

# DEPOSIT INSURANCE: HANDLE WITH CARE

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During the last two decades, systemic banking crises have afflicted developed and developing countries alike. A systemic crisis occurs when widespread depositor runs reveal that most or all of the accounting capital in a country's banking system is illusory. Systemic crisis have hit ninety-three countries, and borderline crises have afflicted forty-six countries. Numerous countries have suffered several crises.

Banking crises are costly and disruptive. As measured by the increased debt generated in the crisis year, fiscal costs incurred in 1997–98 crises exceeded 30 percent of gross domestic product (GDP) in Thailand and Korea and 50 percent in Indonesia. The true cost of a crisis, however, far exceeds its immediate fiscal cost. Severe banking crises may derail macroeconomic stabilization programs, slow future growth, and increase poverty. During a crisis, depositors typically lose the use of their balances, and would-be borrowers and equity issuers find that financial markets have dried up. Working-class and retired households may be forced into a hand-to-mouth existence, and good borrowers and sound banks may lose access to credit and be forced into bankruptcy. Diminished confidence in domestic financial

This essay is based on a previously published paper, which provides an extensive review of the research results; see Demirgüç-Kunt and Kane (2002). We would like to thank Klaus Schmidt-Hebbel and Iván Araya for useful comments and discussion. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the World Bank, its Executive Directors, or the countries they represent.

Banking Market Structure and Monetary Policy, edited by Luis Antonio Ahumada and J. Rodrigo Fuentes, Santiago, Chile. ©2004 Central Bank of Chile.

institutions may fuel a panicky flight of foreign and domestic capital and a severe currency crisis.

To control these costs, policymakers erect a financial safety net. The net seeks both to make a systemic financial breakdown less likely and to limit the damage done when one occurs. Deposit insurance is a critical component of such safety nets. Establishing explicit deposit insurance guarantees has come to be seen as one of the pillars on which any truly modern financial system must be built. Indeed, the number of countries offering explicit deposit insurance has almost tripled during the last decades. Today, most OECD countries and an increasing number of developing countries feature explicit depositor protection.

The popularity of explicit deposit insurance may give the misleading impression that designing and operating an efficient system is easy. Quite to the contrary, safety-net managers are assigned conflicting objectives that make their task very difficult. They are asked not only to protect against financial crises and related economic shocks, but also to avoid subsidizing bank risk-taking lest they foster inefficient bank risk-taking and other imprudent banking practices. The central challenge safety-net managers face is to strike an appropriate balance between preventing crises and at the same time controlling bank risk-taking.

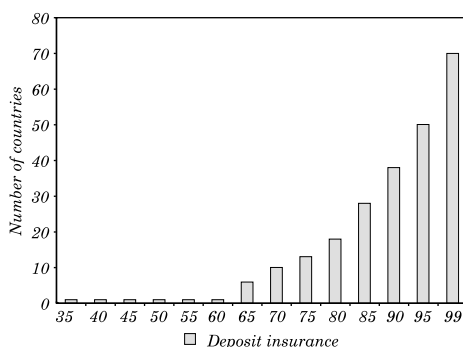
Given the difficulties involved in designing and operating a safety net, policymakers often seek expert advice on how best to design an explicit deposit insurance system. Expert advice needs to be grounded in carefully interpreted cross-country empirical evidence. A recent World Bank research project developed such a database for researchers worldwide and answered questions about how explicit deposit insurance affects four items: financial stability, how markets discipline bank risk-taking, the development of the overall financial system, and crisis management. This paper, which is based on Demirgüç-Kunt and Kane (2002), provides a synthesis of this research effort. The next section characterizes the dataset and uses it to summarize the extent of cross-country differences in deposit insurance design. Section 2 then summarizes the empirical evidence on the impact of deposit insurance. Section 3 combines a short description of the Chilean deposit insurance system with a list of features that cross-country research suggests that Chile should keep or alter. Section 4 concludes by restating our policy implications as principles.

## 1. THE RISE OF DEPOSIT INSURANCE AROUND THE WORLD

Deposit insurance can be explicit or merely implicit. Implicit insurance exists to the extent that the political incentives that shape a government’s reaction to crisis make a taxpayer bailout of insolvent banks seem inevitable. Explicit deposit insurance has spread rapidly in recent years. The number of countries offering explicit deposit guarantees surged from twelve in 1974 to seventy-one in 1999 (see figure 1). Establishing explicit deposit insurance has become a principal feature of policy advice on financial architecture that outside experts give to countries undergoing reform (Folkerts-Landau and Lindgren, 1998; García, 1999).

It is not hard to see why deposit insurance appeals to policymakers. In the short run, government accountants can book income from periodic insurance premiums without acknowledging the parallel buildup of formal obligations that guarantees create. Such one-sided accounting paints deposit insurance as a costless way of reducing the threat of bank runs. Other attractions include protecting small depositors and improving opportunities for small domestic banks to compete with larger national and foreign institutions. In programs of privatization or post-crisis restructuring, explicit deposit insurance is sometimes adopted to curtail the size of implicit guarantees. When banks were previously either government-owned or given blanket guarantees, limiting the maximum size of balances covered by deposit insurance is an important goal.

**Figure 1. Deposit Insurance around the World, 1935 to 1999**



Source: Demirgüç-Kunt and Sobaci 2001.

A cross-country database developed as part of the World Bank research program characterizes deposit insurance arrangements in 178 countries (Demirgüç-Kunt and Sobaci, 2001). This database documents how widely deposit insurance design varies across countries. For example, account coverage varies from unlimited guarantees to tight coverage limits. Japan, Mexico, and Turkey promise 100 percent depositor coverage, whereas countries like Chile, Switzerland, and the United Kingdom cover individual deposits up to an amount that is actually less than their per capita GDP. Also, although many countries cover deposits denominated in foreign currency, most schemes exclude interbank deposits. Besides setting a maximum level of coverage, some countries insist that accountholders coinsure a proportion of their deposit balances. Coinsurance provisions are still relatively rare, but they are increasingly frequent in recently adopted schemes.

Deposit insurance obligations are typically advance-funded, most commonly from a blend of government and bank sources. To allow the insurer to build and maintain an appropriate fund of reserves against its loss exposures, such countries generally assess their banks an annual premium that is based entirely or in large part on the amount of insured deposits. Efforts to make these annual premiums sensitive to bank risk exposure have begun in recent years.

Insurance schemes are typically managed in a government agency or in a public-private partnership. A few countries, such as Argentina, Germany, and Switzerland, manage their schemes privately. Finally, membership is compulsory for chartered banks in almost all countries; the most notable exception is Switzerland.

Table 1 lists countries that either established or extensively revised their deposit insurance scheme during the second half of the 1990s. A number of countries adopted or expanded their deposit insurance scheme as a crisis-management measure. For example, Korea, Malaysia, and Thailand moved to blanket coverage in response to their recent crises. The 1990s saw a rapid spread in transitional countries—perhaps partly motivated by their long-term interest in joining the European Union—and in some African countries. Countries that adopted deposit insurance in 1999 are Ecuador, El Salvador, and members of the Central African Currency Union, namely, Cameroon, Central African Republic, Chad, Equatorial Guinea, Gabon, and Republic of Congo. Most of these new schemes show generous coverage levels. For example, Central African Republic and Chad offer coverage ratios that lie between 13 and 15 times their per capita GDP.

**Table 1. Recent Establishment of Deposit Insurance Schemes**

<i>Year adopted</i>	<i>Countries that have established an explicit scheme</i>
1999	Cameroon, Central African Republic, Chad, Ecuador, El Salvador, Equatorial Guinea, Gabon, Republic of Congo
1998	Estonia, Gibraltar, Indonesia <sup>a</sup> , Jamaica, Latvia, Malaysia <sup>a</sup> , Ukraine
1997	Croatia, Thailand <sup>a</sup>
1996	Korea, Lithuania, Macedonia, Romania, Slovak Republic, Sweden
1995	Brazil, Bulgaria, Oman, Poland

Source: Demirgüç-Kunt and Sobaci (2001).  
a. Blanket coverage.

Precisely because the range of design features is so extensive, this dataset can permit analysts to compare and contrast how well different features work in different circumstances. In the next section, we summarize the implications of research that uses this database to make inferences about key deposit insurance issues.

## 2. DEPOSIT INSURANCE: EMPIRICAL EVIDENCE

An extensive theoretical literature analyzes the benefits and costs of deposit insurance and explores the challenge of balancing these benefits and costs to produce an optimal deposit insurance system. This literature has been summarized by Kane (2000), Calomiris (1996), and others.

Cross-country empirical evidence on the efficiency of real-world deposit insurance systems is harder to come by. We begin this section by posing four empirical questions whose answers indicate how effective an individual country's deposit insurance system happens to be. Specifically, how does deposit insurance affect bank stability? How does deposit insurance affect market discipline? How does deposit insurance impact financial development? What role does deposit insurance play in managing crises?

### 2.1 Deposit Insurance and Bank Stability

Economic theory offers a mixed message on how deposit insurance affects banking stability. On the one hand, credible deposit insurance contributes to financial stability by making depositor runs less likely. On the other hand, unless insured institutions' capital

positions and risk-taking are supervised carefully, the insurer will accrue loss exposures that undermine bank stability in the long run. Economists label insurance-induced risk-taking as moral hazard. Moral hazard occurs because sheltering risk-takers from the negative consequences of their behavior increases their appetite for risk. The need to control moral hazard in banking has been emphasized by academics, but dismissed or denigrated by many policymakers.

Demirgüç-Kunt and Detragiache (2003) are the first to use the cross-country database to study the link between deposit insurance and financial crises. They use data from sixty-one countries for the period 1980–97 to estimate a model of banking crisis. After controlling for other determinants, they find that the presence of poorly designed explicit deposit insurance tends to increase the likelihood that a country will experience a banking crisis; they show that this result does not appear to be driven by reverse causality.<sup>1</sup> On investigating individual design features, Demirgüç-Kunt and Detragiache also show that deposit insurance causes the most trouble in countries where coverage is extensive, where authorities amass a large fund of explicit reserves and earmark it for insolvency resolution, and where the scheme is administered by government officials rather than the private sector. Finally, they also show that the contribution of deposit insurance to bank fragility is significant in countries where the institutional environment is underdeveloped, but it is not significant in countries whose environment is strong. These findings support the hypothesis that where the contracting environment controls incentive conflict, effective prudential regulation and supervision can offset the adverse incentives created by deposit insurance so that moral hazard need not be worrisome.

## **2.2 Deposit Insurance and Market Discipline**

In environments characterized by a high degree of transparency, depositors can discipline banks that engage in excessive risk-taking

1. The countries that introduce deposit insurance as a result of a crisis do not drive these results, because observations for the crisis period are dropped from the sample. As further evidence on this point, the authors go on to estimate a two-stage model where they first estimate the probability of adopting explicit deposit insurance and employ this estimated variable in a second-stage crisis equation. The first-stage results indicate that countries in the sample decide to adopt deposit insurance because other countries adopt it, as it becomes perceived to be best practice. In the second stage, deposit insurance variables become even more significant, indicating that allowing for potential endogeneity does not alter the results.

by demanding higher deposit interest rates or by withdrawing their deposits. However, to the extent that deposit insurance reduces the stake that depositors have in monitoring and policing bank capital and loss exposures, it shifts responsibility for controlling bank risk-taking to the regulatory system. Bank performance is undermined wherever deposit insurance managers displace more discipline than they exert.

Demirgüç-Kunt and Huizinga (2003) build a bank-level dataset covering forty-three countries over 1990–97, which they use to study depositor discipline by looking at interest rates and deposit growth. The evidence shows that explicit insurance lowers banks' interest expenses and makes interest payments less sensitive to bank liquidity. However, regardless of the character of a country's safety net, some market discipline survives. Demirgüç-Kunt and Huizinga also focus on how variation in design characteristics affect market discipline. They find that market discipline is stronger in countries with higher levels of institutional development. Nevertheless, badly designed deposit insurance curtails market discipline even in countries whose institutional development is strong. Setting higher coverage limits, extending coverage to interbank deposits, establishing an *ex ante* fund of reserves, funding reserves from government sources, and insisting on public management each displaces market discipline. On the other hand, market discipline is enhanced by coinsurance provisions, covering foreign currency deposits, and establishing private or joint management of the insurance enterprise.

Such individual-bank data provide direct evidence of the way in which deposit insurance design can affect bank risk-taking incentives. Although deposit insurance displaces market discipline even in advanced countries, the net effect may be improved by strong regulation and supervision. These findings reinforce the evidence on deposit insurance and banking crises and accord with cross-country variation in the risk-shifting incentives that one can infer from bank stock prices (Hovakimian, Kane, and Laeven, 2003). Countries with poor contracting environments are apt to suffer adverse consequences from deposit insurance.

### **2.3 Deposit Insurance and Financial Development**

Countries adopt deposit insurance for different reasons. One common goal, however, is to augment the flow of bank credit by increasing the confidence that the general public has in the formal banking

system and to do this without having to explicitly set aside or expend current fiscal resources. To the extent that deposit insurance bolsters depositors' faith in the stability of the banking system, it may mobilize household savings for use by the financial system. Earlier research shows that financial development supports improved patterns of real investment and leads to sustainably higher aggregate economic growth (Levine, 1997).

Recent adopters of deposit insurance include African and Latin American countries with low levels of financial development. To investigate whether and how explicit deposit insurance contributes to financial development, Cull, Senbet, and Sorge (2003) examine time-series data for fifty-eight countries. These authors find that explicit deposit insurance has a favorable impact on the level of financial activity and its volatility only in the presence of strong institutional development. In institutionally weak environments, deposit insurance appears to distort the pattern of real investment and to retard, rather than promote, financial development.

## **2.4 Deposit Insurance and Crisis Management**

It is common practice to issue blanket guarantees to arrest a banking crisis. Countries that have adopted this strategy include Sweden (1992), Japan (1996), Thailand (1997), Korea (1997), Malaysia (1998), and Indonesia (1998). More recently, Turkey tried to halt its financial panic by guaranteeing not just bank depositors, but all domestic and foreign nondeposit creditors of Turkish banks. Advocates of using blanket guarantees to halt a systemic crisis argue that sweeping guarantees can be helpful, even essential, in halting depositors' flight to quality. However, because blanket guarantees create an expectation of their future use in similar circumstances, they undermine market discipline and may prove greatly destabilizing over longer periods. Although some countries have managed to scale back formal insurance coverage once a crisis has receded, it is very difficult to scale back informal coverage in a credible manner.

Honohan and Klingebiel (2003) analyze the impact of blanket guarantees and other crisis-management strategies on the ultimate fiscal cost of resolving banking-system distress. Data covering forty crises around the world indicate that unlimited depositor guarantees, open-ended liquidity support, and regulatory forbearance significantly increase the ultimate fiscal cost of resolving a banking crisis. Moreover,

these authors find no trade-off between fiscal costs and the speed of economic recovery. In their sample, depositor guarantees and regulatory forbearance failed to significantly reduce either crisis duration or the crisis-induced decline in aggregate real output. Providing liquidity support for insolvent institutions appears to prolong a crisis by destabilizing bank-lending incentives so extensively that healthy adjustments are delayed and additional output loss is generated.

### **3. LESSONS FOR CHILE**

Deposit insurance was established in Chile in 1986. The system does not have a permanent fund in place. The Central Bank of Chile will honor 100 percent of demand deposits, conditional on a favorable report from the Superintendence regarding the justification for submission of payout proposals to the insolvent bank. Additionally, the Chilean government guarantees 90 percent of household savings and time deposits up to UF120 per individual. To limit the Central Bank's exposure, banks with demand deposits in excess of 2.5 times the capital reserves are required to maintain 100 percent reserves at the Central Bank in short-term central bank or government securities. Foreign exchange deposits are covered, but coverage excludes interbank deposits. Membership is compulsory for all banks, and the scheme is publicly administered.

Two features of the Chilean economy must be highlighted before we can discuss the implications of our research for Chile. First, within the universe of developing countries, Chile has a highly advanced level of institutional development. For example, on a six-point scale measuring adherence to the rule of law, Chile scores a five. This means that Chile's citizens trust its legal system. On an index measuring the protection of property rights, Chile obtains the highest possible score of five. Government corruption is among the lowest in the developing world: Chile scores a four on a six-point scale in which higher scores indicate an absence of corruption.<sup>2</sup> This profile makes it reasonable to rate the Chilean institutional environment as strong enough to support an explicit deposit insurance system whose design can keep moral hazard in check.

2. The U.S. corruption index is also four. Indices for corruption and rule of law are produced by International Country Risk Guide (ICRG), and the index for property rights is produced by the Heritage Foundation.

Second, Chile has a very concentrated banking system. Its top five banks hold 71 percent of domestic banking assets. Concentrated banking systems experience fewer systemic banking crises (Beck, Demirgüç-Kunt, and Levine, 2003) and almost always generate a high level of implicit insurance coverage, partly because of “too big to fail” pressures. Not surprisingly, empirical evidence confirms that incremental exposure to moral hazard from introducing an explicit insurance system is limited in highly concentrated environments.

Taken together, Chile’s institutional development and banking concentration promise to limit any adverse impact that explicit deposit insurance might have on the Chilean economy. Still, the better the design, the more efficiently the country’s scarce savings will be allocated.

Research on the design of deposit insurance has some clear implications for Chile. First, with regard to coverage, it is important to set enforceable limits so as to provide depositors and other creditors with strong incentives to monitor bank risk-taking. For this reason, Chile is to be complimented for keeping the coverage of term deposits low (coverage is currently less than per capita GDP), for imposing coinsurance so that each depositor is responsible for losses on the first 10 percent of its deposits, and for denying coverage to interbank deposits. These features strengthen private monitoring. The system would be even stronger, however, if demand deposits were not fully covered. Although the Central Bank limits its loss exposure on these deposits by imposing 100 percent reserve requirements above a specified size limit, a massive shift from time deposits to demand deposits could occur in the event of a financial crisis. Such a shift would effectively transmit full coverage to all depositors. Given that only 30 percent of total deposits is currently covered by insurance, sudden shifts could generate large increases in coverage at the worst possible time. A potential solution would be to impose a strict coverage limit on demand deposits.

A second positive feature is that the insurer has no explicit reserve fund. Research indicates that earmarking large amounts of funds for insolvency resolution distorts the incentives of market participants. However, making the Central Bank of Chile the only party responsible for covering losses from insolvencies is a dangerous feature. Unless the insured banks truly expect to pay for their mistakes, they have very little incentive either to curb their own excessive risk taking or to monitor one another. If, instead, authorities made it clear that funds to cover bank losses would come from surviving banks, Chilean banks could

monitor one another effectively, since the banking system is concentrated and the quality and quantity of information are very high. This is a second improvement that could be introduced into the system.

Third, the Chilean system wisely insists on compulsory membership. Compulsory membership is advisable since it allows risk pooling and prevents stronger members from abandoning the scheme.

Finally, Chile has opted to let government officials run the deposit insurance system. Research indicates, however, that enlisting some layers of private management promises to improve system performance. Private parties tend to be better at monitoring loss exposures and initiating loss-control efforts in a timely manner.

#### **4. CONCLUSIONS**

Cross-country evidence is disturbing because, unlike Chile, many of the countries that have recently installed explicit insurance have poor contracting environments. What makes this research timely is that 60 percent of the countries in the world still have not adopted explicit deposit insurance. In Africa, for example, where the institutional environment is the least developed, only nine of the continent's more than fifty countries offer explicit insurance.

Cross-country empirical research indicates that, for now, officials in many countries would do well to resist the siren call of explicit deposit insurance. Explicit insurance must be handled with care because it reduces the incentive for depositors to monitor the riskiness of their banks. Studies show that in institutionally weak environments, deposit insurance design is apt to be defective, intensifying rather than reducing the probability and depth of future crises. Unless the insurer can effectively replace the monitoring that its guarantees displace, formal guarantees tend to encourage excessive risk-taking. Banks can raise funds from depositors at interest rates that are much lower than the yields at which their high-risk loan portfolios deserve to be funded. Depositors are apt to tolerate aggressive bank lending as long as they remain secure in the knowledge that whether or not bank loans pay off, their claims to repayment are protected by credible deposit insurance.

Explicit insurance can only help develop a robust financial system when the insurance scheme is well designed and when the local contracting environment embodies reliable institutions of loss control. The difficulty is one of sequencing. In a country with weak controls,

explicit deposit insurance can, at best, spur financial development only in the very short run. Formal guarantees undermine longstanding patterns of bank bonding and depositor discipline. Over longer periods, the loss of private discipline is likely to reduce bank solvency, destroy real economic capital, increase financial fragility, and deter financial development.

For countries that have already installed or are in the process of designing an explicit deposit insurance scheme, cross-country empirical research identifies four principles of good design. No government can afford to neglect these principles. No matter how strong a country's institutional environment might be, weaknesses in deposit insurance design fuel financial fragility by undermining the discipline that banks receive from private parties. The following four design features have proved useful in controlling and offsetting these effects.

The most straightforward of these principles of good design entails setting enforceable coverage limits. The goal is to ensure that private monitoring complements official supervision: to convince large depositors, subordinated debt holders, and correspondent banks that their funds are truly and inescapably at risk. Providing strong incentives for private parties to bond and police bank risk exposures is critically important in contracting environments in which government policing threatens to be deficient.

A second principle is to make membership in the deposit insurance system compulsory. This increases the size of the insurance pool and prevents strong institutions from selecting out of the system when it needs to be recapitalized.

A third principle supported by cross-country evidence is to make the public and private sectors jointly responsible for overseeing the scheme. A public-private partnership establishes checks and balances that improve management performance.

The fourth and final principle is to limit the fund's ability to shift its losses to the general taxpayer. Regardless of whether the insurer holds a formal fund of reserves, it must be made clear that funds to cover bank losses will come principally from surviving banks, except in the most extreme circumstances. Taxpayer assistance should be expected only in the special case of a profound crisis.

Deposit insurance is neither always good nor always bad. Depending on its design, it can be a useful part of a country's overall system of bank regulation and financial markets. Cross-country research by no means implies that every country with an explicit system should close it down at the first opportunity. Rather, the research

stresses the importance of identifying and fostering informative accounting standards and reliable procedures for contract enforcement before adopting deposit insurance. It also underscores the importance of planning to intelligently re-adapt the insurer's loss-control system to close loopholes opened by financial innovation. Like any strong medicine, users must ensure that the side effects of the prescription are not worse than the course of the disease they intend to treat.

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