ACTUARIAL AND STATISTICAL BASIS OF DEPOSIT INSURANCE

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Donald S. Thompson, Chief, Division of Research
and Statistics, Federal Deposit Insurance Corporation

Delivered Before the Washington Chapter,
American Statistical Association,
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The effectiveness of any system of insurance must be judged by the extent to which losses are borne by the insuring agency so as to reduce the adverse economic and social effects of loss upon the insured and upon society. On the basis of this criterion the existing deposit insurance system has been highly successful to date.

Protection of depositors from loss. Up to the close of October, 1939, the Corporation was called upon to discharge its financial responsibilities in 306 banks which closed or were merged because of financial difficulties. Total deposits in these banks exceed $280,000,000. It is estimated that depositors in these banks will suffer a loss of less than $3,000,000, or 1 percent of total deposits. Of the 800,000 depositors in these banks less than 10,000 will suffer loss. More than one-half of these will never know that they have suffered loss because they do not know that they have accounts in these banks. Efforts to locate these depositors have been unsuccessful. If these 5,000 depositors had known of the existence of their accounts they would have suffered no loss because in every case they would have been fully protected by insurance.

1/ Prepared with the assistance of Miss Florence Helm, Economist, Deposit Insurance Unit, Division of Research and Statistics.

Loans were made to 103 of the banks, with deposits amounting to $205 million, to effect mergers, and the communities in which they were located enjoyed uninterrupted banking services without loss. Payments to depositors in the remaining 203 banks, with deposits of $79 million, which closed and were placed in receivership were started on the average within two weeks after the closing of a bank and proceeded as rapidly as depositors presented and proved their claims. As a consequence, depositors' funds in practically all cases were made available promptly while the banks' assets were liquidated in an orderly manner without undue pressure upon the community.

Each depositor in each insured bank is protected up to a maximum of $5,000 in a single right or capacity. An individual can have in one bank a personal account of $5,000, a separate business account of $5,000, and another account of $5,000 for which he is trustee, and be protected up to $5,000 in each of the three accounts. However, if he has a personal checking account of $5,000 and a savings account of $5,000, or a total of $10,000, he will be protected only to the extent of $5,000 for the two accounts combined; the other $5,000 would not be protected by insurance. The form of account is unimportant; it is the identity of ownership that is significant. A person can have $5,000 in each of several insured banks and be protected up to the full $5,000 in each bank.

Our statistical analyses indicate that more than 98 percent of the depositors in the insured banks are fully protected by insurance under the existing limit of $5,000 and that approximately 45 percent of the deposits in the banks are protected by insurance. In practice, however, as indicated above, depositors enjoy much higher protection than is indicated by these figures. While not all of the protection which depositors enjoy is provided by insurance, practically all of the cost of protection is borne by the Insurance Corporation.

Actuarial or statistical basis of deposit insurance. The existing system of deposit insurance does not rest upon an actuarial or statistical basis. The extent to which deposit insurance rests upon statistical foundations is entirely incidental to the analyses, opinions, hypotheses, and expediencies which dictated the creation of the system in the form which now obtains.

I propose to discuss what conditions are necessary for the establishment of an actuarial or statistical basis for deposit insurance, and whether or not a sound system can be developed without such a basis.

Conditions Necessary for the Establishment of a Statistical Basis for Deposit Insurance

The conditions essential for the establishment of insurance upon an equitable basis and upon a sound actuarial and statistical basis are:

(1) The risk must be diversified and undue concentration avoided;

(2) The risk of loss must be measurable;

(3) The factors contributing to risk must be capable of evaluation;

(4) The benefits of insurance must be distributed in some equitable relationship to the costs;

(5) The rate of loss must be sufficiently low to permit losses to be met out of premiums which are reasonable enough to be borne by the insured.

Distribution of risk. Approximately 14,500 so-called commercial banks are in operation in the United States. Deposits in about 13,500 of these banks are protected by insurance of the Federal Deposit Insurance Corporation, while depositors in about 1,000 commercial banks are not so protected.1/ The insured commercial banks operate more than 16,000 offices holding total assets of more than $54 billion. As measured by total assets these offices range in size from $31,000 to more than $3 billion. One bank reported total deposits of about $5,000; the largest reported total deposits of about $2.8 billion. The majority of the banks have total deposits of from $100,000 to $5,000,000. The banking offices are located in approximately 11,000 centers scattered throughout the country. The population of these centers ranges from less than 250 to more than 1,000,000 persons. The number of banking offices in these centers varies from only one each in about three-fourths of the centers to more than 500 in the largest. The banks serve different areas, and clientele deriving their income from different economic activities and resources.

In the aggregate the insured banks are in contact with the entire economy of the country. Virtually no economic development is possible in any section of the country without its repercussion upon some part of the insured banking system. It would appear, therefore, that we have spatial distribution of risk.

1/ In addition, the Corporation insures deposits in 51 mutual savings banks. Deposits in 500 mutual savings banks are not protected by insurance with the Corporation.

Measurement of loss. Had deposit insurance been in existence over a period of 70 years preceding its actual establishment a corporation operating on the basis upon which the Federal Deposit Insurance Corporation operates would have sustained losses on payments made to insured depositors in an amount in excess of one-fifth of 1 percent per annum of total deposits in the banks, all other things being equal. The present rate of assessment is one-twelfth of 1 percent per annum or less than one-half of the rate of loss which would have been borne in the past.

Factors contributing to or affecting risk. Statistically the factors contributing to the risk of loss through bank failures have not been measured or even defined. We believe we are fairly safe in assuming that banks fail for either or both of two reasons: (1) assets are not sufficient in value to cover liabilities. The extent to which this factor plays a part in bank suspensions is difficult to determine because of the inherent difficulty in ascertaining what values to attach to bank assets particularly during periods of strain; (2) even though assets may be of sufficient value they cannot be converted or liquidated rapidly enough to meet current demands.

Some suggestive studies have been made seeking to throw some light upon factors contributing to bank failures. These studies are suggestive, however, rather than definitive. In addition, considerable work has been done on external characteristics of failed banks and on the timing and geographic incidence of bank failures. Closed banks have been grouped according to class, type, size of bank, size of center in which located, and by States. The studies do not provide us with adequate statistical data for establishment of differentials in risk.

There appear to be a number of factors relating to economic conditions and to internal institutional situations which should be considered. A priori reasoning supported by general observation suggests that the following factors at least should be taken into consideration in determining the inherent riskiness of a given banking institution:

(a) Economic stability of clientele;

(b) Quality of assets held;

(c) Distribution of risk among assets;

(d) Relation of assets to customers' demands and ability of banks to convert assets;

(e) Owners' equity in the bank;

(f) Earnings record and prospect;

(g) Caliber of management;

(h) Intensity of competition.

How important these factors may be I do not know. We have been working on a number of them for some time but are not even sure that we have developed adequate measures of any of them. I believe that at best it will be a long, long time before we are able to evaluate these and perhaps other factors statistically in a manner which will permit the establishment of scientific premium rates on deposit insurance.

Equitable distribution of cost. Since a statistical basis for measuring the factors of risk has not been devised, it is not possible to ascertain the extent to which the assessments of the Corporation may or may not be equitably distributed among the banks. As I have previously stated, insurance coverage is restricted to $5,000 per depositor in each insured bank. Insurance assessments, however, are levied not upon insured deposits but upon total deposits.

I have pointed out that in those cases in which the Corporation has been called upon to assume its financial responsibilities depositors received practically full protection. In one-third of the operating insured banks, insurance protects 90 percent or more of the total deposits; in another one-third of the banks, insurance protects from 80 to 90 percent of total deposits; in less than 2 percent of the banks does insurance protect less than one-half of the deposits. These latter banks, however, are the larger institutions and pay substantial premiums. As a consequence, considerable controversy has arisen over the equity of the basis of assessment. I do not consider that these banks are discriminated against. In my opinion, these large banks do in fact enjoy a protection that exceeds the letter of the insurance law and which amounts virtually to a full guaranty of their obligations. In the light of our recent past history it is inconceivable to me that any responsible administration could again permit one of these large banks to fail with the resultant freezing of large amounts of deposits. The repercussions would be particularly serious in the case of banks with large interbank deposits.

Requirements for Sound Deposit Insurance System

Over the 70-year period preceding establishment of deposit insurance, losses to depositors amounted to about $2.5 billion. Bank stockholders lost an additional $2.5 billion, and operating banks are estimated to have borne losses out of their operating income equal to about $9 billion. Out of a total of about $14 billion, banks and bankers did bear $11 billion or more. Why then were they unable to bear the additional two and one-half billions? The banks' earnings as a whole were sufficient to bear the loss. The losses, however, were to a considerable extent concentrated both as to locality and time.

Successful administration of deposit insurance requires that cyclical concentration of bank failures be avoided. If, in the 70-year period preceding deposit insurance, the losses arising from the suspension of banks during the 14 crisis years be eliminated the rate of losses for the remaining 56 years does not exceed the present rate of deposit insurance assessment.

Elimination of such concentration rests upon two hopes: (1) that we can prevent the accumulation of losses in bank assets during ordinary times; and (2) that recent changes in our banking structure will have eliminated some of the most glaring weaknesses which led to previous collapses.

Effective bank supervision. The first hope explains the Corporation's preoccupation with the banks' capital structures and with the thesis that banks should write off their existing losses promptly or set up reserves against probable losses before paying dividends and that banks in a weak or hazardous condition should be cleaned up promptly during ordinary times. While diligent supervision may prevent an accumulation of those internal hazards in banks which contribute to insolvency we must bear in mind that the margins of solvency are lower than heretofore. The average ratio of capital to deposits of the banks of the country has declined over the past 75 years and double liability of stockholders has been largely eliminated, further reducing the actual protection of creditors. While this declining margin of capital protection need not be a matter of concern to those depositors who are fully protected by deposit insurance, it is a matter of concern to the ultimate bearer of those depositors' losses - the Insurance Corporation - and should be a matter of concern to the bankers themselves who must bear the cost of the insurance system if it is indeed to be an insurance system and not another Government relief project.

It is recognized among insurance men that an important responsibility of an insurance company is to seek to prevent the development of those situations which are conducive to the materialization of the risks against which the company provides protection.

When Congress established the rate of assessment equal to less than one-half of the rate of loss which would have been borne in the past, it would appear that Congress expected the frequency of bank failures and the losses resulting therefrom to be reduced. Supervisory powers were given to the Insurance Corporation and a number of changes were made in our banking system which were obviously aimed at the elimination of those structural defects which, it was believed, had contributed in considerable degree to bank failures and our banking collapse.

The Corporation was given some discretion in the admission of banks to insurance, power to examine banks not otherwise subject to examination by a Federal agency, and authority to terminate the insured status of any bank which continues to engage in unsafe and unsound practices.

Adequate rediscount facilities. Changes were also made in our central banking system providing more liberal access to the lenders of last resort with the hope, apparently, of avoiding banking collapse through lack of liquidity in the banking system. It is hoped that the institution of insurance itself will eliminate or mitigate depositors' runs resulting from fear. It cannot, however, eliminate or reduce withdrawal of funds reflecting adverse balance of payments in a given community. It is hoped that the expanded rediscount powers of the Federal Reserve System will provide a means whereby bank assets can be converted to meet such adverse balance of payments without the serious destruction of values which has usually accompanied periods of liquidation in the past.

Additional safeguards. The question may well be asked as to whether or not we have gone far enough in the creation of structural safeguards. Deposit insurance is now limited to $5,000 per depositor in any given bank. Will such coverage prove adequate in a crisis or a period of severe financial strain to prevent runs and hoarding by large depositors? Have existing rediscount facilities been broadened adequately so that banks can be assured of convertibility in depression? Will the central bank be able to provide adequate convertibility to banks under pressure so that no bank will fail because of lack of cash, particularly one which would have been in a reasonably sound condition under normal circumstances?

The answers to these questions will determine whether or not we can create a banking system which can ride through periods of strain without collapse. If we can, deposit insurance can take care of those losses in banks which result from failures which inevitably accompany any system of business enterprise. Deposit insurance, however, cannot survive or handle a banking collapse and is not designed for that purpose. It has been designed for the purpose of distributing losses resulting from bank failures among the banks in such a way that little loss will fall upon individual communities or depositors.

Should we face another serious financial crisis we might find it necessary so to extend the system of deposit insurance that the problem of valuation of assets would become unimportant when problems of convertibility arose. The determination of loss in the assets themselves could be made in a more rational and reasonable manner during the period of subsequent recovery. Efforts could be made to clean up the debris of the crisis during such recovery period. It seems to me that one of our past difficulties has been that we have attempted to clean up our debris during crises.

Financial status of the Corporation. We estimate that through the 306 banks wherein the Corporation has been called upon to discharge its financial responsibilities, the Corporation will sustain losses of about $43 million, or 15 percent of total deposits in those banks.

800, or about 3 percent per year. I do not wish to draw historical parallels too closely, but I do have the feeling that the historical situations of the early years of the Federal Reserve System and of the early years of the Federal Deposit Insurance Corporation are not wholly dissimilar in either the domestic or the foreign field.

Some people are inclined not to worry about the adequacy of the Corporation's income or resources because of their belief that the United States Government will provide the necessary backing and relief in the event of a breakdown of the insurance system. Such an eventuality would, in my opinion, be unfortunate. Should the Government have to step in by means of Congressional appropriations it would have to do so presumably in a time of crisis or near crisis when the banking system again will have failed to perform its function satisfactorily.

Dissatisfaction with our system of private banking would be at a peak and the charge would be made that the banking system either could not or would not support even a mutual insurance system. At such a time opponents of a privately owned banking system would argue that since the Government had to bear the losses in the final analysis, it was improper for private capitalists to secure the profits and benefits. The case for abolition of privately owned banks would be strengthened. I believe it is important, therefore, that the objectives sought by our system of deposit insurance and through our other banking reforms should be achieved without further Government subsidy.

In conclusion, the situation with respect to deposit insurance is about the same as that prevailing in many of the fields of casualty insurance wherein the rates of loss are subject to guess and are changing with changes in our methods of living. There is perhaps one basic difference between the guesses underlying other casualty rates and those underlying the deposit insurance rate in that the latter are essentially optimistic.

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