Deposit Insurance Pricing: The Hidden Burden of Premium Rate Volatility

Sherrill Shaffer

The virtual elimination of the federal deposit insurance premium for the majority of banks in 1995 and 1996 has been widely heralded as a boon for bankers. Certainly it represents welcome relief from assessment rates exceeding 20 basis points in recent years. And this relief comes without apparent risk, as the FDIC's Bank Insurance Fund (BIF) now stands above the FDICIA-designated benchmark of a solid 1.25 percent of insured deposits.

What's wrong with this picture? In short: volatility. The rapid recapitalization of the BIF resulted from an excessive premium rate that constituted an overreaction to previous losses. Lowering the premium essentially to zero is likewise an overreaction, to be followed by another sharp increase whenever the banking industry enters the next phase of the business cycle. This ping-pong pattern results from the policy of holding the BIF at a fixed proportion of insured deposits.

Volatility is costly. Moreover, insurance typically has the potential to eliminate—or at least greatly reduce—this source of volatility. As we review existing regulations and policies for opportunities to reduce the regulatory burden and promote a sound economy, we should incorporate the efficiency of deposit insurance pricing—including its intertemporal component—in that review.

This article presents evidence that the current pattern of deposit insurance pricing may be costing the industry over $1 billion per year more than an alternative policy of stabilizing the premium rate and

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allowing the BIF to serve as a shock absorber for fluctuations in aggregate losses. The additional cost is in the form of risk premiums demanded by investors and uninsured depositors.

Unless there are offsetting benefits, such higher costs correspond to a deadweight loss. Banks attempt to pass on these costs to their customers, including borrowers, resulting in a contraction of credit.[1] This effect is strongest when the costs are highest, which under the current pricing policy occurs during economic downturns. To the extent that market forces prevent the costs from being passed on, the banking sector will find itself simply unable to compete with uninsured institutions in the provision of credit.

Two alternative suggestions are presented to reduce this costly volatility: stabilizing the premium rate over time, or using a corporate income tax surcharge on banks as the means of capitalizing the BIF. Either approach could incorporate risk-based interbank variations in the assessment rates.

The Potential of Insurance

The potential economic benefits of any insurance are twofold: diversifying losses across institutions or policyholders (cross-sectional smoothing) and diversifying losses over time (intertemporal smoothing). In banking, the intended beneficiaries of this smoothing are considered to be the small depositors. It is well understood that such protection comes at a cost, and that depositors themselves share that cost (at least indirectly) as banks pass on some portion of their premium expense to their customers. Depositors give up a small but sure reduction in interest income—or pay higher account fees—to prevent uncertain but potentially larger losses.

A single bank can self-insure to some extent by holding more capital and reserves. This strategy partially diversifies or smooths the impact of portfolio losses over time, but not perfectly so as long as banks can fail. Moreover, self-insurance cannot achieve smoothing across banks, an important dimension contributed by the FDIC.

The fluctuation of aggregate loss rates over time demonstrates that smoothing across banks alone does not completely diversify away financial risk. Federal deposit insurance can be configured to enhance

[1]Ironically, economic theory tells us that the greatest pass-through of higher costs to banks' customers will occur in the most competitive banking markets. This paradox arises because banks' margins are thinnest in competitive markets and are therefore unable to absorb extra costs. At the same time, however, competition from nonbanks that are not subject to the same costs will constrain the extent to which banks can pass on these costs.

smoothing over time as well, as it originally was (from 1934 to 1950).[2] Varying the premium rate alternately above and below the long-run average loss rate gives up the time dimension of smoothing.

From this perspective, the best premium rate is the one least likely to require change in the future. Over time, the banking industry must pay the full cost of deposit insurance—the proper vigilance of Congress against a net taxpayer subsidy will see to that. Achieving this goal requires the average premium income to equal the long-run average expenses of the deposit insurance fund. A premium rate higher than long-run average loss rates would make the banking industry pay too much for its insurance in an actuarial sense, and eventually would generate strong political forces to reduce the premium (as we have recently seen). Conversely, a premium rate below long-run average loss rates will allow the deposit insurance fund to be depleted over time, ultimately requiring a higher premium rate to maintain its solvency. A premium rate equal to the long-run average loss rate will allow the BIF level to fluctuate from year to year, acting as a shock absorber to intertemporal disturbances in bank failure rates, but could maintain a positive BIF level on average as desired.

The Cost of Rate Volatility

The cost to banks of fluctuating assessment rates can take many forms. Projected cost streams become more uncertain, hindering financial planning. Automated profitability models must be reprogrammed at new premium rates. Fluctuating cost causes profits and net worth to fluctuate, driving up the probability of failure.[3] Banks' shareholders respond by bidding down stock prices to achieve a higher return on equity (ROE) as compensation for their exposure to higher risk. There is also a hitherto unexplored factor, the loss of cumulative portfolio investment income owing to interactions between fluctuating interest rates and fluctuating premium rates. The next two sections estimate a rough dollar cost for each of these last two components, based on previous research in capital markets. We find that both the equity risk premium and the forgone portfolio income may be large under a regime of fluctuating premium rates.

[2]Federal legislation mandating partial premium rebates as a function of annual expenditures was enacted in 1950 and repealed in 1990. Rising loss rates greatly reduced rebates after 1980 and forced their suspension after 1983.

[3]A higher volatility of net worth would measurably increase the probability of failure only for marginally capitalized institutions. On the other hand, this effect would be procyclical since the proportion of institutions that are marginally capitalized will increase during economic downturns.

Paying the Capital Market

If the BIF is maintained at a fixed target fraction of insured deposits, as current policy requires, then any annual fluctuations in the aggregate cost of bank failure must be passed directly to the banking industry in the form of premium adjustments. Volatility in aggregate loss rates generates volatility in premium assessments, dollar for dollar. This linkage allows a calculation of the cost to the banking industry of the current method of funding the BIF, in comparison with the cost of a fixed-rate plan.

From 1934 through 1995, the volatility of the FDIC's annual operating expenses and losses, measured as a fraction of aggregate bank equity, equaled 134 basis points (b.p.). Correcting for the historical correlation between aggregate loss rates and aggregate bank profitability, we find that the annualized volatility of banks' aggregate ROE would have been 46 b.p. higher under the current pricing procedure than under a fixed-rate procedure.[4] Using estimates by Mehra and Prescott (1985) of annual aggregate risk premiums in U.S. capital markets since 1938, we calculate that the ROE hurdle rate required by investors would be 34.4 b.p. higher under the higher volatility than under a constant assessment rate.[5] In total dollar terms for the U.S. banking industry, this cost of premium rate volatility works out to $1.2 billion per year, based on the aggregate level of banks' equity in 1995.

If instead we use the period since 1980 as a benchmark, similar calculations show that a pass-through of aggregate loss fluctuations would have added 169 b.p. to the volatility of ROE, for an annual industry cost of $4.4 billion. Moreover, other research has found that uninsured depositors similarly demand a risk premium that varies with measurable indicators of bank risk, and this additional risk premium should be factored in along with other costs (see Baer and Brewer 1986, and Hannan and Hanweck 1988).

[4]This increment actually understates the true increase in volatility, because it is calculated under the assumption that historical ROE reflected fixed premium rates, whereas both the rebate policy cited in footnote 2 and the more recent funding procedures imposed a degree of premium rate volatility.

[5]The volatility of individual banks' profits will generally exceed that of aggregate profits because profits are not perfectly correlated across banks. Nevertheless, the risk premia calculated by Mehra and Prescott are related to aggregate volatility rather than individual firms' volatility, so the comparison made in the text above is the correct one. One might also object that many banks are not publicly traded and therefore are not subject to these calculations. However, if the investors of nontraded banks respond rationally to the incentives of wealth and risk, the same rules apply, because alternative investments are available to these investors in the capital markets.

Some banks can perhaps take steps to reduce the impact of premium rate volatility. However, it is not realistic to think that they could fully insulate their costs or profitability from fluctuations in the assessment rate. Others have similarly noted that the current policy reduces banks' expenses when they can best afford to contribute to the BIF, necessitating a higher premium when banks can least afford it.

For What?

Is there any offsetting benefit to these costs of premium rate volatility? First, a premium rate linked directly to annual expenses might provide an incentive for banks to police each other's risk-taking in an attempt to keep premiums low. This argument should not be lightly dismissed, as the experience of the 1980s has taught us that incentives matter. A question in this regard, though, is whether effective self-policing is possible among more than 9,000 banks scattered around the country. Most bank failures have occurred among smaller banks, which may be more difficult for the industry to monitor in aggregate than the few largest banks. Thus, while the incentive idea is sound in principle, it may have limited practical applicability here.

Second, a thoughtful observer might suspect that varying the premium rate over time could perhaps enable banks to invest more retained earnings during periods of low premiums, and that the earnings on this investment might offset higher premium rates in other periods. But this claim is spurious: the effect over the long run should net to zero, if deposit insurance pays its own way—and can even cost the banks something, as a simple historical example shows.

Assume that banks can invest any excess retained earnings at a market rate. For purposes of illustration, let's use the three-year Treasury bond rate (constant maturities), for which data are reported beginning in 1953. Between 1953 and 1993, the average annual net FDIC assessment rate on commercial banks was 6.123 b.p. of total domestic deposits. Calculate the difference between this average rate and each year's actual rate (which reflects time-varying rebates over most of this period as explained in footnote 2). Invest that difference (along with the accumulated surplus or deficit) at the corresponding year's T-bond rate, where a deficit would correspond to borrowing against expected future earnings. Over this 41-year period, using actual 1953–1993 figures, the average bank would have ended up with less money, by an amount equal to 5 percent of its domestic deposits, under the actual (time-varying) assessment schedule than had a flat 6.123 b.p. rate been assessed each year. Industrywide, based on 1993 deposits, this figure totals more than $100 billion in forgone retained earnings and investments. Had banks invested the additional funds

in loans (at higher interest rates) rather than Treasury securities, the difference would be even greater.

A Better Way: Stable Rates

Avoiding such costs merely requires holding the premium rate constant. The challenge then is to select the correct rate. Although the FDIC's annual cost of resolving failed banks has fluctuated considerably over the past 60 years, changes in fundamental regulatory, technological, or market conditions that seem to suggest a permanent regime shift in loss rates—whether up or down—have thus far proven transitory over a longer horizon. The high loss rates of the 1930s gave way to the very low loss rates of the 1950s, followed by high loss rates during the 1980s and a subsequent return to low loss rates in the 1990s. Specific causes of each change are apparent after the fact but not beforehand. Thus, for example, the current period of low losses coincides with a long macroeconomic expansion, the implementation of prompt corrective action by federal banking regulators, and more stringent regulatory capital requirements. It would, however, be presumptuous to expect that a period of higher losses will not reassert itself at some point in the future.

Available evidence, taking into account deposit growth and the FDIC's investment income, suggests that any premium rate above the neighborhood of 15 b.p. relative to deposits is too high, while rates below about 9 b.p. are unsustainably low (see Shaffer 1991a, 1991b).[6] Therefore, over the long run, premium rate volatility would tend to be minimized by an assessment schedule that provides a constant proportional aggregate income to the BIF within this range. It is a separate question how to apportion this assessment among high risk and low risk banks. As long as the aggregate premium income falls between 9 and 15 b.p. of aggregate deposits, any risk-based cross-sectional spread can be built into the premium schedule.[7]

[6]Rates between 9 and 15 b.p. would cover average annual outlays but would not permit a reserve fund to grow in step with the insured deposit base. The studies cited found no evidence of permanent trends or shifts in the aggregate loss rate. Earlier studies had debated the actuarially fair premium rate prior to the large losses of the mid-to-late 1980s and, ironically, the legislative mandate for rebates beginning in 1950 was driven by the belief that the FDIC's reserve fund was growing too fast. The same belief implicitly underlies FDICIA's 1.25 percent target level of the fund as it applies in today's economic environment.

[7]One purpose of risk-based premium rates is, of course, to reduce loss rates by reducing moral hazard. However, others have suggested that this benefit would merely offset the increase in moral hazard occasioned by the removal of Regulation Q ceilings on deposit interest rates, leaving the overall loss rates similar to the historical distribution.

While the spread between 9 and 15 b.p. may seem unduly broad, we should note that this spread is of the same order as the estimated cost of premium rate volatility presented earlier. In particular, using 1995 figures, annual costs of $1.2–4.4 billion correspond to 4.0–14.5 b.p. relative to deposits. This means that, even if a fixed premium rate were inadvertently set higher than the long-run loss rate by as much as 4 to 14 b.p., the banking industry would be no worse off on average than under the current variable-rate policy. One way of establishing a self-correcting mechanism to prevent sustained discrepancies between the assessment rate and the payout rate, while preserving the benefits of a stable premium rate, is to base the premium rate on a long (say, 50-year) moving average payout rate. Then the annual fluctuation in premium rates would be close to zero, while any true regime shifts in the aggregate loss rate could still be accommodated.

Holding a stable premium rate means that the BIF itself would absorb any fluctuations in loss rates over time. In particular, this means that the BIF will rise above 1.25 percent of insured deposits during good times, and will fall below that level during bad times. On rare occasions the fund might turn negative, requiring a government loan until it rebounds. These fluctuations can be accepted as part of the normal, desired functioning of federal deposit insurance. By themselves, such fluctuations are incapable of indicating whether the premium rate is too high or too low. As long as aggregate premium income covers the long-run average loss rate, even a government loan does not constitute a taxpayer subsidy, because it will be repaid—principal and interest—out of future premium income. This idea represents a shift from current thinking, but is essential to removing the unnecessary burden of inefficient deposit insurance pricing.[8]

One additional benefit of allowing the BIF, rather than premium rates, to fluctuate is a likely increase in the FDIC's overall investment income. The fund will be larger at the height of a business cycle, when interest rates (and investment income) are typically high; and correspondingly lower during the trough, when interest rates (and opportunity cost) are typically low. The increase in investment income during the peak will more than offset the reduction of investment income during the trough. This offset happens for two reasons. First, booms are typically longer than troughs. Second, investment income

[8]William Isaac (1995) has similarly noted that "the object in collecting premiums from the banks is not to build a fund but to ensure that over time the deposit insurance program pays for itself," though he stopped short of drawing the conclusion that premium rates should be set at levels that can remain stable over time.

is a multiplicative (i.e., superlinear) function of interest rates and size of the fund, as illustrated in the following example.

Suppose that annual yields on the investment portfolio are 10 percent during a one-year peak and 6 percent during a one-year trough, following the historical pattern (driven partly by monetary policy actions) that rates are higher in peaks than in troughs. A portfolio equal to $10 billion in both periods will earn $1.6 billion over the two years without compounding. If instead the portfolio is $14 billion in the peak and $6 billion in the trough—the same average size—it earns a total of $1.76 billion without compounding. (Compounding would change the numbers but not the principle.) In this example, the fluctuating fund earns $160 million more (or 10 percent more) than the fund of constant size.

Another Good Way: Countercyclical Rates

Thus far I have argued that premium rates should remain stable from year to year. An alternative case can be made for changing the premium rates in a way that actively reduces the volatility of banks' ROE, thereby reducing the cost of bank capital even more than a fixed premium rate could do. This approach would entail setting rates high during periods of high profitability and low failure rates, and low during periods of low profitability and high failure rates. To follow the opposite pattern, as current policy does, will exacerbate the business cycle and lead inevitably to a stronger contraction of credit during economic downturns, when the economy can least afford it.[9]

A convenient way of implementing countercyclical premium assessments would be in the form of a supplemental corporate income tax on banks. As an illustration, consider the period from 1950 through 1993. The actual net premium rate over this period averaged 6 b.p. of domestic deposits, or just under 4.6 percent of banking industry profits.[10] Aggregate real annual ROE for the banking industry over this period had a standard deviation of 3.041 percent. Had a constant premium rate of 6 b.p. of domestic deposits been assessed instead of the actual rates, the standard deviation of ROE would have been

[9]Arguments along this line were presented by Goodman and Santomero (1986) in the context of risk-based premium rates. However, in that context the variations did have the offsetting benefit of reducing moral hazard on the part of banks' owners and managers, whereas the fluctuations considered here have no such benefit.

[10]Data for this section are taken from the FDIC's *Annual Report* for 1993, the FDIC's *Historical Statistics on Banking, 1934–1992*, and the FDIC's *Statistics on Banking, 1993*. As noted above, the average premium rate of 6 b.p. over this period appears lower than the actuarially fair or long-run sustainable rate, but will serve to form the basis of a meaningful comparison of alternative assessment rules on the volatility of banks' earnings.

2.968 percent, or 7.3 b.p. lower. If instead the FDIC's funding had been drawn from a flat 4.6 percent income tax, the standard deviation of ROE would have been 2.895 percent, or 14.6 b.p. lower. The reduction of earnings volatility would have been twice as great using an income tax as compared to assessing a fixed proportion of deposits.

The impact of the two alternative funding policies on the deposit insurance fund can also be estimated by compounding the cumulative annual difference in aggregate premium income (alternative vs. actual) at the rate of return actually earned on the insurance fund portfolio in each year. Because the policy of premium rebates was repealed in 1990, as indicated in footnote 2, we apply this calculation to the period 1950–1989 and find that, as of 1989, the insurance fund would have been $360 million greater with a constant 6 b.p. premium rate than with the actual assessments, even though banks' average real ROE would have remained unchanged at 10.2 percent. Alternatively, an income tax would have increased the insurance fund by more than $220 million, again without reducing banks' average ROE.

Conclusion

It is conceptually easy for banks and their regulators to overlook the indirect cost of additional components of risk imposed on the industry by regulatory policies and programs, even though that cost may total billions of dollars annually. Changes in the funding of federal deposit insurance in recent years have increased, rather than reduced or eliminated, premium rate volatility and its attendant costs. As we look for ways to reduce unnecessary burden and inefficiency toward the goal of a safe, sound, and competitive banking industry, here is an easy place to start.

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A Regulatory Placebo? or, The Strange Case of Dr. Kaufman and Mr. SEIR

George Selgin

About half of George Kaufman's recent (1996) article on bank regulation constitutes a welcome, sober diagnosis of the problem of bank failures, showing how many beliefs concerning the likely side-effects of such failures are based more on myth than on hard evidence. Kaufman observes: (1) that individual bank failures are generally no more harmful to the economy than failures of other business firms; (2) that bank-run "contagions" leading to systemic failure have been extremely rare; and (3) that serious problems in the banking industry have mainly been due, not to anything inherent in fractional reserve banking, but to faulty government regulations, including the very regulations that are supposed to guard against systemic banking system failures. Kaufman provides ample support for all these claims, using evidence drawn mainly from modern U.S. experience.

Hearing these arguments, a reader might expect Kaufman to conclude that banking systems would function best if governments dispensed with regulation, including prudential regulations, altogether. Yet Kaufman does not draw any such conclusion. Instead, he continues his article by spelling out events and circumstances that might cause a systemic banking crisis, neglecting his own arguments and evidence showing the improbability of such a crisis. Kaufman goes on to defend a limited set of prudential regulations—the SEIR (Structured Early Intervention and Resolution) program—designed to "further mitigate the likelihood of systemic risk in banking" (p. 29).

How is it possible for Kaufman to argue so convincingly the lack of any evidence of genuine market failures in the banking industry, and the counterproductive nature of past government intervention in

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