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A Note of Caution on Early Bank Closure

Penalties do not always have their intended effects. Prohibition may or may not reduce problems related to alcohol. The relationship between the death penalty and murder rates is debated passionately. Similar considerations arise in bank regulation, where penalties designed to deter banks from taking risks just might have the opposite effect. Specifically, a policy of closing troubled banks earlier aims to prevent unsound banks from taking big risks at the expense of the deposit insurance fund; the catch is that recent banking research indicates some banks may respond to earlier closure by taking on *more* risk. This *Letter* describes this new research, and argues that the effect can be mitigated by imposing a larger number of smaller penalties in a policy of graduated intervention, as under the new federal bank regulatory policy of "prompt corrective action" taking effect on December 19th.

Capital ratios and bank closure

Economists usually measure bank capital ratios (capital divided by assets) at market value, since losses to the deposit insurance fund at failed banks depend on the values that seized bank assets bring in the market. The most straightforward market-based regulatory closure principle is to close a bank if its market value capital ratio is zero or less. A policy of "early closure" departs from this basic rule, establishing a positive capital ratio threshold below which banks are closed even though they are solvent. For example, the closure threshold might be set at 4 percent of total assets.

Some of the arguments for early closure are based on potential biases in bank accounting practices that might cause the book value of bank capital to systematically overstate true market capital. But accounting rulemakers and bank regulators are moving steadily toward increased collection and disclosure of information related to market value, so this reasoning is losing strength. More interesting versions of early closure argue for closure at positive *market* values, and it is these versions that are the focus of this *Letter*.

Other people's money

One of the problems with banks that are near failing is that the owners may feel a strong urge to gamble. When the value of the owners' investment has fallen to near zero, they have little to lose and much to gain from speculative, high-risk ventures that have slim chance of success but *could* save the bank. This "moral hazard" problem is well known and is not unique to banking; the same thing can and does happen in other lines of business as well. But unlike other businesses, banks can get their gambling money through federally guaranteed customer deposits. Nonbank firms operate on financing supplied by creditors who are themselves at risk, and hence are apt to watch closely and become nervous if the money is used for excessively risky investments. Nervousness translates into higher interest rates on credit extended, or perhaps into withdrawal of financing altogether. Awareness of this risk sensitivity keeps moral hazard in check at nonbank firms.

Most banks do not face such a constraint on their actions: insured depositors have little incentive to monitor what their banks do, since they will be reimbursed by the deposit insurer if the banks lose their money. For the banks, any gains are added to bank capital, the bulk of any losses are shoved onto the deposit insurance system, and the higher risk does not add to their interest expenses. But while banks and their insured depositors are happy, taxpayers may not be, since large losses by the federal deposit insurance fund may require an infusion of federal tax dollars. To control potentially costly moral hazard at banks, banking supervisors at the Federal Reserve and other regulatory agencies monitor the financial condition of banks regularly. But supervision resources are limited, and some types of gambling are exceptionally difficult to spot, so detection is not perfect and some unhealthy banks succeed in rolling the dice at public expense.

One way to deal with this moral hazard might be to make sure that banks never operate in such poor condition that they are tempted by high-risk

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bets. Regulators could take prompt, early action against solvent but financially troubled banks. In the most extreme versions of this approach, a policy of early closure would require that regulators seize and close poorly capitalized banks. If moral hazard becomes especially pronounced at capital below 4 percent, for example, then closure at 4 percent might nip the budding problem.

Incentive effects of early closure

A crucial question is: Does moral hazard stem from low capital *per se*, or from being close to the closure threshold? If the former, then early closure may have the desired effect. But if nearness to the closure point is what matters, pushing the threshold up to some higher level simply shifts the incentive problem to a new subset of banks, albeit those with somewhat higher capital ratios. There still be roughly the same number of banks close to the new closure threshold, with similar incentives to gamble.

Recent research in banking (Davies and McManus 1991, Levonian 1991) uses theoretical models to examine this question. These models show that most banks will raise their capital ratios; any that do not maintain capital above the threshold will be purged from the banking system. If early closure had no other effects, this rise in capital ratios would make banks less likely to fail. But the theoretical models also show that it is proximity to the closure point, not low capital, that gives banks incentives to gamble. Some of the banks above the new, higher threshold will respond to the new policy by increasing their risk-taking. Moreover, of the banks above the new closure threshold, the weakest banks will have the largest increase in the incentive to gamble. Thus, although capital ratios will tend to be higher under early closure, the moral hazard problem the policy aims to relieve may not diminish.

Why might weak banks be more inclined to gamble under earlier closure? Banks always face uncertainty about the eventual impact of business decisions on their capital ratios. One might imagine the outcomes ranging from catastrophe to bonanza; the bank has some idea of the chances of ending up at any of the various points on this spectrum. When compared to the basic rule of closure at zero capital, early closure creates a new range of outcomes—where capital is above zero but below the closure threshold—at which unpleasant (that is, costly) things happen

to the bank. Banks rationally will take steps to reduce the chances of landing in this “penalty zone.” Banks with capital well above the threshold will take fewer risks, thus reducing the odds of large adverse changes in capital that might put them down in that zone. But the large changes in capital that come from riskier portfolios look relatively *more* attractive to banks close to the line, because large changes tend to move them to points outside the zone, while small changes might put them squarely within it.

Just a theoretical problem?

Assessing the practical importance of this theoretical observation is vital for drawing policy implications. Unfortunately, the theoretical models are unable to predict unambiguously the net effect on the federal deposit insurance fund's finances. One problem is that the real size of the penalty is unknown: How much does closure really cost the owners of a bank? If the answer is “not much,” then any perverse effect of early closure on incentives is likely to be immaterial. A second weakness is that the models can predict the *direction* of changes in capital and risk, but not the *magnitude* of the changes. As a result of these weaknesses, theory alone cannot say whether the overall increases in capital and the reductions in risk-taking at some higher capital banks will be sufficient to offset the predicted rise in risk-taking at low capital banks.

However, the same types of models that generate the theoretical predictions can be used to examine realistic hypothetical cases. An examination of several cases using a sample of large U.S. banks reveals that the problem may be of considerable practical importance. For example, consider a move from a policy of closure at zero to closure at 4 percent of assets. Assume, for illustration, that all banks increase their capital ratios by that same 4 percentage points under the new policy. In that case, about a tenth of the banks theoretically would have a stronger desire to gamble. I found that the liability of the insurance fund would *double* if that tenth increased risk by about 80 percent (measuring risk here by the statistical standard deviation of the rate of return on assets), even if the remaining nine-tenths of the banks in the sample slashed risk by 90 percent. The liability doubles despite the much lower risk at most banks and the higher capital ratios at all banks. While this scenario is not intended as a “most likely case,” the assumed increase in risk is not unbelievably large, and it should be obvious that such a doubling would be a calamity for the deposit insurance fund.

In sum, there is no way to say with certainty that early closure will make the banking system safer;

it *might* have the opposite effect, particularly since it is weaker banks that may become bigger gamblers.

What to do about it

The theoretical predictions cited above are couched within the context of early *closure* policy, but the same principles apply to penalties of any form that are imposed on banks at particular capital ratios. The key element is that when capital falls below discrete, prespecified thresholds, regulators force solvent banks to take actions that the banks perceive to be against their individual best interests. However, the size of the response does depend in part on the size of the penalty; the modeling described above shows that the prospect of large intervention-related losses generates substantial increases in the incentive to take risks. Compared to outright closure, less severe penalties such as restrictions on growth or dividend payments therefore are less likely to encourage increased risk-seeking by banks near the threshold.

At nonbank firms, these problems largely are avoided as investors gradually increase pressure, in small increments, on firms whose financial condition deteriorates; at no arbitrary point is a large penalty abruptly imposed. The final step in this gradual process is market closure (perhaps through bankruptcy) at zero market capital. This suggests the outlines of an ideal regulatory approach: a policy that imposes appropriately gradual pressure on troubled banks would avoid most of the undesirable moral hazard effects of early intervention.

The continuous adjustment required might be too much to ask of the existing supervisory system, but current plans for "prompt corrective action" by federal regulators may represent a sound compromise. Beginning in mid-December of this year, restrictions will be placed on unhealthy banks at a number of capital thresholds; the restrictions become progressively more severe at lower capital levels, but the increase in the "pain" inflicted at each threshold is relatively small. If regulatory action is viewed as a process of turning out the lights at troubled banks, the adverse effects of early intervention stem from sudden changes in brightness. Early closure flips a switch, plunging abruptly to black, whereas the ideal policy for reducing the effects of moral hazard would turn a knob to dim the lights gradually

as appropriate. Prompt corrective action is analogous to a three-way bulb; regulators can go from bright, to dimmer, to dimmest, so that the final click of the switch, if needed, is not such a major event.

Conclusion

Part of the case for early closure of banks is that it helps solve the moral hazard problem. However, the recent banking research cited in this *Letter* indicates that early closure may make the moral hazard problem at some insured banks worse, not better. The weakest banks—those least able to withstand losses—are the most likely to respond by engaging in riskier financial gambles. Hence, although earlier closure may have significant benefits, it is important to recognize that banks near the closure threshold might have a greater tendency to gamble with insured depositors' money, which may increase the total burden on the deposit insurer. The larger number of smaller incremental penalties for low capital banks that will be instituted under "prompt corrective action" may be a practical solution.

One broader lesson is that changes in banking regulatory policy cannot ignore the likely responses of the regulated banks. If the only response by bank managements to the change in closure policy were to raise capital, then gambling probably would be reduced. However, one of the factors in banks' decisions is regulatory policy itself, making it unrealistic to assume that bank portfolio decisions would not respond to regulatory change. Similar considerations have long been familiar to economists in other policy areas: measures that look attractive if behavior is static can lose some of their gleam with recognition of more realistic human behavior.

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