WHAT KIND OF MULTINATIONAL DEPOSIT-INSURANCE ARRANGEMENTS MIGHT BEST ENHANCE WORLD WELFARE?*

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ABSTRACT
An international Association of Deposit Insurers (IADI) was formed in May 2002. This paper argues that differences in regulatory culture render schemes for consolidating national insurers impractical. The IADI could better advance the goals of impeding cross-country spillovers of crisis pressures and improving the exchange of meaningful regulatory information by organizing a public market in deposit-reinsurance derivatives. Opportunities to swap individual-country loss exposures would help to recognize, price, and transfer selected deposit-insurance risks to well-capitalized private parties. The spreads and prices observed for different deposit-insurance strips would help domestic guarantors of deposit-insurer obligations to rank the quality of financial regulatory performance at home and abroad. This information would help researchers to identify potentially superior design features and allow voters and uninsured bank creditors to discipline insurer loss-control efforts in a more timely and constructive fashion.

Markets are said to “succeed” when the equilibrium allocation of resources they establish is Pareto-efficient (Ledyard, 1992). Market failure is the obverse of market success. In principle, difficulties in ascertaining, communicating, and coordinating desirable interactions within and across countries can lead to market failure.

In financial markets, potential market failures from information asymmetry or externalities are routinely cited as justifications both for establishing external regulation and for undertaking particular regulatory reforms. Clearly, the ongoing globalization of financial markets and institutions extends the range of information asymmetries and disruptive spillovers of costs and benefits with which banking regulators in individual countries must contend. Nevertheless, as Eatwell and Taylor (2000, p. 6) observe, the
jurisdiction of financial regulators “remains trapped within increasingly irrelevant natural borders.”

A recent policy response to this entrapment problem has been the formation in May, 2002 of an International Association of Deposit Insurers (IADI). The IADI aims to promote cooperation, information exchange, and strategic research across national deposit-insurance systems (IADI, 2002). Recognizing that introducing new markets is an alternative remedy for market failure, this paper asks whether the IADI could usefully do more than this.

Completely autonomous national safety nets pose two problems of coordination. The first comes from the difficulty of identifying and correcting potentially destabilizing weaknesses in individual-country loss-control systems before they can harm other countries. The second is the lack of opportunities for measuring and trading away potentially diversifiable country risks.

Safety-net coordination problems could be addressed, as Grubel (1979) has suggested, by establishing a consolidated worldwide deposit-insurance enterprise. With no loss of generality, a multinational deposit insurer can be assumed to take the form of a centrally managed holding company that would tightly oversee corporate subsidiaries charged with operating financial safety nets in individual countries. The principal externalities this enterprise could address would be measuring, managing, and funding cross-country risk, including the risk of a contagious transmission of financial-crisis pressures from one country to another.

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Although consolidated management could internalize externalities across countries by trading loss exposures within an informal intrafirm capital market, information asymmetries and incentive conflicts might lead to a different result. In a perfect world, financial regulators in individual countries and the taxpayer-principals they serve would always know what adjustments in cooperative arrangements could maximize world welfare and would adopt these adjustments promptly. In the real world, the alleged optimality of proposed adjustments is always controversial and regulators’ incentives to undertake desirable adjustments are distorted by information lags, nationalistic biases, and variation in empowerments and reporting responsibilities, legal systems, and cultural norms (Kane, 2001a).

Because crises are infrequent, individual policymakers have little direct experience in managing crises and a poor understanding of how best to avoid them. Errors made in trial-and-error policymaking and authorities’ true reasons for making them are subject to both conscious and unconscious “spin.”

Taxpayers in different countries can be likened to poorly informed corporate shareholders. As implicit guarantors of catastrophic safety-net losses, taxpayers supply dividend-free risk capital to deposit-insurance institutions. Taxpayers’ inability to observe their loss exposure and to extract explicit compensation for it leaves them vulnerable to exploitation by opportunistic coalitions between the consolidated firm’s managers and individual-country regulators. In the rapidly changing world of modern finance, it is virtually impossible to design contracts that could empower and oblige the managers of the regulatory holding company and its subsidiaries to minimize agency costs. Even if all messy issues of corporate governance could be resolved, a consolidated
cross-country insurer’s monitoring requirements and enforcement activities would challenge traditional rights of national sovereignty. Participating governments would have incentives to write cross-country agreements that sidestep both problems. These perverse incentives are bound to narrow the scope and undermine the economic efficiency of any consolidated enterprise.

Conflicts of interest with individual-country taxpayers would be much fewer if the multinational entity focused only on providing new and market-driven ways to measure and fund country risk exposures. It could do this most readily by organizing a public market in reinsurance derivatives. Trading in reinsurance contracts could allow governments both to price and to transfer selected deposit-insurance risks to private parties. If trading is transparent, these markets would disclose traders’ best estimates of changing national loss exposures without requiring any nation to cede politically sensitive monitoring, policing, and closure powers to outsiders.

Section I begins by examining a hypothetical contracting environment in which either consolidated management or trading country deposit-insurance loss exposures would be equally efficient. The analysis goes on to show that, in more realistic environments, management consolidation and external trading in deposit-insurance derivatives offer different benefits. First, external trading constitutes a politically less intrusive way to transfer diversifiable risk across countries than cross-country consolidation. Opportunities to swap individual-country loss exposures either on dealer markets or on a derivatives exchange could help to identify and transfer cross-country risk without altering national sovereignty over decisions about either deposit-insurance design or individual-bank exits. Second, the swap spreads and prices generated by
transactions in external derivatives markets would help taxpayer and industry suppliers of deposit-insurance risk capital to assess the quality of their insurer’s regulatory performance. Officials’ reduced ability to keep evidence of adverse performance in-house would enable taxpayers and better-capitalized insured institutions to use their political power to discipline individual-country loss-control efforts in a constructive fashion. In these ways, external trading in reinsurance derivatives promises to hold individual-country regulators more closely accountable for weakness in their loss-control systems than the corporate-governance protocols and bureaucratic sanctions apt to be conceived and enforced within the corporate culture of a multinational holding company.

Section II introduces the concept of an insurer’s regulatory culture and explains how differences in regulatory culture generate efficient cross-country differences in deposit insurance rules and enforcement. Section III briefly reviews some of the major ways in which the deposit-insurance schemes of 68 individual countries differ from one another. Section IV focuses on regulatory competition and regulatory arbitrage. It explains that, although cross-country competition for jurisdiction tends to lessen differences in the net regulatory burdens that can be enforced in different countries, cultural norms and intersectoral politics slow the process and prevent it from achieving an equalization of burdens. The section also clarifies that switching costs, hidden information, and response lags make it difficult to hold regulators accountable for the social costs of their policies. Precisely because societal norms are fixed over the short run, major elements of individual-country regulatory cultures and financial contracting environments are resistant to change. At any time, the differences that can be reconciled by international negotiations are relatively minor. We conclude that opening private
markets in government reinsurance derivatives would be a useful task for the IADI to assign itself.

I. Modeling Risk and Return for a Deposit-Insurance Enterprise

A deposit insurer may be modeled as a firm in which taxpayers and insured institutions invest risk capital. As illustrated in Figure 1, an insurer’s balance sheet consists of four controllable items: (1) a portfolio of assets that constitutes its loss reserves (A); (2) the aggregate value of the net loss exposures \( L_i \) that pass through from its individual clients \( (i = 1,…, n) \); (3) a book of external hedges (H); and (4) the value of its risk capital (R). We define the value of each \( L_i \) to be net of the “internal” diversification benefits that correlations among the other \( (n-1) \) exposures an individual insurer’s clients might naturally generate. The value of each loss exposure is also a function of the quality (Q) of the insurer’s system for monitoring and deterring client risk taking. Q in turn is a function of the transparency (T) the monitoring system generates and the effect of the bonding (B) and deterrent restrictions (D) that depositors and the insurer use to restrain bank risk taking.

If the loss exposures of this firm are managed efficiently, the economic value of R supports a profile of risk from which any remaining diversifiable risk has been reduced by booking external hedges until the marginal benefit of further hedging transactions equals their marginal hedging cost. What levels of T, B, and D the insurer establishes and how benefits and costs are distributed between managers, clients, and taxpayers is a matter of corporate governance. It depends on the relative ability of the insurer’s capital-
supplying sectors to monitor the insurer’s aggregate loss exposure and to influence managerial decisions in a country’s particular political and financial-contracting environment.

To manage the portfolio risk a deposit insurer incurs, its staff must measure, price, and hedge its loss exposures and calculate an appropriate level of reserves. This risk is managed optimally when the marginal costs of all four activities are set equal to their marginal benefits.

**Costless Case.** In the simplest case, each activity is costless and risk exposures are known and stationary. In this case, the insurer would charge each client only for the undiversifiable risk it imposed on insurance reserves and these charges would allow the insurer to maintain an optimal fund of explicit and implicit reserves. If the loss exposures in an insurer’s client base were not diversified naturally across the client base, the insurer could either hedge its idiosyncratic risk in global reinsurance markets or consolidate structurally with other countries’ insurers until all idiosyncratic risk disappeared from the system. Because all costs are zero, it would make no difference what combination of hedging and consolidation activities management chose to pursue.

We demonstrate this outcome with a simple two-country model of mean-variance portfolio allocation, labelling the two countries I and II. The strictly domestic loss exposure of each country is now represented as \( \hat{L}_j \). The total loss exposure of country I is:

\[
L_I = \hat{L}_I [Q_I (T_I, D_I, B_I)] + L_I [Q_{II} (T_{II}, D_{II}, B_{II})].
\]  

(1)
For simplicity, equation (1) assumes that loss exposures in country I are not directly influenced by the details of the loss-control system the other country’s insurer operates. It seems reasonable to assume that \( L_I \) and \( L_{II} \) are positively correlated, but that \( \rho_{I,II} \) lies well below unity. Finally, we assume that, whatever expected loss exposure the \( j^{th} \) insurer accepts, it asked to minimize the variance of \( L_j \) and required to hold reserve assets \( A_j \) proportional to the square root of this variance:

\[
A_j = c(L_j \sigma_j), \ j = I, II \quad \text{and} \quad 1 > c > 0. \quad (2)
\]

If neither insurer recognizes the opportunity to hedge some of its risk by taking a position in the other insurer’s loss exposure, each insurer still has three potential policy instruments: T, B, and D. Each funds the local and global minimum combination of T, B, and D, but has to hold more assets than it would if it invested in an optimal tranche of the other country’s risk exposures. With no hedging,

\[
\sigma^2(L_I) = L_I^2 \sigma_I^2; A_I = c(L_I \sigma_I); \quad (3)
\]

\[
\sigma^2(L_{II}) = L_{II}^2 \sigma_{II}^2; A_{II} = c(L_{II} \sigma_{II}). \quad (4)
\]

Because loss exposures in the two countries are subject to global influences, the global variance \( \sigma_G^2(L_I, L_{II}) \) of these exposures is:

\[
\sigma_G^2 = L_I^2 \sigma_I + L_{II}^2 \sigma_{II}^2 + 2L_I L_{II} \rho_{I,II} \sigma_I \sigma_{II}. \quad (5)
\]

Let us designate the country with the smaller variance as country I. The diversification theorem implies that, as long as \( \rho_{I,II} < \sigma/I \sigma_{II} \), the two insurers can reduce their funding requirements by taking (possibly small) hedging positions \( H_I \) and \( H_{II} \) in the other’s loss exposure. With hedging, some of the loss exposure contracted in each country is
replaced dollar for dollar by an on-market swap of $H$ in local exposure for the same amount of exposure in business booked by the other country. With hedging,

$$
\sigma_I^2 = (L_I - H)^2 \sigma_I^2 + H^2 \sigma_H^2 + 2(L_I - H)H \rho_{I,H} \sigma_I \sigma_H. \tag{6}
$$

$$
\sigma_H^2 = (L_H - H)^2 \sigma_H^2 + H^2 \sigma_I^2 + 2(L_H - H)H \rho_{I,H} \sigma_I \sigma_H. \tag{7}
$$

Because results are symmetric for the two countries, it is sufficient to show that, when $H$ is in the neighborhood of zero, hedging would reduce variance in country A. Expanding (6), we may rewrite $\sigma_I^2$ as $\sigma_I^{*2}$:

$$
\sigma_I^{*2} = (L_I^2 - 2L_I H + H^2) \sigma_I^2 + H^2 \sigma_H^2 + (2L_I H - 2H^2) \rho_{I,H} \sigma_I \sigma_H. \tag{8}
$$

The increment in $\sigma_I^2$ from swapping $H$ in $L_A$ for country B exposure is:

$$
\Delta \sigma_I^2 = (-2L_I H + H^2) \sigma_I^2 + H^2 \sigma_H^2 + (2L_I H - 2H^2) \rho_{I,H} \sigma_I \sigma_H. \tag{9}
$$

As $H$ approaches zero, the second-order terms in $H$ disappear, so that the sign of (9) in the neighborhood of $H=0$ is given by the sign of:

$$
2L_I H [\rho_{I,H} \sigma_I \sigma_H - \sigma_I^2]. \tag{10}
$$

Equation (10) has the same sign as $\rho_{I,H} - (\frac{\sigma_I}{\sigma_H})$, which is negative by assumption.

Hence, when risk parameters are known to be stationary and measurement, pricing, and hedging are costless activities, autonomous country insurers would swap their way to the same lower reserve levels that a perfectly informed consolidated holding company would assign them.

Introducing Measurement and Pricing Costs. When deposit-insurance managers must incur positive costs to measure and price their loss exposures, it is no longer optimal
to pursue these activities until their marginal benefits are zero. The result is that neither individual-country insurers nor global insurers can precisely determine their efficient risk-return frontiers.

Even in a stationary environment, introducing imperfections in information flow creates agency costs that are apt to evolve differently under consolidation than under a cross-country hedging strategy. To find the optimal diversification path, one must compare the costs and discipline generated in hedging particular exposures in external reinsurance markets with the costs of negotiating a multinational corporate structure and establishing control over incentive conflict in the resulting enterprise.

When key parameters are both uncertain and nonstationary, information lags and bureaucratic restraints on policy response make variance a less satisfactory measure of risk and also make responsibility for the costs of policy mistakes harder to assign. In this case, suppliers of deposit-insurance capital need to worry about how to hold government officials accountable for the tradeoff between the public and private benefits implicit in the balance-sheet structure and loss-control system they choose.

A distribution of returns whose variance is nonstationary has “fat tails.” In deposit insurance, fat tails mean that the probability of large shocks (“jump risk”) is non-negligible and that regulators must allow for the possibility that large shocks may move across countries with greater force than small ones.

The infrequent occurrence of large shocks means that statisticians have an insufficient number of observations with which to map the behavior of the correlation coefficient $\rho_{l,\Pi}$ in crisis circumstances. Experience indicates that correlations among risky assets tend to rise during financial crises (Goetzman, Li, and Rouwenhorst, 2001).
This suggests that a country’s pre-existing exposures to losses in a crisis country could lose their diversifying power and increase contagion at critical moments. To deal with correlation instability, cross-country exposure-management arrangements must promote prompt and well-adapted patterns of response. A global holding company that trades country loss exposures only in an informationally and politically constrained internal capital market is going to find it difficult to reallocate substantial amounts of its risk capital quickly.

The key point is that investors in private derivatives markets and the top managers of a global holding company would have different ways of coordinating, verifying, and acting on information that at the country level is collected and released by incentive-conflicted agents. To overcome bureaucratic barriers to the efficient allocation of its risk capital, a global holding company would have to establish an information system and a structure of implicit and explicit compensation that could induce a high level of truth-telling, promise keeping, and fair play both within and across its subsidiaries in I and II. However, in tough times, holding-company management would retain the option to decide what information gets reported publicly to capital suppliers in the subsidiary countries. The holding company is unlikely to report fully or accurately the spreads at which it is clearing different countries’ exposures when sudden adverse shocks increase the fragility of large banks in country banking systems. Suppressing such information would promise to prevent bank runs during each particular manager’s watch on the bridge, but over longer periods it would shift more and more systemic risk onto insurance reserves. This is because hiding the weakness of large troubled banks insulates these
banks’ managers from healthy depositor discipline and encourages them to risk deeper and deeper levels of insolvency in the future.

When information on \( L_I \) and \( L_{II} \) is imperfect, a major advantage of competitive trading in deposit-insurance derivatives is the public information that it would generate about the size of individual-country loss exposures and the quality of regulatory performance. Although, the loss exposures that the clients of each insurer pose are by no means fixed over the term of the insurance contract, bureaucrats in individual countries have proved themselves reluctant both to identify adverse shifts and to publicize them honestly when they occur. Rather than letting incentive-conflicted holding-company executives distort the transmission of information about changes in insolvency risk, derivatives trading would regularly disclose changes in the market’s willingness to assume a particular insurer’s loss exposures. Changes in the price of particular derivatives may be used to estimate changes in the value of the issuer’s exposure to particular layers of loss. The prices traders establish for derivative strips of a country’s aggregate insurance exposure could be aggregated to generate benchmark estimates of the net loss exposure its guarantees support. By dissecting and reassembling the prices at which synthetic derivatives trade, analysts could be expected to construct and disseminate indirect market-based estimates of the value of the underlying country loss exposures.

For a country-level deposit insurer to sell reinsurance derivative contracts at reasonable prices, it must formulate and disclose accountable loss-control policies. Each contract traded establishes an implicit partnership between the insurer and the reinsurance dealers and counterparties with which it deals. In contrast to the real options retained by a consolidated multinational enterprise, reinsurance partnerships assign private loss-
bearers definite loss-bearing responsibilities. Demirgüç-Kunt and Detragiache (2002) find that coinsurance and private participation in insurance management significantly reduce the incidence of financial crisis. Prices paid by purchasers of deposit-insurance derivatives expose government managers to discipline from private parties and the positions the counterparties take are functionally equivalent to coinsurance obligations.

Like any other swap, reinsurance contracts would trade either on an organized exchange or through a network of respectable and regularly monitored dealers. Either type of market maker would accept a first-loss responsibility for covering shortfalls in performance by the counterparties to whom it sells a reinsurance share. This responsibility would create incentives for the market makers to monitor carefully the wealth and character of private counterparties.

Kane, Hickman, and Burger (1993) explain why coinsurance and reinsurance partnerships between private and government deposit insurers are socially beneficial. Such partnerships integrate the timeliness and greater accountability of private initiatives with the deep-pocket back-up protection of individual-country guarantees against catastrophic risk.

During their lives, each private reinsurance contract would convey a specified tranche of the aggregate losses a particular insurer incurred between specified upper and lower limits \( L_1 \) and \( L_2 \). The more economically efficient an insurer’s monitoring, insolvency-resolution, and liquidation efforts, the smaller and rarer will be the losses that the reinsurers would expect to bear. As confidence grows in a particular insurer’s loss-control system, the largest limit may be set higher and reinsurance shares may be subdivided into finer and finer tranches.
Under this system, the prices of reinsurance derivatives would serve as a touchstone by which to assess the economic value of alleged improvements in each insurer’s information and loss-control subsystems. If coinsurance features (Demirgüç–Kunt and Kane, 2002), subordinated debt yields (Evanoff and Wall, 2001), derivatives setoff arrangements, activity restrictions, or changes in premium structure or disclosure requirements promised to reduce individual-bank loss exposures or the probability of large systematic losses, their adoption would lower the reinsurance premiums a country’s insurer would face. On the other hand, meaningless design changes and macroeconomic policies that generated perverse effects should also be identified promptly.

II. Cross-Country Differences in Regulatory Culture as Barriers to Efficient Consolidation

Without pressure from reinsurance markets, the corporate cultures within which individual-country officials function are the main determinants of the information and compensation schemes they can adopt. A corporation’s “culture” comprises ways of doing business that employees build up and transmit from generation to generation. Every culture conveys a series of implicit rights, duties, and options to its members. In the private sector, to analyze the prospects for the success of combining target and acquiring firms, analysts routinely try to assess the degree of difficulty that managers will face in integrating the corporate cultures of the partner firms.

Individual-country deposit insurers establish a corporate culture, too. Each such culture grows out of its nation’s ethical norms and legal institutions. How much interpersonal trust and accountability a nation’s behavioral norms generate helps to
dictate the structure of regulator-regulatee relationships and the manner in which information is collected, doublechecked, and used by top regulatory management in making policy decisions.

Public choice theory takes it as axiomatic that public officials can more easily create standards and enforcement schemes that internalize externalities within a country or particular “regulatory culture” than across countries or cultures. The extent of cultural diversity, the uneven pace of financial change around the world, and the length of individual-country and cross-country regulatory lags makes this difference in adaptive capacity the central issue in coordinating deposit-insurance behavior.

Instructive parallels exist between the potential consolidation of deposit-insurance enterprises across countries today and the 1933 passage from state-level deposit-insurance systems to federal deposit insurance in the U.S. Moreover, the ways in which this parallel breaks down illustrate the importance of regulatory culture.

Three principal parallels stand out. When the Federal Deposit Insurance Corporation (FDIC) came onto the scene, state-level regulatory regimes differed widely – both in supervisory quality and in rules about branch banking and new entry. The second parallel is that many states had experimented with deposit insurance and that the design and success of individual systems differed greatly (Calomiris, 1992a). Finally, “in virtually every case where politicians were granted regulatory influence or authority – that is, the three antebellum [i.e., pre-1860] failures and all eight of the postbellum systems – there was political abuse or regulatory neglect.” (Calomiris, 1992b, p. 327).

However, the parallel fails in three other ways. First, although state systems were “government-created and government-supervised, they were funded solely by premiums
charged to individual member banks. Accumulated funds from these premiums were the only backing for insured deposits” (Calomiris, 1992b, p. 324). Second, none of these systems was still in operation when cross-state consolidation negotiated. This lessened the conflicts of bureaucratic interests that would-be consolidators had to reconcile. Third, decisions about the design of the consolidated enterprise were assigned to a democratically elected legislature, subject to explicit checks and balances from judiciary and executive branches of government.

Today, cross-country cooperation to lessen externalities is either negotiated on an ad hoc basis in forums like the Bank for International Settlements or imposed in exigent circumstances by external creditors as a condition for receiving bilateral or multinational financial assistance. The formulation and subsequent enforceability of such multinational agreements are undermined by the lack of politically legitimated checks and balances and by divergences in individual-country cultural norms, market and political structures, and exposures to various kinds of economic stress.

Countries whose norms induce truth-telling, promise-keeping, and fair play are able to reliably sanction violators in informal ways. This reduces the role that legally enforceable deterrent rights have to play in protecting bank stakeholders. How shareholders and creditor rights are specified and enforced in a given country limits the contractual remedies that individual bankers may deploy to mitigate loan losses. At the same time, these privately accepted remedies shape the tools that a government insurer may use to size and control its loss exposure at client institutions. For example, ownership restrictions and common-law principles of lender liability and equitable subordination increase loss exposures at U.S. banks by discouraging bankers from
playing as active a role in the governance of borrowing firms as Japanese and European banks do (Macey and Miller, 1998). In resolving a bank insolvency, ownership restrictions constrain the Federal Deposit Insurance Corporation’s (FDIC’s) efforts to solicit bids to take over the bank and common-law principles expose the FDIC’s asset-management strategies to lawsuits from other stakeholders.

**Regulatory Culture** In any representative democracy, government rulemaking and enforcement is built on conceptual foundations that combine efforts to establish verifiable “bright-line rules” with an unspoken presumption that each rule is conceived and enforced predominantly to promote the common good. These foundations put procedures for defining, authenticating, and promoting the common good at the center of any regulatory enterprise.

Politically, the relevant common good may be represented as a weighted sum of the perceived welfare of the various constituencies apt to be affected by the regulator in question. The weighting process is restrained by community standards of fair play and appropriate governmental powers. Richard Carnell (1993) argues that U.S. standards tend to support a “culture of ad hoc regulation,” in that a regulator’s policy discretion (i.e., its collection of “real options”) expands de facto in any perceived crisis.

Building on Carnell’s insights, we may distinguish six ways in which a particular deposit insurer’s regulatory culture may differ:

1. in the character of the statutory grant of authority and reporting responsibilities the enterprise receives;
2. in the specific rules it formulates and how it develops and promulgates them;
3. in the methods the enterprise uses to monitor for violations;
4. in the penalties it can and does impose on clients when it finds material violations;

5. in the nature and extent of due-process restrictions (including specific burdens of proof) that protect regulated institutions from unfair administrative procedures;

6. in the extent of insured institutions’ rights to effectively appeal regulatory decisions to a higher authority.

Together with a country’s broader ethical norms and citizens’ understanding of their country’s past regulatory experience, the first feature limits each of the other five and establishes a chain of trust and accountability for both how-- and how well-- the regulator performs its assigned mission. The rules and enforcement are expected to achieve the mission in an economically efficient and fair manner.

Prior to the FDIC Improvement Act of 1991 (FDICIA), state and federal banking regulators in the U.S. enjoyed considerable discretion about whether and how to resolve the insolvency of insured institutions. This discretion took the form of relaxing the enforcement of solvency requirements in two circumstances: whenever a troubled institution was large and complex and any time that a substantial number of institutions became insolvent at the same time. Although FDICIA now importantly constrains this discretion, it is naïve to suppose that statutory constraints can eliminate leniency.

Regulatory forbearance is rooted in a troubled bank’s political connections and in three norms that in different degrees are part of the financial regulatory culture of every country in the world:
1. **The Nationalism Norm:** It is each regulator’s implicit duty to help domestic institutions to compete more effectively with foreign firms;

   2. **The Mercy Norm:** Every regulator has an implicit duty to be merciful to domestic institutions whose weakness traces to bad luck and poor judgment; only dishonest acts must be treated severely.

   3. **The Nonescalation Norm:** Every regulator has a right to avoid actions that run a nonnegligible risk of turning the insolvency of a particular firm or economic sector into a national financial disaster.

   The more firmly society embraces the mercy and nonescalation norms, the less effectively that country’s regulators can be held accountable today for the long-run costs of designating insolvent firms as either “too big” or “too many” to fail. When *ad hoc* policy actions can be justified on the unverifiable grounds that they either give a deserving party a break or lower the unobservable risk of contagiously transmitting the insolvency of one domestic institution to others, the probability of qualifying for a lenient workout is nonnegligible and intensifies incentives for bankers to devise clever ways of shifting risk onto creditors and deposit insurers.

III. Cross-Country differences in Deposit Insurance Design Features

Demirgüç–Kunt and Sobaci (2000) have compiled a cross-country data set that demonstrates that very few deposit-insurance systems are exactly alike. The single most important design feature is whether the guarantees a government provides depositors are made at least partially explicit or left completely implicit. Guarantees are explicit when
they are embodied in enforceable obligations that may be collected from the insurer’s assets as a matter of law. Explicit systems are usually funded from ex ante premiums or ex post assessments imposed on eligible institutions.

Although implicit deposit insurance is by nature unfunded, it is important and exists always and everywhere that banks are formally chartered by a specific government. Guarantees are implicit when their enforceability depends entirely on public confidence in the strength of recognized political incentives for a country’s leaders to bail out or rescue stakeholders in banks that become economically insolvent.

Even in an explicit system, a degree of implicit insurance comes from the discretion authorities have to treat troubled institutions mercifully. An incipient banking crisis creates political incentives for incumbent officials in any government with an explicit system to extend regulatory forbearances, subsidized loans, and unfunded de facto coverages that exceed the formal limits specified in the nation’s laws and regulations. Also, in many countries, one or more banks are state-owned. For such banks, implicit deposit insurance is widely perceived to be absolute.

Where transparency, bonding, deterrence, and accountability are weak, installing explicit insurance may be a great mistake (Demirgüç-Kunt and Kane, 2002). In poor informational and contracting environments, the ambiguous and unfunded nature of purely implicit deposit insurance has the advantage of leading depositors to demand safeguards that bond banks to treat customers fairly and to insist on risk premiums that are broadly commensurate with the unbonded risk-taking capacity of their bank.

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1 This section draws on Kane (2001a).
Kane (2001a) shows that differences in individual-country contracting environments and regulatory cultures correlate in common-sense ways with the presence or absence of particular elements of deposit-insurance design. To a large extent, a country’s deposit-insurance design features are tailored to its contracting and cultural environment. The need for these features to respond promptly to changes in the contracting environment constitutes a formidable barrier to an efficient multinational consolidation of deposit-insurance management even across advanced countries.

In high transparency (HT) contracting environments, sufficiently sophisticated depositors can observe bank risk-taking and taxpayers can hold regulators and politicians accountable for their actions \textit{ex post}. In environments where high transparency is combined with strong and enforceable deterrent rights (high deterrency HD), sophisticated depositors and taxpayers can also protect themselves \textit{ex ante}. Hence, the regulatory culture of countries with high transparency environments will tend to control agency costs by some combination of bonding commitments and deterrent penalties.

In contrast, banks and regulators in countries with low transparency environments cannot be adequately monitored even \textit{ex post}. Bankers and regulators that want to build trust in LT environments have to rely on policies that bond themselves to treat clients and other principals fairly and to disclose adverse information about themselves promptly. In the absence of effective individual, professional, or cultural bonding mechanisms, in LT environments banks and regulators will be tempted to behave in a corrupt manner. The strength of this temptation will vary with the degree of nontransparency and the deterrent force (i.e., the probability and size) of their effective exposure to \textit{ex post} penalties. For a LT environment to exercise high deterrency, \textit{ex post} penalties must be draconian.
The more completely and more reliably government or private insurers cover depositors against loss, the less need banks have to bond their own good behavior and the less incentive individual depositors have to police the risks banks can or do take. An unintended perversity of credible and merciful deposit-insurance guarantees is that they reduce exit pressure on poorly performing institutions by attenuating depositors’ interest in gathering information about an institution’s financial condition and in reacting to bad news about this condition as soon as it is received. This anesthetization of depositor concern can allow minor bank insolvencies to fester and grow into deep insolvencies unless the incentive system under which regulators labor leads them to confront supervisory problems.

Because explicit insurance reduces depositor pressure for transparency, bonding, and deterreny, opportunities for engaging in unsound and corrupt banking practices will expand unless either the country’s culture strongly disciplines opportunistic behavior or credible bonding of government banking supervision exists. In principle, several deposit-insurance design features can constrain banks’ ability to exploit weaknesses in transparency and supervisory deterreny (Hovakimian, Kane, and Laeven, 2002). Market discipline can be generated by assigning private parties – as managers or coinsurers-- a clear margin of responsibility for absorbing at least some of the losses an insolvent bank accrues. However, the value to society of incorporating such privatizing features turns on the credibility of the expectation that government officials will force private parties to live up to their contractual responsibilities and the presumption that loss-sharing private parties will not passively allow government procrastination to expose them to increasing risks.
Demirgüç-Kunt and Detragiache (1998 and 2002) find that, when they control statistically for the impact of exogenous crisis-generating forces, the likelihood of undergoing a banking crisis is higher in countries that have adopted an explicit deposit-insurance system than in countries in which guarantees of bank deposits are entirely implicit in character. A companion paper (1999) by these same authors shows that features that partially privatize an explicit insurer’s loss-exposures mitigate crisis risk in countries with strong institutions. However, the likelihood of a crisis remains high for insurers in countries where “the rule of law is weak, corruption is widespread, the bureaucracy is inefficient, and contract enforcement mechanisms are ineffective.” In these environments, capital-impaired institutions are not identified and disciplined quickly enough to avoid massive losses to insuring agencies and their taxpayer-owners. The combination of virtually complete coverage and resolution delay encourages depositors to allow weak institutions to expand risky positions until the aggregate losses become too large for the insurance system to credibly support.

IV. Regulatory Arbitrage and Regulatory Competition

The size and distribution of the net social benefits produced by regulatory services vary substantially from country to country. This variation fuels interactive process of regulatory arbitrage and regulatory competition (Kane, 1981). Within and across countries, the character of the services provided by financial institutions and financial safety nets is jointly determined. Regulators seek to increase their budgets and prestige by enhancing the quality and reliability of the various services their regulatees offer to
customers. In turn, institutions modify the form and location of their services to extract net benefits from the safety nets that individual governments erect.

When the value of a deposit insurer’s services to client institutions exceeds (lies below) the fees and implicit costs the insurer imposes on them, its systems may be described as offering its clients a net regulatory benefit (burden). Regulatory arbitrage occurs when differences in net regulatory burdens induce institutions to adjust their organizational form to allow particular subsets of their business to be booked in jurisdictions that treat these categories of deal-making most favorably. Because financial deals and services may be conceived and executed in different locations from those in which profits and costs are formally booked, the simplest form of regulatory arbitrage consists of introducing into a firm’s organization chart a “booking division” that relies on advances in information and contracting technology to transform the institution’s deal-making and services-delivery mechanisms so that underlying business can be continually reallocated across nations in an advantageous fashion.

Multinational firms’ booking divisions impose more competitive discipline on financial regulators in individual countries than taxpayers can. Over time, a high-burden regulator loses budget revenue, clients, rents, and prestige. Such losses generate political and bureaucratic pressures to reduce its net burden so as to reverse the trend. Defects in public-service contracting and information exchange between agent regulators and the taxpayer and financial-institution communities renders markets for political and bureaucratic services less than perfectly contestable. Because few governments are prepared to allow an incumbent domestic regulator to fail, the discipline markets generate on regulators’ short-term job performance can be dysfunctional enough to hurt taxpayers.
Incumbent politicians and regulators may-- but need not-- respond to regulatory arbitrage only by improving their regulatory systems. They may attempt either instead or as well to form cross-country regulatory cartels and to curtail industry criticism during their watch by offering client constituencies hard-to-observe supervisory and regulatory subsidies (see, for example, Hoshi, 2002). The more difficult it is for the press to uncover and report the long-run costs that dysfunctional responses impose on taxpayers, the longer it will take for disadvantaged parties to build a political constituency strong enough to reverse the dysfunctionality. Hence, the speed and extent to which regulatory competition leads to better regulation on average varies with the performance-reporting and political systems within which a given regulatory culture is embedded. This conclusion affirms the need to focus on regulatory incentives and to recognize differences in regulatory culture as a largely exogenous constraint on the problem of finding optimal ways to internalize deposit-insurance externalities across countries.

V. Summary

Few pairs of deposit-insurance schemes could effectively integrate their particular regulatory cultures in the foreseeable future. Hence, consolidation seems an unpromising way for deposit insurers to internalize cross-country externalities today. Fortunately, trading in reinsurance derivatives can achieve many of the putative benefits of multinational consolidation without compromising the adaptive efficiency inherent in country-level policymaking autonomy.

Like protection sellers in credit-derivatives markets, buyers of reinsurance derivatives would accept a synthetic position in one or more layers of first-loss expenses incurred in resolving actual bank insolvencies in either particular countries or particular
regions over specified time periods. The price a given insurer would have to pay for successive units of protection would vary inversely with the perceived quality of its loss-control system. Differences in the spreads quoted on derivatives for different countries would offer irrepressible early-warning signals of the relative weakness and strength of different countries’ crisis-prevention and crisis-management systems. These signals would help researchers in IADI member countries to identify superior design features and enforcement procedures. The observable benefits of achieving a lower spread would strengthen incentives for improving individual-country insurance systems on a regular basis and not just at the times when their loss exposures surge out of control.
REFERENCES


FIGURE ONE: HYPOTHETICAL BALANCE SHEET FOR A DEPOSIT-INSURANCE ENTERPRISE

<table>
<thead>
<tr>
<th>A</th>
<th>$\sum_{i=1}^{n} L_i[Q(T,D,B)]$</th>
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