CHAPTER

16 The Moral Hazard Implications of Deposit Insurance: Theory and Evidence

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Deposit insurance is a tightrope act. On the one hand, explicit deposit insurance can significantly reduce the incidence of bank runs or even stop runs altogether in countries with strong institutions and proper safeguards. On the other hand, when not done carefully, explicit deposit insurance can fuel bank crises by giving banks perverse incentives to take unnecessary risks.[1] The United States learned a painful lesson in this regard in the 1980s and early 1990s, when an overly generous deposit insurance system helped trigger the largest wave of bank failures there since the Great Depression in the 1930s.[2] As the U.S. experience suggests, any country that adopts explicit deposit insurance must grapple with the destabilizing effects of that insurance on the country's financial system.

This problem, known as "moral hazard," has taken on new significance with the rapid spread of explicit deposit insurance. Most countries are reluctant to permit banks to become insolvent without providing relief to depositors, and thus governments commonly extend depositors some sort of financial safety net. Until the early 1990s, however, this financial safety net did not include explicit deposit insurance in most countries. Instead, the vast majority of nations relied on other protections, including implicit deposit guarantees. A country signals implicit guarantees through its actions, not its words, by bailing out the depositors of failed banks and thereby sending a message that similar bailouts will be available in the future.

In the last few decades, this state of affairs began to change as countries flocked to explicit deposit insurance. In explicit insurance systems, countries formally commit in advance, usually through legislation, to guarantee some or all of the deposits in failed banks. Be-

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tween 1974 and 2003, the number of countries adopting explicit deposit insurance grew more than six-fold, from 12 to 88.[3]

The proliferation of explicit deposit insurance and the attendant risk of bank crises make it more important than ever for countries considering adoption to decide whether explicit deposit insurance is appropriate and, if so, to institute full and proper safeguards against moral hazard by banks. Until recently, the question of proper safeguards was strictly a matter of theory and not of empirical fact. In recent years, however, two new datasets on deposit insurance schemes around the world—the first compiled by World Bank economists Asli Demirgüç-Kunt, Baybars Karacaovili, and Luc Laeven [4] and the second compiled by economists James R. Barth, Gerard Caprio, Jr., and Ross Levine[5]—have enriched our understanding of the effects and limitations of various facets of deposit insurance. This chapter discusses findings from research on these datasets and the implications for deposit insurance adoption and design.

The chapter opens by summarizing the growth of explicit deposit insurance systems around the world. It then surveys the rationales for deposit insurance and discusses why deposit insurance fosters moral hazard and increases the likelihood of bank crises. The final section examines how explicit deposit insurance can be designed to alleviate moral hazard.

The Prevalence of Deposit Insurance Worldwide

Today, deposit guarantees are the norm, not the exception, in banking systems around the world. When it comes to depositor protection, nations essentially have six choices:

- Enact a law expressly denying deposit insurance protection, as New Zealand has done.

- Expressly deny deposit insurance, but give priority to depositors over other claimants in failed bank insolvency proceedings. This is the approach in Australia.

- Be ambiguous about implicit coverage (which is the default position if there is no law on point).

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- Signal implicit deposit guarantees through their actions by consistently bailing out failed banks and their depositors. As of 2003, 93 countries reported using this approach.

- Legislate explicit deposit guarantees with coverage limits. Eighty-eight countries had adopted this approach by 2003. Today, explicit deposit insurance is found predominantly in Europe, Central Asia, Latin America, and the Caribbean, but rarely in sub-Saharan Africa.

- Opt for explicit deposit guarantees with full coverage. This last approach occurs rarely and is usually reserved for severe systemic financial crises.[6] In 2003, only the Dominican Republic, Indonesia, Malaysia, Thailand, Turkey, and Turkmenistan had full explicit coverage.[7]

There are several reasons for the recent widespread adoption of explicit deposit insurance. Explicit guarantees have immense political appeal because they assuage citizens' concerns about the safety of their deposits and thus increase the flow of funds into banks. Financial experts from international financial institutions and elsewhere have also counseled developing countries to adopt explicit systems in recent years.[8] Finally, the European Union's adoption of explicit deposit insurance in its 1994 Directive on Deposit Insurance helped fuel the surge in explicit deposit insurance in Europe.[9]

Rationales for Deposit Insurance

As the preceding discussion suggests, explicit deposit guarantees are an increasingly common response to the problem of bank runs and contagion. Banks are uniquely prone to runs because they borrow "short" (by taking in demand deposits) and lend "long" (by making loans with longer maturities). This results in a "term mismatch" that makes the balance sheets of banks inherently unstable. If depositors descend *en masse* and insist on withdrawing more cash than the bank has in the vault, the bank will not be able to liquidate its assets fast enough to satisfy depositors' demands and a bank run can ensue. Furthermore, bank runs can cause a ripple effect and trigger full-blown contagion.

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The unstable balance sheet of banks is not a quirk. Rather, it is inherent to a key economic function of banks, which is providing financial liquidity. As financial intermediaries, banks accept liquid deposits from the public and reinvest those funds in long-term, illiquid loans. In the process, banks provide borrowers with liquidity by allowing them to post their illiquid land or machinery as collateral and convert those assets into cash in the form of loan proceeds. Similarly, banks provide depositors with liquidity by giving them immediate access to their funds via demand deposits. Demand deposits, in turn, are integral to the payment system because they permit buyers to pay via bank drafts and sellers to clear those drafts quickly.[10]

When banks make loans, they assume the risk of holding illiquid assets. Under today's international capital standards, generally 80 percent or more of a bank's funds are tied up in illiquid loans and only a small fraction of a bank's deposits are on hand at any one time to satisfy withdrawals. Banks have confidence that they actually can honor depositors' demands based on the principle of *fractional reserves*, which holds (1) that depositors will normally withdraw only a small fraction of deposits on any given day and (2) that this fraction is statistically ascertainable. If the unexpected strikes, however, and withdrawals exceed cash on hand, the bank will not be able to honor all demands for withdrawal because its funds are tied up in loans that cannot be easily converted to cash. Unless the bank can tap backup sources of liquidity,[11] it will have to sell off its assets at fire-sale prices or close its doors.[12]

Absent deposit guarantees, once rumors, whether true or false, start that a bank is on the brink of failure, its depositors face a collective-action problem. In an ideal world, if depositors stood firm and all refrained from withdrawing their deposits, the bank could escape immediate liquidation and preserve the value of its asset portfolio. Rational depositors know, however, that the world is not ideal and that nothing stops other depositors from demanding withdrawal of their funds in full. Furthermore, rational depositors know that if they wait to withdraw their funds, the bank may run out of money before they reach the teller window. Thus, they will rush to the head of the line and immediately withdraw their funds in order to avoid losing their life savings. The resulting stampede will trigger a bank run, spelling the bank's demise.[13]

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In other type of industries, investor exit, in the form of mass sell-offs of shares, exerts valuable market discipline. Bank runs likewise exert market discipline, at least when they are based on accurate information. However, the hair-trigger nature of bank runs makes them susceptible to false rumors, which can inadvertently topple solvent banks. When this happens, depositors are unnecessarily harmed and funds are shifted to less efficient uses.[14]

Whether the rumors behind bank runs are true or false, runs inflict severe social costs. Bank runs pose a classic prisoner's dilemma[15] that results in two types of harm to depositors, absent deposit guarantees. The first is a matter of distributive justice. Depositors at the end of the line lose their deposits altogether, while depositors at the front of the line receive their deposits in full. Second, depositors have a smaller pie to divide because the bank must liquidate assets at distress sale prices to try to satisfy the demand for withdrawals *en masse*.

In the worst case, a bank run can ripen into a panic. If a run at one bank causes depositors at other banks to fear for the safety of their own deposits, the run can spread into generalized contagion. As public trust in banks evaporates, depositors will pull their funds out of banks and hide them under the proverbial mattress, sending the banking system into severe disintermediation. As the money supply contracts, credit dries up, resulting in deflation, production cutbacks, and widespread unemployment.[16] Bank runs and panics can further paralyze the payment system by causing failed banks to default on payments in transit, thereby disrupting commerce.[17]

In the United States and numerous other countries, the advent of securitization improved the problem of term mismatch by enabling banks to liquidate their assets and thereby reduce the risk of bank runs. In recent years, increased reliance by banks on fee-generating income and access to emergency liquidity through the discount windows of central banks have also helped curb bank runs.[18] Nevertheless, bank runs and panics remain cause for concern. As recently as the 1980s in the United States, bank panics caused state deposit insurance systems to collapse in Maryland, Ohio, and Rhode Island.[19] Similarly, bank panic fears prompted the U.S. government to bail out

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Continental Illinois National Bank and Trust Company in 1983 and Long Term Capital Management, a hedge fund, in 1998.[20]

Deposit insurance seeks to reverse the psychology of bank runs by assuring depositors that if their banks fail for any reason, their funds will be protected up to the limits on coverage.[21] This goal is deemed so important that numerous countries require depositors to have deposit insurance, whether or not they want it. Such widespread protection makes deposit insurance highly popular and resistant to reforms.

In the United States, federal deposit insurance has had remarkable success in stemming bank runs and losses to depositors. Even during the massive U.S. bank and thrift failures in the 1980s and early 1990s, runs were the exception, not the rule.[22] This record of success caused Milton Friedman and Anna Schwartz to proclaim in 1963: a Federal insurance of bank deposits was the most important structural change in the banking system to result from the 1933 panic and, indeed in our view, the structural change most conducive to monetary stability since state bank note issues were taxed out of existence immediately after the Civil War.[23] Unfortunately, it appears, Friedman and Schwartz spoke too soon.

The Moral Hazard Implications of Deposit Insurance

Initially, President Franklin Delano Roosevelt opposed the adoption of explicit deposit insurance in the United States in 1933 on grounds that the new program would put a premium on unsound banking in the future.[24] Fifty years later, his predictions came true when the largest banking crisis since the 1930s hit the United States. As Roosevelt warned, deposit insurance gives rise to moral hazard, something that is endemic to all insurance programs.

In the deposit insurance context, moral hazard manifests itself in two ways. First, explicit deposit insurance gives insured banks incentives to pursue added risks because they can capture any profits but shift any losses to the government. Second, explicit deposit insurance reduces incentives by depositors and shareholders to monitor their banks. As Professor William Lovett put it, "If governments and modern nations do not allow most banks to [fail], how can the leaders and

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managements of banking institutions be disciplined and avoid unduly risky, negligent, or adventurous lending policies (or simply poor asset-liability management)?"[25]

In a world with no deposit insurance, a bank that is considering making a risky loan knows that it will have to pay depositors more for taking on the added risk.[26] Either the bank will pay the risk premium or it will not make the loan. In a world with deposit insurance, however, insured depositors will not demand a risk premium because they know that the government will insure their deposits up to the legal limit, regardless of whether the bank makes the loan.[27] Thus, deposit insurance gives banks incentives to take added risks—either by increasing their leverage or investing in riskier assets S thereby increasing the government's exposure to losses.[28] These incentives are especially strong for undercapitalized banks.[29] Moral hazard will exist so long as the total expected profits from a bank's asset portfolio exceed the explicit costs of deposit insurance (premiums) plus its implicit costs (the costs of regulation).[30]

To appreciate the magnitude of moral hazard in the banking sphere, one must keep in mind that deposit insurance is not really insurance, but a guaranty against loss.[31] Normally, private insurance insures only against losses due to defined risks (such as death due to illness or an accident, but not due to suicide by the insured). Such exclusions give insureds an incentive to guard against preventable losses.

In contrast, explicit deposit insurance reimburses depositors for losses from bank failures of any type, regardless of the reason for failure. This refusal to employ policy exclusions rests on two premises: one, that depositors do not control the conduct of a bank and, two, that public confidence in the banking system demands an ironclad guaranty. As a result, deposit insurance dampens depositors' incentives to monitor banks for undue risks.

Far from being a theoretical concern, moral hazard in explicit deposit insurance is significant and quite real. Worldwide, explicit deposit insurance has been shown to increase the likelihood of bank crises significantly. Combining deposit insurance with interest rate liberalization further compounds moral hazard because liberalization

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allows banks to charge higher interest rates and thus to lend to riskier borrowers in a quest for higher yields.[32]

Despite the serious moral hazard inherent in explicit deposit insurance and attempts to tinker with reforms, deposit insurance, once adopted, is difficult to curtail due to its enormous popularity with citizens. Furthermore, it bolsters political stability by removing the threat of widespread losses from bank runs that could topple a regime.[33] In this day of globalization, moreover, few economies are willing to jeopardize foreign confidence in their banking systems by paring back deposit insurance benefits.[34]

The United States provides an apt example of these political pressures. In 1980, Congress set the stage for the 1980s savings and loan crisis when it raised federal deposit insurance coverage from US$40,000 to US$100,000 per depositor per institution.[35] This increase was so large that federal deposit insurance coverage grew in real terms, even after adjusting for inflation, thus increasing the federal government's financial exposure. Congress raised the US$100,000 deposit insurance limit once again in 2006, when it indexed the limit for inflation and further raised the limit for many retirement accounts to US$250,000 per depositor per institution.[36] Similarly, the Federal Deposit Insurance Corporation (FDIC) has repeatedly caved in to pressures to expand deposit insurance coverage by agency fiat.[37]

Congress' 2006 amendments to the U.S. deposit insurance law increased moral hazard in other ways as well. Before that law was passed, the FDIC had one year to recapitalize the deposit insurance fund if the fund's reserve ratio fell below the target of 1.25 percent of estimated insured deposits. The 2006 legislation now permits the FDIC to lower the target reserve ratio to 1.15 percent. In addition, the new law gives the agency five years instead of the previous one to recapitalize the deposit insurance fund if the fund falls below the target reserve ratio. The new law even allows the agency to stretch out recapitalization beyond five years in extraordinary circumstances. In the opinion of the Shadow Financial Regulatory Committee, this forbearance was not good policy because the tendency of all regulatory agencies, generally abetted by Congress, is to avoid the tough decisions or defer them to a later time.[38]

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In sum, the moral hazard dangers of explicit deposit insurance are ever-present and quite real. In addition, many financial innovations and deregulation serve to compound moral hazard. As banks expand into new activities that expose a deposit insurance fund to uncharted risks, the limited resources and expertise of bank regulators are further taxed. Thus, there is reason to be concerned that the risk-enhancing influence of deposit insurance could motivate some financial institutions in a deregulated environment to diversify their activities in a way that would increase the risks to which they and . . . deposit insurance agencies are exposed.[39]

Constraints on Moral Hazard

Despite the moral hazard in explicit deposit insurance, in many countries it is possible to institute deposit guarantees consistent with financial stability, though not in all. Moral hazard is why governments put elaborate banking regulation systems in place, replete with entry restrictions, activity restrictions, prophylactic rules, examinations, and sanctions.[40] Similarly, tough bank resolution policies, including prompt closure of critically undercapitalized banks and prohibitions against bailouts of failed bank shareholders, are crucial safeguards against moral hazard.[41]

These measures alone are not enough to curb moral hazard. In addition, three more things are needed to reduce the risk created by deposit insurance. First, all deposit insurance schemes need to incorporate risk-reducing features. Second, and related to the first, countries need to foster incentives to encourage large depositors, shareholders, and other creditors to monitor their banks. Finally, neither of these points matters if a country lacks the institutions to adopt and enforce these safeguards. Unless countries have strong institutional environments, explicit deposit insurance will do more harm than good to their overall financial stability.

Designing Explicit Deposit Insurance

In systems where explicit deposit insurance is appropriate—that is, in countries with strong institutional safeguards against moral hazard—strict banking regulation is not enough to constrain risk. Re-

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search has found that explicit deposit insurance removes more restraints on risk than government regulators are able to furnish.[42] Accordingly, explicit deposit insurance must specifically be designed with risk-reduction features in mind.

Fortunately, thanks to the new datasets mentioned earlier in this chapter,[43] we now have data on the effectiveness of various design features in deposit insurance schemes around the world. Many of these features are similar to features used by private insurers to control moral hazard, including coinsurance, coverage limits, and risk-based premiums.[44]

Coverage Limits

Coverage limits are a common technique used by private insurers to control risk. In explicit deposit insurance schemes, coverage limits usually take three forms. First, the limits address what types of *institutions* the deposit guarantees cover. Some systems only seek to cover the payment system and thus limit coverage to commercial banks; others also cover savings institutions.[45] Second, coverage limits address what types of *deposits* are covered. Some systems, for example, extend coverage to foreign currency deposits; other systems do not. Most systems exclude foreign deposits of domestic banks and domestic deposits of foreign banks.[46] In rare instances, some deposit insurance systems also cover interbank deposits.[47] Third, coverage limits cap the maximum amount of deposits that the government guarantees. It is rare for countries to impose *de jure* caps on the amount of deposit insurance per institution in its entirety.[48] Instead, *de jure* limits are usually expressed in terms of amounts of deposits guaranteed per depositor per bank.[49]

One way to gauge coverage limits *in toto* is to take the ratio of a country's deposit insurance coverage to its gross domestic product per capita. This ratio varies enormously from country to country. In 2002, for instance, much of Western Europe had a ratio of less than 2:1. On the high end, the ratio reached 9:1 for Peru, 10:1 for the Former Yugoslav Republic of Macedonia, and 27:1 for Nicaragua. The United States that year had a ratio of close to 3:1.[50] The U.S. level exceeded International Monetary Fund guidelines, which recommend limiting coverage to at most one or two times per capita GDP.[51]

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In systems with explicit deposit insurance, the frequency of bank crises rises as the ratio of deposit insurance coverage to per capita GDP increases.[52] When the U.S. raised its policy limits on deposit insurance from US$40,000 to US$100,000 per depositor per bank in 1980, coverage shot up to approximately nine times per capita GDP. Shortly thereafter, the U.S. savings and loan crisis ensued. Today, economists estimate that the likelihood of that crisis would have dropped by 43 percent if the U.S. ratio had been the same as Switzerland's (one-half of per capita GDP, or 1:2).[53] More generally, countries with coverage exceeding four times per capita GDP are five times more likely to suffer bank crises than countries with coverage of under one time per capita GDP.[54]

The research on coverage limits strongly counsels governments to place credible coverage limits on deposit insurance guarantees in order to put large creditors of banks on notice that their deposits may not be safe. Doing so will give large creditors—including major depositors, holders of subordinated debentures, and correspondent banks—strong incentives to monitor the banks with which they do business. It is especially important not to insure interbank deposits, in order to induce monitoring by fellow banks.[55] Limiting deposit insurance coverage is even more important in developing countries, because banks in those countries tend to hold higher-risk assets on average than banks in developed countries.[56]

Coinsurance

Coinsurance is another technique for quelling moral hazard. As of 2003, 21 countries with explicit deposit insurance systems required coinsurance. In these countries, coinsurance requirements ranged from 10 to 25 percent, except in Bolivia and Russia, which required coinsurance of 50 percent.[57]

From a theoretical standpoint, it is not obvious how well coinsurance would work in the deposit insurance setting. In private insurance contracts, the person who pays the coinsurance is the one who creates the risk. Under these circumstances, coinsurance gives insureds incentives to reduce risk. In the deposit insurance context, however, banks create the risk, but depositors pay the coinsurance. Indeed, coinsurance might increase the likelihood of bank runs, by making

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some part of every deposit uninsured.[58] Finally, traditional coinsurance is regressive. Its brunt falls on small depositors, *i.e.*, those who are in need of the greatest protection. This may be why no low-income country requires coinsurance.[59]

For these reasons, some theorists have cast doubt on whether coinsurance would work in deposit insurance systems. Recent research, however, helps lay these doubts to rest. Studies show that explicit deposit insurance systems with no coinsurance experience more banking system instability than systems with coinsurance, other things being equal.[60] It appears, on average, that the incentives to large depositors from coinsurance to monitor bank risk outweigh any increased risk of bank runs that coinsurance might pose. Furthermore, the regressive nature of coinsurance can be resolved by insuring small deposits in full and only requiring coinsurance for larger deposits. Accordingly, serious consideration should be given to adopting coinsurance in explicit deposit insurance systems.

Risk-Adjusted Premiums

Risk-adjusted premiums are a newer technique to alleviate moral hazard. Pioneered in the United States in 1995, by 2003 twenty countries adjusted their deposit insurance premiums for risk.[61] These premiums work by forcing insured institutions to internalize the costs of the risks that they take.

Risk-adjusted premiums have their limitations. They are better suited to gauging past and current risks than future risks.[62] This means that insured institutions have incentives to engage in new risks as soon as their premiums are announced. In addition, there is usually a time lag before the government can incorporate the costs of new and unfamiliar risks.[63]

When evaluating risk-adjusted rates, it is also important to consider the yardsticks that are used for measuring risk. The most common yardsticks of bank risk—capital adequacy and examination ratings—are relatively crude.[64] In fact, capital measures do not directly measure risk at all. Instead, they measure the sufficiency of a bank's equity cushion against losses. Examination ratings measure risk more directly, but are plagued by subjectivity. Moreover, there is no satis-

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factory method to price the risk that an institution's activities pose to the banking system's stability overall.[65]

Finally, risk-adjusted premiums are prey to subjective judgment and political manipulation. Deposit insurance agencies have enormous discretion in setting a particular bank's premiums.[66] At best, this discretion can result in inconsistency; at worst, it can result in retaliation[67] or, conversely, persistent undercharges. The political fondness for artificially low premiums is not surprising, given the constant political pressure that legislatures and deposit insurers receive from banks to keep deposit insurance premiums low.[68]

Despite these problems, evidence suggests that risk-adjusted premiums work better than flat-rate premiums and help mitigate heedless risk-taking by banks.[69] This finding is powerful and intriguing, particularly because risk-adjusted premiums are generally set low[70] and are subject to political capture. For instance, in the United States between 1996 and 2005, risk-adjusted premiums were largely honored in the breach because most institutions paid zero premiums. That was because the U.S. Congress had prohibited the FDIC from charging premiums to well-managed and well-capitalized institutions —the vast majority of banks—so long as the reserve ratios of the two former deposit insurance funds remained above 1.25 percent.[71] In 2006, the U.S. Congress amended that law to permit the FDIC to charge premiums to all institutions. Under the new law, the premiums that the agency initially adopted for 95 percent of institutions were relatively small, on the order of 5-7 basis points.[72]

Although these premiums are modest, an analysis of U.S. risk-adjusted premiums by Luc Laeven suggests that U.S. premiums may not be seriously underpriced, at least for well-run banks.73 Apparently, even this slight degree of risk-adjusted pricing may help curb moral hazard (at least in a country such as the United States with strong rule of law and the systemic ability to diversify risk), especially when combined with the threat of much higher premiums for troubled institutions.

In certain other countries, however, there is strong evidence that risk-adjusted premiums need to be higher. Smaller countries in which banks have less opportunity to diversify risk generally need higher

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risk-adjusted premiums. The same is true for developing countries with weak regulation and rule of law. In these countries, risk-adjusted premiums may need to go as high as 5 percent or more of deposits. If such high premiums are unaffordable for banks, the country should not institute explicit deposit insurance.[74]

Market Discipline

In recent years, policymakers have paid increased attention to ways to exert market discipline on banks, other than bank runs. Market discipline can take many forms, including private monitoring by interested stakeholders, corporate governance, and ousters of bank managers through the market for corporate control.

Large depositors, shareholders, and other unsecured creditors all play an important role in monitoring banks. Explicit deposit insurance can and should be designed to encourage large depositors to oversee their banks.[75] Coverage limits and coinsurance help accomplish this by placing deposits over the coverage limits at risk of loss.

Nevertheless, theorists have disagreed about the wisdom of entrusting monitoring to uninsured depositors. On the one hand, uninsured depositors have incentives to insist on risk premiums. On the other hand, if large depositors with demand accounts become unsatisfied, they could exit *en masse* and trigger a bank run.[76] And even when depositors do have the expertise, will, and resources to monitor, they have a collective action problem because fellow depositors can free-ride on their oversight.[77]

In practice, monitoring by uninsured depositors works better than one might expect. In the United States, evidence shows that uninsured depositors *do* demand higher returns on their accounts. Similarly, there is evidence in the United States that uninsured depositors move their funds from troubled banks to safer institutions.[78] If uninsured depositors withdraw their deposits precipitously, a bank run of course can ensue. In the U.S. federal deposit insurance system in the past thirty years, this has only occurred once, at a wholesale bank where virtually all of the depositors were uninsured.[79]

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Investors in subordinated debentures of banks are another source of market discipline. These debentures have two main features, at least in the United States: they are not secured by any specific assets of the bank and the holders take priority behind the depositors in the event the bank goes insolvent. Similar to uninsured depositors, investors in subordinated debentures of U.S. banks have been shown to demand higher returns, at least during periods of banking system distress.[80]

Bank shareholders are generally considered to be a source of moral hazard, not part of the solution, due to their interest in leveraged profits. But shareholders still have an important role to play in market discipline. Stock sales by shareholders send a signal to the market and place downward pressure on the bank's stock price. In addition, rules such as double-liability laws that make shareholders liable for a portion of depositor losses make shareholders supervise their banks more closely and bank managers more cautious about their use of depositors' funds.[81]

Management fears of job loss can dampen undue risks by banks as well. Such fears emanate from three sources. First, laws that permit hostile takeovers of banks can be used to remove deficient bank managers.[82] Second, laws authorizing government regulators to remove culpable bank managers from their posts and banning them from future work in the banking industry send a strong deterrent message to bank managers elsewhere.[83] Finally and above all, it is incumbent upon bank boards of directors to remove unsatisfactory managers from their posts.

As this last point suggests, strong corporate governance is integral to effective monitoring. Recent initiatives to install a majority of independent directors on the boards of banks are designed to boost outside scrutiny of bank managers.[84] Similarly, holding bank officers and directors liable for conflicts of interest, securities fraud, illegality, breach of the duty of care, and other types of misconduct has been found to reduce moral hazard.[85]

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Strong Institutions, Rule of Law, and Transparency

The argument so far has assumed that the safeguards discussed above are feasible and enforceable. But if a country's institutions are weak, explicit deposit insurance will destabilize the country's financial system, rather than help it.

None of the safeguards described above—banking regulation, strict bank resolution techniques, design features of deposit insurance, or market discipline—will work unless they can actually be instituted and enforced. Effective banking regulation, tough resolution policies, and credible safety features in deposit insurance, for example, require more than the passage of banking laws. They also require consistent enforcement of those laws, integrity, independence from political interference, an ability to resist bribery, and government accountability to the public.

Similarly, market discipline will not succeed without financial transparency and strong rule of law. Unless depositors, bondholders, and shareholders can get current, credible, and meaningful financial information about their banks, they will not be able to discipline those banks in a timely fashion. Independent outside audits are an important component of financial transparency and so is public disclosure of bank financial statements. Transparency also facilitates credit ratings of banks by international rating agencies (although in many countries such credit ratings are still confined to the country's largest banks).

Strong rule of law is similarly crucial to private monitoring. Enforcing the liability of bank officers and directors requires a strong judiciary with the will, training, and resources to carry out the law. Similarly, without strong contract protections, investors will not have faith in bond covenants, and extended shareholder liability will be worthless. Where crime, graft, and fraud make contracts unenforceable as a practical matter, investors will flee the market altogether and uninsured depositors will trigger runs.

Recent studies have borne out the key importance of strong social institutions and respect for law. In "countries with a very good institutional environment" that is conducive to strong bank regulation,

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deposit insurance is less likely to "lead to additional instability."[86] In particular, laws requiring banks to have independent outside audits and to publicly disclose their financial statements have been shown to be successful at reducing moral hazard.[87]

Conversely, it is a mistake to institute explicit deposit insurance where financial "transparency, deterrency and [government] accountability are very weak."[88] Under those conditions, adopting explicit deposit insurance will only retard a country's financial development and undermine its progress.[89]

Conclusion

This chapter tells a cautionary tale. Countries considering explicit deposit insurance should be careful of what they wish for. Unless a country has strong banking regulation, a strict failed bank resolution regime, carefully designed deposit insurance with safeguards against risk, healthy private monitoring, and, most of all, strong institutions and the rule of law, explicit deposit insurance will only be a recipe for future bank crises. Conversely, if all of these safeguards are in place, explicit deposit insurance can protect depositors while holding moral hazard in check.

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Notes

[1] *See* Asli Demirgüç-Kunt and Edward J. Kane, "Deposit Insurance Around the Globe: Where Does It Work?" 16 *Journal of Economic Perspectives* 175, 176 (2002).

[2] *See, e.g.,* Edward J. Kane, *The S&L Insurance Mess: How Did it Happen?* (Washington, D.C.: Urban Institute Press, 1989).

[3] *See* Asli Demirgüç-Kunt, Baybars Karacaovili, and Luc Laeven, "Deposit Insurance Around the World: : A Comprehensive Database," World Bank Policy Research Working Paper 3628 (Washington, D.C.: World Bank, June 2005), at 3, 22 table 2, available at http://siteresources.worldbank.org/INTRES/Resources/469232-1107449512766/DepositInsuranceDatabase Paper_DKL.pdf.

[4] The World Bank, Deposit Insurance Around the World Dataset, available at http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20699211~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html.

[5] The World Bank, "Bank Regulation and Supervision," World Bank Finance and Private Sector Research Paper WPS2588, available at http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/0,,contentMDK:20345037~pagePK:64214825~piPK:64214943~theSitePK:469382,00.html. *See also* James R. Barth, Gerard Caprio, Jr., and Ross Levine, "The Regulation and Supervision of Banks Around the World: A New Database," World Bank Policy Research Working Paper No. 2588 (Apr. 2001), available at http://www-wds.worldbank.org/external/default/WDSContentServer/IW3P/IB/2001/06/01/000094946_01052204005474/Rendered/PDF/multi0page.pdf.

[6] Giving blanket deposit insurance guarantees during a bank crisis is extremely expensive and does not resolve such crises more quickly. *See* Demirgüç-Kunt and Kane, *supra* note 1, at 191.

[7] *See* Demirgüç-Kunt, Karacaovili, and Laeven, *supra* note 3; *see also* Gillian G.H. Garcia, "Deposit Insurance: A Survey of Actual and Best Practices," IMF Working Paper 99/54 (April 1999), at 4, 19, also available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=880581. More recently, after the Northern Rock bank experienced a run on deposits in September 2007, Britain's central bank announced that it would guarantee all deposits at Northern Rock and any other British bank that collapsed. *See, e.g.*, Julia Werdiger, "Bank of England Offers New Infusion of Loans," *New York Times* (September 19, 2007).

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[8] *See* Garcia, *supra* note 7; Demirgüç-Kunt and Kane, *supra* note 1, at 176.

[9] *See* Demirgüç-Kunt and Kane, *supra* note 1, at 176.

[10] *See, e.g.*, Douglas W. Diamond and Philip H. Dybvig, "Bank Runs, Deposit Insurance, and Liquidity," 91 *Journal of Political Economy* 401, 402-03 (1983); Daniel R. Fischel, Andrew M. Rosenfield, and Robert S. Stillman, "The Regulation of Banks and Bank Holding Companies," 73 *Virginia Law Review* 301, 307 (1987); Jonathan R. Macey and Geoffrey P. Miller, "Deposit Insurance, the Implicit Regulatory Contract, and the Mismatch in the Term Structure of Banks' Assets and Liabilities," 12 *Yale Journal on Regulation* 1, 3-4, 7-8 (1995).

[11] Those sources include the market for interbank credit and resort to the discount window of the central bank as the lender of last resort. In the United States, access to the discount window traditionally has been limited and strictly administered for institutions that are financially unsound. *See* Board of Governors of the Federal Reserve, *The Federal Reserve System: Purposes & Functions,* 9th ed. (Washington, D.C. Federal Reserve Board, 2005), at 45–48; Walker F. Todd, "Central Banking in a Democracy: The Problem of The Lender of Last Resort," in Patricia A. McCoy, ed., *Financial Modernization After Gramm-Leach-Bliley* (Lexis, 2002) at 135. In the subprime mortgage crisis of 2007, however, the Federal Reserve Board urged healthy banks to borrow from that facility to remove the perceived stigma surrounding discount window loans. *See, e.g.*, Eric Dash, "Four Major Banks Tap Federal Reserve for Financing," *New York Times* (August 23, 2007).

[12] *See, e.g.,* Jonathan R. Macey and Geoffrey P. Miller, "Bank Failures, Risk Monitoring, and the Market for Bank Control," 88 *Columbia Law Review*, at 1153, 1156 (1988).

[13] *See, e.g.*, Fischel, Rosenfield, and Stillman, *supra* note 10, at 307-09.

[14] *See* Helen A. Garten, "Banking on the Market: Relying on Depositors to Control Bank Risks," 4 *Yale Journal on Regulation*, at 129, 154-55 (1986); Robert E. Litan, "Evaluating and Controlling the Risks of Financial Product Deregulation," 3 *Yale Journal on Regulation*, at 1, 35 (1985); R. Mark Williamson, "Regulatory Theory and Deposit Insurance Reform," 42 *Cleveland State Law Review* 105, 114 (1994).

[15] In a prisoner's dilemma, individuals rationally refuse to cooperate, even though cooperation would maximize everyone's benefit, because they cannot trust others to cooperate and they will suffer the worst result if they cooperate and others do not.

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[16] *See* Fischel, Rosenfield, and Stillman, *supra* note 10, at 311–12; Thomas M. Hoenig, "Financial Modernization: Implications for the Safety Net," 49 *Mercer Law Review*, 787, 788 (1998).

[17] *See, e.g.*, Hoenig, *supra* note 16, at 788–89; Macey and Miller, "Deposit Insurance," *supra* note 10, at 15. Harm to the payment system from bank runs has declined as nonbank payment providers have gained market power.

[18] *See, e.g.,* Macey and Miller, "Bank Failures," *supra* note 12, at 1157B58.

[19] *See, e.g.*, Leonard Lapidus, "State and Federal Deposit Insurance Schemes," 53 *Brooklyn Law Review*, at 45 (1987).

[20] *See generally* Federal Deposit Insurance Corp., *Managing the Crisis: The FDIC and RTC Experience 1980-1994* (Washington, D.C.: Federal Deposir Insurance Corp.,1998), at 234-35, 252, 547-50 (describing depositor panic in 1982 at Penn Square Bank, N.A. and the 1984 run at Continental Illinois); Foulkes, "The Federal Deposit Insurance Corporation: The Rescue of Continental Illinois National Bank and Trust Company," *1985 Annual Survey of American Law*, at 137; The President's Working Group on Financial Markets, "Hedge Funds, Leverage, and the Lessons of Long-Term Capital Management" (April 1999), available at http://www.ustreas.gov/press/releases/reports/hedgfund.pdf; U.S. General Accounting Office, "Long-Term Capital Management: Regulators Need to Focus Greater Attention on Systemic Risk," GAO/GGD-00-3 (October 1999), available at http://www.gao.gov/archive/2000/gg00003.pdf.

[21] *See* Carter H. Golembe, "The Deposit Insurance Legislation of 1933: An Examination of Its Antecedents and Its Purposes," 75 *Political Science Quarterly* 181, 189, 192, 194 (1960).

[22] Despite federal deposit insurance, in 1983 the Continental Illinois National Bank and Trust Company, a wholesale bank in Chicago, Illinois, with mostly large, uninsured deposits, did experience a bank run. *See generally* FDIC, *supra* note 20, at 547-50; Foulkes, *supra* note 20. Otherwise, practically all of the other runs during the 1980s crisis took place at savings and loan institutions that were insured by state deposit insurance systems in Ohio, Maryland, and Rhode Island, and not by the federal government. In the aftermath, all of the state deposit insurance systems that had not already failed closed their doors and were replaced by federal deposit insurance. *See, e.g.*, Kenneth E. Scott, "Deposit Insurance—The Appropriate Roles for State and Federal Governments," 53 *Brooklyn Law Review* 27, 27–28 (1987). .

[23] Milton Friedman and Anna J. Schwartz, *A Monetary History of the United States, 1867–1960* (Princeton, NJ: Princeton University Press, 1963), at 434.

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[24] Quoted in Harris Weinstein, "Moral Hazard, Deposit Insurance and Banking Regulation," 77 *Cornell Law Review* 1099, 1100 (1992). *See also* Helen A. Garten, "A Political Analysis of Bank Failure Resolution," 74 *Boston University Law Review* 429, 444–47 & n.79 (1994).

[25] William A. Lovett, "Moral Hazard, Bank Supervision and Risk-Based Capital Requirements," 49 *Ohio State Law Journal* 1365, 1365 (1989).

[26] Empirical findings bear this out. . For a review of the literature, see Demirgüç-Kunt and Kane, *supra* note 1, at 187–88.

[27] *See* Asli Demirgüç-Kunt and Harry Huizinga, "Market Discipline and Financial Safety Net Design," World Bank Policy Research Paper No. 2183 (1999), at 17–19, available at http://www.worldbank.org/html/dec/Publications/Workpapers/wps2000series/wps2183/wps2183.pdf.

[28] *See, e.g.*, Fischel, Rosenfield, and Stillman, *supra* note 10, at 314–15; Garten, *supra* note 14, at 133; Hoenig, *supra* note 16, at 789; Armen G. Hovakimian, Edward J. Kane, and Luc A. Laeven, "How Country and Safety-Net Characteristics Affect Bank Risk-Shifting," AFA 2003 Washington, D.C. Meetings (October 11, 2002), available at SSRN at http://ssrn.com/abstract=299523. Krishna G. Mantripragada, "Depositors as a Source of Market Discipline," 9 *Yale Journal on Regulation* 543, 548–49 (1992); Williamson, *supra* note 14, at 108–09.

[29] *See* Hovakimian, Kane, and Laeven, *supra* note 28, at 2.

[30] *See, e.g.,* Fischel, Rosenfield, and Stillman, *supra* note 10, at 314–15; Mantripragada, *supra* note 28, at 548–49; Williamson, *supra* note 14, at 108-09. Even in the absence of deposit guarantees, banks have a heightened propensity toward risk due to their high leverage and limited liability protection for their shareholders. Deposit insurance exacerbates this tendency toward risk. *See* Joseph E. Stiglitz, "Some Aspects of the Pure Theory of Corporate Finance: Bankruptcies and Takeovers," 3 *Bell Journal of Economics* 458 (1972).

[31] *See* Williamson, *supra* note 14, at 125 n.62.

[32] *See* Asli Demirgüç-Kunt and Enrica Detragiache, "Does Deposit Insurance Increase Banking System Stability?" IMF Working Paper 00/3 (Washington, D.C.: International Monetary Fund, January 2000) at 10–12 and table 2, available at www.imf.org/external/pubs/cat/longres/cfm?sk=3382.0

[33] *See* Macey and Miller, "Deposit Insurance," *supra* note 10, at 19–21.

[34] *See* Hoenig, *supra* note 16, at 790.

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[35] *See* Depository Institutions Deregulation and Monetary Control Act of 1980, Pub. L. No. 96-221, 94 Stat. 132 (1980); Jonathan R. Macey and Geoffrey P. Miller, "Nondeposit Deposits and the Future of Bank Regulation," 91 *Michigan Law Review* 237, 241 (1992); Mantripragada, *supra* note 28, at 550.

[36] Pub. L. No. 109-171, Title II, § 2103, 120 Stat. 4 (2006) (codified at 12 U.S.C. § 1821(a)(1)(B)-(a)(1)(F), (a)(3)(A)).

[37] The main way the FDIC has expanded deposit insurance has been through its power to provide separate deposit insurance coverage for individuals who make deposits in different legal capacities, depending on the circumstances. For instance, an individual's personal accounts receive deposit insurance coverage up to the maximum limit separate from any bank accounts that he or she administers as trustee. In this manner, the FDIC can expand coverage through its rule-making authority without the need for new legislation. *See* Patricia A. McCoy, *Banking Law Manual: Federal Regulation of Financial Holding Companies, Banks and Thrifts,* 2nd ed. (Lexis, 2000 and cumulative supplements), § 11.06[2][c].

[38] Shadow Financial Regulatory Committee, "FDIC Replenishing of the Deposit Insurance Fund, 2," Statement No. 226, Feb. 13, 2006, available at http://www.aei.org/research/shadow/publications/pageID.888,project ID.15/default.asp.

[39] Litan, *supra* note 14, at 21; *see also* Hoenig, *supra* note 16, at 791 (allowing banks to directly conduct new activities expands the costs associated with safety nets).

[40] *See* Jonathan R. Macey and Elizabeth H. Garrett, "Market Discipline by Depositors: A Summary of the Theoretical and Empirical Arguments," 5 *Yale Journal on Regulation* 215, 220 (1988).

[41] *See, e.g.*, Ron Feldman and Gary Stern, "Methods for Addressing The Too-Big-To-Fail Problem: Where Does The Gramm-Leach-Bliley Act Of 199 Fit?" in *Financial Modernization After Gramm-Leach-Bliley, supra* note 11, at 31.

[42] *See* Hovakimian, Kane, and Laeven, *supra* note 28, at 13–15.

[43] *See* notes 4 and 5 *supra* and accompanying text.

[44] *See, e.g.*, Mantripragada, *supra* note 28, at 549.

[45] *See* Demirgüç-Kunt, Karacaovili, and Laeven, *supra* note 3, at 6.

[46] *See id*. at 6–7.

[47] *See* Demirgüç-Kunt and Kane, *supra* note 1, at 180.

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[48] *See* Peter P. Swire, "Bank Insolvency Law Now That It Matters Again," 42 *Duke Law Journal* 469, 498–99 (1992).

[49] *Cf.* Demirgüç-Kunt, Karacaovili, and Laeven, *supra* note 3, at 7.

[50] *See id*. at 11 and figure 6.

[51] *See* Garcia, *supra* note 7, at 18.

[52] *See* Robert Cull, Lemma W. Senbet, and Marco Sorge, "Deposit Insurance and Financial Development," World Bank Policy Research Working Paper No. 2682 (March 2003), at 21 and table 2, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=391940; Demirgüç-Kunt and Detragiache, *supra* note 32, at 13–15 and table 3.

[53] *See* Demirgüç-Kunt and Detragiache, *supra* note 32, at 13–15 & table 3 (the probability of the 1980s U.S. crisis would have fallen from 4.3 to 2.5 percent); Garcia, *supra* note 7, at 14 n.13.

[54] *See* Demirgüç-Kunt and Kane, *supra* note 1, at 184–85.

[55] *See id*. at 192.

[56] *See* Luc Laeven, "Pricing of Deposit Insurance," World Bank Policy Research Paper No. 2781 (July 2002), at 32, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=636235.

[57] *See* Demirgüç-Kunt, Karacaovili, and Laeven, *supra* note 3, at 8.

[58] *See* Mantripragada, *supra* note 28, at 555.

[59] *See* Laeven, *supra* note 56, at 26–27.

[60] *See* Demirgüç-Kunt and Detragiache, *supra* note 32, at 13.

[61] *See* Demirgüç-Kunt, Karacaovili, and Laeven, *supra* note 3, at 9.

[62] *See* Garcia, *supra* note 7, at 12; Mantripragada, *supra* note 28, at 548–49.

[63] *See* Mantripragada, *supra* note 28, at 547.

[64] *See* Fischel, Rosenfield, and Stillman, *supra* note 10, at 316; Garcia, *supra* note 7, at 12; Sarah Jane Hughes, "Banking and Deposit Insurance: An Unfinished Agenda for the 1990s," 68 *Indiana Law Journal* 835, 851 (1993); Laeven, *supra* note 56, at 28–29; Scott, *supra* note 22, at 34.

[65] *See* Lapidus, *supra* note 19, at 46–47; Litan, *supra* note 14, at 40; *see also* William M. Isaac, "The Role of Deposit Insurance in the Emerging Financial Services Industry," 1 *Yale Journal on Regulation* 195, 207 (1984).

[66] *See* Isaac, *supra* note 65, at 207–08.

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[67] *Cf. Doolin Security Savings Bank v. FDIC*, 53 F.3d 1395, 1397–98 (4th Cir. 1995) (FDIC terminated a healthy institution's deposit insurance in a dispute over the premium rating). In 2006, largely in response to the *Doolin* case, Congress barred the FDIC from imposing late fees when failure to pay is due to a dispute over the premium amount and the institution deposits security that is satisfactory to the FDIC in the event it loses the dispute. Pub. L. No. 109-171, Title II, ' 2104(c), 120 Stat. 4 (2006) (codified at 12 U.S.C. ' 1828(h)).

[68] *See* Hughes, *supra* note 64, at 851; Laeven, *supra* note 56, at 3.

[69] *See* Demirgüç-Kunt and Detragiache, *supra* note 32, at 15 n.16.

[70] *See* Laeven, *supra* note 56.

[71] Former 12 U.S.C. ' 1817(b)(2)(A)(iii), (v); *see generally* McCoy, *supra* note 37, § 11.06[4].

[72] *See* Pub. L. No. 109-171, Title II, § 2104(a), 120 Stat. 4 (2006) (amending 12 U.S.C. ' 1817(b)(2)(A)); FDIC, Assessments, Final rule, 71 *Federal Register* 69282 (November 30, 2006); Litan, *supra* note 14, at 40 ("Given typical spreads between marginal lending and borrowing rates of interest of 100 basis points or more, a maximum penalty of five basis points would provide little deterrence to the risk-seeking bank").

[73] *See* Laeven, *supra* note 56, at 50 and table 13.

[74] *See id.* at 41, 50–51.

[75] *See* Litan, *supra* note 14, at 21–22. In contrast to large depositors, small depositors lack the bargaining power, expertise, or resources to keep effective tabs on their banks.

[76] This becomes a particular concern when the failed bank resolution methods that a government employs—such as bailouts and purchase and assumption agreements giving uninsured depositors full protection—convey the impression that the government will protect uninsured depositors de facto if not de jure. With such resolution methods, a government sends the message that rational depositors do not need to monitor their banks for safety and soundness.

[77] *See* Joseph E. Stiglitz, "S&L Bailout," in James R. Barth and R. Dan Brumbaugh, Jr., eds., *The Reform of Federal Deposit Insurance: Disciplining the Government and Protecting Taxpayers* (New York: Harper Business, 1992), at 1.

[78] *See* Demirgüç-Kunt and Kane, *supra* note 1, at 187–88 (reviewing empirical literature).

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[79] *See* notes 20 and 22 *supra* and accompanying text.

[80] *See* Demirgüç-Kunt and Kane, *supra* note 1, at 187–88 (reviewing empirical literature).

[81] *See id*. at 192; Jonathan R. Macey and Geoffrey P. Miller, "Double Liability of Bank Shareholders: History and Implications," 27 *Wake Forest Law Review* 31 (1992).

[82] *See* Macey and Miller, "Bank Failures," *supra* note 12.

[83] For a description of removal and prohibition sanctions in the banking industry in the United States, see McCoy, *supra* note 37, at § 13.03[6].

[84] *See* Garcia, *supra* note 7, at 13.

[85] *See* Barth, Caprio, and Levine, *supra* note 5, at 22–23, 29, and table 7b. For a general description of such liability in the United States, see McCoy, *supra* note 37, at § 14.04.

[86] *See* Demirgüç-Kunt and Detragiache, *supra* note 32, at 26. *Accord* Cull, Senbet, and Sorge, *supra* note 52, at 21–22 and table 2 (concluding that only strong rule of law and supervisory independence from legal reprisal—not official supervisory power—mitigate volatility from generous deposit insurance schemes).

[87] *See* Barth, Caprio, and Levine, *supra* note 5, at 22–23, 29 and table 7b.

[88] *See* Demirgüç-Kunt and Kane, *supra* note 1, at 182; *see also* Hovakimian, Kane, and Laeven, *supra* note 28, at 24 ("countries where government corruption is high and economic and political freedom are low find it difficult to adopt and enforce appropriate restraints" on moral hazard).

[89] *See* Demirgüç-Kunt and Kane, *supra* note 1, at 190.

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