-40.4	25.5	-8.4	13.2	-0.8	-20.1	
Transition economies										
Total private-sector capital flows	-9.9	2.3	21.0	4.5	44.0	17.0	22.8	14.2	11.6	
Direct investment	2.4	4.2	6.0	5.4	13.6	13.7	19.7	21.0	23.5	
Portfolio investment	-	0.1	8.7	20.0	13.3	19.2	21.5	7.2	3.7	
Other financial transactions	-12.3	-2.0	6.3	-21.0	17.1	-15.8	-18.4	-14.0	-15.6	

Notes: (1) "Emerging markets" refers to developing countries and transition economies; (2) the "Five countries affected" were Indonesia, South Korea, Malaysia, the Philippines and Thailand; (3) "Other financial transactions" includes short- and long-term trade financing, bank lending and deposits.

Source: *World Economic Outlook*, International Monetary Fund, May 2000.

tended to be dominated by portfolio investment. Also, inflows to the five countries most affected by the Asian currency crisis tended to be dominated by a combination of bank lending and portfolio investment. As can be seen in Table 1, moreover, there was a sharp increase in inflows from bank lending and portfolio investment in all the regions concerned just before the Mexican, Asian and Russian crises occurred, followed by a sharp outflow as a result of the shock.

In the following, we shall seek to discover why these inflows increased just before the crises occurred in each case, and what caused them to decline and then reverse.

3 The Mexican Tequila Crisis

On December 20, 1994, Mexico devalued its dollar-pegged peso by 15 percent. This led to a sudden outflow of short-term capital and forced the Mexican authorities to move to a floating rate system two days later. A week after that, the peso fell by as much as 50 percent. In the middle of January 1995 the currency crisis spread to Argentina; but the worst was over by the end of January, when the International Monetary Fund organized a \$50 billion aid package.

Until the eve of the crisis, capital inflows continued to increase, and Mexico became the second-biggest importer

of capital after China during the early 1990s. Under Carlos Salinas, who had been elected president in 1988, Mexico continued to pursue policies aimed at enabling the country to join NAFTA in 1994 (e.g., the privatization of state-owned companies, deregulation, liberalization, and the reduction of its budget deficit) with such success that the period of economic expansion from 1990 to 1994 was referred to as the "Mexican miracle." The average rate of economic growth during this period was just under 3 percent, and consumer price inflation, which had topped 100 percent in the late 1980s, eased to single digits by 1993 and 1994.

However, although inflation eased, the fact that the peso was pegged to the dollar meant that inflation was still much higher than in the United States. As a result, the peso's real exchange rate rose sharply and the current account deficit increased from 1992 to 1994 to about 7 percent of GDP. However, this huge deficit was regarded as a temporary phenomenon caused by huge capital inflows attracted by the prospect of future economic growth.

In retrospect, signs of the impending crisis had already been visible at the beginning of 1994. One of these was the issuance of government bonds. It had become increasingly difficult to issue CETES (peso-denominated money market instruments). Instead, the government began to issue increasing amounts of *tesobonos* (bonds whose

coupon was linked to the exchange rate, making them dollar-denominated bonds to all intents and purposes). While investors began to forecast that the peso might be devalued at some time in the future, the government increased its issuance of low-coupon tesobonos—both to demonstrate the strength of its commitment to the dollar peg and to keep a lid on its near-term debt service costs.

Mexican banks purchased these tesobonos and made considerable use of them as collateral to borrow dollars from US banks by means of tesobono swaps. The effect of these swaps was to make it appear as though the tesobonos were owned by nonresidents (when it was actually Mexican residents who were exposed to the risk) and to induce an inflow of short-term capital.² The Mexican banks then used this capital to lend to Mexican companies, thereby generating a lending boom.

Then, in February 1994, the Federal Reserve raised its target rate for Fed funds for the first time since it started lowering it in June 1989—four and a half years earlier. This had the effect of reducing inflows to developing countries. In addition, the ruling party's presidential candidate was assassinated on March 23, 1994. The resulting increase in political uncertainty also served to reduce inflows. As a result of all this, Mexico's foreign exchange reserves fell sharply throughout 1994.

This was the situation when the peso was devalued by 15 percent. The effect of the devaluation was to increase the outflow of capital. Until then, the Mexican authorities had not published any figures on the country's foreign exchange reserves. When the devaluation was carried out, however, it was announced that the country had only \$5 billion in reserves. This was less than the amount of tesobonos outstanding, and doubts began to rise about whether these issues would be redeemed. At the same time, the market began to question whether a 15 percent devaluation was sufficient. As a result, the peso plunged and domestic interest rates rose.

A falling peso meant that those who had borrowed in dollars would have considerable difficulty repaying their debts. As a result, the Mexican banks that had used their tesobonos as collateral to borrow dollars faced huge losses. On top of that, rising interest rates affected business activity. The stock market collapsed, and the real rate of economic growth contracted from 4.4 percent in 1994 to -6.2 percent in 1995.

Mexico appears to have faced a dilemma. While failure to raise interest rates would have accelerated the peso's fall and made it even more difficult to repay foreign-currency debts, raising rates would only have weakened the banking system further.

The crisis spread to Argentina, which had few economic ties with Mexico. This is also why the crisis became known as the tequila crisis. Argentina had also experienced an increase in capital inflows before the crisis occurred. Following the election of Carlos Menem in 1989, Argentina had introduced a currency board system in 1991, whereby the country could only issue as much do-

mestic currency as it had dollar reserves to back it. In response to this initiative, inflation had fallen and capital inflows had increased sharply, enabling the economy to enjoy a period of strong growth—10 percent annually in 1991–1992 and 6 percent in 1993–1994.

When the Mexican crisis occurred, however, US banks and other investors stopped investing in Argentina because they associated it with Mexico. As a result, even Argentina investors became worried that their own peso might also be devalued and scrambled to exchange pesos for dollars. Money became tight, and call rates rose to 80 percent at one stage while economic growth contracted by 2.8 percent in 1995. Even if the central bank had tried to increase note issuance straightaway, it would not have been able to do so because of the currency board system.

Argentina then adopted an austerity program and was able to maintain its currency board with the help of a \$7 billion international loan.

4 The Asian Flu

(1) Thailand

The tequila crisis had only a momentary impact on Asian economies. However, Thailand's abandonment of its dollar peg in favor of a managed float on July 2, 1997, triggered a series of severe currency and monetary crises in the region.

During the 1980s the Thai economy had grown at an average rate of 7.9 percent, and annual growth continued to average 8 percent in the early 1990s. At the same time, Thailand's current account deficit increased, reaching the equivalent of 8 percent of GDP in 1994 and 1995. Until 1995, the deficit was more than offset by capital inflows, and the country's foreign exchange reserves also continued to increase.

However, an analysis of these enormous capital inflows shows that direct investment—the source of funds for future export growth—was equivalent to only 1 percent to 3 percent of GDP and that other sources such as bank borrowings accounted for the lion's share. Borrowings from foreign banks grew rapidly following the establishment of the Bangkok International Banking Facility (BIBF) in 1993, and net inflows amounted to the equivalent of 11.5 percent of GDP by 1995.

The baht moved in tandem with the dollar in a narrow range of \$1 = B25–B25.5 after 1989. As a result, nonresidents preferred to invest in baht (which paid a high rate of interest) rather than dollars, and Thai residents took on more debt without hedging the currency risk. The surplus liquidity thus generated led to a property bubble.

At the end of 1996, short-term borrowings from foreign banks (BIS-reporting banks) in Thailand exceeded the country's foreign exchange reserves. Moreover, Thailand's short-term foreign borrowings in terms of GDP reached the equivalent of 25 percent in 1996—compared with an average of 10 percent to 15 percent for other coun-

tries hit by the Asian currency crisis. It was against this background of rising short-term debt and slowing export growth that suspicions began to emerge in 1996 that the baht might be devalued.

Thailand's short-term debt rating had already been lowered by Moody's in September 1996, and a similar downgrade for long-term debt followed in April 1997. Early in 1997, the government extended financial support to finance houses that were burdened with a growing mountain of nonperforming property loans, and 16 of the companies were ordered to cease business on June 27. In other words, Thailand faced a domestic financial crisis before the currency crisis occurred.

On May 15, 1997, the Thai government raised short-term interest rates and intervened in concert with its neighbors to defend the baht against large-scale selling by hedge funds. Although these efforts proved successful in the short term, one result was that the Thai authorities found themselves with a huge short position in dollar futures.

Thailand's foreign exchange reserves for the last 10 days of June (\$35 billion) were roughly the same as the levels in April and May. Adjusted for the short position in dollars, however, the country's foreign exchange reserves effectively came to only \$5 billion—the same as those of Mexico just before it had to devalue the peso. As a result, on July 2, the baht went over to a managed float, losing some 20 percent of its value by the end of the month. Although the International Monetary Fund launched a rescue program on August 20, capital continued to flow out of the country until the end of that year as foreign banks, in particular, recalled loans. (See Figure 1.) The rescue package proved to be of no avail, and the baht continued to depreciate.

(2) Indonesia

Following the baht's devaluation, the Philippine peso, the Indonesian rupiah and the Malaysian ringgit began to

weaken against the dollar, and this continued until the end of August. The rupiah, in particular, fell even more sharply than the baht had done, and the Indonesian economy contracted by 9.4 percent in 1998—more than that of any other Asian country despite the fact that Indonesia's economy had performed better than that of any other ASEAN member and the country had a relatively low current account deficit.

Until Indonesia was actually hit by the currency crisis, little mention was made of any vulnerability. Standard and Poor's, for example, had given Indonesian debt an investment-grade rating (BBB) on account of the country's (1) sound and prudent fiscal policies, (2) its high rate of savings and investment, which had helped the economy to grow at 7 percent to 8 percent, and (3) a trade structure that was not overreliant on commodity prices.

As soon as the baht had fallen, however, the rupiah came under attack. On July 21 it fell by 7 percent in one day, and on August 14 the Indonesian authorities abandoned the band within which they had previously tried to keep it. They then raised interest rates and intervened in the foreign exchange market. Finally, on October 31, the International Monetary Fund announced a support program.

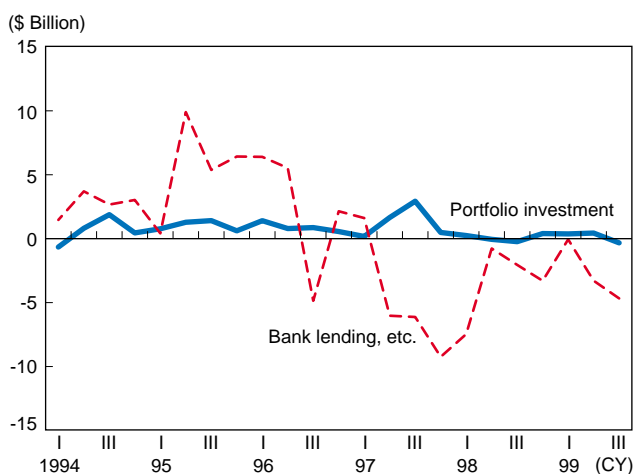
Like Mexico and Thailand, Indonesia therefore managed to move to a floating rate system without losing most of its foreign exchange reserves. It also reached agreement with the International Monetary Fund early on and was able to receive assistance. In spite of that, however, the crisis deepened.

The first stage of this phase was November 1997—just after the International Monetary Fund had announced its program of support for Indonesia. In what appears to have been an attempt to demonstrate both at home and abroad its intention of reforming the financial system, the Indonesian authorities closed 16 of the country's banks. Contrary to what had been intended, however, there was a run on the country's commercial banks, and depositors transferred their money to state-run and foreign banks or sent it overseas.

The second stage began in December 1997. Until then, the rupiah had fallen to roughly the same extent as other ASEAN currencies. However, on January 15, 1998, when Indonesia reached a new agreement with the International Monetary Fund, the currency resumed its slide. On January 23 the exchange rate hit \$1 = Rp15,000 at one stage—less than one-sixth its pre-crisis level.

Although the program was designed to induce economic reform, the Soeharto government found it difficult to implement, and it had to be repackaged several times. As a result, the market lost confidence in the Soeharto government, and what had been an economic crisis became a political one. The main aim of the package was to achieve structural reform, but cuts in gasoline subsidies and higher electricity charges led to social disorder. This was exacerbated by the discovery during ne-

Figure 1. Thailand: Net Capital Flows



Source: *International Financial Statistics*, International Monetary Fund.

gotiations with the International Monetary Fund that President Soeharto had granted certain privileges to some of his “cronies.”

However, with the appointment of President Habibie on May 21 and the announcement of a plan for resolving the private sector’s foreign debts, the crisis finally began to ease.

(3) South Korea

In November 1997 the won plunged. This was the result of contagion from Indonesia, where South Korean investors had begun to lose money as loans to Indonesian borrowers became nonperforming. However, the year before, South Korea’s current account deficit had reached the equivalent of 4.7 percent of GDP while capital inflows in the form of portfolio investment and bank borrowings had reached the equivalent of 4.4 percent and 5.1 percent, respectively.

Moody’s had already warned in May 1996 that South Korea’s increased reliance on short-term debt exposed it to the risk of a sudden change in investor expectations. As the activities of foreign banks in South Korea were restricted, banks from industrial countries increased their lending to local banks significantly. Then, in the early part of 1997, there was a series of corporate failures, including those of Korea First Bank and the Kia Group. At the same time, the won trended lower against the dollar.

In November the won lost 20 percent of its value. This was in reaction to the fact that foreign banks had begun to refuse requests by Korean banks to roll over their foreign-currency debt. In addition, the situation in Japan, where the yen had weakened as a result of confusion over how the country’s bad debt problem should be resolved, was also putting downward pressure on the won. On November 19 the Korean government announced a plan to deal with the bad debt problem as well as a wider trading band for the won. However, the won continued its descent. Similarly, the government announced on December 3 that it had agreed a \$35 billion package with the International Monetary Fund; but this, too, was not enough to stop the won’s slide.

The short-term foreign debts of Korea’s banks exceeded the country’s foreign exchange reserves, which were deposited with the commercial banks to help their cashflow. As a result, available foreign exchange reserves were actually quite limited. Given also that many Korean banks would have been forced out of business if a significant number of foreign investors had refused to roll over their loans, a further agreement was reached on December 24 that obliged such investors to roll over such loans. This succeeded in stopping the won’s slide, and the currency began to stabilize.

5 The Russian Virus

On August 17, 1998, Russia announced that it was, to all intents and purposes, defaulting. Since the shock

therapy it had received in 1992, Russia had gradually moved to a market economy and privatized enterprises formerly run by the state. However, these enterprises had failed to become players in the market economy and had retained many of their inefficiencies as a result of soft budget constraints—i.e., a continued reliance on government subsidies. Coupled with an embryonic tax collection system, these constraints exacerbated the country’s fiscal deficit.

In 1995 Russia adopted an exchange rate corridor or band (\$1 = Rb4,300–Rb4,900) and a more restrictive monetary policy that succeeded in reducing consumer price inflation from 130 percent in 1995 to 22 percent in 1996. In 1996 President Yeltsin was reelected, raising hopes that the political situation would remain stable, and foreign financial institutions were allowed to tender for government bonds. As a result, an increasingly large percentage of government bonds were purchased by foreigners, who rushed to invest in the country in the belief that it was heading for a boom. This helped to stabilize the exchange rate and prices (1997 = 11%). In 1997, GDP grew for the first time since the breakup of the Soviet Union.

As George Soros has pointed out, the fact that holders of short-term Mexican bonds emerged unscathed from the tequila crisis acted as an incentive for foreign investors to increase their holdings of Russian government bonds.³ By the end of 1997, nonresidents held as much as \$20 billion in foreign debt in the form of GKO’s (i.e., short-term government paper) alone, while Russia’s foreign exchange reserves came to only \$13 billion. Meanwhile, Russian financial institutions were also increasing their holdings of Russian government bonds by borrowing foreign currency instead of lending to Russian companies.

As a result, only government bonds and the banks became part of the world of international finance, while the infrastructure needed for a market economy to function failed to develop. When the Korean *chaebol* that had suffered losses in the crisis that hit Indonesia in the autumn of 1997 then started to sell their holdings of GKO’s, the ruble weakened and interest rates rose.

In January 1998, the ruble was redenominated at one-thousandth of its previous value and allowed to float in a 15-percent band around a central rate of \$1 = 6.2 new rubles. With oil prices also falling, the ruble came under further selling pressure. In May the government raised the discount rate from 50 percent to 150 percent, but found it increasingly difficult to issue bonds denominated in rubles. As a result, in June-July it issued high-coupon dollar bonds at rates of 11.75 percent for five-year maturities and 11 percent for 10-year maturities.

However, as soon as the market realized that as much as Rb1 billion in ruble-denominated government bonds were due to be redeemed every week, the selling pressure on the ruble increased. Redemptions of GKO’s owned

by nonresidents meant ruble sales and capital outflows. In addition, the fact that Russian banks had borrowed short-term from foreign banks by using GKO as collateral and faced margin calls as these fell in value meant not only that they were unable to roll over their positions, but also that they had to sell them.

As the country’s foreign exchange reserves were used up in the defense of the ruble, the selling pressure increased even more. On July 20 Russia received a \$4.8 billion loan from the International Monetary Fund, but this proved insufficient. Then, on August 17, 1998, the Russian government lowered its corridor for the ruble to \$1 = Rb6–Rb9.5 and declared a 90-day moratorium on private foreign debt. At the same time, it closed the GKO market and announced that it was unilaterally refinancing, using long-term debt.

After that, the ruble plunged, falling to \$1 = Rb13.7 by the end of August, Rb15.91 by the end of September and Rb18.56 by the end of December. Meanwhile, the price of 11.75-percent five-year dollar-denominated government bonds also plunged, hitting 16.7 (or a yield of 86.4%) on October 9. (See Figure 2.)

The closure of the GKO market deprived banks of their ability to settle domestic transactions, and it was not until February 23, 2000, that the market was reopened. In 1998, consumer price inflation reached 85 percent, while the real rate of economic growth fell to -4.9 percent from the 0.9 percent recorded in 1997.

Russia had been considered “too big to fail,” and its nuclear arsenal had been seen as the collateral for foreign loans. Until the crisis occurred, the view had been that the International Monetary Fund and the industrial economies would come to the rescue with an emergency package. Russia’s *de facto* default prompted investors to reconsider the credit risk involved in holding financial assets not only from emerging markets, but also from industrial economies.

II Crises as Self-Fulfilling Predictions

As we have seen, while the situation in each country differed in many respects, it is possible to detect common elements in the causes and process of each crisis. In this section we shall look at the economic fundamentals and policies that led to the crises and try to describe schematically the process whereby a currency crisis combined with a domestic financial crisis to produce such a deadly result.

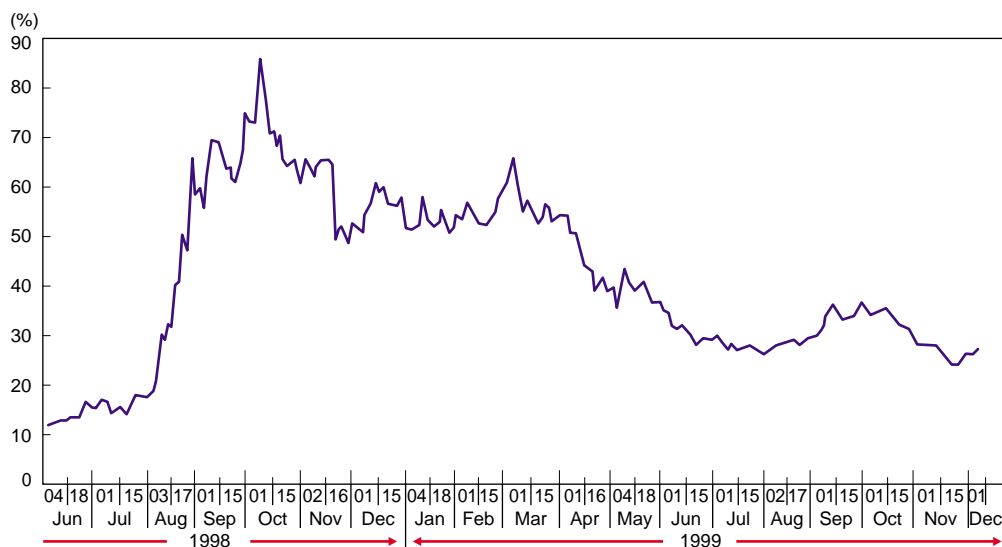
1 The Dollar Peg as a Catalyst of Capital Inflows

The solution to the Latin American debt problem of the 1980s and the end of the Cold War transformed developing countries into emerging markets. Politically, the end of the Cold War destroyed the Iron Curtain separating East and West while, economically, it removed the barriers between North and South.

The developing countries pursued economic reform and joined the global economy with their plentiful supplies of low-cost labor. As the risk of unilateral nationalization, which had so often proved a reality in developing countries, receded, capital flowed in from the industrial economies in increasing amounts. This process was intensified by the low rates of interest that prevailed in the industrial economies during the early 1990s.

Following these economic reforms and the first signs of an enhanced growth potential, direct investment from the industrial economies increased as companies sought to take advantage of the plentiful supplies of low-cost labor available in the developing economies. This helped the industries of these countries to become more sophisticated and marked the beginning of a period of high

Figure 2. Yield on Dollar-Denominated Russian Government Bonds (Maturing in June 2003)



Source: Bloomberg L.P.

growth. Hopes that these high rates of growth would be sustained led to a lower risk of default and forecasts that share prices would rise over the long term. This, in turn, led to an increase in portfolio investment. Similarly, financial deregulation (e.g., the removal of restrictions on the mobility of capital) as part of these economic reforms led to an increase in short-term capital inflows. Thus, developing countries came to be referred to as emerging markets.

This virtuous cycle of economic expansion and capital inflows was further assisted by the fact that the currencies of these developing countries were pegged to the dollar. By hinging their currencies (at nominal exchange rates) to the dollar, these countries, which in pre-reform days had suffered from high rates of inflation and whose economic policies were distrusted by the markets, sought to introduce discipline into these policies.

The adoption of a dollar peg system led investors from the industrial countries to believe that the risk of devaluation had receded and to increase their investments in emerging markets (where interest rates were higher than in their home countries) in the form of bank deposits and short-term government bonds. Similarly, the adoption of a dollar peg system led companies in such developing countries to disregard foreign exchange risk and to engage in a capital investment boom financed by increasing amounts of unhedged low-interest foreign-currency debt. This only boosted the rate of economic growth in these countries further.

Moreover, by tying their currencies to the dollar, those Asian countries that were competing with Japan—either directly or indirectly—gained a competitive edge when the dollar weakened against the yen in the early 1990s and enjoyed a boost to their rates of economic growth from the resulting increase in exports.

Conversely, when the dollar strengthened against the yen, thereby tending to reduce the rate of economic growth, there was a surge in what was known as yen “carry trades,” in which foreigners continued to invest actively in emerging markets by borrowing yen at a low rate of interest and lending in the local currency (pegged to the dollar) at a high rate of interest. These factors only served to boost capital inflows and created a bubble in property and other assets.

Although adopting a dollar peg system helped to reduce inflation, the rate of inflation was still higher than in the United States. As a result, the real exchange rate rose. Amplified by growing capital inflows, this upward pressure on the foreign exchange rate increased the risk that falling exports and rising imports would exacerbate the current account deficit. The financial authorities in these developing countries therefore tried to ease this upward pressure on their foreign exchange rates by intervening in the market.

If the intervention is unsterilized—i.e., if the central bank concerned supplied the market with local currency in exchange for dollars—the effect would be to loosen

monetary policy with the result that the economy would eventually overheat. If the intervention is sterilized—i.e., if the central bank soaked up the base money (in other words, the cash circulating in the economy plus the reserves deposited by commercial banks with the central bank) supplied in the course of intervention by selling short-term government bonds in the market, short-term interest rates would tend to rise. This would then induce even more capital inflows from foreign investors attracted by the higher interest rates. This means that, far from deterring the kind of massive capital inflows that occur on the eve of a currency crisis, intervention in the foreign exchange market can actually be counterproductive.

The result is that abnormal capital inflows continue and the current account remains in deficit. In such circumstances, any move from a dollar peg system to a floating rate system can actually backfire and trigger a sharp rise in the foreign exchange rate. The question then is how long this effect can last.

2 The Sustainability of Capital Inflows

The currency crises that hit Mexico and then other countries in the 1990s appear to indicate that the market’s view was that these countries’ huge current account deficits and their capital inflows were unsustainable in the long term.

The notion of sustainability is often discussed in connection with fiscal deficits, but it can also be applied to current account deficits. So long as a country’s growth rate exceeds its interest rate, the ratio of the national debt—i.e., the cumulative total of each year’s budget deficit—to GDP can be held at a certain level. Otherwise, the ratio will continue to rise and eventually the national debt will exceed both GDP and domestic financial assets with the result that no one will be prepared to buy the government’s bonds and it will be forced either to default or to increase taxes and cut spending.

Similarly, the ratio of a country’s outstanding foreign debt—i.e., the cumulative total of each year’s current account deficit—to GDP will not exceed a certain level and can be sustained so long as that country’s growth rate exceeds its interest rate. If foreign loans are used to increase capital investment and boost the rate of economic growth, the current account deficit is likely to become more sustainable. This is why currency crises are considered unlikely in cases where capital inflows take the form of direct investment.

If, however, huge capital inflows do not lead to a higher rate of economic growth over the longer term and the money is used, for example, to invest in property, to fund domestic consumption or purchase government bonds, investors will question the sustainability of such inflows.

If a country has a huge current account deficit—i.e., huge capital inflows—and there is little difference between its rate of economic growth and its interest rate, any change in its economic situation can threaten the

sustainability of those inflows. An example of this is what happened to Mexico in the early 1990s. When economic growth failed to rise at the same rate as the inflow of capital and when US interest rates rose in February 1994, the resulting threat to the sustainability of Mexico's capital inflows led to their reduction and the start of capital outflows.

Also, if continued capital inflows lead to an increase in foreign debt, investors will require a risk premium on that country's debt. The resulting increase in interest rates can then threaten the sustainability of capital inflows to that country even if its rate of economic growth remains unchanged.

Fluctuations in a country's foreign exchange rate can also affect the sustainability of capital inflows. If the country's current account deficit increases significantly, a mechanism will come into play whereby the currency will weaken and the current account deficit will decline as exports increase and imports decrease in order to sustain capital inflows. At the same time, the rate of economic growth will rise. However, Mexico and the other countries hit by the currency and financial crises in the 1990s all had dollar peg systems, albeit applied with varying degrees of stringency. Domestic inflation therefore pushed up the real foreign exchange rate of their currencies, thereby exacerbating their current account deficits and threatening the sustainability of their capital inflows.

Before that happens, these countries should abandon their dollar peg system. However, if they move to a floating rate system when huge amounts of capital are still flowing in, they risk putting upward pressure on their currencies and worsening their current account deficits.

Once investors begin to question the sustainability of a country's current account deficit, other countries with current account deficits on a similar scale and with similar trade structures will also be affected. For example, the fact that intraregional trade accounts for some 50 percent of the trade by Asian countries (including Japan and China) means that, if any one country devalues, the others will lose some of their competitive edge as exporters, and the sustainability of their current account deficits will be affected. This process explains how a currency crisis can spread from one country to another.

3 The "Twin" Crisis: Why Predictions Tend to Be Self-Fulfilling

Once doubts arise about the sustainability of a country's current account deficit, huge capital inflows can become huge capital outflows. Foreign financial institutions will scramble to call in loans, and short-term capital will flow out of the country. In such a situation it is difficult to maintain a dollar peg system, and countries tend either to devalue their currencies or move to a floating rate system.

However, what makes the financial crises of the 1990s different is the fact that currency devaluation was not enough to stabilize the situation. Banks and companies in developing countries with a dollar peg system tend to contract huge foreign-currency debts, which only increase in local currency terms if the currency is devalued. As a result of this and a fall in asset values produced by the outflow of capital, many companies then become insolvent. The resulting deterioration in the quality of the loans on the books of banks in developing countries then tends to lead to a financial crisis.

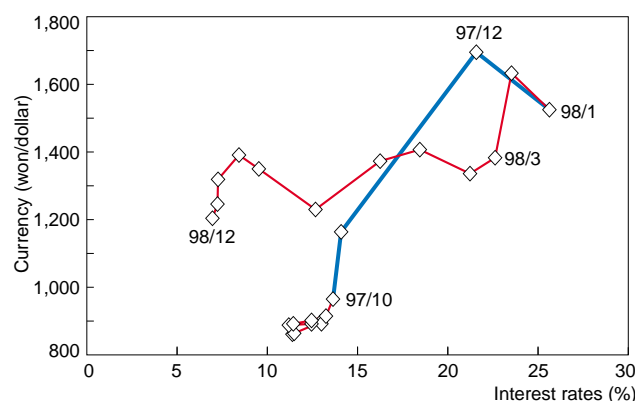
When this happens, a flight to quality by local investors begins and the resulting outflow of capital only accentuates the crisis. Meanwhile, companies that have borrowed foreign currency without hedging their exposure rush to buy dollars to cover their positions, and this puts further downward pressure on the local currency.

As even more companies develop cashflow problems, many debtors find themselves unable to keep up interest payments, and an increasing number of loans become nonperforming. If the financial authorities try to stop the currency from going into free fall by raising interest rates, the financial crisis will only deepen and the currency fall even further. Figure 3 shows how in October–December 1997 a sharp fall in the Korean won and a sharp rise in interest rates went hand in hand.

This interaction between currency crisis and financial crisis aggravated what was already a bad situation—hence the term "twin" crisis. When such a situation develops, predictions by foreign investors that the currency in question will depreciate are highly likely to become self-fulfilling. The mechanism by which this happens is as follows: capital outflows trigger a currency depreciation; this, in turn, leads to a deterioration in corporate balance sheets; and the recession deepens, putting further downward pressure on the currency.

Another feature that sets the currency crises of the 1990s apart is the way in which they spread. The mecha-

Figure 3. South Korea: The Fall in the Currency and the Rise in Interest Rates (from January 1997)



Note: Interest rates are money market rates.

Source: *International Financial Statistics*, International Monetary Fund.

nism by which this happened was that the occurrence of a crisis in one country increased investor awareness of and aversion to risk in general. An example of this was the currency crisis in Thailand. What appears to have happened is that investors who had become enchanted with the “Asian miracle” were rudely awakened, and this abrupt change in market expectations triggered an outflow of capital from Eastern Asia.

4 Limitations of Traditional Remedies

The conventional approach to dealing with a currency crisis is to intervene in the foreign exchange market and raise interest rates in order to restore confidence in the currency and reduce imports.

As International Monetary Fund Deputy Managing Director Stanley Fischer puts it: “When they approached the International Monetary Fund, Thailand and South Korea had perilously low reserves, and the Indonesian rupiah was excessively depreciated. The first order of business was to restore confidence in the currencies. To achieve this, countries have to make their currencies more attractive, which requires increasing interest rates temporarily—even if higher interest costs complicate the situation of weak banks and corporations.”⁴

Leaving aside the issue of moral hazard, a country that has been hit by a currency crisis needs to receive an emergency loan from the International Monetary Fund as the lender of last resort in order to reassure investors and avert massive capital outflows.

The decision on January 31, 1995, to grant Mexico \$50 billion in International Monetary Fund support (more than the \$33 billion in short-term external debt owed by Mexican banks) halted the slide of the peso that had begun when the crisis started on December 20, 1994. In contrast, the International Monetary Fund’s \$4.8 billion loan to Russia in July 1998 only served to accelerate the outflow of short-term capital when it was discovered that the amount was insufficient to cover the redemption costs of GKO’s. This, in turn, led to a devaluation of the ruble and the government’s declaration of *de facto* default.

However, when a crisis is not simply a currency crisis but also a financial crisis, there is a high risk that the conditions attached to an International Monetary Fund loan—i.e., higher interest rates, fiscal reconstruction and structural reform—may worsen the crisis.

Let us begin by examining the first condition, namely, higher interest rates. For companies and banks with huge debts, raising interest rates can actually make their situation worse and push them over the edge. With foreign creditors refusing to roll over loans, a vicious cycle of currency depreciation and rising interest rates develops. In the case of Mexico, South Korea and Indonesia, higher interest rates made the recession and the social disruption worse. As the political and social situation in these countries deteriorated, investor confidence in their cur-

rencies waned. Nevertheless, attempting to deal with a financial crisis by easing monetary policy will only lead to currency depreciation and further deterioration in corporate balance sheets.

The typical way of dealing with a currency crisis is to try to reduce the fiscal deficit as well as raise interest rates, thereby restoring some confidence in the currency and discouraging imports. Although such a policy should clearly be adopted while capital is still flowing into a country and before a crisis actually occurs, once a crisis has started such a policy can further undermine confidence in the currency and actually deepen the crisis—as happened in Indonesia when attempts to reduce subsidies led to rioting.

Where does this leave structural reform—the third condition (along with higher interest rates and fiscal reconstruction) attached by the International Monetary Fund to its rescue packages? Countries that are likely to be hit by crises are not ones with strong economic systems to begin with, so it will not be easy for them to implement structural reforms. If countries nevertheless promise to implement such reforms, investors who are not fully aware of the situation will think that the problem is much worse than it really is and lose even more confidence in the countries concerned. In other words, unless structural reforms—e.g., the privatization of state-run companies and the resolution of nonperforming bank loans—are implemented properly and investor confidence restored, they will not help to end a crisis.

Therefore, while the normal way of dealing with a crisis is essential as a preventive measure, it can actually exacerbate a financial crisis if it is adopted after a crisis has occurred—as happened during the international currency crises of the 1990s. In fact, the baht continued to fall even after agreement was reached on an International Monetary Fund rescue package (on August 11 and 20, 1997). There was only a lull in the crisis after the financial crisis stabilized when the newly elected Chuan government injected taxpayer money into the problem banks and put them under temporary public control in January 1998.

Similarly, the rupiah failed to stabilize even after Indonesia had received two International Monetary Fund rescue packages (on November 5, 1997, and January 15, 1998). Instead, the vicious cycle of a falling currency and rising interest rates continued. This cycle only ended in June 1998, when a plan was drawn up for dealing with private-sector foreign debt. Another example is South Korea, where the won continued to fall even after agreement on a rescue package was reached on December 3, 1997. The won’s slide was only stemmed when it was announced on December 24 that creditors would be obliged to roll over their bank loans.

In Malaysia, the government lowered interest rates in August 1998. The following day, it introduced controls on short-term capital and fixed the exchange rate at \$1 = RM3.8. These capital controls can be regarded as a

broader-based equivalent of the compulsory rollover of bank loans in Korea.

III The Spread of the Russian Virus to the Industrial Economies

1 The Differences Between the Asian Flu and the Russian Virus

Although the baht crisis of July 1997 spread to Thailand's neighbors and plunged the economies of Southeast Asia into crisis, surprisingly enough the contagion did not spread to other emerging markets. After peaking in October 1997, the risk premium on Latin American and Eastern European foreign-currency bonds headed lower. The May 1998 issue of the Bank for International Settlements' *Quarterly Review: International Banking and Financial Market Developments* therefore commented: "Finally, the recovery of most Asian currencies and the general decline in the risk premia attached to the debt of emerging market countries showed that the integration of such economies into the global financial system was not fundamentally called into question."

Nor, generally speaking, did the Asian currency crisis have a markedly disruptive impact on the financial systems of the industrial economies. The exception was Japan, which shipped 40 percent of its exports to the rest of Asia. Long-term interest rates in Japan, the United States and Europe fell steadily from mid-1997. Similarly, the plunge in the Hong Kong stock market in October 1997 had only a momentary impact. Again, the exception was Japan, where, in November, the failure of a number of major financial institutions shook the country's financial system. In fact, it would be no exaggeration to say that, from the baht crisis to the outbreak of the Russian crisis, the bond and stock markets of the industrial economies—and especially those of the United States—enjoyed a boom as a result of a flight to quality from the turmoil in Asia.

However, the reaction of financial markets around the world to Russia's unilateral declaration of *de facto* default on August 17, 1998, was very different. Emerging market currencies, bonds and shares fell, and even the stock markets of the industrial economies plunged. In Japan, the United States and Europe the yields on benchmark government bonds fell sharply, and markets became highly sensitive to differences in credit risk and liquidity. Yield spreads widened sharply between corporate and government bonds, high-grade and low-grade corporate bonds, deposit rates and short-term government bond yields, as well as between benchmark government bonds and other government bonds of the same country. The flight to quality was accompanied by a flight to liquidity.

In Japan, the coupon on new 10-year government bonds reached its lowest level (0.775%) ever on October 2, while the yield spread between corporate and government bonds widened. Similarly, the Tokyo stock market fell to its lowest level for the 1990s on October 9 (12,879) as markets displayed symptoms of severe stress.

Let us now examine how it was that the Russian virus was transmitted to markets in the industrial economies.

2 Convergence Trades and the LTCM Crisis

Convergence trades seek to take advantage of temporary price divergences (caused by fluctuations in interest rates and foreign exchange rates) between two classes of securities that, historically, have tended to move in tandem and can be expected to converge again. This investment strategy is also referred to as "relative value arbitrage."

Advances in information technology have made it possible to detect the various risks inherent in bond price fluctuations. Securities with similar characteristics can then be selected on the assumption that the correlation between their prices will revert to its historical norm. By going short of the security trading at the lower yield (or higher price) and long of the security trading at the higher yield (or lower price) and then waiting for their prices to converge, investors can profit from one or other (or both) transactions. The point about this investment strategy is its low risk. This is because the prices of the two securities will move in the same direction even if interest rates in general fluctuate as a result of changing economic conditions.

Increasing use of this arbitrage strategy on many of the world's markets reduced spreads between different types of bonds. One example of this is what happened in the run-up to the adoption of the euro. When the timetable for the changeover was announced in April 1989, investors took the view that any foreign exchange risks attached to the resulting capital flows would be borne by the authorities rather than the markets. They then took aggressive positions using convergence trades, and, as a result, yield spreads between government bonds of different European countries narrowed.

However, sudden changes in market sentiment can actually cause prices to diverge rather than converge in the way convergence trades require. An example of the type just mentioned occurred in June 1992 when Denmark refused to sign the Maastricht Treaty. Investors began to doubt that European Monetary Union would come about, and spreads between German, Italian and British bonds began to widen again.

One of the prime movers behind this is said to have been hedge funds—especially those of George Soros, which sold sterling for dollars.⁵ Other investors also followed suit in the belief that, sooner or later, the pound would be devalued.

Bond convergence trades were a key investment strategy of Long-Term Capital Management (LTCM), the investment fund that fell victim to the Russian crisis. Some 80 percent of its assets were bonds issued by G-7 governments, while the rest consisted of corporate bonds, emerging market bonds and a wide variety of asset-backed securities (ABSs). All of these were used as repos, reverse repos or in lending operations—to take long and short positions.

In the first half of 1998 LTCM used convergence trades to take positions in European bonds based on the fact that the euro was due to be introduced in January 1999. For example, it went long in Italian and Spanish government bonds and short in German government bonds. LTCM had also gone long in junk bonds on the basis that an expanding US economy would reduce the credit risk of US companies, and, as it had predicted, spreads on US corporate bonds narrowed.

LTCM's success encouraged others, such as hedge funds, banks and stockbrokers, to carry out convergence trades even on their own accounts. In turn, their success encouraged banks that lent to hedge funds and other institutions that engaged in highly leveraged trades to ease their lending conditions and allow collateral to be valued at market. There was also a surge in short sales of liquid bonds and purchases of high-risk bonds in expectation that yields would converge.

As an example of such trades, Paul Krugman of MIT cites short sales of German government bonds and purchases of Danish mortgage bonds as well as short sales of Japanese government bonds and purchases of Russian government bonds.⁶ It has also been reported that LTCM hedged its long positions in Russian government bonds by taking short positions in Eastern European and Latin American bonds, while hedging highly illiquid long positions with short positions in other markets.

When the Russian crisis broke out at the end of August 1998, LTCM had assets of more than \$125 billion and positions in futures, swaps and OTC derivatives (options, etc.) with a notional principal of \$500 billion, \$750 billion and \$150 billion, respectively. In contrast, it had \$4.8 billion in shareholder equity at the beginning of 1998, giving it a leverage factor of more than 25.⁷

Given its investment strategy (mainly convergence trades), its assets and its leverage, LTCM was therefore extremely vulnerable to any sudden changes in market sentiment.

3 The Flight to Quality and Liquidity

Foreign investors suffered considerable losses as a result of Russia's devaluation of the ruble and its *de facto* default. However, the disruption this caused in many other markets was on a totally disproportionate scale.

Russia's default cast doubt on the assumption that any investment in emerging market government bonds would be protected by some sort of public guarantee or interna-

tional safety net. Just how uncertain investing could be was highlighted again shortly afterwards when, on September 1, 1998, Malaysia introduced capital controls that prevented nonresident investors from remitting the proceeds of their investments for 12 months.

As a result of these events, investors began to reassess both investment risk—and not only that of emerging markets, but even that of bonds issued by governments and companies in industrial economies—and the credit risk of market players (especially hedge funds) and financial institutions.

By leveraging its own capital many times over and using techniques such as securities lending and futures trading, LTCM brought about its own demise. The fact that what had been considered a low-risk strategy—i.e., convergence trades—had turned out to be highly risky caused investors to conclude that positions whose risk had been considered acceptable were actually too risky. In addition, fears that LTCM would hasten to close out positions in order to reduce its leverage factor also caused market players to hasten to reduce their own positions.

This herd mentality created a “sellers only” market, exacerbating the already low liquidity in many of these vehicles and making trading very difficult. As a result, activity became concentrated in markets considered to be much safer and more liquid. And even in such markets, the bid-ask spreads widened. Not only credit risk, but also liquidity risk increased, leading to unprecedented price fluctuations. Spreads that had been narrowing as a result of convergence trades suddenly widened again.

The increased credit risk caused spreads between emerging market government bonds denominated in dollars and US treasuries to widen even more than they had done during the Asian crisis of 1997. According to the BIS *Quarterly Review* for March 1999, the spreads of Mexican and Argentine government bonds over US treasuries also widened nearly as much as they had done during the tequila crisis.

Bank lending to emerging markets also declined drastically. Outstanding loans to these countries fell by \$35 billion during the third quarter of 1998. Lending to Asian countries declined for five quarters in a row, and outstanding loans retreated to the same level as at the end of 1995—i.e., before the Asian crisis occurred. Similarly, outstanding loans to Russia fell by \$10.7 billion, while loans to Latin America (especially Brazil) fell by \$8.1 billion.

Even in industrial countries, investors became acutely aware of credit risk. Spreads between corporate and government bonds widened sharply in such countries, particularly in the United States. In the case of low-grade corporate bonds, the rise in yield was such that these borrowers found it increasingly difficult to issue new paper. In the market for interest rate swaps, the increased credit risk of financial institutions paying a floating rate

of interest led in the case of the dollar swap market to the spread over yields on government bonds reaching its highest level since the financial crisis of 1990, eight years earlier, when many savings and loan (S&L) institutions had to be rescued. Similarly, spreads in the yen and mark swap markets widened to levels not seen since 1994.

As a result of the increased liquidity risk, investors in the United States, Britain and Japan favored benchmark bonds at the expense of less liquid issues with similar maturities, whose spreads tended to widen. Meanwhile, in the euro zone, the yield spreads of other government bonds widened over those of German government bonds.

The Russian crisis and the LTCM debacle thus had a major impact on the world's financial markets. The crisis continued even after LTCM's creditors decided on September 23, 1998, to inject more capital into the company and after the federal funds rate was cut on September 29. It was only after the Federal Reserve Open Market Committee (FOMC) decided at an unscheduled meeting held on October 15 to lower its target rate for federal funds, and the International Monetary Fund announced a rescue package for Brazil in mid-November, that the crisis began to abate as spreads started to narrow again, stock markets rallied and the primary market for corporate bonds recovered.

Perhaps the Russian crisis and the LTCM debacle heightened investor awareness of credit risk and liquidity risk. Although spreads have begun to narrow, some have failed to return to pre-crisis levels for whatever the reason. One example is the spread between Japanese government-guaranteed dollar bonds and US treasuries.

4 The Effects on Japan

As Japanese bank lending to Russia had been relatively limited, the crisis would not have had a major impact on Japan under normal circumstances. However, the way in which it brought home to investors the reality of credit risk and liquidity risk only exacerbated the financial crisis that hit Japan in November following the failure of a number of leading financial institutions and also raised tension in the markets.

In the short period of only two days (October, 7 and 8, 1998), the yen appreciated by as much as ¥20 against the dollar. Until the Russian crisis occurred, investors engaging in carry trades by borrowing at low rates in yen and buying high-coupon emerging market bonds were forced by the big capital losses they suffered to trim their balance sheets. In order to close out their positions, they had to buy back the yen they had sold short. This produced the biggest single-day movement in the yen-dollar rate since Japan moved to a floating rate system in 1973.

In Japan, the failure of a number of the country's leading financial institutions in November 1997 had height-

ened investor awareness of credit risk and led to a widening of spreads on corporate bonds. The Russian crisis and the LTCM debacle only reinforced this trend, which became quite acute. The lower the rating and the longer the maturity, the more the spreads widened.

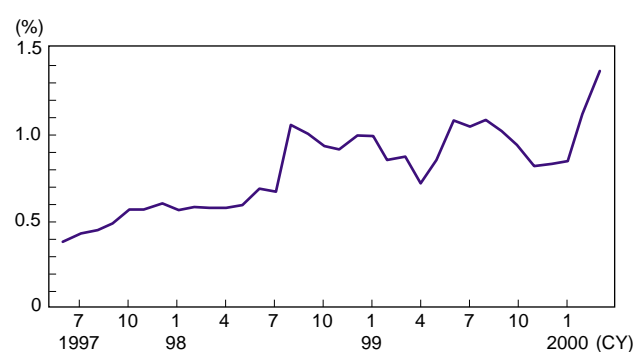
With investors aware of the credit risk of Japanese borrowers, the Japan premium (i.e., the premium that Japanese banks had to pay in order to borrow foreign currencies without collateral) widened to the level it had reached at the end of 1997. Even then, foreign banks were reluctant to lend dollars, and Japanese banks had to carry out dollar-yen swaps by buying dollars against yen on the spot market and selling dollars against yen on the futures market. What this meant was that Japanese banks were borrowing dollars with yen as collateral. European banks, which had made big profits from such currency swaps, used this yen to invest in Japanese short-term government securities. As a result, yen deposit rates turned negative at one stage and rates on three-month government paper went as low as 0.005 percent in mid-October.

The spread between Japanese government-guaranteed dollar debt and US treasuries also widened sharply before Moody's downgraded Japanese government debt (on November 11). It may seem strange to yen-based investors that dollar-based investors should have demanded a big risk premium on Japanese dollar-denominated government bonds at a time when yields on Japanese yen-denominated government bonds were hitting all-time lows as a result of the flight to quality and liquidity triggered by the Russian crisis.

However, as can be seen in Figure 4, yields on 10-year Japanese government-guaranteed dollar bonds, which were some 0.5 percent higher than 10-year US treasuries before the Russian crisis because of the difference in liquidity, have risen by about 1 percent since August 1998 as investors have sought an even bigger risk premium.

Similarly, dollar-based investors can achieve a yield pick-up over US treasuries by converting the yield on Japanese government debt to a dollar yield by swapping

Figure 4. Yield Spread Between Japanese Government-Guaranteed Dollar Bonds and US Treasuries



Note: The Japanese government-guaranteed dollar bonds are public corporation bonds maturing in July 2007.
Source: Bloomberg L.P.

both currency and yield (using a dollar-yen basis swap). This reflects not only a loss of confidence in Japanese government debt (because of its sheer scale and the fact that it has been downgraded) and the fact that a healthy fiscal position has allowed the US government to announce a buyback program for 30-year US treasuries, but also, to a large extent, the influence of the interest rate swap market.

As was mentioned above, the Russian crisis triggered a marked loss of risk tolerance by market players. As a result, the interest rate swap market has been deprived of liquidity, and the spreads demanded for swapping fixed rates for floating rates have widened considerably. Nor have dollar interest rate swap spreads narrowed since the Russian crisis. This reflects the fact that many companies brought forward their issuance programs to the middle of 1999 because of concern about the Y2K problem as well as the fact that since the beginning of 2000 there has been a surge in bond issuance by US government agencies such as Fannie Mae (the Federal National Mortgage Association).

IV The Open-Economy Trilemma

As the names Mexican tequila, Asian flu and Russian virus suggest, the currency and financial crises of the 1990s had a severe impact on other countries besides the one in which they originated. Broadly speaking, opinion on the causes of these crises and the responses to them can be divided into two opposing schools of thought.

On the one hand are those who would propound what might be called the “mad market” theory. According to this school of thought, national economies that would otherwise have continued to develop in an orderly fashion were set upon by banks, hedge funds and other investors based in industrial economies. The crises that hit these countries are regarded as having been caused by flows of hot money—similar to the mischief said to have been wrought by the gnomes of Zurich during the sterling crisis of the 1960s.

On the other hand are those who believe that the causes of the crises lie in the economies of the countries concerned and that sudden changes in capital flows supply the discipline that immoderate economic policies and negligent banks and companies badly need.

There is nothing about the crises of the 1990s that could be said to be completely at odds with either school of thought. In fact, it might be more accurate to say that the crises would not have occurred if both forces had not been at work.

Without capital inflows so massive that they threatened their own sustainability, it is doubtful whether developing countries would have been hit by crises or that the crises would have been magnified in the way they were. However, the underlying cause of the crises was

the fact that imprudent economic policies had undermined the economies of these countries to the point where the predictions of foreign banks and investors became self-fulfilling. The banking systems of these countries before the crises occurred were subject to only loose regulation, and the absence of a proper system for monitoring assets and liabilities caused the twin crisis and made a chaotic economic situation only worse.

Unrestricted capital mobility allows investors in any country to put their savings to the most productive use possible anywhere. At the same time, it restricts the ability of governments to control foreign exchange rates and implement domestic monetary policy. What the countries that were hit by currency crises in the 1990s discovered was that they could not carry out monetary policies designed for their domestic economies and maintain either a dollar peg system or unrestricted capital mobility at the same time.

In other words, it is impossible to have (1) unrestricted capital mobility, (2) fixed exchange rates and (3) domestically oriented monetary policies at the same time—hence the term the open-economy trilemma. At most, it is possible to have only two at any one time.

Industrial economies have succeeded in achieving unrestricted capital mobility and domestically oriented monetary policies by abandoning a system of fixed exchange rates. However, developing economies that are unable to pursue disciplined economic policies have adopted a system of fixed exchange rates in order to ensure discipline.

If a country has a system of fixed exchange rates, unrestricted capital mobility will conflict with domestically oriented monetary policies. If it has unrestricted capital mobility, a system of fixed exchange rates will conflict with domestically oriented monetary policies. The international financial crises of the 1990s occurred because the markets detected this trilemma.

Although unrestricted capital mobility has on numerous occasions led to financial crises, it has also brought considerable benefits to the global economy. Capital mobility, which for many years was unrestricted, was interrupted by two world wars and restricted for a long time after the Second World War. Unless there is another world war, it is unlikely that recent moves by emerging markets towards unrestricted capital mobility will be abandoned. This is another reason why it is irrational to suggest that the international financial crises of the 1990s were the result of market fundamentalism gone mad and an augury of its demise.

If markets are not to detect such open-economy trilemmas again, governments must ensure that they pursue disciplined economic policies.

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