

Banking and currency crises and systemic risk: Lessons from recent events

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Introduction and summary

Many countries worldwide have experienced serious banking and/or currency (exchange rate or balance of payments) problems in recent years with high costs in terms of reduced income and increased unemployment to their own countries as well as others. A study by the International Monetary Fund (IMF) reported that more than 130 of the IMF's 180-plus member countries had experienced serious banking problems between 1980 and 1995, and this was even before the recent banking crises in East Asia—Korea, Thailand, Malaysia, and Indonesia—as well as in Russia (Lindgren, Garcia, and Saal, 1996).

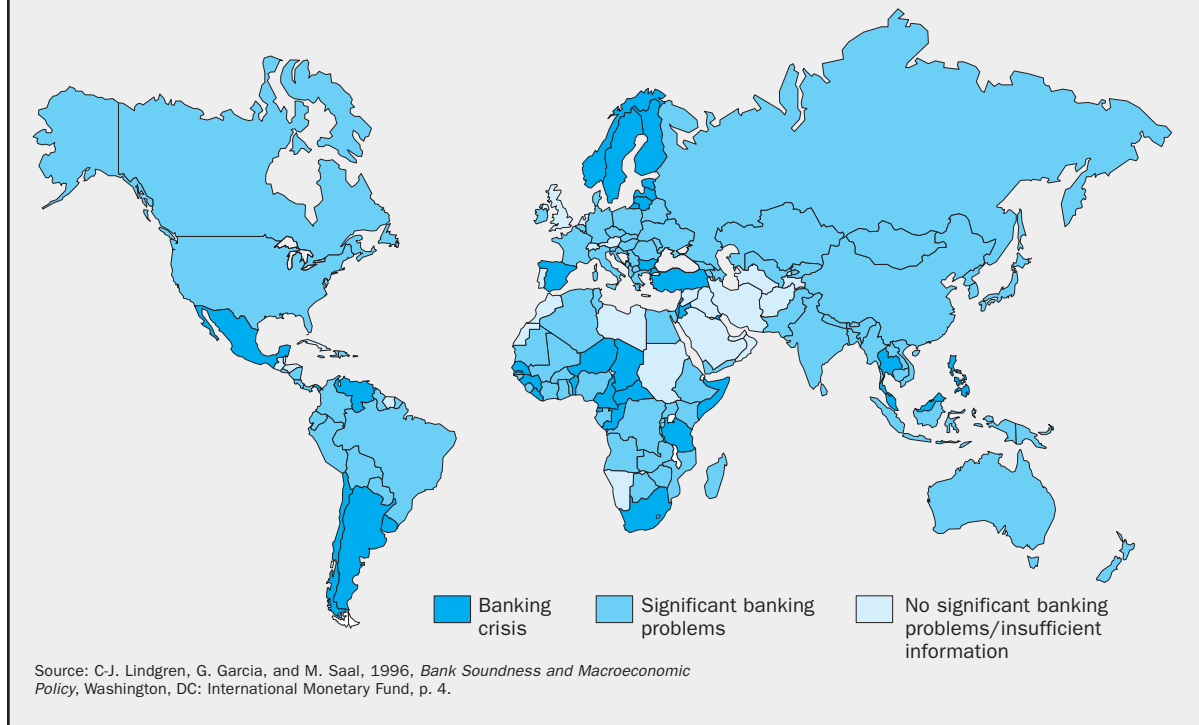
A map of countries experiencing banking crises is shown in figure 1. Lindgren et al. define serious problems to include banking crises that involve bank runs, collapses of financial firms, or massive government intervention, as well as less damaging but extensive unsoundness of institutions. With the primary exception of the U.K., the Benelux countries,¹ and Switzerland, most of the countries that avoided bank problems had no or nearly no modern banking systems. Currency crises were even more frequent than banking crises. They are typically defined as historically large depreciations in exchange rates and/or large declines in foreign reserves. Another IMF study of 53 industrial and developing countries identified 158 currency crises and only 54 banking crises in approximately the same time period (IMF, 1998a). Many countries suffered more than one such crisis during this period. A third study by Kaminsky and Reinhart (1996 and 1999) of 20 countries from 1970 to 1995 identified 71 currency crises and 25 banking crises.

This article examines these twin banking and currency crises to attempt to identify their causes, particularly any similarities and interconnections, and their implications both for the country in which they occur and for other countries through possible contagion. Lastly, the article evaluates the effectiveness of alternative

public policy initiatives introduced to mitigate if not prevent these crises and their accompanying potentially severe damage to the economy.

Not only have banking and currency crises been frequent in number worldwide, but they have often been extremely costly in terms of both declines in real output and increases in transfer payments (wealth transfers) from taxpayers to bank depositors and other financial claimants whose funds were explicitly or implicitly insured or guaranteed at par value by the government. Thus, these crises are a major public policy concern. The IMF estimated that cumulative losses in gross domestic product (GDP) from potential (trend) growth in the 158 recent currency crises in 53 countries averaged 4.3 percent of the trend GDP values in each country and 7.1 percent in the 96 crises in which any output losses were suffered (IMF, 1998a). This is shown in table 1. The average time to return to trend value was about one and a half years. The output loss was greater in emerging economies than in developed economies, although the crises lasted somewhat longer in industrial than emerging economies. The estimated cumulative output loss from potential output in the 54 banking crises was significantly greater than in the currency crises, averaging 11.6 percent in all crises and 14.2 percent in the 44 crises

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FIGURE 1**Banking problems worldwide, 1980–96**

that experienced an output loss. The loss was again greater for emerging than industrial economies. Moreover, banking crises last 3.1 years on average, twice as long as currency crises. In countries that experienced both a banking and a currency crisis simultaneously, the estimated output loss was greater than when each crisis was experienced separately. The average cumulative output loss was 14.4 percent in the 32 such crises observed and this time was greater for industrial than emerging economies.² The average time for recovery averaged about the same as for a banking crisis alone, but increased sharply for industrial countries to nearly six years.

The estimated transfer payments in support of deposit guarantees in banking crises topped 10 percent of GDP in a number of countries and exceeded 40 percent in Argentina, Thailand, Korea, Indonesia, and Malaysia (table 2).³ The magnitude of comparable transfer payments in currency crises from taxpayers to protected domestic or foreign creditors, including repayment of any loans from official international institutions, has not been estimated, but appears to have been sizable in a number of recent crises. Both the income loss and transfer payment estimates exclude the costs to other countries that may either have been adversely affected by the above problems or provided assistance to the countries experiencing the problems.

The large magnitude of these numbers and the fact that many of the crises occur concurrently across countries and give rise to widespread fear of contagion or systemic risk clearly indicate why banking and currency crises attract the attention of bankers, policymakers, and the general public worldwide. But the causes, characteristics, dangers, and other features of these crises are not often clearly delineated and analyses of these problems frequently suffer from vagueness. For example, while liquidity and solvency problems at banks may be readily visualized and differentiated, the idea of an illiquid or insolvent country is more difficult to convey. However, a sharp depreciation in exchange rates may trigger defaults by private borrowers, including banks, and by sovereign governments on their foreign-currency-denominated debt and even on their domestic currency debt, if the costs of their foreign currency debt increase sufficiently. Until recently, the explanation and analysis of banking and currency crises were largely undertaken by different researchers, many of whom were largely unaware of or uninterested in each others' contributions. This occurred in part because, until recently, currency crises were more balance of payments current (trade) account than capital (financial) account crises and the focus more of macroeconomists, while banking

TABLE 1

**Costs of crises in lost output relative to trend
(1975–97)**

	Number of crises	Average recovery time^a (years)	Cumulative loss of output per crisis^b (% points)	Crisis with output losses^c (percent)	Cumulative loss of output per crisis with output loss^d (% points)
Currency crises	158	1.6	4.3	61	7.1
Industrial	42	1.9	3.1	55	5.6
Emerging market	116	1.5	4.8	64	7.6
Currency crashes ^e	55	2.0	7.1	71	10.1
Industrial	13	2.1	5.0	62	8.0
Emerging market	42	1.9	7.9	74	10.7
Banking crises	54	3.1	11.6	82	14.2
Industrial	12	4.1	10.2	67	15.0
Emerging market	42	2.8	12.1	86	14.0
Currency & banking crises ^f	32	3.2	14.4	78	18.5
Industrial	6	5.8	17.6	100	17.6
Emerging market	26	2.6	13.6	73	18.8

^aAverage amount of time until GDP growth returned to trend. Because GDP growth data are available for all countries only on an annual basis, by construction the minimum recovery time was one year.

^bCalculated by summing the differences between trend growth and output growth after the crisis began until the time when annual output growth returned to its trend and by averaging over all crises.

^cPercent of crises in which output was lower than trend after the crisis began.

^dCalculated by summing the differences between trend growth and output growth after the crisis began until the time when annual output growth returned to its trend and by averaging over all crises that had output losses.

^eCurrency “crashes” are identified by crises where the currency component of the exchange market pressure index accounts for 75 percent or more of the index when the index signals a crisis.

^fIdentified when a banking crisis occurred within a year of a currency crisis.

Source: International Monetary Fund, 1999, *World Economic Outlook: May 1998*, p. 79.

problems were primarily the domain of microeconomists. (Analyses of both types of crises include Glick, 1999; Kaminsky and Reinhart, 1996 and 1999; McKinnon and Pill, 1998; and Rogoff, 1999.)

Banking and currency breakdowns also tend to be feared more than breakdowns in most other sectors of the economy, because the public does not appear to understand the operations of these sectors very well. Both sectors deal in finance and intangibles, which make them more difficult for the public to comprehend than sectors that deal in tangibles, such as steel, automobiles, and even communications. As a result, for many, these sectors are shrouded in mystery and lend themselves readily to fictitious accounts of their operations, particularly of the implications of problems and breakdowns. Thus, for example, most of us are more familiar and comfortable with the way firms produce automobiles and what can go wrong than with the way banks produce deposits and loans and what can go wrong there. After all, one can always kick the tires on an automobile, but it is harder to kick the interest rate on a deposit or loan. To the extent that

the adverse implications of breakdowns are exaggerated, the resulting tales of horror are widely reported in the press as facts and become the stuff that popular novels and movies are made of, which further fan the flames of fear. Thus, failures in the financial sector lead to greater and stronger calls for government intervention and remedies.

Triggering event

Crises have triggering events or shocks. A banking crisis is generally ignited either by the economic (or legal) insolvency of one or more large banks or similar financial institutions or by widespread depositor runs on large banks or similar financial institutions perceived to be insolvent and unable to repay their deposits or other debt claims on time and at par value. A currency crisis is generally started either by a sharp, substantial, and disorderly decline in the exchange rate in one country, frequently, although not always, from levels set by a fixed (pegged) or crawling peg exchange rate standard, or by a speculative run (attack) on a country’s currency that exerts downward pressure on

TABLE 2		
Estimated transfer cost of selected banking crises		
Country	Period	Estimated cost/ GDP (percent)
United States	1980s	2.5
Japan	1990s	20.0p
Norway	1987–89	4.0
Spain	1977–85	16.8
Sweden	1991	6.4
Bulgaria	1990s	14.0
Hungary	1991–95	10.0
Israel	1977–83	30.0
Mexico	1990s	20.0p
Argentina	1980–82	55.3
Argentina	1989–90	13.0
Brazil	1994–95	5–10.0
Chile	1981–83	41.2
Uruguay	1981–84	24.2
Venezuela	1994–95	18.0
Turkey	1982–85	2.5
Finland	1991–94	8.4
Korea	1997–	60.0p
Indonesia	1997–	80.0p
Thailand	1997–	45.0p
Malaysia	1997–	45.0p

p = Preliminary
 Note: Includes all depository institutions; costs are to governments and depositors.
 Sources: Caprio and Klingebiel, 1999, Lindgren, Garcia, and Saal, 1996, Rojas-Suarez and Weisbrod, 1996, *Wall Street Journal*, October 22, 1998, and July 27, 1999, and Standard and Poor's, various years.

the exchange rate (Eichengreen, Rose, and Wyplosz, 1996).⁴ Thus, banking and currency crises both involve an actual or potential depreciation in the value of financial claims. This reflects a failure by banks or countries on a fixed or semi-fixed exchange rate to keep their promise to redeem or exchange, respectively, claims at a given rate (price). For banks and other privately owned financial institutions, this results in insolvency and either reorganization or liquidation. For countries, although they survive, they are likely to experience losses from higher foreign debt burdens and from economic, political, and/or social turmoil and subsequent defaults and restructuring. (A broad spectrum of views on the causes and triggering events of recent banking and currency crises appears in Bisignano et al., 2000, Hunter et al., 1999, and Summers, 2000.) Kaminsky and Reinhart (1996) develop a broad set of stylized facts (regularities) describing recent banking and currency crises.

Potential impact on the economy

The health of the banking and international sectors is viewed to be important not only because these sectors are perceived to be particularly vulnerable or fragile, but because they are both economically important and closely intertwined with other sectors in the economy and, therefore, perceived to be likely to infect other sectors with their problems (Davis, 1995). A relatively small individual problem may be turned into a much larger and broader crisis. Bank liabilities comprise the major form of money in developed economies and nearly everyone in such economies touches and is touched by money and credit in their everyday life. The insolvency or near insolvency of one or more important banks is believed to reduce credit, particularly loans, to the market or markets served, ignite depositor runs either to other “safe” banks or to riskless Treasury securities and currency, reduce deposits and the money supply, disrupt the operation of the payment system, increase uncertainty, disturb financial markets, and cause, at a minimum, fire-sale losses that will drop security prices below their otherwise equilibrium levels. Such effects endanger the solvency of other economically solvent banks and could ignite further runs (Council of Economic Advisers, 1999). These adverse effects are magnified if the insolvent banks are physically closed or deposits frozen for a significant length of time, so that some or all depositors do not have immediate access to some or all of their funds. Dermine (1996, p. 680) has noted that

The issue is not so much the fear of a domino effect whereby the failure of a large bank would create the failure of many smaller ones; strict analysis of counterparty exposures has reduced substantially the risk of a domino effect. The fear is rather that the need to close a bank for several months to value its illiquid assets would freeze a large part of deposits and savings, causing a significant negative effect on national consumption.

This does not happen in the U.S. today. With rare exceptions, insured depositors at failed banks have access to the full value of their funds the next business day and uninsured depositors to the estimated recovery value of their claim the next business day through an advance by the Federal Deposit Insurance Corporation (FDIC) serving as receiver (Benston and Kaufman, 1998, and Kaufman and Seelig, 2000). However, this is not true in many other countries, where uninsured depositors may have to wait long periods of time until the appointed receiver actually recovers the funds through the liquidation of the

bank's assets, and even insured depositors at failed institutions may have to wait some time to regain access to the full value of their deposits. In either case, if depositors or other stakeholders suffer losses, the adverse effects of problems at a single bank or small group of banks could be transmitted quickly throughout the banking sector, beyond to the entire financial sector, and possibly even beyond to the macroeconomy, causing sharp and abrupt declines or aggravating already extant declines in aggregate output (Federal Reserve Bank of Minneapolis, 1999). At the same time, asset prices, particularly in real estate and stock markets, are likely to decline sharply. Not infrequently these prices had previously been bid up sharply with financing provided in large measure by rapid bank credit expansion permitted if not fostered by the central bank.

It is the suddenness of the transmission of shocks as well as the breadth of the potential impact that appears to differentiate the financial sector from most other sectors as a cause of crises. As former president of the Federal Reserve Bank of New York, Gerald Corrigan (1991, p. 3), has noted: "More than anything else, it is the systemic risk phenomenon with banking and financial institutions that makes them different from gas stations and furniture stores." Indeed, there appears to be little fear of contagion and systemic risk in most other, nonfinancial sectors of more or less equal importance, such as automobiles, computers, transportation, and even agriculture (food).

Banking problems may also ignite currency problems, particularly in smaller, open economies on fixed or semi-fixed exchange rate standards. If the banking and any accompanying macroeconomic and asset price bubble problems are sufficiently severe, domestic and foreign depositors at insolvent or near-insolvent banks are likely to shift their deposits to perceived safer banks, including foreign-owned domestically or nondomestically domiciled banks, possibly in foreign-currency-denominated deposits. This is particularly likely if, as the problem increases in magnitude, doubts arise about the government's ability or commitment to maintain full deposit guarantees. At the same time, other domestic and foreign investors are likely to shift their funds abroad, again partially or totally in foreign currency. Such capital outflows (runs) exert downward pressure on the country's exchange rate. If the country attempts to protect its exchange rate by selling its foreign reserves, aggregate bank reserves are reduced by a like amount. Unless offset by increases through other central bank operations, those sales intensify the banking and macroeconomic problems by forcing further bank asset sales and monetary contraction and

encouraging further capital outflows. This makes it more difficult for the country to avoid a currency depreciation.

Currency crises characterized by a sharp depreciation in exchange rates are likely to increase both the burden of debt denominated in foreign currency to domestic borrowers and the probability of default on such debt. The former will reduce the profitability of domestic debtor firms and even threaten their solvency. The latter is likely to reduce capital inflows, particularly in the short run. Both effects will exert downward pressure on aggregate income. Likewise, a sharp depreciation in the currency of one country relative to its trading partners will increase the price of its imports and thereby also, at least in the short run, its rate of inflation. The volume of imports is likely to decline. In time, the lower exchange rate will stimulate increased exports. These effects are likely to reduce the exports both of the country's trading partners and of its export competitors to third countries and may set off one or more rounds of competitive depreciation (beggar-thy-neighbor responses), possibly accompanied by increased trade and capital barriers. If so, aggregate incomes in all affected countries will be reduced.

Just as banking problems can ignite currency problems, currency problems can ignite banking problems. If a country experiencing a speculative run on its currency attempts to protect its exchange rate from depreciation by selling foreign currency, the resulting reduction in its international reserves will reduce bank reserves and, unless offset (sterilized) by the central bank, ignite a multiple contraction in money and credit that could threaten the solvency of banks. Concurrently, to avoid, or at least delay, a depreciation from a speculative run, countries frequently increase their rates of interest to discourage additional capital outflows and attract capital inflows. But the higher rates may dampen domestic economic activity, increase loan defaults, and threaten bank solvency. Speculative runs on a currency also are likely to include runs from domestic currency deposits to foreign currency deposits, possibly even at the same banks. This is a run on domestic currency, not on banks, but in time may invite a run on banks. If a country does not prevent a depreciation and if accompanying declines in aggregate income are sufficiently large, loan defaults are likely to increase and could drive some banks into or near to insolvency. Loan defaults are likely to be more frequent and larger if banks and/or bank customers had borrowed in foreign currencies on an unhedged basis and were forced by the depreciation to make larger domestic currency payments than expected. Thus, even banks that fully

hedge their foreign currency borrowing by foreign currency loans to domestic borrowers are likely to suffer defaults when the domestic currency depreciates significantly. The borrowers' exchange rate risk becomes the bank's credit risk.

Thus, currency and banking crises are mutually reinforcing, particularly under fixed or semi-fixed exchange rates. However, Kaminsky and Reinhart (1996) report that, while banking crises statistically predicted balance of payments crises in the countries they studied, balance of payments crises did not predict banking crises. That is, they find that, although often happening concurrently, banking crises have been an important cause of currency crises far more often than the other way around.

Systemic risk

What makes banking and currency crises different from most other crises and particularly frightening to many people are the accompanying cries of contagion or systemic risk. Systemic risk refers to the risk or probability of breakdowns (losses) in an entire system as opposed to breakdowns in individual parts or components and is evidenced by comovements (correlation) among most or all the parts. Thus, systemic risk in banking is evidenced by a high correlation and clustering of bank failures in a country, a number of countries, or globally; and in currencies, by a clustering of depreciations in exchange rates in a number of countries. Systemic risk may also occur in other parts of the financial sector, for example, in securities markets as evidenced by simultaneous declines in the prices of a large number of securities in one or more markets in a country or across countries. Systemic risk may be either or both domestic and/or transnational.

Although systemic risk is frequently proclaimed during banking and currency crises, its meaning is ambiguous. It means different things to different people, particularly with respect to causation. One popular definition refers to a "big" shock that produces near simultaneous adverse effects for most or all of the domestic economy or system. That is, systemic "refers to an event having effects on the entire banking, financial, or economic system, rather than just one or a few institutions" (Bartholomew and Whalen, 1995, p. 4). Likewise, Mishkin (1995, p. 32) defines systemic risk as "the likelihood of a sudden, usually unexpected, event that disrupts information in financial markets, making them unable to effectively channel funds to those parties with the most productive investment opportunities." How the transmission occurs is unclear.

Other definitions focus on potential spillover to others. For example, the Bank for International

Settlements (BIS) defines systemic risk as "the risk that the failure of a participant to meet its contractual obligations may in turn cause other participants to default with a chain reaction leading to broader financial difficulties" (BIS, 1994, p. 177). This definition emphasizes causation as well as correlation (correlation with causation) and requires strong direct interconnections or linkages among the institutions, markets, sectors, or countries involved, so that when the first domino falls, it falls on others, causing them to fall and, in turn, to knock down others in a chain or "knock-on" reaction. For banks, this may occur if, for whatever reason, bank A defaults on a loan, deposit, or other payment to bank B that produces a loss greater than B's capital and forces it to default on a payment to bank C with losses that are larger than C's capital, and so on down the chain (Crockett, 1997). The smaller a bank's capital-asset ratio, the more leveraged it is and the more it is likely to be driven into insolvency by insolvencies of banks located earlier on the transmission chain and to transmit losses to banks located later on the chain.

For countries, this may occur through direct trade linkages so that if country A experiences problems or a depreciation in its exchange rate that reduce its imports from country B, it causes B's aggregate income to decline, reducing its imports from country C, and so on down the chain. What makes direct causation (chain reaction) systemic risk in financial sectors particularly frightening to many is both the lightning speed with which it is believed to occur and the perception that it can infect "innocent" as well as "guilty" parties, so that there is little or no protection against its damaging effects.

A third definition of systemic risk also focuses on spillover, but does not involve direct causation and requires weaker interconnections. Rather, it emphasizes similarities in third-party risk exposures among the units involved. When one unit experiences an adverse shock that generates severe losses, uncertainty is created about the values of other units potentially subject to the same shock. To minimize additional losses, market participants will examine other units (for example, banks or countries) in which they have economic interests to see whether they are at risk. The more similar the risk exposure profile with that of the initial unit economically (in terms of macroeconomic behavior, markets, or institutions), politically, or otherwise, the greater is the probability of loss and the more likely are the participants to withdraw funds as soon as possible and possibly induce liquidity and even more fundamental problems. This is referred to as a "common shock" effect and represents correlation without direct causation (indirect causation).

Because information on either the causes or magnitude of the initial shock or on the risk exposures of the other units potentially at risk is not generally available immediately, accurately, or free, and analysis of the information is not immediate or free, participants require time and resources to sort out the identities of the other units at risk and the magnitudes of any potential losses. As credit markets deteriorate, the quality of private and public information also deteriorates and uncertainty increases further. Moreover, because many of the participants are risk averse, they will transfer funds, at least temporarily during the period of confusion and sorting out, as quickly as possible to well-recognized safe or at least safer units without waiting for the final analysis. In periods of great uncertainty and stress, market participants increasingly tend to make their portfolio adjustments in quantities (runs) rather than in prices (interest rates). That is, at least temporarily, they will not lend at any rate. Thus, there is likely to be an immediate flight or run to quality away from units that appear potentially at risk, regardless of whether further analysis would identify them ex post as having similar exposures that actually put them at risk (guilty) or not (innocent). At this stage, common shock contagion appears random, potentially affecting more or less the entire universe and reflecting a general loss of confidence in all units. Moreover, because these runs are concurrent and widespread, such behavior by investors is often referred to as “herding” behavior.

The runs are likely to exert strong downward pressure on the prices (upward pressures on interest rates) of the securities of affected institutions and countries. At the same time, many of the affected countries are likely to force their interest rates up even further to reduce additional capital outflows and encourage inflows. Thus, liquidity problems are likely to temporarily spill over to units not directly affected by the initial external shock. At some later date, after the sorting out process is complete, some or all of these flows affecting innocent banks or countries may be reversed. During the sorting out period, the fire-sale driven changes in both financial quantities (flows) and prices (interest rates) are likely to overshoot their ultimate equilibrium levels and intensify the liquidity problems, particularly for more vulnerable units (Kaminsky and Schmukler, 1999).

A distinction is often made between rational or information-based systemic risk and irrational, non-information-based, random, or “pure” contagious systemic risk (Kaufman, 1994, and Kaminsky and Reinhart, 1998). Rational or informed contagion assumes that investors (depositors) can differentiate among parties on the basis of their fundamentals.

Random contagion, based on actions by uninformed agents, is viewed as more frightening and dangerous as it does not differentiate among parties, impacting innocent as well as guilty parties, and is therefore likely to be both broader and more difficult to contain. It is likely that innocent parties may be impacted immediately during the sorting out period under common shock contagious systemic risk, but in time will be sorted out by investors and depositors from guilty parties. Thus, the empirical borderline between rational and irrational contagion is fuzzy and in part depends on the time horizon applied. Likewise, definitions of “innocent” and “guilty” are not always clear and precise. Innocent parties may be defined as units that are widely perceived to be economically well behaved. That is, banks that are perceived to be solvent and not overly leveraged and countries that are perceived to have high foreign reserves relative to their foreign liabilities and to be following sound monetary and fiscal macroeconomic policies. Guilty parties then are insolvent, near-insolvent, or excessively leveraged banks and countries with low reserves or poor financial management.

The importance of the distinction between innocent and guilty parties for evaluating contagious systemic risk underlies the recent argument by the U.S. Council of Economic Advisers that international assistance should be offered to “those cases where problems stem more from contagion than from poor policies, ... [that is,] countries with sound economic policies may be subject to attack because of contagion” (Council of Economic Advisers, 1999, p. 285). It is largely the perceived randomness of the contagion that appears to make it more frightening in banking and exchange rates than elsewhere and justifies special protective public policy actions.

Recent changes in environment

It may be argued that contagious systemic risk has become both more likely and more important in recent years as a result of both 1) economic development that increases the importance and interdependence of banking and the global interdependence of countries, and 2) advances in computer and telecommunications technology that permit funds to be transferred more easily, quickly, and cheaply across large distances and national boundaries and connect both banks and countries more closely. At the same time, financial liberalization and deregulation of both bank activities and international capital controls have permitted vastly increased national and transnational capital flows to occur and participants to increase their risk exposures. Gross international capital flows through both banks and security markets have increased

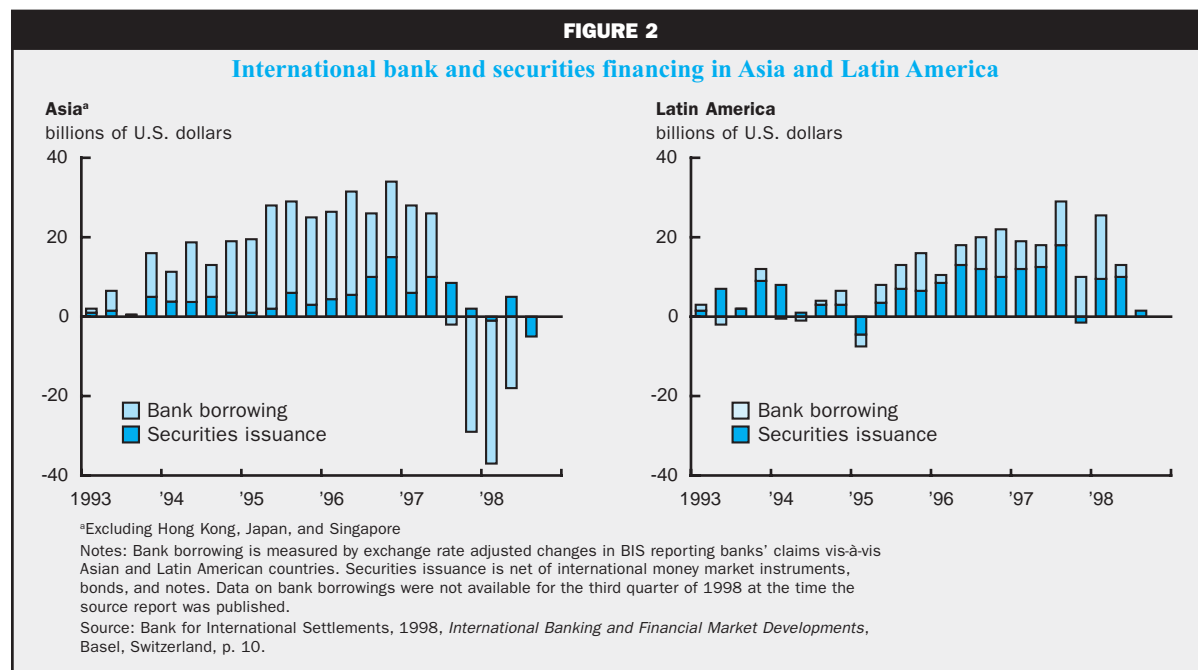
almost twentyfold since the 1970s from about \$50 billion annually to nearly \$1,000 billion (Eichengreen et al., 1998). Nevertheless, net international capital flows, as measured by the negative of the net current account, relative to GDP are still below the levels reached under the gold standard and those of the 1920s. For example, Bordo, Eichengreen, and Kim (1998) report that this ratio peaked at 6 percent for 12 major countries in the late 1910s, declined to 1 percent in the 1960s, and recovered only to 2 percent by 1990. (See also Folkerts-Landau et al., 1997, and Goodhart and Delargy, 1998.)

Through time, as income and wealth have increased, many more economic units have been brought into contact with banks and other financial institutions and markets. Thus, disturbances in the banking and financial sectors are likely to impact a larger proportion of the population than in earlier periods. One could ask how many individuals were affected directly or even indirectly by the Tulip Bulb Bubble in Holland in the 1630s or the South Sea Bubble in England in 1720. It is unlikely to have been very many, either in absolute numbers or as a percentage of the population, particularly relative to the numbers affected by more recent financial crises.⁵

Advances in technology have made bank and currency runs both easier and faster. Large depositors and other banks can withdraw funds almost instantaneously. Even small depositors no longer need to line up physically at banks to withdraw their funds. They can transfer their funds to other banks by telephone

and computer and obtain, at least temporarily, currency at ATMs (automated teller machines). “Silent” electronic runs now dominate “noisy” paper runs. Not only can funds be withdrawn faster and more cheaply, but runs can start faster upon receipt of any adverse news about the financial health of institutions and countries.

Trading activity for financial assets, including both futures and options as well as cash securities and trading by the banks for their own accounts, has increased sharply and has vastly increased the volume of interbank clearings. The notional value of derivative contracts has increased nearly ninefold from \$8 trillion in 1991 to near \$70 trillion in 1999. Spot and forward currency transactions increased from \$600 billion per day in 1989 to \$1,500 billion per day in 1998 (Bank for International Settlements, 1998b). To the extent that interbank claims are not settled immediately on a gross basis with good funds (payment versus payment or delivery), risk exposures have increased both domestically and internationally. In addition, the volatility of capital flows from the ability of participants to change the directions and reverse their investments almost immediately has increased. Thus, for example, external bank and securities lending to the largely “sick” East Asian countries dropped abruptly from \$23 billion in the second quarter of 1997 to an outflow of about the same magnitude in the fourth quarter and \$35 billion in the first quarter of 1998 (figure 2). The reversal in private capital flows was even greater, as part of the decline in 1997



and 1998 was offset by increased official flows from international institutions and individual countries (Haldane, 1999). Net private inflows into these countries totaled \$103 billion in 1996 and dropped to near zero in 1997 and to an outflow of \$28 billion in 1998 (Council of Economic Advisers, 1999). The reversals in net private capital flows may also be large relative to a country's GDP. For example, recent reversals in flows were equal to 18 percent of Mexico's GDP in 1981–83 and 12 percent in 1993–95, 15 percent of Thailand's GDP in 1996–97, 11 percent of Venezuela's GDP in 1987–90, and 9 percent of Korea's GDP in 1996–97 (Lopez-Mejia, 1999).

It is sometimes argued that financial liberalization and deregulation effectively were responsible for the increases in both the frequency and seriousness of banking and currency crises in recent years. On the surface, there appears to be some truth to this. Capital flows to developing countries increased sharply following the liberalization of capital controls by these countries (Folkerts-Landau et al., 1997, and Little and Olivei, 1999). In addition, a number of studies have reported that most recent banking and currency crises occurred after financial deregulation or liberalization. For example, Kaminsky and Reinhart (1996) report that some 70 percent of banking crises were preceded by deregulation and that financial liberalization was statistically significant in explaining banking crises, although not currency crises. By permitting increased competition and reducing protection for existing institutions, financial deregulation may be expected to increase the number of bank failures. Liberalization of capital controls sharply increased capital inflows in many countries that could reverse just as sharply and ignite pressures for depreciation. But, more importantly, the liberalization and deregulation were poorly implemented and sequenced in most countries that experienced crises, rather than being inappropriate and unnecessary. (Surveys of recent cross-country financial liberalization experiences appear in Williamson and Mahar, 1998, and Eichengreen et al., 1998. Also see Gruben, Koo, and Moore, 1999.)

Particularly for banking, the deregulation was generally introduced to correct serious extant problems in the industry that had resulted in widespread and massive silent insolvencies and severe misallocations of resources from excessive government regulation and credit controls. When deregulation was finally implemented, it was often only after the problems had already been accumulating in size for some time, but the losses were unbooked and not yet widely recognized by the public. Thus, when the losses could no

longer be concealed and exploded into public awareness, they were often incorrectly but understandably associated in the public's eye with the concurrent visible deregulation rather than with the earlier and less visible fundamental causes. But, as is argued later, by increasing risk, the government guarantees and credit controls that accompany most forms of government regulation frequently increased the probability of insolvency. Moreover, once insolvent, the banks were likely to be permitted to continue to operate and generate additional losses rather than being resolved. As a result, the magnitude, although possibly not the frequency, of banking insolvencies is likely to be greater than before the introduction of these guarantees. The deposits financing the negative net worth of the insolvent banks are effectively off-balance-sheet government debt and liabilities of the taxpayer. At some point, the combined cost of the increased burden on taxpayers and the lost efficiency and output from the misallocation of resources increases sufficiently to cause government regulation to lose support and be increasingly replaced by market regulation. Likewise for liberalization of capital flows; the cost of misallocation of resources from capital controls that directed foreign credit and the loss of potential increases in income from greater capital flows generate pressures for change.

But market discipline does not work in a vacuum. To be effective and superior to government regulation, market regulation requires a number of institutional preconditions. For banking, market regulation requires a system of laws and property rights, particularly regarding contract enforcement, bankruptcy and repossession, incentives that reward success and punish failure, well-trained and knowledgeable bankers and bank supervisors, and relatively stable macroeconomic conditions. These conditions are particularly important because, with only rare if any exceptions, governments appear unable to avoid providing at least some explicit or implicit guarantees and downside protection for bank depositors, other creditors, and occasionally even shareholders. Some parties, at minimum shareholders, must be at risk and permitted to share in any government losses to encourage the correct risk incentives and to avoid privatizing only bank profits and socializing the losses. Market discipline must be permitted to increase to offset the decline in regulatory discipline. For transnational capital flows, basically the same preconditions are required.

In many if not most instances in recent years, deregulation and liberalization were introduced before the preconditions were in place (McKinnon, 1993). In the resulting absence of either government or market

discipline, the outcome is often increased risk taking with resulting large losses and disruptions that are widely considered, incorrectly, the result of the deregulation and liberalization per se. Indeed, the transition from government regulation to market regulation is often a dangerous road that is full of potholes and steep drop-offs that, if not navigated carefully, can damage the process if not derail it altogether. If the appropriate prerequisites are not in place at every step of the deregulation process, the result may be worse than the starting point. That is, deregulation wrongly done may be more damaging to the economy than the government regulation that it was intended to replace. If, as is usual, deregulation and liberalization are introduced after many years of government control and repression, they are likely to expose the extant economic insolvency of banks and the overvaluation of the country's currency. As a result, until the adjustment is complete, banking failures could increase further and capital inflows could increase to unsustainable levels that magnify the likelihood of abrupt and disruptive reversals (McKinnon and Pill, 1996). As is often the case in economics, many of the problems lie in the transition from one equilibrium to another.

A study of 53 countries from 1980 to 1995 by Demirgüç-Kunt and Detragiache (1998) finds that financial liberalization increases the likelihood of banking crises, but that the probability decreases the stronger in place are the institutional preconditions for liberalization and market discipline in terms of contract enforcement, lack of corruption and bureaucratic interference, and respect for the rule of law. Moreover, the more repressed is the financial sector at the time liberalization is introduced, the more do gains from liberalization outweigh the costs of any banking crises.

Corrective policies (solutions) and associated problems

What lessons may be derived from our analysis of the large number of banking and currency crises worldwide in recent years? Unfortunately, the major lesson appears to be that there are no silver bullets or easy answers to either preventing such crises or solving them quickly at no or low cost after they have developed. Although countries experiencing either or both crises have many similarities and the guilty parties can generally be identified after the event, nearly all crises differ in significant ways and the guilty parties are often difficult if not impossible to finger ahead of time. Nevertheless, some conclusions with respect to potentially corrective public policies appear warranted.

Because systemic risk in banking and finance is widely perceived to be destructive to the aggregate economy, governments have almost throughout history introduced a wide array of public policies intended to reduce the frequency and magnitude of its impact. Indeed, Corrigan (1991, p. 3) has argued that it is systemic risk “more than any other factor—that constitutes the fundamental rationale for the safety net arrangements that have evolved in this (U.S.) and other countries.” Because the seriousness of systemic risk is often judged by whether it is information based and impacts only guilty parties or is irrational and nets innocent parties as well, different policy strategies may be appropriate to each type of systemic risk.

If contagious systemic risk is assumed to be information based and affects only guilty parties, then solutions should focus both on strengthening each party's abilities to absorb adverse external shocks, that is, reducing their vulnerability, and on reducing the magnitude and frequency of any such shocks through appropriate macroeconomic policies. In the absence of government intervention, the market place will determine the optimal vulnerability of each party. If deposit or currency values depreciate, losses would be suffered by shareholders, depositors, and other creditors in the case of bank failures and possibly by a broader range of participants in the case of exchange rate depreciations. But it is precisely the fear of such losses that encourages participants to protect themselves by reducing their vulnerability. The long-term economic benefits of governments repeatedly compensating guilty parties ex post for actual losses or ex ante guaranteeing (insuring) them against potential losses from bank insolvencies or currency depreciations appears, at best, highly questionable. However, this does not rule out government actions to prevent or offset temporary overshooting of price and quantity adjustments, which frequently occur during the information gathering and processing segments of the sorting out period, through lender of last resort type activities. But the new, post-shock price equilibrium and the extent of overshooting are both difficult to define, and governments at times may unwisely attempt to restore the old pre-shock equilibrium price structure with unfortunate consequences.

If, however, the systemic risk affects both guilty and innocent parties, then a stronger although not airtight case can be made for providing, at least, temporary liquidity assistance to harmed but perceived economically solvent parties to tide them over until the market has recognized their innocence and both prices and flows have adjusted accordingly. But, an analysis of the historical record suggests both that the market can generally differentiate innocent from

guilty parties and that there is little evidence of severe and lasting damage to innocent parties in either common shock or causation contagious systemic risk, even in the period before government intervention.⁶ Moreover, it often appears difficult for governments to differentiate between guilty and innocent parties and, at least, recent history suggests that governments have frequently tended to define innocence rather broadly and often provided assistance to insolvent parties. This tends to delay the adjustment process and increase aggregate costs to the economy. For U.S. banks, particularly in the period before the Federal Reserve System, monitoring of their interbank exposures appears to have been practiced seriously. If a bank experienced a significant run, the other banks in the market area, generally operating in concert through the local clearinghouse, would examine the bank's financial condition to determine whether it was suffering from a liquidity or a solvency problem. If it was only a liquidity problem and the bank was economically solvent, the other banks would effectively recycle the lost deposits back to the bank through loans and interbank deposits. If it was a solvency problem, the other banks would generally not recycle the deposits and permit the bank to fail.

After the Federal Reserve was established, bank monitoring began to change from a private to a public responsibility. The Fed's initial lender of last resort activity through the discount window was supplemented in 1933 by the insurance of at least some bank deposits by the FDIC. As the ultimate guarantor of the safety net, the government now had a direct financial stake in the security of the protected institutions and needed regulation to control its potential losses. As Federal Reserve Chairman Alan Greenspan (1999, p. 10) has noted, "the safety net requires that the government replace with law, regulation, and supervision much of the disciplinary role that the market plays for other businesses." The introduction of the safety net effectively also transferred the timing of the resolution of insolvent banks from the market place, which had little if any discretion, to the regulators, who had considerable discretion.

Because large units suffering adverse shocks are perceived to be a greater threat to ignite more damaging systemic risk and threaten the stability of the financial system, governments have been particularly concerned with protecting such units and their stakeholders from serious harm. Such policies are popularly referred to as "too-big-to-fail," even though in some countries, such as the U.S., the firms are generally permitted to fail. Rather, more accurately, such institutions are "too-big-to-liquidate" or "too-big to-impose-losses on important stakeholders" (Kaufman,

1990). Thus, in the U.S., the government may at times extend the safety net below depositors and other creditors at very large banks beyond the de jure non-FDIC insured \$100,000 per account coverage and protect them against loss. More recently, however, Chairman Greenspan (2000) has stated that he views no institution as too big to either fail or liquidate (unwind) in an orderly fashion. What the authorities wish to avoid is a quick (disorderly) reaction. But stockholders would not be protected and appropriate discounts or "haircuts" would be imposed on nonguaranteed deposits.

Bernard and Bisignano (1999) make a convincing case that much of the large flows on the international interbank market in more recent years at interest rates that hardly discriminate among borrowers were fueled by the belief that central banks would intervene to prevent losses. There is also a perception that the U.S. government might intervene in the threatened insolvency of some large nondepository non-FDIC insured financial institutions, such as insurance companies, pension funds, finance companies, and hedge funds, for example, as it was recently perceived to do in Long-Term Capital Management. This is particularly likely if banks are among the major creditors and if the rapid unwinding of large and complex derivatives positions may be feared to produce uncertainty and large fire-sale losses. The safety net is not likely to be stretched under smaller institutions of the same type. In such interventions, the government's concern is likely to be as much on limiting adverse spillover to financial markets as to other institutions.

Ironically, regulators and governments frequently encourage and even force banks to engage in risky portfolio activities to further their economic, social, or political goals in the form of credit allocation. In the U.S., for example, until the thrift and banking debacle of the 1980s, the government encouraged and even forced federally chartered thrift institutions to channel short-term deposits into long-term fixed-rate residential mortgages. Such policies were possible only because of the simultaneous government guarantees. Absent these guarantees, depositors would have fled from institutions with such large risk exposures and the institutions would have either failed or changed their operating strategy. Indeed, before deposit insurance in 1934, savings and loan associations made primarily only three- to five-year rollover mortgages. Thus, they assumed relatively little interest rate risk. Use of banks by governments to pursue goals other than safety and efficiency increased the vulnerability of the institutions and prolonged the length and increased the cost of the recent banking crises in the U.S., Mexico, Japan, and many more countries (Kaufman, 1997a).

Because governments typically underprice the guarantees and insurance that they provide, the insurance and guarantees have encouraged depositors and banks to engage in greater moral hazard behavior than would be permitted by private insurers, whose primary objective is minimizing losses to their shareholders. The increased risk taking by banks in the form of greater credit, interest rate, and foreign exchange rate risk as well as lower capital ratios both increased the likelihood of banking crises and the costs to solvent banks and taxpayers. In addition, the agency problems tend to be greater for government provided insurance than for privately provided insurance. Evidence developed by Calomiris (1999) suggests that the magnitude of both banking and currency crises has been greater on average in the post-safety net era than before. As a result, the costs of government policies to restrict systemic risk frequently have exceeded the benefits, although all the costs may not become widely visible until long after any benefits—reduced runs and supported asset values—are enjoyed. Such guarantees appear to be a classic example of the time inconsistency problem in economics. The benefits of the guarantees are observed today and the costs only tomorrow. Given that the public and policymakers generally apply high discount rates to evaluating the present value of future outcomes of policy actions, Kindleberger (1996, p. 149) appears often to be correct when he argues that “today wins over tomorrow.”

More recently, public policy strategies to limit systemic risk in banking have focused more on restricting the safety net and attempting to have regulatory discipline resemble market discipline more closely. These strategies would limit, if not eliminate, losses from bank insolvency through more timely resolution of economically floundering banks before their economic or market value capital turns negative. Contagious systemic risk can only transmit insolvencies if the losses at each and every party on the transmission chain exceed their capital. If banks are resolved before their market value capital turns negative, systemic risk transmitting losses is eliminated. These corrective structures include measures such as “prompt corrective action” and “least cost resolution.” In the U.S., they were enacted in varying and yet unknown degrees of effectiveness in the Federal Deposit Insurance Corporation Improvement Act (FDICIA) of 1991 (Benston and Kaufman, 1988, 1994, 1995, and 1998, and Kaufman, 1997a and b).

Policies similar to those applied to banks have been used to deal with currency crises. But, because domestic governments cannot print the currencies of other countries, large scale purchases of domestic

currency with foreign currency to maintain exchange rates and the provision of guarantees of foreign currencies effectively require the assistance of one or more other countries or of multinational international organizations (Fischer, 1999). Through time, as with banks, such support was first provided by private parties, generally bankers, and then by foreign governments (Bordo and Schwartz, 1998). Most recently, it has been provided by official international institutions, such as the IMF, World Bank, and regional development banks. For example, in Mexico in 1994, the IMF effectively guaranteed dollar-denominated Mexican government securities and in 1997, all deposits, including dollar-denominated deposits, at Indonesian, Korean, and Thai banks (Lindgren et al., 1999). These policies have been subjected to the same criticisms as have been leveled at the similar bank policies (Meltzer, 1999). They increase moral hazard behavior by countries and private investors that in turn increases the vulnerability of the international sector to future shocks. In addition, the benefits of such support are likely to accrue as much, if not more, to foreign creditors than to domestic citizens, who have to repay the loans. For example, Kho and Stulz (2000) find that the announcement of the IMF guarantee program in Korea resulted in large and statistically significant excess returns to shareholders of large U.S., French, and German banks that tended to have Korean exposures, as well as shareholders of Korean banks. However, smaller and insignificant excess returns were generally found in response to the announcements of IMF support programs in the other East Asian countries. The largest gains at U.S. banks were to those with the greatest exposure to Korea. Lastly, international institutions are just as likely to be unable to differentiate among guilty and innocent parties and too often support guilty parties.

Corrective policies, appropriate or inappropriate, are more difficult for currency crises than banking crises for at least two reasons. One, countries are sovereign and it is difficult for other countries or international organizations to impose enforceable conditions on them without their cooperation and agreement. This is evidenced by the frequent disregard of the IMF’s conditionality requirements by assisted countries or the “dumbing down” of the conditionality features as the assisted countries protest their perceived harshness. Two, as noted, international organizations are not central banks that can print unlimited quantities of the currency of any country. They can only borrow other countries’ currencies in limited quantities. Thus, the assistance packages often include the worst of all worlds. They may be too small to prevent a devaluation

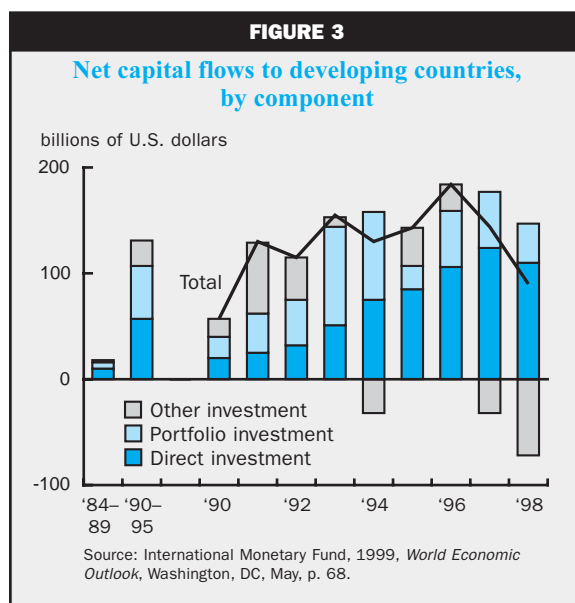
or mitigate most of its effects, but too large to avoid moral hazard responses, increasing the likelihood and costs of future crises.

Many of the more recent capital inflows into developing countries appear to have been undertaken on the perception of government or international institution guarantees and would likely have been significantly lower had such perceptions not existed. But, even smaller capital flows from one or more larger countries can swamp the economies of smaller countries and cause substantial pressures on their exchange rates in rapidly changing directions that could damage even well-managed countries (Little and Olivei, 1999). Short-term international capital flows to emerging economies are considerably more volatile than long-term flows. This is evident from figure 2, which shows bank loans, which are primarily short term, and securities issuances, which are primarily longer term, and from figure 3 for investments other than long-term direct and portfolio. Indeed, direct international investment has been relatively stable in recent years. A large part of the decline in bank loans was in the form of particularly short-term international interbank loans (Bernard and Bisignano, 1999). As a result, some propose restricting only “bad” short-term capital inflows and not “good” long-term (portfolio and direct) capital inflows (Council on Foreign Relations, 1999, and Wyplosz, 1999). However, as argued earlier, this may increase risk taking by private and government debtors by reducing the ex ante threat of foreign investors disciplining them on a timely basis by withdrawing their funds. (Some critics go even further and question the benefit of permitting any

international capital flows on an unregulated basis; for example, Bhagwati, 1998. Edwards, 1999, provides a counter argument.)

In summary, a number of difficulties plague the use of government policies to prevent or mitigate perceived systemic risk in either banking or balance of payments without introducing counterproductive and harmful longer-term effects. These include problems in:

- Differentiating innocent (economically sound) parties or sectors that require only temporary liquidity assistance from guilty (economically unsound) parties or sectors that require longer-term support that if provided could often fail to lead to recovery and could delay adjustment, result in substantial misallocations of resources, and increase losses in the longer run. While governments and bank regulators may have more timely and superior information about troubled banks in emerging economies, this is less likely in industrial countries. Thus, at least in industrial countries with well-developed money and capital markets, it is likely to be more efficient to provide liquidity assistance indirectly through open market operations and let the market allocate the funds to perceived solvent parties than to attempt to do so directly to the government-perceived solvent banks through the central bank’s discount window or otherwise (Kaufman, 1991, and Capie, 1998). This would also ease the pricing problem noted below.
- Determining the correct amount of any assistance to be provided. Too little would not solve the problem and be wasted and too much would misallocate resources and create the potential for moral hazard problems that could exacerbate the problem.
- Determining the correct price of the assistance to discourage excessive moral hazard behavior on the part of the recipients.
- Avoiding political considerations and interference (forbearing), so that the assistance is provided where needed on the basis of economic considerations only.
- Implementing necessary actions that could harm powerful political groups or government allies, such as requiring banks to officially declare loans in default as nonperforming. These actions would cause the borrowers to be declared legally bankrupt, reducing the market prices of their shares and possibly ousting their management.
- Discouraging the adoption of simple and intuitively appealing but ineffective policies, such as restoration of banking or currency controls, that, although



they were inefficient and ultimately motivated the deregulation, concealed the problem for some time (time inconsistent solutions).

- Introducing fundamental structural legal reforms that are necessary for market discipline to be effective, such as enforceable contracts, property rights, bankruptcy laws, and a credible court system. (For a description of the importance of the legal system in finance, see Laporta et al., 1998.)

Long-term solutions

The most feasible long-run solutions to systemic risk in both banking and exchange rates lie with increased reliance on market forces and market discipline. (A wide range of potential solutions is discussed in Bisignano et al., 2000.) But this does not imply either that there will not be failures—indeed these are likely to be relatively frequent but small crises—or that there is no role for government policies. Government policies may be required to improve the effectiveness of market discipline, particularly if other government policies have weakened the incentives for such discipline.

The evidence from recent currency crises clearly highlights the key role of government protected economically insolvent banks in fostering the underlying economic conditions that precipitated the speculative runs and eventual depreciation of the currencies by financing unsustainable increases in real estate and stock market prices (Adams et al., 1998, BIS, 1997 and 1998, and IMF, 1998a and b). For example, although varying widely among countries, bank credit extended to the private sector expanded greatly in the four major East Asian countries—Indonesia, Korea, Malaysia, and Thailand—in the years leading up to the crises. In Malaysia, the ratio of private sector bank credit to GDP doubled from 71 percent to 142 percent between 1990 and 1996, the year before the crisis, and in Thailand, the ratio increased by 67 percent between 1990 and 1995 (World Bank, 1998). Much of this credit went to real estate, which is traditionally viewed as risky. Each of the four countries had such loans in excess of 20 percent of total bank loans, a level considered vulnerable by the IMF (Lindgren et al., 1999). These loans helped push up real estate prices sharply and, when these prices dropped abruptly, went into default and contributed significantly to the severity of the crises.

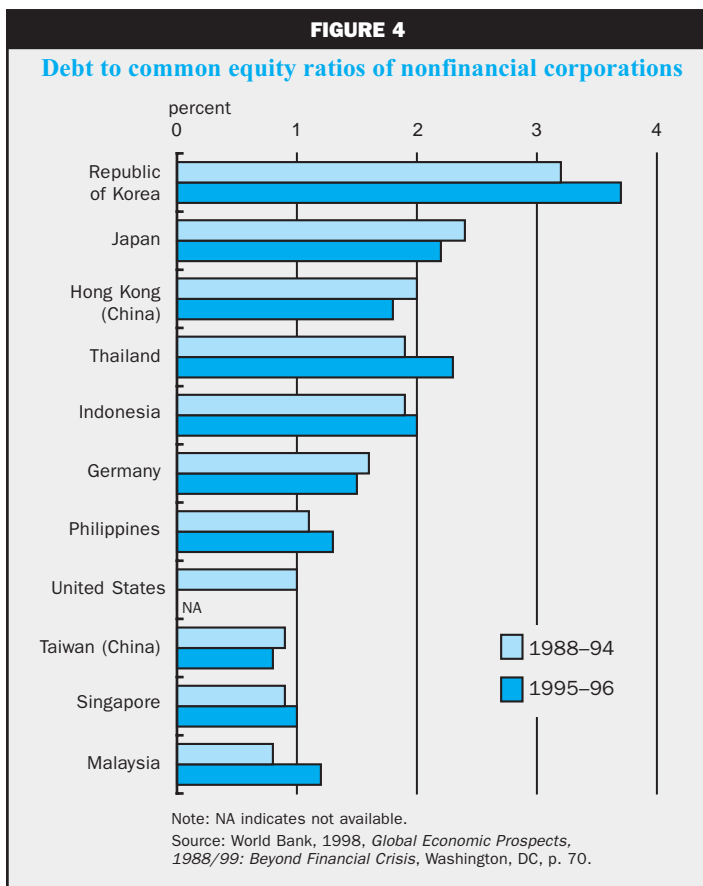
The banks were able to grow their risky loans this rapidly in part because they were not fully exposed to market discipline until the domestic government's explicit or implicit guarantees lost their credibility. By that time, it was too late. In addition, state-owned and -controlled banks are rarely subject to market

discipline and, as effectively arms of government policy in allocating credit to targeted sectors or allies, are notorious for badly misallocating credit (Kaufman, 1999). The banking problems in transitional economies are attributable largely to loans to insolvent state-owned or -controlled and, recently, to poorly privatized enterprises and, at least in Russia, also to finance securities and foreign exchange speculation. To properly understand the operation and implications of these banks, their balance sheets should be combined with those of their government, rather than viewed separately.

To enhance the role of market discipline for larger banks in an environment of partial government guarantees, they should be required to issue a minimum percentage of term debt of a relatively short maximum maturity that is subordinated to the government's claim. Similar to the bank insurance agencies, these claimants have only limited upside potential relative to their downside risk and, because they cannot run, may reasonably be expected to monitor their banks carefully. This would supplement monitoring and discipline by both shareholders and regulators (Benston and Kaufman, 1998, Board of Governors of the Federal Reserve System, 1999, Evanoff and Wall, 2000, and U.S. Shadow Financial Regulatory Committee, 2000). The interest rate the market demands on such explicitly uninsured debt sends a highly visible signal to the market of the issuing bank's perceived financial condition and makes it harder for the regulators to delay imposing sanctions required under prompt corrective action.

In addition, most governments can greatly upgrade the quality, prestige, and independence of their bank supervisors (Caprio, 1998, and Bisignano et al., 2000). Supervisors must be able to understand the nature and consequences of bank activities and have the respect and authority of the bankers in order for their reports and recommendations to have credibility and be evaluated seriously. This also requires that they be adequately compensated relative to the bankers that they supervise.

Moreover, in some countries, the government guarantees are perceived to extend beyond banks and other financial institutions to other major firms. Thus, corporate leverage ratios in general are at levels vastly inconsistent with the degree of macro instability in the economy. In Korea and Thailand, for example, the debt to equity ratios are four to five times the levels in the U.S. and much of Western Europe (figure 4) and are possible only because of the perceived guarantees. It does not take much of an adverse shock, at times only a slowdown in growth rates or small



increases in interest rates, to drive these firms into insolvency. If the government protects shareholders as well as debtholders, little if any market discipline will exist. These countries require the introduction or intensification of an equity culture, in which losses as well as profits are privatized, rather than profits privatized and losses socialized. Market discipline implies a system of rewards (carrots) and punishment (sticks). Without sticks, market discipline is ineffective. Many countries need to put the discipline meaningfully into market discipline. It is of interest to note that the sharpest rebound in gross capital inflows to emerging Asian economies in 1999 occurred in equity financing. The inflow exceeded even pre-crisis levels and suggests that, for the moment anyway, foreign investors prefer less leverage (IMF, 2000).

Lastly and perhaps most importantly, governments can reduce the likelihood of systemic risk and crises in both banking and exchange rates by pursuing stabilizing macroeconomic policies that reduce the frequency and magnitude of adverse shocks. This is easiest for larger diversified industrial countries and most difficult for smaller, open, undiversified, developing countries. The less able a government is to stabilize its economy, the more it must require its banks to be

protected by capital and its exchange rate to be protected by foreign reserves or be prepared to permit the rate to float.

The above structural and political reforms are often not easy to introduce. Important and powerful sectors and parties, for example, risky real estate and corporate borrowers and their allies, benefited from the existing arrangements, even if the economy as a whole may not have, and are understandably reluctant to surrender this advantage. Otherwise, the reforms would already have been introduced. Evidence from past banking and currency crises suggests that major reforms (for good or bad) are generally easier to introduce the more severe the crisis and the more discredited the old policies and the more visible their costs. Thus, mild crises rarely lead to fundamental and lasting reforms. It took the severe banking and thrift crisis in the U.S. in the 1980s to enact the reform FDICIA legislation that reduced the discretionary power of the regulators and the severe currency crises in Korea and Thailand in the late 1990s to begin to reduce heavy government intervention in large domestic financial and nonfinancial firms.

Conclusion

Costly banking and currency crises have plagued most countries in recent years, significantly reducing their GDP and causing sizable transfer payments among domestic sectors. Thus, these crises are of concern to both monetary and bank regulatory policymakers. Considerable time and efforts are being devoted to identifying the causes of these twin crises and developing solutions to reduce both the probability of their occurrence in the future and their severity if and when they do occur. Banking and currency crises have a number of common characteristics and are frequently interconnected, so that one may ignite the other.

Because the banking and currency sectors are widely perceived to be fragile, government guarantees are often introduced that protect at least some claim holders from loss. But the guarantees or safety-nets were often poorly designed. As a result, they frequently increased rather than decreased the relative fragility of these sectors, so that subsequent breakdowns were frequently more serious and costly. At least part of the cost was shifted from the claim holders directly affected to the insurance agency or government, so that the cost was less visible. In addition,

many countries in recent years introduced programs of financial deregulation and liberalization to both increase the influence of market forces and encourage greater efficiency and economic development. Unfortunately, these changes were often introduced before the underpinnings that permit market forces to operate efficiently and successfully were fully in place. In the absence of either effective market or effective regulatory discipline, breakdowns increased in frequency and magnitude.

This article argues that lasting solutions to these crises need both to avoid the difficulties from poor implementation and to be incentive compatible, so that policymakers “do the right thing.” With respect to banks, adverse moral hazard and principal–agent problems associated with government guarantees may be reduced by limiting the guarantees so as to introduce at least partial market discipline and by designing a structure of regulatory discipline that both mimics market discipline and offsets any declines in market discipline that the regulation itself may introduce.

Ironically, however, limiting government-provided guarantees to increase emphasis on market discipline requires that governments significantly upgrade the quality, prestige, and independence of their bank supervisors both to monitor the condition of the banking system and to implement appropriate sanctions on troubled institutions on a timely and effective basis to turn the institutions around before they reach insolvency. A system of regulatory prompt corrective action with sanctions that become progressively harsher and more mandatory as a bank’s financial position deteriorates and least cost resolution based on the provisions included in FDICIA in the U.S. could serve as an anchor. To improve market discipline, it is also necessary in some countries to establish or strengthen an equity culture in which losses as well as profits are privatized. This requires putting in place the legal, cultural, social, and political structures

that permit markets and market discipline to operate effectively.

Similarly for currency or exchange rate problems, guarantees by either the domestic government or official international organizations that eliminate entirely or even significantly reduce potential losses to creditors if the domestic currency is depreciated have eventually contributed to depreciations and their associated problems as often as they have prevented them. To reduce the likelihood of exchange rate breakdowns, increased emphasis must both be transferred to market forces to discipline wrongdoers and be placed on stabilizing macroeconomic policies to reduce the need for guarantees that delay and disguise the adverse implications of poor policies.

Lastly, systemic risk for both banking and exchange rates appears to be more serious in perception than in reality. The historical evidence suggests that direct causation (chain reaction) contagion rarely if ever occurs. Common shock contagion occurs more frequently, but primarily on a rational, information-based basis. Banks and countries with similar risk exposure to those of the bank or country experiencing the initial adverse shock will also be adversely affected. But to the extent that neither information nor processing of information is free or immediate, innocent banks or countries may be adversely impacted temporarily during the sorting out period. However, the effect is rarely sufficiently strong to drive innocent banks into insolvency or depreciate innocent countries’ currencies permanently. Rather than providing full guarantees and safety nets, the public interest would be better served if public policy were directed at reducing both the time required for market participants to sort out the innocent from the guilty parties and the costs of doing so. This may be achieved by improving the timely and accurate disclosure of relevant information, including that provided by the governments themselves.

NOTES

¹The Benelux countries consist of Belgium, the Netherlands, and Luxembourg.

²More recent estimates by the IMF place the cumulative four-year total output loss (the sum of losses from both currency and banking crises) of the Tequila crisis in the mid-1990s at 30 percent for Mexico and 15 percent for Argentina and of the East Asia crisis of the late 1990s at 82 percent for Indonesia, 57 percent for Thailand, 39 percent for Malaysia, and 27 percent for Korea (IMF, 1999b). In addition, recent estimates place the decline in real GDP from peak to trough in the crises countries in these years at 10 percent for Mexico, 19 percent for Indonesia, 14 percent for Thailand, 8 percent for Korea, and 4 percent for Russia (Summers, 2000).

³Estimates of the transfer payments generally have a wide range of error and, until all insolvent institutions in the country are completely resolved, can vary greatly from observation date to observation date. The estimates are more or less equal to the aggregate negative net worth of the protected economically insolvent institutions. Because this amount is partially determined by the actual proceeds from the sale of the institutions’ assets since insolvency and the projected proceeds from future sales and recoveries, it is highly sensitive to the state of the economy and the level of interest (discount) rates on the observation date. The poorer the state of the economy on this date, the smaller will be the projected proceeds from asset sales and the larger the necessary transfer payments. Conversely, the better the state of the economy,

the smaller the necessary transfer payments. The total will be known with certainty only after all the assets are sold and any embedded put options or other buyback agreements have expired.

⁴For example, nominal exchange rates declined (depreciated) in the 1990s crises countries from their peaks shortly before the beginning of the crisis in each country to their troughs by 54 percent in Mexico, 527 percent in Indonesia, 57 percent in Korea, 58 percent in Thailand, and 76 percent in Russia (Summers, 2000).

⁵A recent article noted that Amsterdam merchants lost little if anything in the Tulip debacle and that, while shares in the South Sea Company lost 90 percent of their value, commercial bankruptcies in England rose only slightly (Chancellor, 1999).

⁶See Kaufman (2000) and Fernández-Arias and Rigobon (2000).

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