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by O. Emre Ergungor and James B. Thomson

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Systemic banking crises can have devastating effects on the economies of developing or industrialized countries. This *Policy Discussion Paper* reviews the factors that weaken banking systems and make them more susceptible to crises.

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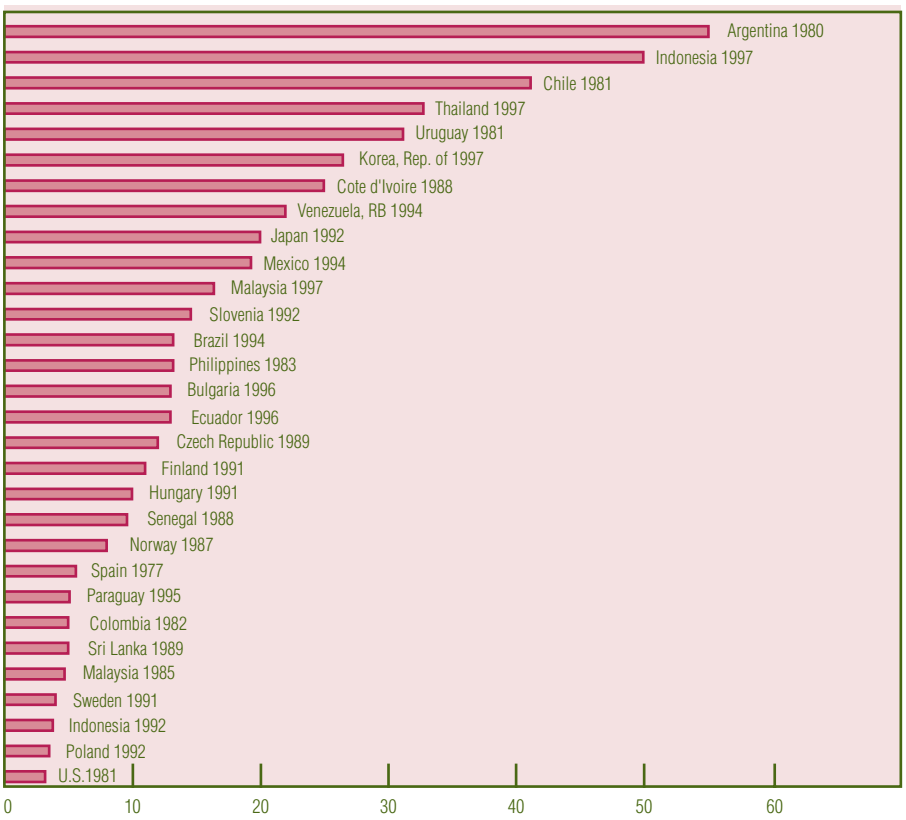
Introduction

When a financial system is hit or threatened by widespread bank failures, as in Latin America, Scandinavia, Southeast Asia, or Japan in the 1990s, the cost of resolving the crisis and recapitalizing the banks can be enormous (see Figure 1). After the Indonesian banking crisis of 1997–1998, for example, recapitalizing the banking system (making up for the affected banks' past and present losses) cost taxpayers around $77 billion—58 percent of Indonesia's average GDP in 1998–2001. The Indonesian Banking Restructuring Agency, established to repair the banking system, is expected to recover only about $2 billion from the sale of banks under its control. An even more expensive banking debacle in dollar terms is the one that began in Japan in the early 1990s. By 1998, nonperforming loans were estimated at $725 billion (18 percent of Japan's GDP).[1] The Obuchi Plan announced the same year provided $500 billion (12 percent of GDP) in public funds for loan losses, bank recapitalizations, and depositor protection.[2] These figures do not include the cost of keeping so-called zombie borrowers—companies that continue to exist only because their banks extend further credit—in business. On the other hand, they do not necessarily include funds recovered in later years.

1. Caprio and Klingebiel 2002.

2. There were bank bailouts in later years. For example, in 2003, Resona was bailed out for $7.5 billion.

FIGURE 1 FISCAL COSTS OF BANKING CRISES AS A PERCENTAGE OF GPD



SOURCES: Honohan, Patrick, and Daniela Klingebiel, 2002. "Controlling the Fiscal Costs of Banking Crises." In *Managing the Real and Fiscal Effects of Banking Crises*, edited by Daniela Klingebiel and Luc Laeven. World Bank Discussion Paper no. 428, pp. 31–49, Washington, D.C.: World Bank.

The fiscal costs of restructuring may seem extremely large at first, but they often pale in comparison to the long-term effects of systemic banking crises. The resources committed to resolving a crisis are diverted from other productive uses, economic reforms are delayed, and stabilization programs are abandoned. The economy suffers from higher interest rates, lower growth, and higher unemployment

for a protracted period. Because nearly every citizen is affected by the declining living standards brought on by large banking crises, the public should understand the factors that weaken a banking system and make it susceptible to systemic crises.

In this *Policy Discussion Paper*, we review the factors that seem to be common to banking crises around the globe, both in developing countries and industrialized ones. We focus primarily on the factors that weaken banks, rather than macroeconomic factors that may push weak banking systems over the edge.[3] Admittedly, macroeconomic shocks place great strain on banking systems and may be the common trigger for crises. But not all banking systems collapse when buffeted by such shocks (examples are the Philippines, Singapore, and Hong Kong). One needs to look closely at the institutional, structural, and regulatory/political environment of a nation's financial system for the ultimate cause of a banking system collapse.

3. On the effect of macro factors, see, for example, Demirguc-Kunt and Detragiache 1998.

What Is a Systemic Banking Crisis?

Banks take on and manage risk, and some bankers are better at it than others. So there will always be occasional bank failures even in healthy financial systems. In fact, isolated bank failures contribute to the efficiency of financial markets because they enable resources to be reallocated from poorly managed and inefficient banks to well-managed institutions. Even otherwise well-managed banks may fail as a result of overexposure to risk emanating from events thought to be so unlikely that the risk is often acceptable to bankers and regulators before the event occurs. These failures, while often spectacular, are isolated events with limited impact on the stability of the financial system and on people's confidence in it.

In a systemic crisis, multiple banks fail simultaneously, and the collective failure impairs enough of the banking system's capital so that large economic effects are likely to result and the government is required to intervene. But how big is "enough"? There is no precise answer to this question. Typically, researchers have examined the statements and actions of a country's central bank to classify a banking system problem as a systemic one. In other words, when central bankers think that a particular shock to the financial system could develop into a systemwide problem, the problem is considered systemic.[4] For practical purposes, if the capital of the banking system is almost or entirely wiped out by loan defaults, the crisis is systemic for sure. By this definition, the banking crises in Southeast Asia, Latin America, Japan, Russia, and Scandinavia qualify as systemic events. On the other hand, the savings and loan debacle and the regional banking crises of the 1980s in the United States do not meet the definition of a systemic banking crisis. For while the government interceded to the tune of $160 billion (1995 estimate), this amount is very small relative to the size of the U.S. economy and its financial sector.

4. Caprio and Klingebiel 1997.

What Causes Systemic Banking Crises?

Contagious bank runs are the source of systemic instability under what might be called the classic view of systemic banking crises. Under this view, the revelation of solvency problems at one bank can result in runs by depositors on other banks in the system. In the absence of some intervention by a central bank or another lender of last resort, the liquidity pressures on the banking system can lead to the decapitalization of a large number of banks and hence, a systemic collapse. The classic view holds that three conditions must be present for contagious bank runs to occur. First, banking assets must be

sufficiently opaque to a large number of depositors—small depositors—so that they have difficulty determining whether new information about the quality of assets at one bank has implications for the quality of assets (and by implication, solvency) of their bank. In other words, small depositors must be rationally ignorant. If they are, they are unlikely to have good information on the quality of their bank's assets. Depositors who cannot *clearly* distinguish between healthy banks and weaker ones may run on healthy banks as a means of protecting their savings because they perceive some similarities with the failing banks (such as asset size, location of the lending market, or capital level). The second condition is a sequential servicing constraint, which requires withdrawals to be paid at par until the bank is closed. Sequential servicing provides depositors the opportunity to protect themselves by withdrawing their funds early (which in turn increases the losses to depositors remaining when the bank is closed). Viewed from this perspective, bank runs are a rational response to an information shock. The third condition is a lack of sufficient private arrangements for providing liquidity to banks that face runs or a properly functioning lender of last resort. After all, the most effective mechanism for stopping a bank run on a solvent institution is to provide sufficient liquidity to that institution. This allows the bank to signal its solvency to depositors by meeting all claims presented for redemption.

Although the classic view tells how contagion may work, contagion does not appear to be the main source of the banking crises of the last 20 years. In many instances, depositors were protected by deposit insurance, which reduces their incentive to run on their banks. Depositors know they will get their money back even if the bank fails, so they don't rush to the bank to be first in line to withdraw their deposits. In fact, research on recent international banking crises points to causes far different from contagious bank runs by informationally disadvantaged small depositors.

Close scrutiny of these crises suggests, not surprisingly, that the vulnerability of the affected financial systems to systemic collapse was a product of the underlying incentives faced by banks, bank regulators, and other financial market participants. Crisis episodes across countries show similar characteristics, although triggering events may be different and the severity of the crisis may be worsened by the level of corruption or fraud (such as the prevalence of politically-directed loans to failing businesses) present in a particular country. But because crises can occur even in the absence of corruption or fraud, we focus solely on the economic incentives.

Crises tend to follow periods of expansionary monetary and fiscal policy and typically include some form of financial liberalization. For instance, as part of growth initiatives, governments remove interest rate ceilings on deposits, rescind laws that restrict the entry of new banks into a market, or let banks engage in previously restricted activities such as foreign borrowing. In general, reforms expand the set of activities depositories can engage in, allowing more flexibility in asset allocation decisions. Financial liberalization often includes reforms aimed at providing corporations, which were previously dependent on bank loans, with greater access to financial markets using corporate bonds and commercial paper.

To the extent that financial reforms lead to a more competitive market, one would expect an increase in the failure rates of banks and other financial firms. After all, banks will respond to higher

competition and a shrinking customer base by charging lower rates on loans. With increasing competition in the deposit market, banks' funding costs may rise because they have to pay higher rates to attract deposits from competitors. As revenues decrease and costs rise, lending margins shrink as monopoly rents are competed away. Poorly performing institutions will see their economic capital erode, and they could face the prospect of closure by banking regulators.

If governments are reluctant to close nonviable depository institutions, however, a problem arises—particularly when the government guarantees the lion's share of bank liabilities by de facto (through deposit insurance) or de jure (through capital forbearance polices) means. As insured depositories slide toward economic insolvency, the moral hazard incentives associated with a government-provided financial safety net increase dramatically.[5] As banks facing capital pressures attempt to increase their returns, they respond to declining margins by shifting their portfolios toward higher-risk assets and funding their investments with short-term funds, often without properly hedging against the interest rate risk, even when such a strategy reduces risk-adjusted returns.

A factor critical in making this strategy especially attractive is a long period of expansionary monetary policy with negative short-term real interest rates; that is, a period in which funding costs are low and short-term investments are unattractive. Expansionary monetary policy also exacerbates the moral hazard problem, as excessive money growth may manifest itself as an increase in the value of asset prices, thus stimulating the demand for real estate, stocks, and consumer loans. Rising asset prices will distort lending and borrowing decisions by giving rise to the impression that the return from activities such as real estate lending and investing is rising and the risk is falling. Banks respond to these incentives by increasing their exposure to these markets. It is important to emphasize that banks may be acting rationally when they engage in these activities. For example, the demand for real estate leads to higher real estate prices and declining loan-to-value ratios over time. So a bank's exposure seems to be declining as the value of the collateral increases. This is true, of course, as long as one believes that the asset prices will continue to grow. But even when bankers realize that the trend is unsustainable, they may continue to lend with the expectation that they can extricate themselves from these loans and investments before the market peaks (overconfidence bias). It is also quite difficult to predict the peak of a market, which may be years ahead; before that time, a banker may have trouble explaining to shareholders why he is sitting on the sidelines while other banks are making money.

Some behavioral studies have also explained bankers' actions as *disaster myopia*; that is, large economic shocks occur so infrequently that bankers often underestimate shock probabilities.[6] Amos Tversky and Daniel Kahneman have shown that the subjective probability of an event is determined by the ease with which a decision maker can imagine the event to occur, which, in turn, depends on the frequency of the event.[7] Although subjective probabilities can be very close to actual probabilities for high-frequency events (such as estimating credit card default probabilities), they can be well off the mark if the event is low frequency and the time elapsed since the last occurrence affects the ease of recall (availability bias). When the subjective probability falls below a certain mental threshold, bank managers may assign zero probability to the shock (threshold heuristic). Early warning signals are often ignored as decision makers tend to search for and pay attention to information that strengthens their expectations and predictions. Following a similar bias, ambiguous signals are interpreted in a way consistent with expectations.[8]

5. Cull, Senbet, and Sorge 2004.

6. Herring and Wachter 2002.

7. Tversky and Kahneman 1982.

8. Willett 2000..

The crucial point here is that when some bankers begin pricing loans by myopically assigning low (or zero) weight to certain types of shock, banks that properly estimate the probability of the shock and price it cannot compete with them.[9] When the next shock hits in the future, the market may be dominated by myopic banks, which don't have any protection against that particular shock—an outcome sometimes described as herd behavior by banks. Admittedly, we cannot determine whether overconfidence bias or disaster myopia plays a more crucial role in systemic banking crises. The end result of both, however, is the same. In the absence of a shock, the lending continues, coupled with increasing asset prices and a booming economy.

Despite the rosy economic picture, investors may recognize that lending aggressively in the real estate market or investing in stocks subjects the banks to the vagaries of these markets, but they also recognize that all banks are in this business and no government can afford to let its entire banking system collapse.[10] This latter point is equivalent to an implicit government guarantee. So, even if there is no explicit government guarantee such as deposit insurance, the implicit guarantee is always there, preventing investors from fully pricing the risk they observe into banks' cost of funds and allowing banks to continue their lending policies.[11] At some point, some investors may begin to doubt whether the government's resources will be enough to save the entire banking system, but those investors—mostly foreigners—often find comfort in believing that the IMF can always put a rescue package together. In addition, investors are often overconfident about their ability to evaluate the situation and identify the right time to exit a collapsing market before anybody else does. So they do not hesitate to fund the banks' aggressive lending policies.[12]

Eventually, asset prices reach unsustainable levels and inflation picks up. Governments are forced to reverse stimulative economic policies by raising interest rates or putting caps on loan growth. Economic growth slows, depressing asset prices and lowering borrowers' ability to pay. As declining margins and increasing loan defaults erode banks' capital, bankers, who surmise that a banking system collapse is politically undesirable, anticipate a state bailout and take actions that would make it difficult for the government to evade a bailout. In essence, bankers have an incentive to engage in activities that cause the risk of their balance sheet to be highly correlated with their peers, which is another way of characterizing herd-like behavior.[13] The incentive to engage in herd-like behavior is the protection it affords if the loans go bad—the so-called "too many to fail" policy. With a whole herd at risk of failing, the government is more apt to step in and rescue failing banks. Banks recognize that the government guarantee allows them to reap the benefits of high-risk investments, while it limits their downside risk. If a bank becomes decapitalized, it has strong incentives to adopt go-for-broke risk-taking strategies—known as gambling for resurrection. If the gamble pays off, the bankers will keep their jobs with their reputations intact.[14] Unfortunately, the gamble fails more often than not and by the time the government and regulators intervene, the losses can reach staggering levels.

This brings us to the last critical player in the banking market: regulators. Regulators' task is to protect the taxpayer by supervising banks and maintaining a healthy banking system. Why do regulators sometimes fail to discipline banks pursuing high-risk growth strategies? In some instances, the reasons may be beyond the regulators' control. For example, regulatory agencies may face staffing and other budgetary constraints that limit their ability to effectively supervise the banking system.[15]

9. Guttentag and Herring 1986.

10. Burnside, Eichenbaum, and Rebelo 1999.

11. One could repeat the "disaster myopia" argument for investors. However, we believe this is a secondary issue in the face of strong economic incentives to rationally downplay risk.

12. Cargill, Hutchinson, and Ito 1998; Willett 2000.

13. Penati and Protopapadakis (1998) show how the federal financial safetynet provided incentives for banks to take on correlated risks. These incentives increase the correlation of risk across the banking system and are used to explain the overexposure to and under pricing of loans to developing nations.

14. De Juan 1988.

15. Drees and Pazarbasioglu 1998.

A more frequently cited reason, however, is regulators' reluctance to discipline banks.[16] This is due to several factors. Primarily, when financial liberalization is part of a set of broader policies aimed at promoting economic growth, bank regulators may be hesitant to close insolvent banks and bring regulatory sanctions against banks pursuing high-risk strategies because, in the short run, these strategies will appear to be profitable, masking any underlying insolvency of the bank. Also, there will be tremendous political pressure on bank regulators to sit on the sidelines, as the expansion of the financial sector is seen as an important driver of economic growth.[17] Moreover, as liberalization changes the financial landscape, regulators may be reluctant to take drastic actions as they learn about and adapt to their new environment. Principal-agent theory suggests that as the banks dig themselves into a deeper hole, regulators may be unable or unwilling to acknowledge unpleasant facts about the industry because it reflects badly on their reputation and future career opportunities. Models of regulator self-interest have been shown to explain regulator behavior in the U.S. during the 1980s savings and loan debacle.[18] So it is privately optimal for the regulators to delay taking corrective actions early on. This factor is exacerbated by time inconsistency—losses today are not realized until a future date and, hence, may occur on someone else's watch. Forbearance is particularly likely when the destabilization—that is, the decapitalization—of the system appears to be a consequence of an external factor such as a macroeconomic shock. In this case, regulators forbear (and do not close any individual bank), while the eventual market correction occurs, and falling asset prices decapitalize the banks.

16. See below and the Case Studies section.

17. See Goodhart's (2000) discussion of the organization of banking supervision in emerging market countries and Iwasaki 1999.

18. See Kane 1989 and Boot and Thakor 1993.

Case Studies

In most of the systemic banking crises around the globe that have been scrutinized by economists, one can see the footprints of a number of common factors. These studies of failed banking systems routinely point to explicit (codified) or implicit government guarantees, inadequate bank supervision, and herd behavior by bankers as contributing factors. Thailand and Japan are two good examples of why these factors, rather than contagion, seem to give us a more accurate picture about the causes of systemic banking crises.

Thailand

In the early 1990s, the Bank of Thailand implemented a comprehensive financial liberalization program, which allowed greater competition in the banking sector. The program also allowed banks to establish offshore banking facilities known as Bangkok International Banking Facilities. These facilities were intended to attract large amounts of foreign capital to sustain the fast-growing Thai economy with large current account deficits. Thai banks and finance companies borrowed short-term dollars using these offshore facilities, converted them to bahts at the pegged exchange rate, and aggressively made real estate loans. Foreign investors, convinced that the government and the IMF would bail out creditors in a crisis, did not hesitate to invest in Thailand, exploit the higher rates in the Thai local market, and fund the banks' aggressive lending policies.[19] In 1994, the IMF warned Thailand that it needed greater flexibility in its exchange rate regime to slow down the inflow of short-term capital. The central bank, reluctant to put a stop to the impressive economic growth of the preceding years, ignored the warnings.[20] Soon, growth in the real estate sector reached unsustainable levels. Studies from that period report office vacancy rates in Bangkok exceeding 20 percent in 1996.

19. See Abe 1999 and Drees and Pazarbasioglu 1998.

20. Abe 1999.

There were 300,000 unoccupied new housing units while the annual demand for new housing rarely exceeds 120,000.

Despite the aggressive lending, regulatory standards for credit quality were lacking, and no serious attempt was made to correct the poor management practices of commercial banks, which hand been documented after an earlier crisis in the 1980s. In addition, no policies were put in place to discourage loan concentration in a single sector.[21]

Thailand's luck ran out when the U.S. dollar appreciated against the Japanese yen and the German mark in 1996–97. Japan was Thailands major trading partner because of the dollar peg, the baht also appreciated against those currencies. As a result of this appreciation, Thai exports, already under pressure from increasing labor costs, lost their competitiveness and sank deeper. In late 1996 and early 1997, speculators began to attack the dollar peg, convinced that the poor health of the Thai economy did not justify the valuation of its currency. The deteriorating situation was made worse when Thailand implemented a recommendation made by the IMF in August of 1997, which was to raise interest rates and use fiscal restraint. The logic of this recommendation is still bitterly contested.[22] Those opposing it argue that higher rates were devastating for the highly leveraged economy. Those supporting it argue that higher rates were necessary to stop the capital flight and put an end to the decline in the exchange rate, which could have created inflation down the road and necessitated more severe austerity measures. As interest rates started climbing and government spending fell, the economy sank into a deep recession, real estate prices collapsed, and loans made to real estate developers soured. Because the banking system carried excessive exposure to the real estate sector, nonperforming loans in the banking system reached 46 percent of total loans at the end of 1998. Net losses arising from the banking crisis were estimated at $60 billion, or 42 percent of the GDP in 1999.

Japan

Japan is a prime example of how things can go wrong in an industrialized country. By the late 1980s, increased competition had led to declining interest-rate margins for Japanese banks. Deregulation then allowed banks to expand their lending to the higher-risk-higher–margin sectors, such as real estate and small and medium-sized enterprises. Tax policy made investments in land with borrowed money attractive to investors seeking to lower ordinary and estate taxes. As real estate prices climbed, credit standards began to loosen as bankers increasingly relied on the value of the collateral more than the borrowers' future cash flows when assessing the probability of repayment.[23] In order to gain market share, banks accelerated their loan approval process by transferring the responsibility for credit risk evaluation from their independent credit bureaus to credit monitoring departments under their sales divisions. This proved to be a fatal mistake. Sales divisions were rewarded for higher market share; they were more interested in approving the loans than adequately evaluating the credit risk. This lack of discipline was further encouraged by the common belief in the market that the government would come to the rescue in a crisis; the government did nothing to dismiss this belief. When property prices took a nosedive in 1992, the quality of loans to the real estate industry deteriorated rapidly; the collateral declined in value, and slowing economic growth reduced the ability of borrowers to continue to service their loans. Concurrently with these events, the Japanese stock market bubble burst, erasing banks'

21. Gup and Nam 1999.

22. See Iwasaki 1999 and Herring 1999.

23. Kanaya and Woo 2001.

gains on their stock holdings. Banks were left without a cushion to absorb their losses in the real estate market. They became reluctant to let their borrowers default, because recognizing those losses would wipe out their entire capital and render the banking system insolvent—not an economically or politically desirable outcome. So banks and regulators took a gamble.[24] Banks went on restructuring nonviable loans by reducing interest rates and extending their maturity. They also offered new credit lines so that borrowers could pay their overdue loans. The hope was that these businesses would recover in time or the banks would build enough capital to absorb the losses. But the gamble did not pay off. Extensions followed one another, and losses snowballed. As a result of this forbearing lending strategy, relaxed credit conditions to boost short-term profits, and the lack of regulatory pressure on banks to restrain their asset growth, nonperforming loans on the books grew from 40 trillion yen in 1995 to 88 trillion yen in 1998 (about $725 billion, or 18 percent of GDP).

24. Kanaya and Woo 2001.

Concluding Remarks

Banking crises can have devastating effects on the economies of developing and industrialized countries. In addition to the taxpayer costs of recapitalizing the banks, banking crises have negative long-term effects on the economy, such as slow growth, high interest rates, and lower living standards.

Bank regulators and governments often blame contagion as a major reason the crisis spreads within the country and across international borders. Although the experience over the last 20 years does not rule out contagion as a factor, close scrutiny reveals some factors common to all systemic crises, such as herd behavior by bankers, implicit government guarantees, and regulatory policies that do not encourage adequate risk management. A better understanding of these common factors by the general public, who always end up footing the bill, may prevent these costly disasters from happening in the future.

Recommended Reading

For more detailed discussion on the causes of banking crises, we recommend:

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