
FRBSF WEEKLY LETTER

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Risk-Adjusted Deposit Insurance Premiums

The Federal Deposit Insurance Corporation (FDIC) lost \$4 billion in 1990 and may lose \$5 billion more in 1991, according to FDIC Chairman L. William Seidman. These losses and other reported problems have focused attention on the adequacy of FDIC funding. But a more compelling long-run issue is reform of the deposit insurance system to ensure that similar problems do not recur. Reform probably will include changes in the way insurance premiums are assessed.

The annual premium that banks now pay for federal deposit insurance is simply a flat percentage of total domestic deposits. This *Letter* argues that certain aspects of banking risk can be measured objectively, and that simple modifications to deposit insurance pricing to reflect these risks would generate substantial benefits.

Why Should Premiums Reflect Risk?

Private insurance companies adjust for risk by charging higher premiums to customers who pose greater potential for losses. For example, drivers with poor driving records usually pay more for auto insurance than those with good records. Ideally, premiums reflect the true economic cost of the insurance, which depends in part on risk.

In contrast, deposit insurance premiums do not vary with the riskiness of the bank. This failure to adjust the price of deposit insurance for risk has at least three harmful effects. First, flat-rate premiums encourage banks to take on more risk than is economically desirable. Second, safe banks effectively end up subsidizing risky banks; the result is likely to be a gradual change in the composition of the banking industry over time, as risky banks prosper at the expense of safe banks. Finally, solvency of the insurance fund is more difficult to maintain with premiums that do not reflect the true, risk-adjusted economic cost of deposit insurance.

Deposit Insurance and Two Types of Risk

The insurance fund suffers losses when regulators close (or transfer the ownership of) an insolvent bank. A bank is insolvent if economic net worth, or capital, falls to zero or below, where economic capital is the difference between the current value (not necessarily the book value) of assets and liabilities; thus, negative economic capital simply means that assets fall short of liabilities. The deposit insurer covers part, or in some cases all, of the shortfall. The potential loss facing the insurer thus hinges on two factors: how likely is it that capital will become negative; and if capital does fall below zero, how low is it likely to go before final resolution? These two elements combine to determine the insurer's economic liability.

Both the probability and the extent of a bank's capital shortfall depend on two conceptually different types of risk. The first type, financial risk, depends on how much economic capital a bank has. Higher capital means that the current value of assets exceeds liabilities by more, creating a greater buffer against insolvency; financial risk falls as capital rises, for a given size of bank.

The second type, operating risk, reflects the capital buffer's variability rather than its size. At higher levels of operating risk, any given level of capital is more likely to be depleted; in addition, the size of any shortfall is likely to be larger. A bank's operating risk depends on the characteristics of its specific assets, the liabilities it uses to fund those assets, and its use of hedging or other techniques to manage risk. In practice, operating risk is difficult to measure, whereas financial risk can be quantified in a relatively straightforward way through the capital ratio.

Simple Routes to Risk-Adjusted Premiums

A recent study by the author and Sarah B. Kendall, Assistant Professor of Economics at Loyola

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University of Chicago, undertook an empirical analysis of the effect of both types of risk on the value of deposit insurance. The study used a contingent-claim model to compute the economic deposit insurance liability borne by the FDIC for each of a group of large insured banks. (Contingent claims are financial contracts in which payments depend on the occurrence of some unpredictable event, in this case insolvency.) The results of the study indicate that a simplified version of risk-adjusted pricing, reflecting only financial risk and ignoring operating risk, may yield substantial benefits.

The study first considered what could be accomplished by charging a single rate to all banks regardless of risk, as under the current structure. The rate that yielded premiums closest to the value of the insurance was 16.2 cents per \$100 of deposits. This "optimal" single-rate pricing structure was used as a base case for comparison, and the performance of alternative pricing structures was judged according to how much better or worse they covered the true economic cost of insurance.

A simple alternative of dividing banks into a high-capital group and a low-capital group and charging higher premiums to the latter group generated a vast improvement over a flat-rate system. Mispricing was reduced by over 80 percent relative to the base case. (A 100 percent reduction would mean that premiums exactly matched the true economic insurance liability.) Under the optimal version of this "two-bracket" system, banks with economic capital less than about 3.5 percent of assets would be assessed a rate of 60 cents per \$100 of deposits, while banks with higher capital ratios would pay a rate of only 6.6 cents. (The flat rate currently paid by all banks, in contrast, has been 19.5 cents since the beginning of 1991.) When the rate charged to the low-capital group was made progressive (by increasing the premium rate by about 15 cents for each 1 percent decline in the capital ratio), the improvement relative to the base case was over 85 percent.

Thus a very simple system of risk-adjusted premiums, reflecting only financial risk as measured by bank capital ratios, could generate substantial improvements over the current flat-rate system. The fact that over 85 percent of the single-rate

system's mispricing could be eliminated through a straightforward adjustment for financial risk implies that incorporating operating risk would yield additional improvement of at most 15 percent. In addition, any pricing system that included operating risk would be much more complex and hence less desirable. Therefore, operating risk would still need to be monitored through traditional regulatory review.

The study also found that the capital-to-assets ratio computed from the market value of a bank's capital and assets, rather than from accounting book values, was a better measure of financial risk upon which to base insurance premiums. For purposes of the study, market values were derived from bank stock prices. The resulting large improvement in deposit insurance pricing emphasized the benefit of adjusting the capital ratio to reflect current market value.

In principle, risk-based capital standards could achieve the same result as risk-adjusted insurance premiums. Capital requirements that create exactly the right trade-off between operating risk and financial risk could make the per-dollar value of deposit insurance constant, so that flat rates would be optimal. However, recently implemented capital standards were not explicitly designed to achieve this, but instead were formulated to comply with an international accord on bank capital; hence it is likely that risk-adjusted premiums still will be needed.

Would Premiums Be "Too High"?

If such risk-adjusted premiums were in effect, high-capital banks would pay considerably lower premiums, and low-capital banks would pay much higher ones than under the current system. The riskier banks might be tempted to argue that the higher premiums would reduce bank profitability, leading to a larger number of bank failures.

The relevant issue, however, is not whether the premiums are high relative to bank profits, but whether the value of the insurance benefits received by a bank equals or exceeds the cost of the premiums paid. Insured banks benefit from lower funding costs, as depositors are willing to accept a lower interest rate in exchange for protection for their funds. An interesting feature of contingent-claim models is that the derived premiums are just equal to the reduction in bank

funding costs. The insurance premium paid by a bank would be identical to the risk premium that market pressure would force the bank to pay if uninsured. In essence, the bank pays insurance premiums out of the money saved on interest expenses.

This interpretation implies that with premiums set using this method, bank profits are the same as they would be in a system without deposit insurance. The public benefits of deposit insurance are gained without any *net* effect on bank profitability, after taking into account both the premiums and the (private) funding benefit. Premiums are higher for high-risk banks because these banks receive a larger reduction in funding costs from insurance. Any bank that would be unprofitable as a result of paying economically correct premiums is not an economically viable institution and therefore *should* close; it remains open under the current system only because of the subsidy inherent in underpriced deposit insurance. The longer such a bank continues in operation, the more expensive is its eventual resolution.

Implementation Issues

In practice, any deposit insurance premium structure, including one based on capital ratios, should be reevaluated from time to time. The best level of risk-adjusted premium rates is likely to change over time, as both the range of permissible banking activities and the general level of risk in the environment change. Also, the introduction of risk-based capital standards over the next two years is likely to affect the relationship between operating risk and financial risk in banking, and thus may alter the optimal premium rates.

The FDIC is reported to be close to proposing a capital-based pricing system similar to the one described above. Why didn't the FDIC im-

pose risk-adjusted pricing at some earlier point during its first 55 years? Historically, the financial environment in which banks operated may have been less risky, making risk-adjustment less essential. Also, lower levels of deposit insurance coverage prior to 1980 may have created more market pressure for banks to control risk. In addition, it may be true that a public agency like the FDIC has found it politically difficult to implement the kind of risk-adjusted differential pricing practiced by for-profit private insurers. If so, recent broad public recognition of deposit insurance problems should facilitate reform.

The primary practical obstacle to implementing risk-adjusted deposit insurance in the past has been that the relative riskiness of banks has been perceived as being too difficult to quantify. The evidence cited in this *Letter* shows that this need not be the case. Although operating risk is complicated, financial risk can be more easily measured, and can be incorporated into the deposit insurance pricing framework through bank capital-to-asset ratios.

The results of the study discussed in this *Letter* demonstrate that a system of deposit-insurance premiums based on bank capital ratios would be a simple and highly desirable policy reform. Banks would face more appropriate economic incentives, risky banks would extract less of a subsidy from safe banks, and the deposit insurance fund would stand a better chance of remaining solvent. The level of premiums would not have an unduly negative effect on the profitability of viable banks. And the public benefits of deposit insurance—protection of small depositors and prevention of bank runs—would be preserved.

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