Reinsurance and "Securitization" of Deposit Insurance; A Workable Proposal for Risk-Based Pricing

by

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Abstract

It is now widely recognized that the uniform pricing of deposit insurance creates incentives for financial institutions to seek risk and causes insolvencies. To date the risk-pricing of deposit insurance has been resisted because of problems with implementation and concerns about workability. Here a system for risk-based pricing of deposit insurance is presented where deposit insurance would be priced through private-sector reinsurance on a bank-by-bank basis. The FDIC would continue to act as ultimate guarantor, but its exposure would be largely reduced. Insurance pricing and institution monitoring would be largely privatized. The system of FDIC underwriting of deposit insurance combined with private-sector reinsurance closely resembles the securitization activities of federal credit agencies.
Introduction

There is increasing dissatisfaction with the operation of deposit insurance in the United States. The current system of insurance creates inevitable moral hazard problems due to counterproductive incentives resulting from deposit insurance, causing insured institutions to seek risk. These perverse incentives played a significant role in the development of the thrift and banking crises of the late 1980's.

One of the most popular proposals for deposit insurance reform has been the adoption of differential risk-based pricing of deposit insurance, charging riskier banks higher premiums. In the absence of risk-based pricing the only regulatory mechanism for dealing with bank risk is to try to "supervise it away", a mechanism whose failures have become so apparent in recent years. While theoretically holding great promise, regulators have been reluctant to adopt a risk-based deposit insurance system. The main reason for this reluctance has been that it is not reasonable to expect regulators to be capable of assessing risk and pricing individual deposit insurance policies in an efficient rational manner\(^1\). Indeed if constructed poorly a "risk-based" deposit insurance premium program could do more harm than good, causing resource misallocation and distorting financial markets.

\(^1\) This was the position of the Conference of State Bank Supervisors held March 9, 1990. Horvitz (1983) and Kuster and O'Brien (1990) also describe problems of implementation.

Risk-based pricing of deposit insurance is as justified on grounds of efficiency and the controlling of moral hazard as is risk-based pricing for any other kind of insurance. Prohibiting pricing on the basis of risk causes as much distortion in deposit insurance as would similar prohibitions for fire, life, car, health, or any other insurance.

In this paper a proposal will be presented for introducing a risk-based deposit insurance premium system to be operated by the Federal Deposit Insurance Corporation (FDIC) where the insurance premiums would be determined by the open market, not the FDIC. The proposal is based on a dramatic alteration in the function performed by FDIC and the way the government deposit insurance agency operates. Adoption of this system would generate efficient market-based pricing of deposit insurance while preserving government backing of deposits and reducing FDIC exposure.
Under the proposal the FDIC would play a reduced role, restricted to selling or originating deposit insurance policies (which will be referred to as underwriting) and subsequently purchasing private-sector reinsurance. The operation of FDIC as an underwriting/reinsurance operation is in many ways analogous to the securitization operations of federal agencies like Fannie Mae, Ginnie Mae, Freddie Mac, and others.

Under federal agency securitization an agency purchases a debt security such as a mortgage, farm or export loan, and then sells it (usually after pooling) to private-sector investors. Generally the securitization is "with recourse", meaning the federal agency guarantees payments to investors and will provide funds from reserves in cases where the primary borrowers default.

The federal credit agencies first provide loan funds and then purchase other loan funds to cover themselves, retaining a markup or differential. Similarly, under the deposit insurance proposal here the FDIC would first provide deposit insurance and then purchase deposit reinsurance. In a sense the FDIC would become an agency for "securitizing" deposit insurance. That is, if one thinks of an insurance policy as a kind of investment or contingent asset for an insurer, then reinsurance is the securitizing of these assets. The results of "securitizing" deposit insurance would be market pricing, efficiency, and reduced risk exposure for insured institutions, while governmental exposure through FDIC would be largely reduced.
There has never been serious public debate about the use of reinsurance for deposit insurance policies. White (1989) rejects the idea out of hand, stating, "There appears to be no practical reinsurer for federal deposit insurance except the U.S. Treasury." White however contemplates reinsurance for the entire aggregate exposure of the deposit insurance agency. This is like saying there is no available purchaser for the entire Ginnie Mae mortgage portfolio. But there is no reason why reinsurance cannot be transacted on a bank-by-bank basis rather than for the total FDIC exposure in aggregate. If done this way there is no reason why market reinsurance should not be as available as it is for other types of insurance. Reinsurance of course presupposes that reinsurers may charge different rates for different risks.

The purchase of reinsurance for deposit insurance policies issued by the FDIC would operate much like reinsurance for private-sector insurance underwriters. The roles of underwriter and reinsurer are analogous to the roles of originator and investor-after-securitization in mortgage markets.

When an underwriter obtains reinsurance the risks of a policy are transferred to the reinsurer. Any differential in premiums between the insurance and reinsurance policies may be regarded as origination fees for the underwriter. In addition the underwriter may bear some residual risk towards the insuree for indemnities that the reinsurer fails to pay, such as in the case of reinsurer default or bankruptcy. Private-sector reinsurance is well
developed even for extremely large but low probability risks, known as "long-tail risks", (referring to the tails of probability density functions). Lloyds of London has functioned as a reinsurer and insurance exchange for hundreds of years and continues to dominate the market for reinsuring "long-tail risks".

In the capacity of the underwriter for deposit insurance that is subsequently reinsured, the FDIC would in effect relinquish responsibility for pricing individual policies to the reinsurers. This is in much the same way that individual mortgages securitized by federal credit agencies are ultimately priced by the market. Those agencies themselves merely add on a markup above market-set interest rates. Premiums for individual deposit insurance policies would also be ultimately priced by the market, with the FDIC merely retaining a markup.

This would resolve the dilemma of how to assess and price individual risk-based deposit insurance. The market would do it. The FDIC could oversee the process by dictating the scope of deposit insurance coverage, fixing the dollar amount covered per account and/or per household. The FDIC could also continue to regulate whether or not coinsurance or deductibles should be offered banks purchasing deposit insurance. (At the moment they are not included in American deposit insurance but are present in some European programs.)

Most importantly the FDIC would continue to act as the
ultimate guarantor of safety. Any insured deposit would be covered by a federal governmental guarantee. This means that the prevention of bank runs and instability in the financial system would be at least as effective under this proposed system as under the current system of deposit insurance. In the event of bank failure a depositor would receive payment from the FDIC, which would then be recovered from reinsurers. In cases of reinsurer default the FDIC would pay depositors out of its own reserves. However, the "exposure" of the FDIC would be a miniscule residual compared to the current system and the FDIC insurance markup would be priced accordingly. The elimination of most of the exposure of the FDIC would follow from two sources.

A. Most risk would be reinsured and transferred to private-sector insurers.

B. By pricing deposit insurance in a workable risk-based manner the proposed system would seriously deter risk taking by depository institutions, making bank or thrift failure far less likely to occur in the first place.

Because the exposure of FDIC would be greatly reduced, the agency could operate with a much smaller reserve fund, hence reducing the amount of funds diverted from the private sector to facilitate the deposit insurance system. Once operating, comparable underwriting-cum-reinsurance programs could be considered for other federal guarantee programs such as pension benefit guarantees and credit union deposit insurance.
Let us now consider in detail how such a system might operate.

**How the Proposed System would Work**

Each bank or other depository institution insured by the FDIC would purchase deposit insurance from the FDIC fund, paying to the FDIC a premium assessed on all insured deposits. The FDIC would then reinsure, in effect purchasing insurance from private-sector insurance companies on a bank-by-bank basis, paying for this reinsurance out of the FDIC premiums. These reinsurers would agree to provide insurance coverage according to the same terms stipulated in the original insurance agreement with the bank or thrift and underwritten by the FDIC, all in exchange for their reinsurance premiums. In the event of closing or collapse of an insured depository institution the private insurer would pay for all indemnities to insured depositors. The FDIC would dictate the coverage of the insurance, such as amounts and number of deposits insured. The FDIC would also act as guarantor for the coverage and would be called upon to pay indemnities out of its own resources if for any reason a private insurer were to fail to pay, including cases of insurance company bankruptcy or legal problems with insurance contract validity.

The insurance companies selling reinsurance to the FDIC could do so as individual sellers or in syndicates or consortia. Both domestic and foreign insurers could participate. The FDIC would purchase the reinsurance through holding competitive tender bidding. Indeed participants in the bidding need not be restricted
to formal insurance companies; other corporations could bid to sell reinsurance to the FDIC, including financial institutions and perhaps even individuals. The FDIC would set minimal capitalization and collateralization requirements and perhaps maximum exposure levels for any insurer wishing to bid for a reinsurance contract, in much the way that Lloyds regulates the participation of "names" in its contracts for insurance or reinsurance.

Deposit insurance pricing would be relatively simple. The FDIC would be acting merely as an underwriter who then purchases reinsurance for all risks covered. This is somewhat analogous to a retailer selling a product purchased from wholesalers. FDIC insurance would be priced at a fixed markup over the reinsurance premium charged by the private insurers. For example if reinsurers were offering to cover Bank X depositors for a premium of 50 basis points (50¢ per $1000 per year), FDIC might then charge the bank a premium of 55 basis points. The 10% markup is both a retail-over-wholesale differential that must cover FDIC operating costs and a premium deposited into FDIC reserves. These reserves would be tapped if and when reinsurers default or fail. The exact markup consistent with long-term FDIC fund solvency would become apparent over time and the premium markup could be raised or lowered as reserve levels necessitated. FDIC exposure could be limited by striving for or requiring spreading of reinsurance coverage for individual banks across a number of insurers. (See Figure I).
Deposit insurance policies could be reinsured either separately for individual banks or in packages for groups of banks, (somewhat like the securitizing of mortgages in pools). Pooling would require that the FDIC identify groups of institutions with similar exposures or financial characteristics. Any imperfection or uncertainties introduced by pooling would have to be weighed against the higher transactions costs that result from reinsuring bank policies individually. Because bank monitoring by reinsurers would most likely be easier for single banks rather than for pools, it is quite possible that no reinsurance pooling will occur.

Finally while not necessary for the basic underwriting-cum-reinsurance scheme to operate, it is possible that some trading in the reinsurance contracts themselves would occur. This trading could take two forms:

A. A reinsurer selling reinsurance to the FDIC could himself purchase secondary reinsurance to cover his own exposure in part or entirely. No FDIC approval need be granted for this. The primary reinsurer would remain legally liable for indemnities. The existence of secondary reinsurance could only reduce net FDIC risk exposure.

B. A secondary market, perhaps brokered, could arise for buying and selling contracts among reinsurers. Since the FDIC would need to regulate exposure, capitalization, liquidity, and collateralization for reinsurers, FDIC confirmation for such trades may be required, or trades may be restricted to well-capitalized reinsurers with special FDIC-approved trading powers.
Advantages of the Proposal

1. Pricing. The main advantage of the proposal is in pricing deposit insurance risk. This risk would be assessed and priced by the market and not by regulators nor public officials. The burden for appraising riskiness of deposit institutions and monitoring their activities would be largely transferred from the FDIC to the private sector reinsurers.

This requires some elaboration. The FDIC here is being viewed as merely a deposit insuring institution. Banks of course are monitored and examined by regulators for many reasons and not just for the purpose of operating deposit insurance. If we assume that regulatory responsibilities for monitoring banks for all purposes other than deposit insurance exposure are to be confined to the Office of the Comptroller of the Currency (OCC) and the Federal Reserve Banks, the FDIC could fulfill its deposit insurance role without operating its own extensive monitoring/examination system. That function would be "sold" to private-sector reinsurers. This would reduce FDIC operating expenses enormously.

Responsibility for pricing deposit insurance would shift to reinsurers in the private sector. Errors in judgement would result in their losses and not the taxpayer's. The FDIC would be passive, charging a fixed markup on premiums for policies "sold" by reinsurers. Differential pricing of deposit risk would be as competently performed by the private sector as any other form of insurance underwriting.
Figure I

FDIC as Guarantor

Reinsurer A

Reinsurer B

Reinsurer C

Reinsurer D

Bank A

Bank B

Bank C

Bank D

Bank E

Bank F
2. Minimizing FDIC Exposure and the Cost to the Public

FDIC reserves would be "protected" not only by the capital of depository institutions but also by the capital of reinsurers. FDIC reserves would be used only when both layers of private-sector capital were depleted. The FDIC would benefit from a two-tier level of risk diversification. Each reinsurer would be diversified, and FDIC exposure would consist of residual risks that the diversified collection of reinsurers failed to cover.

The reduction of FDIC exposure can best be illustrated with a simple example. In this example deposit insurance is being sold to 12 banks, each with $2 billion in insured deposits and a 10% chance of complete default. There is an expected level of annual deposit insurance indemnity of $2.4 billion. Yet the expected loss to FDIC reserves would be only $3,024 per year.

The Example

Assume:

1) There are 12 banks. Each has $2 billion in insured deposits.
2) The probability of failure of any bank in any period is 10%.
   Bank failure is independent across banks and all deposits are lost when a bank fails. Deposit insurance must cover the entire deposit loss.
3) Each of 4 reinsurers sells coverage for deposit insurance to cover 6 banks, chosen randomly. Each bank is reinsured by two reinsurers, each with a $1 billion exposure.
4) A reinsurer will default on any loss increment over $2 billion
or whenever more than two of its insured banks fail. That is, at most two indemnities are covered before reinsurer failure and before FDIC reserves must be depleted.

The following computations follow directly from these assumptions:

A. The probability of a defaulting bank being in the pool of any single reinsurer is 1/2.

B. The probability of exactly $i$ bank defaults occurring in any period is $P = .10^i \cdot .90^{(12-i)}$. The probability of at least $i$ banks defaulting is

$$Q_i = \sum_{j=i}^{12} P_j.$$  

C. The probability of any individual reinsurer failing is the same as the probability of more than two bank failures covered by that reinsurer:

$$Z = (.90)^3(.10)^3 + (.90)^2(.10)^4 + (.90)(.10)^5 + (.10)^6 = 0.082\%$$

The probability of no reinsurers at all failing in a given period is greater than 99.67%.

D. Expected FDIC loss if at most a single reinsurer fails:

$$L = [( .90)^3(.10)^3 + 2(.90)^2(.10)^4 + 3(.90)(.10)^5 + 4(.10)^6]$$

billion dollars, or $922,000. The probability of exactly one reinsurer failing is 0.08%. The probability of at least one reinsurer failing is 0.33%.

E. Expected FDIC loss per year or "system exposure" is approximately $4LZ = $3,024.
F. Since there are $24$ billion in insured deposits, and ignoring FDIC operating costs, the FDIC "markup" over the reinsurance premium consistent with long-term fund solvency would be $1.26 \times 10^{-5}$ percent. The reinsurance premium set by a risk-neutral reinsurer would be $10\%$ in all cases.

The $3,024$ loss is of course merely an expected value. There is also a high variance. There are small chances of high losses, or "long-tail risks" for the FDIC. These would be more serious if bank failures were not independent, as they were assumed to be in the illustration, implying that reinsurer failures would also be correlated. On the other hand any increase in the number of reinsurers would represent expanded risk diversification for the FDIC, as would any secondary reinsurance by primary reinsurers. The FDIC could even attempt to reinsure some of its own residual guarantor risk in the private reinsurance market.

3. Improving Monitoring of Deposit Institutions

The proposal would include the privatization of monitoring of deposit institutions. The "nationalization" of such monitoring, in the form of regulatory examination, has occurred not because of any comparative cost advantage of the public sector, but because of inevitable problems of a principal-agent nature that would emerge if regulators contracted out examination and monitoring functions.

Under the proposal privatization would occur because the reinsurers/monitors themselves would be at risk. Unlike a
regulatory examiner protecting taxpayer wealth, the private-sector reinsurers would be risking their own capital. They would be motivated to monitor insuree behavior thoroughly and carefully. They would also be immune to political pressures and demands for "forebearance". And as private-sector profit-oriented agencies with existing developed infrastructures designed for monitoring risks, they could provide monitoring services at minimal costs.

Conclusions and Summary

Risk-based pricing of deposit insurance would go a long way toward eliminating many of the moral hazard problems of the current system and is regarded by many observers as a sine qua non for avoiding 1980s-style financial-system crises in the future. Regulatory opposition to its introduction seems to be motivated primarily by doubts about costs and how well regulators could implement the system, how well they could measure and assess depository institution risk.

Under the proposal here they would not have to. Deposit insurance would be priced by the market, or to be more precise by private-sector reinsurers. The FDIC would act as a deposit insurance originator, and would then purchase reinsurance on a policy-by-policy basis at whatever rates the market would bear. The FDIC would continue to act as guarantor, preserving the effectiveness and role of federal deposit insurance in stabilizing the financial system and preventing depositor "runs." At the same time FDIC exposure would be greatly reduced as would the costs of
operating the system.

A system of FDIC deposit insurance origination with private-sector reinsurance resembles the securitization operations of federal credit agencies in the mortgage and other loan markets. The economic arguments for the federal "securitization" of deposit insurance are far more persuasive than those for loans, given the traditional fears of financial instability in the absence of governmental backing of deposits. FDIC origination and reinsurance would create a system of efficient workable risk-based deposit insurance at minimal cost and with minimal risks to FDIC reserves.
References


