

To: The Board
From: Lauchlin Currie

A SAMPLE STUDY OF THE RECORDS OF SUSPENDED BANKS

A Research Project Conducted by the Works Progress Administration
and
the Federal Reserve System

PART III

Deposit Losses Experienced by Banks Immediately Before Suspension

CHAPTER FOUR

An Analysis by Type of Deposit and Size of Account

May 3, 1938

FOREWORD

by
LAUCHLIN CURRIE
Director of the Project

The analysis of the data made available by a Works Progress Administration study of the records of a group of banks that were suspended in the period 1930-1933 has now reached the point where it is possible to present from time to time preliminary reports of various aspects of the study. The present is the first of a series of such reports prepared by Mr. Krost. It deals with the loss of deposits experienced by banks in the months prior to suspension.

This aspect of the broad problem of bank liquidity has been almost completely neglected for the reason that up to now virtually no information has been available on the behavior of deposits by type and size of account. This, and the succeeding reports, will help to repair this neglect. According to present plans this report will constitute Chapter Four of Part III of the General Study.

The project as a whole was made possible through the cooperation of many agencies and individuals. The Comptroller of the Currency and various state banking supervisory authorities granted access to records, and their receivers provided accommodation for workers; the Works Progress Administration financed the study; the Board of Governors and the Reserve banks contributed the services of the supervisory staff. Individual acknowledgements will be made when the reports are made public.

PROPOSED OUTLINE OF COMPLETE REPORT

- PART I. A Summary of Findings
- PART II. Deposit Movements in Prosperity and Depression
- PART III. Deposit Losses Experienced by Banks Immediately
before Suspension
- PART IV. Sources of Funds Used to Meet Deposit Losses
- PART V. The Composition and Behavior of Customer Loans
- PART VI. The Activity of Personal Demand Deposits
-

DEPOSIT LOSSES EXPERIENCED BY BANKS IMMEDIATELY BEFORE SUSPENSION

An Analysis by Type of Deposit and Size of Account

by
Martin Krost

The results presented in the following pages may be summarized as follows:

1. From the time that serious deposit losses began until the date on which they suspended, the sample banks included in the survey sustained an average loss of almost 40% of their deposits. In most of the banks demand deposits showed somewhat larger percentage reductions than time deposits, while interbank deposits showed much sharper reductions than either demand or time. The share of the total loss of deposits attributable to demand deposits was somewhat larger than the percentage of demand deposits to total deposits before serious losses began to occur; time deposits were a less important factor in the loss of deposits than they had previously been in the banks' total deposit holdings; while interbank deposits were a much more important factor in the loss of deposits than might have been expected on the basis of their share in total deposits.

2. A decrease of 70% took place in the balances of demand deposit accounts of \$100,000 and over. The magnitude of the percentage decrease in balances tended to decrease in each successively smaller size class, and became negligible in accounts of less than

\$200. Large demand deposits were a very important factor in the loss of deposits both because of their importance as a factor in total deposits and because they were reduced much more sharply than smaller deposits. In the sample group of banks as a whole, reductions in the balances of accounts of \$25,000 and over accounted for 43% of the total loss of demand deposits, although demand deposits of this size accounted for only 28% of the total demand deposits on the date from which losses were measured. Accounts of this size were reduced 64%, as contrasted with a reduction of 40% in total demand deposits, and a reduction of 6% in the balances of accounts of less than \$500. In one bank which experienced losses of \$6,540,000 in demand deposits, 26 accounts with balances of \$100,000 and over showed a reduction of \$5,737,000, or 88% of the net decrease in the total.

3. In the group of banks included in the survey, withdrawals of balances by out-of-town individuals and corporations (other than banks) were not an important factor in the total loss of deposits.

4. The most important factor in explaining differences in the variability of deposit balances in time of stress is apparently the size of the balance. The influence of other factors such as type of deposit (demand or time), residence of holder (local or non-local), or type of holder (business or personal), seems to be of comparatively minor importance.

5. The importance of the part played by larger accounts in pre-suspension losses of deposits indicates that the present system of

deposit insurance, under which balances of over \$5,000 are only partially insured, would have only limited effectiveness in protecting banks of the type included in the survey from deposit drains attributable to loss of confidence in particular banks or the banking system as a whole. The survey was limited to banks with total deposits of between \$1,000,000 and \$40,000,000. Banks of this size held almost half of the deposits involved in suspensions during the period 1930-1933. It should be pointed out, however, that deposit insurance is likely to have considerably greater effectiveness in smaller banks, where fully insured deposits make up a high percentage of the total. These smaller banks made up 85% of the total number of suspensions during the period 1930-1933.

6. The above findings suggest that an analysis of deposit liabilities should be an important element in an individual bank's determination of its liquidity requirements.

I

The Scope and Limitations of the Data

In assessing the significance of the facts presented in the following pages, it must be kept in mind that the deposit movements which took place in the particular group of banks under discussion may not be representative of the deposit movements that take place in banks suspended under different circumstances. The bank suspensions discussed here took place between November 1930 and March 1933; nearly

all of them occurred after the institutions involved had suffered a very serious loss of deposits; all of the banks in this group of suspensions were much larger than the typical bank that suspended in this period; and the proportion of banks located in eastern and midwestern industrial centers is higher in this sample than in all bank suspensions. Deposit movements of a different sort may take place in banks suspended during good times; in banks suspended by supervisory authorities before any serious drain of deposits has taken place; and in banks that are located in small agricultural communities. The banks in this sample, however, may be regarded as representative of suspensions involving banks with total deposits of between \$1,000,000 and \$25,000,000, located in urban areas. While the suspensions involving this class of banks constitute only 15% of the total number of suspensions which took place during the depression of the early thirties, the deposits of suspended banks of this type make up almost half of the total deposits involved in all bank suspensions during this period. The sample banks from which the following data is taken had total deposits of \$561,000,000 on June 30, 1931, and \$211,000,000 on date of suspension. Their deposits on date of suspension represent about 5% of the deposits of banks of comparable size suspended in 1930-1933. The distribution of the banks that provided data for this section of the report is shown in Table 1.

It should also be kept in mind that the information presented relates to a period of months immediately before suspension took

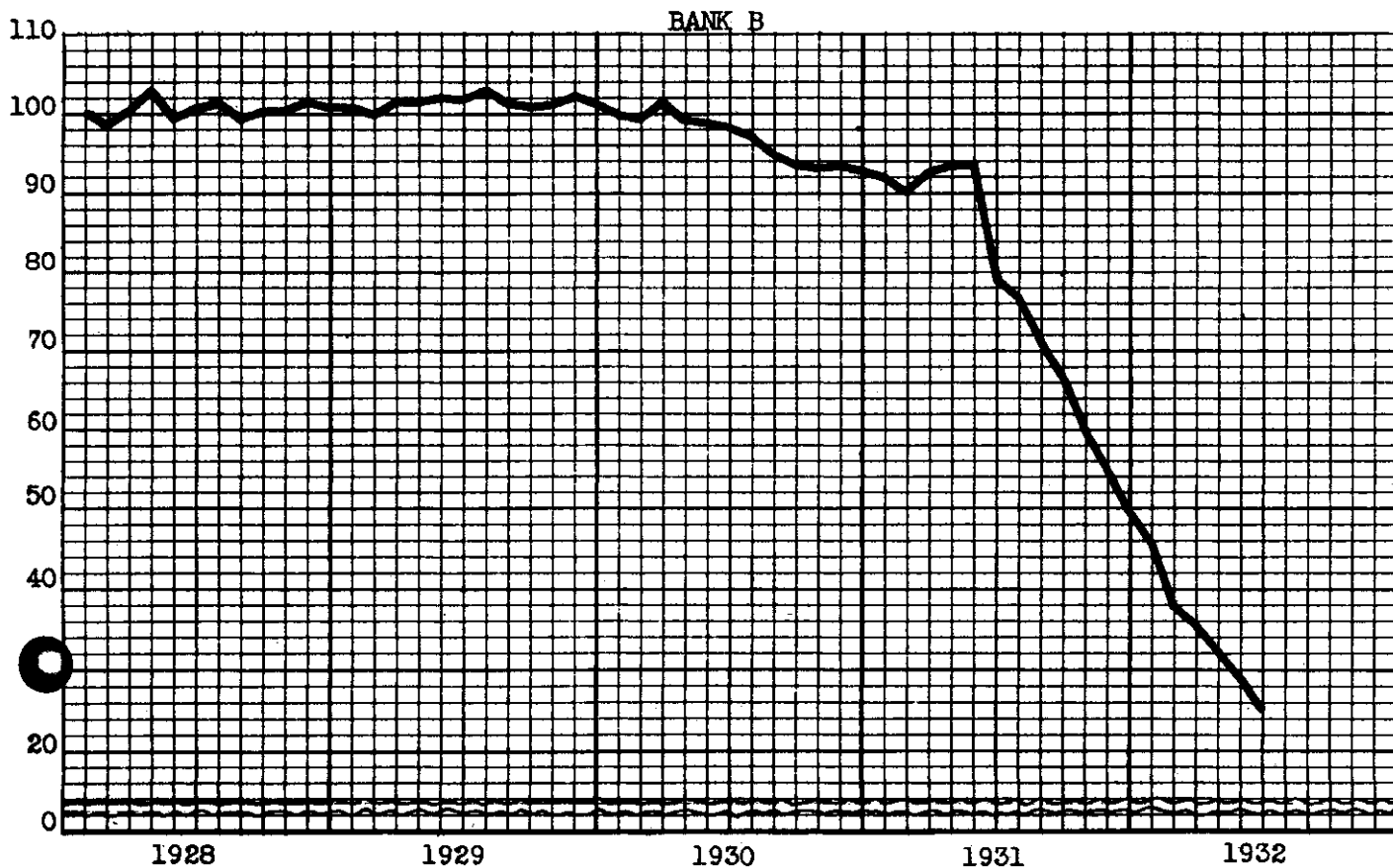
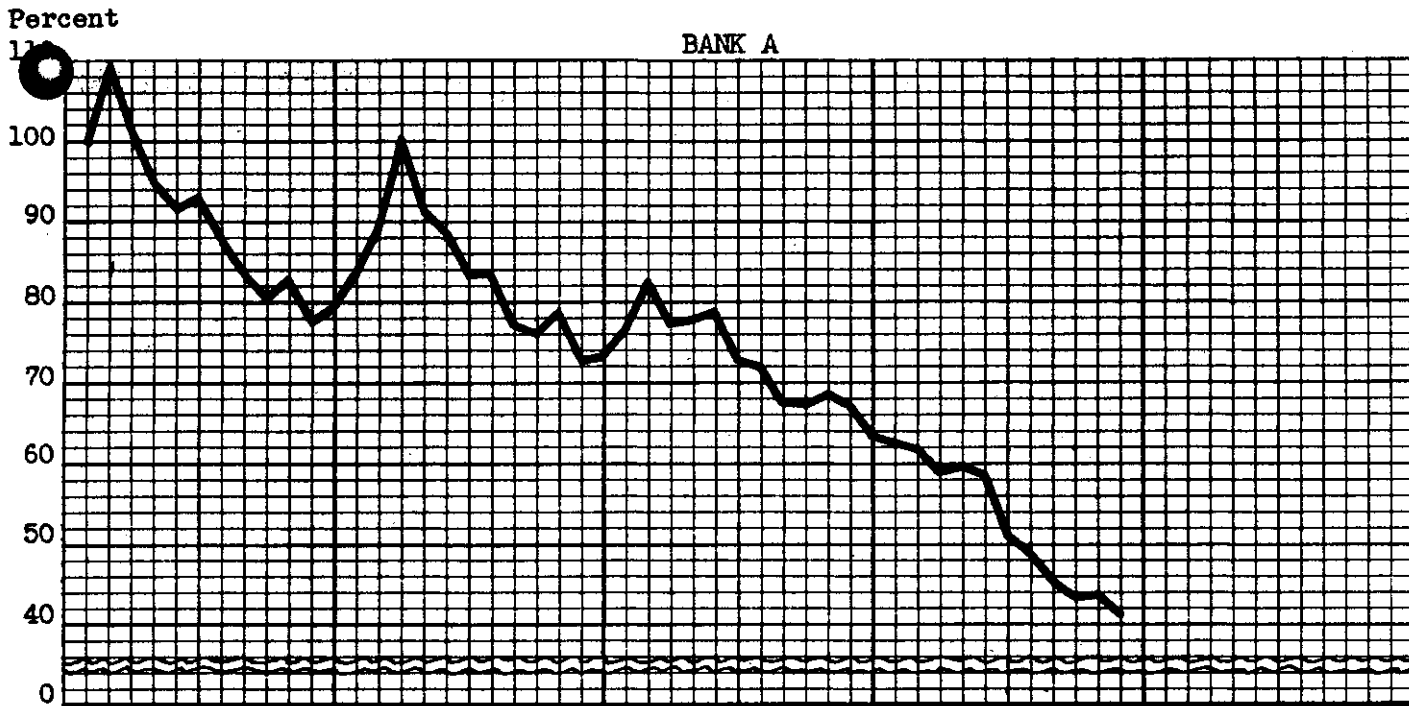
Table 1

DISTRIBUTION OF BANKS SUPPLYING DATA ON PRE-SUSPENSION DEPOSIT MOVEMENTS

Distribution by location and size	All sample banks	Suspended before June 30, 1931	Suspended between June 30 and Dec. 31, 1931	Banks suspended after Dec. 31, 1931		
				Banks in cities of 100,000 and over	Banks in cities of less than 100,000	Banks in suburban areas
Total number of banks	67	9	14	15	19	10
Distribution by area:						
New England	6	-	3	-	3	-
Middle Atlantic	20	2	7	7	1	3
East North Central	22	5	2	3	10	2
West North Central	6	-	-	1	1	4
South Atlantic	5	1	1	2	1	-
East South Central	1	1	-	-	-	-
West South Central	1	-	-	-	1	-
Mountain	1	-	-	-	1	-
Pacific	5	-	1	2	1	1
Distribution by size of city:						
Cities of 100,000 and over	21	1	5	15	-	-
Cities of less than 100,000	28	5	4	-	19	-
Suburban areas	18	3	5	-	-	10
Distribution by size of total deposits: (in millions of dollars)						
1 - 1.9	4	-	1	1	-	2
2 - 4.9	27	7	8	2	7	3
5 - 9.9	17	-	2	6	7	2
10 - 24.9	16	1	2	5	5	3
25 - and over	<u>1/3</u>	<u>1/1</u>	<u>2/1</u>	<u>3/1</u>	-	-

1/ The largest bank had total deposits of less than \$40,000,000
2/ " " " " " " " " " " 35,000,000
3/ " " " " " " " " " " 30,000,000

MOVEMENTS OF TOTAL DEPOSITS IN THE PERIOD BEFORE SUSPENSION
(Index numbers of total deposits on the Wednesday following the
5th of each month, January, 1928=100)



place. Deposit movements show patterns of variation which are strikingly different for different banks and for the same bank at different periods of time. The diversity is such that any scheme of classification may obscure significant differences, but it is possible to distinguish in a rough way between seasonal movements, cyclical movements, and panic movements. Particular banks or banks in particular localities seem to have their own characteristic seasonal movements. Cyclical movements can be traced in banks in widely separated areas, although the amplitude of the movement differs widely between areas. Panic movements may be common to large numbers of banks, affecting both banks that will survive the strain and banks where the loss of deposits will be terminated by suspension. For example, in the months following September, 1931, almost every bank included in the study experienced serious losses of deposits, although most of them survived until 1932, and many of them until the Banking Holiday. Or panic movements may affect only a particular bank of the banks in a particular locality. Chart 1 shows the movements of total deposits in two banks. One of these had a strongly marked seasonal movement and suspended after a considerable cyclical loss of deposits at a time when a panic movement coincided with the seasonal low point; the other experienced an exceptionally severe panic drain after a comparatively small cyclical decline.

These panic movements are the center of interest in this first report. Most of the banks included in the survey experienced a percentage loss of deposits between the middle of 1928 and the middle

of 1931 in excess of the percentage loss of deposits experienced by all commercial banks during this period of transition from prosperity to deep depression. This earlier loss of deposits, attributable primarily to cyclical developments, probably rendered particular banks incapable of meeting the later and more serious loss of deposits that terminated in suspension. Another section of the general study deals with these cyclical losses of deposits which are smaller in magnitude and less rapid in their development than the presuspension losses.

The analysis of deposit losses by size of balance and residence of depositor is confined to demand deposits. Similar data for time deposits of \$5,000 and over were collected in a smaller sample of banks, but have not yet been completely tabulated.

II

Motives for Deposit Withdrawals

This investigation collected no information as to the motives which led particular depositors to reduce their balances. Very serious obstacles confront any investigation designed to obtain information of this sort. It is possible, however, to draw inferences as to the motives which led important classes of depositors to act in the way they did from an inspection of these figures and knowledge of the economic background of the period in which these suspensions took place.

Deposit balances may be reduced because of a number of reasons that have nothing to do with suspicion in the mind of the deposi-

tor as to the soundness of his bank. Business balances may be reduced because current receipts from sales and collections on receivables fail to cover cash outlays for current expenses and for the payment of indebtedness. Reductions of this type may be the voluntary result of a decision to increase inventories or to reduce debt, or they may be the involuntary result of disappointed expectations as to the volume of current sales. Business balances may also be reduced because of the purchase of securities or plant and equipment. An enterprise operating in more than one city may find it necessary to shift funds from one locality to another to finance its current operations.

Personal balances may be reduced because of loss of income by the depositor, the necessity for making unexpectedly large expenditures, the decision to abandon the use of a bank account altogether, or an apparent opportunity for profitable investment or speculation in securities, real estate, etc. Although profitable investment opportunities for businessmen and investors were few during the period under consideration, the other reasons for the reductions of balances that have been mentioned were in operation. These reasons are closely connected with general business movements and are discussed in another section of the general study dealing with the relations between cyclical movements in deposits and business activity.

These deposit movements may be said to have their origin in the attempts of depositors to utilize their funds as profitably as possible without reference to the risk of bank failure; for example, a businessman in a period of depression may use funds that are in excess

of current operating needs to reduce his bank loans because he is unable to obtain a better yield in any other way. Others originate in the attempt of a banker to adjust his reserve position to a serious loss of reserves; for example, a banker may insist on the reduction of a loan by a borrower who without pressure to repay would prefer to renew the obligation. But in many cases the two motives are both present; for example, banks in New York may attempt to adjust their reserve positions after losses attributable to gold outflows by selling securities. Under the pressure of sales, prices will be depressed to levels at which depositors (of New York banks or of interior banks) will find the yields attractive enough to make purchases. The interior bank that finds itself losing funds will attribute the loss simply to the action of its customers in making security purchases and the connection of the deposit movement with liquidation of bank assets and the initial loss of reserves may not be apparent either to the investors who have converted their deposits into securities or to the banks that have lost these deposits.

A third motive for deposit withdrawals is the desire to protect deposits against the risk of loss or lack of availability involved in bank suspensions. Recognition of this risk may take the form of loss of confidence in a particular bank or loss of confidence in all banks. Loss of confidence in all banks will lead depositors to withdraw currency or convert deposits into other forms of wealth. (The purchase of other forms of wealth is likely to shift deposits from one

bank to another.) Loss of confidence in particular banks will lead to shifts of deposits to banks that depositors believe to be stronger. There are cases where the decision of a depositor to withdraw his deposit may reflect all three lines of causation; for example, a bank in distress may dispose of its mortgage loans to local investors by pricing them considerably below face value. If the mortgages are paid for with deposits on its own books, its reserve position is slightly improved because of the reduction in reserve requirements. The decision of investors to take the paper may be motivated partly by the attractiveness of the yield, partly by the consideration that any bank in the locality may fail and almost any asset is less risky than a deposit.

The sharp reductions in deposits in the few months or weeks before suspension, which are the center of attention here, were probably attributable largely to suspicion of the soundness of particular banks, or the banking system in general, rather than to any other reason. This suspicion arose in different ways for different classes of depositors. Some depositors made intensive use of the sources of information open to the general public regarding the condition of the banks, such as the reports of conditions that most supervisory agencies require banks to publish in the newspapers, reports that appeared in investment manuals, lists of banks borrowing from the Reconstruction Finance Corporation, and the comments on general banking and financial conditions that were to be found in the newspapers and periodicals of the time. The published statements of condition were not so detailed

as those which trained investigators would consider adequate for an intelligent judgment of solvency or liquidity; all this material required for its proper interpretation a degree of skill in the reading of financial statements which few persons possess; and the figures were published some time after the date to which they related, and consequently did not reflect unfavorable changes in the positions of the banks until a considerable time after they occurred. For these reasons it is doubtful whether any considerable volume of withdrawals was based upon an intelligent interpretation of these generally available sources. It is no doubt true that many withdrawals were based upon the application of some rule of thumb like the appearance of borrowings on a bank statement. Even facts such as these, however, were unlikely to become generally known for some weeks after the event.

A few persons had access to information not available to depositors in general concerning the condition of the institutions in which they kept their funds or the funds of business concerns in which they were interested. These included bank executives, members of bank boards of directors, and the officers of corporations whose accounts were especially valuable to the depository bank. These persons probably controlled accounts or had a voice in the control of accounts which were large relatively to the average or the typical bank account. The tables presented in the following pages show that reductions in large accounts constituted a disproportionate share of the total reduction in deposit balances that took place in the period before suspension in the group of banks investigated.

These large accounts may also have been affected in an important way by repayment of loans (either to a bank included in this study or to other banks) or by repayment of other forms of indebtedness. Still another influence making for reductions in these accounts may have been the purchase from the bank of comparatively illiquid assets, notably mortgages, by local interests, in some cases interests connected with the management of the bank. Taking a broad view of the period in which these suspensions occurred, it is clear that the enormous volume of open market assets liquidated by the banking system must have been bought by purchasers whose deposit balances were considerably above the average size and that the purchases must have tended to reduce these balances. The large accounts may also have been affected by the efforts of depositors with large balances to reduce their risks by spreading large balances in smaller sections among a number of banks. These attempts to spread risk probably did not result in every bank's gaining as large a volume of deposits as it lost, since the selection of banks in which to make new deposits was probably influenced by the general impression that large banks were safer than small banks, and city banks safer than country banks.

Many persons withdrew their accounts or reduced their balances to negligible amounts during this period because of the rumors that began to circulate, and the general feeling of uneasiness and distrust that became common after banks began to fail in considerable numbers and the financial structure became weaker. Rumors of this character were sometimes true and sometimes false. Their importance

as a cause of bank failures must be assessed in the light of information set forth in another section of this study showing that large scale withdrawals of certain types of deposits occurred before other types began to be appreciably reduced.

The long lines of depositors waiting at tellers' windows were the most spectacular visible fact connected with the bank suspensions of the depression, and the dramatic character of such scenes has perhaps led to a general impression that many bank suspensions were attributable to visible runs of this type. This impression is not borne out by the figures in the following pages showing that the bulk of deposit losses occurred in accounts of depositors who were able to create invisible runs. The holder of a large deposit balance is likely to be a person who holds more than one bank account, or who is able to transfer a large portion of his bank balance into other forms of wealth which in the light of the immediate situation appear to be less risky. He can transfer his deposit balance to another bank, or buy securities with it merely by drawing a check which eventually must be met at the clearing house or the Reserve bank, and he is unlikely to make a withdrawal in person unless he fears that suspension is so imminent that his check will not clear before suspension occurs. The only persons under the necessity of appearing personally at banking offices are savings depositors and demand depositors who are unwilling or unable to open accounts in other banks or to convert their deposit balances into any form of wealth except currency. These depositors are likely to be holders of relatively small balances.

III

Deposit Losses Classified by Type of Deposit

The decreases in total deposits shown in Table 2 measure the severity of the strain to which these banks were exposed.^{1/} The percentage reduction in total deposits experienced by individual banks, shown in Table 3, range from a negligible figure to almost 75%. Of the 67 banks in the sample, 44 experienced reductions in total deposits of over 30% in this period. It is doubtful whether banks in general could remain liquid enough to enable them to meet losses in excess of the amounts which these banks actually experienced, and at the same time earn a satisfactory rate of return on capital and continue to function as a source of local loans.

Differences between the percentage reductions in total deposits shown by the various groups of banks are attributable in part to the length of time between the date of suspension and the date from which the loss of deposits is measured. In the case of the nine banks suspended before June 30, 1931, this interval ranges from 28½ months to almost 36 months; in the case of the 14 banks suspended between June 30 and December 31, 1931, it ranges from a few days to almost 6

^{1/} It is not possible to state precisely the percentage changes in total deposits of all surviving member banks over comparable periods, but it can be roughly estimated that total deposits in surviving member banks showed an increase of 2 or 3% from June 30, 1928, to June 30, 1931, decreased about 13% from June 30, 1931, to December 31, 1931, and decreased between 14% and 17% from June 30, 1931 to June 30, 1933.

Table 2

PERCENTAGE CHANGES IN DEPOSITS BETWEEN JUNE 30, 1931, AND DATE OF SUSPENSION, BY TYPE OF DEPOSIT

Type of deposit	All sample banks	Banks ^{1/} suspended before June 30, 1931	Banks suspended between June 30 and Dec. 31, 1931	Banks suspended after December 31, 1931			
				All banks	Banks in cities of 100,000 and over	Banks in cities of less than 100,000	Banks in suburban areas
Total, including interbank	-37.6	-38.4	-23.7	-41.2	-41.2	-38.0	-46.9
Demand	-40.2	-37.2	-27.7	-43.6	-44.2	-39.1	-51.8
Time	-30.1	-37.9	-13.3	-34.3	-34.8	-28.4	-42.0
U.S. Government	-11.7	-47.9	^{2/}	-35.2	-19.7	-36.4	-83.6
Interbank	-59.6	-21.1	-84.5	-60.9	-55.3	-61.9	-90.0
Certified and officers' checks, etc.	-59.2	-88.5	-47.5	-51.0	-36.1	-73.6	-34.4

^{1/} Changes are measured from June 30, 1928, for banks suspended before June 30, 1931.

^{2/} Increase of more than 100 per cent.

Table 3

DISTRIBUTION OF BANKS BY PERCENTAGE CHANGES IN TOTAL DEPOSITS BETWEEN JUNE 30, 1931, AND DATE OF SUSPENSION

Percent changes in total deposits	All sample banks	Banks ^{1/} suspended before June 30, 1931	Banks suspended between June 30 and Dec. 31, 1931	Banks suspended after December 31, 1931			
				All banks	Banks in cities of 100,000 and over	Banks in cities of less than 100,000	Banks in suburban areas
Increases of less than 10.0	1	-	1	-	-	-	-
Decreases of 0 - 9.9	4	-	3	1	-	1	-
10.0-19.9	6	-	4	2	1	1	-
20.0-29.9	12	2	3	7	1	6	-
30.0-49.9	35	5	2	28	11	9	8
50.0-79.9	9	2	1	6	2	2	2
Total number of banks	67	9	14	44	15	19	10

^{1/} Changes are measured from June 30, 1928, for banks suspended before June 30, 1931

months; and in the case of the 44 banks suspended after December 31, 1931, it ranges from just over 6 months to just over 20 months. While the period of time over which the loss of deposits is measured has some influence on the magnitude of the percentage reductions which are shown in the table, the fact that the percentage reductions in total deposits shown for the nine earliest suspensions (where the minimum interval is $29\frac{1}{2}$ months) and the forty-four latest suspensions (where the maximum interval is 20 months) are approximately the same, indicates that the type of deposit loss under examination is in general not a slow, steady movement extending over many months, but a steep decline terminated within a few months by the exhaustion of liquid resources and borrowing power, or by the action of supervisory authorities. The factors which determine the magnitude of the deposit losses which the various groups of banks were able to sustain before suspension include the strength of their liquid positions, the extent to which they had been weakened by losses of deposits before the dates indicated in the table, the availability of borrowing facilities, and the attitudes of supervisory authorities and of other members of the local banking community as to the desirability of extending aid to particular institutions in distress.

An analysis of deposit movements by type of deposit shows that the percentage reductions in demand deposits were almost uniformly greater than the percentage reduction in time deposits. The sole exception is the group of banks that suspended before June 30, 1931. A more detailed examination shows that the percentage reduction in time deposits

exceeded the percentage reduction in demand deposits for only four banks of the nine included in the group. While demand deposits show sharper reductions than time deposits, the difference between the behavior of the two types of deposit in this respect is not nearly so marked in the period immediately before suspension as it is in the period of cyclical decline in deposits up to June 30, 1931, when the percentage reduction in demand deposits was almost three times that in time deposits for the particular group of banks under consideration. Statistics for all member banks and for all commercial banks in Table 4 show a similar differentiation between the behavior of demand and time deposits*.

Table 4

PERCENTAGE CHANGES BETWEEN JUNE 30, 1928 AND JUNE 30, 1931,
IN DEPOSIT BALANCES, BY TYPE OF DEPOSIT

Type of deposit	All commercial banks	All member banks	Selected banks suspended after June 30, 1931
Total, including interbank	-	+0.2	-7.5
Total, excluding interbank	-6.9	-2.6	-10.4
Demand	-9.3	-5.6	-16.4
Time	-4.8	-1.4	-5.9
U.S. Government	+61.5	+53.7	+100.0
Interbank	<u>1/</u>	+23.7	+28.2
Certified and officers' checks, etc.	<u>2/</u>	+22.0	+14.3

1/ Not available

2/ Included in demand deposits

* Figures for member banks and all commercial banks restricted to those which remained active over the period would show smaller percentage declines in demand and time deposits.

Interbank deposits show much sharper percentage reductions in the period immediately before suspension than either demand or time deposits (again with the exception of the banks suspended before June 30, 1931) in marked contrast to their behavior during the preceding period of cyclical decline.

The allocation of the total loss of deposits by types of deposit is shown for all sample banks in Table 5, and for classes of banks in Table 6. Demand deposits accounted for about 43% of the total loss of deposits in all sample banks, time deposits for 37%, and interbank deposits for 15%. The small remainder was attributable to reductions in certified and officers' checks outstanding, and in United States Government deposits.

The share of a particular type of deposit in the loss of deposits is determined in part by its share in total deposits on the date from which the loss is measured, and in part by the magnitude of the percentage decrease which the particular class undergoes during the period. The differences between the allocation of deposit losses shown by various groups of banks are attributable primarily to differences in the distribution of total deposits on the date from which the loss of deposits is measured. For example, the group of suburban banks suspended after the end of 1931 differs from the other groups in the fact that time deposits accounted for a larger proportion of the total loss in deposits than demand deposits. This is true because time deposits made up a considerably larger percentage of the total deposits of this group of banks on June 30, 1931. The behavior of interbank

Table 5

ALLOCATION BY TYPE OF DEPOSIT OF THE DECREASE IN TOTAL DEPOSITS
BETWEEN JUNE 30, 1931, AND DATE OF SUSPENSION IN SELECTED SUSPENDED BANKS^{1/}

Type of deposit	Percentage composition of the decrease in deposits	Percentage composition of total deposits June 30, 1931
Total including interbank	100.0	100.0
Demand	43.5	40.8
Time	37.4	46.7
U.S. Government	0.2	0.6
Interbank	15.2	9.6
Certified and officers' checks, etc.	3.7	2.3

^{1/} Changes are measured from June 30, 1928, for banks suspended before
June 30, 1931

Table 6

ALLOCATION BY TYPE OF DEPOSIT OF THE DECREASE IN TOTAL DEPOSITS BETWEEN JUNE 30, 1931
AND SUSPENSION IN SELECTED SUSPENDED BANKS, BY CLASSES OF BANKS
(Percent of decrease in each type to the total decrease in types of deposits showing decreases)

Type of deposit	Banks ^{1/} suspended before June 30, 1931	Banks suspended between June 30 and Dec. 31, 1931	Banks suspended after December 31, 1931			
			All banks	Banks in cities of 100,000 and over	Banks in cities of less than 100,000	Banks in suburban areas
Total, including interbank	100.0	100.0	100.0	100.0	100.0	100.0
Demand	46.0	37.4	43.8	51.5	39.8	36.1
Time	38.1	31.1	38.2	32.5	34.0	54.0
U.S. Government	0.1	^{2/}	0.7	0.7	0.1	1.6
Interbank	7.3	28.1	14.7	13.8	21.5	6.2
Certified & officers' checks, etc.	8.5	3.4	2.6	1.5	4.6	2.1

^{1/} Changes are measured from June 30, 1928, for banks suspended before June 30, 1931

^{2/} Increase

deposits demonstrates how a particular type of deposit can contribute to the total loss of deposits more than in proportion to its share in total deposits at the beginning of the drain. In the group of banks suspended between June 30 and December 31, 1931, interbank deposits were responsible for 28% of the total loss of funds although their share in total deposits on June 30 was only 10%. This was the result of the fact that this type of deposit showed a decrease of 84% during the period as contrasted with the decrease of 24% in total deposits.

IV

Deposit Losses by Size of Account

Percentage reductions in demand deposits by size of balance are shown for all sample banks in Table 7, and for classes of banks in Table 8.

Table 7

PERCENTAGE CHANGES BETWEEN JUNE 30, 1931, AND DATE OF SUSPENSION IN DEMAND DEPOSIT BALANCES, BY SIZE OF ACCOUNT^{1/}

Type of deposit and size on June 30, 1931 (see footnote 2)	Percentage change
Total demand deposits	-40.2
Public funds	-17.8
Certificates of deposit	-54.0
Other demand deposits	-43.5
Inactive and unlisted	-6.8
Less than \$ 1,000	-15.3
1,000- 4,999	-39.4
5,000-24,999	-48.9
25,000-& over	-63.8

^{1/} For banks suspended before June 30, 1931, size on June 30, 1928, is used for classification purposes and the loss of deposit balances is measured from June 30, 1928.

^{2/} Accounts opened after June 30, 1931, are classified according to their size on date of suspension.

A discussion of the changes in the number of accounts will be found in a later chapter of the general study. The present discussion as well as the figures shown is limited to changes in deposit balances, since it is the number of dollars lost rather than the number of accounts

Table 8

PERCENTAGE CHANGES BETWEEN JUNE 30, 1931, AND SUSPENSION IN DEMAND DEPOSIT BALANCES
BY SIZE OF ACCOUNT, BY CLASSES OF BANKS

Type of deposit and size on June 30, 1931 (See footnote 1)	Banks ^{2/} suspended before June 30, 1931	Banks suspended between June 30 and Dec. 31, 1931	Banks suspended after December 31, 1931			
			All banks	Banks in cities of 100,000 and over	Banks in cities of less than 100,000	Banks in suburban areas
Total demand deposits	-37.2	-27.7	-43.6	-44.2	-39.1	-51.8
Public funds	+80.4	+2.2	-34.5	-32.7	-33.1	-54.8
Certificates of deposit	-77.5	+208.9	-88.6	-77.9	-93.1	-87.1
Other demand deposits	-47.3	-32.8	-44.8	-46.1	-39.5	-51.5
Inactive and unlisted	-75.3	+2.7	+24.3	+11.2	+361.1	-38.9
Less than \$ 100-	+73.2	+77.6	+58.7	+88.9	+37.5	+52.2
100-	+1.0	+12.3	-15.1	-12.0	-18.3	-14.6
200-	-0.5	-4.0	-23.3	-20.0	-24.5	-26.3
300-	-32.7	-6.5	-31.1	-33.5	-28.3	-31.5
400-	-21.3	-11.9	-26.2	-28.5	+13.8	-40.8
500-	-27.2	-16.6	-35.6	-32.0	-34.1	-43.6
1,000-	-35.8	-24.9	-39.4	-38.3	-33.1	-50.5
2,500-	-42.0	-31.0	-45.6	-42.5	-41.4	-58.8
5,000-	-55.1	-32.4	-46.6	-45.4	-39.2	-61.2
10,000-	-51.4	-41.0	-53.2	-53.4	-44.0	-70.7
25,000-	-58.3	-53.8	-56.0	-59.9	-47.1	-61.4
50,000-	-40.8	-63.9	-62.4	-67.8	-49.1	-78.4
100,000-and over	-67.8	-58.7	-73.2	-73.0	-73.6	-72.4

^{1/} Accounts opened after June 30, 1931, are classified according to their size on date of suspension.

^{2/} For banks suspended before June 30, 1931, size on June 30, 1928, is used for classification purposes and the loss of deposit balances is measured from June 30, 1928.

lost that is the significant measure of the severity of the strain upon a bank in times of stress. Movements in the number of accounts are deprived of significance by the fact that the typical depositor protects himself against a prospective loss when he expects his bank to fail, not by the complete withdrawal of his account, but by the reduction of his balance to a negligible amount.

The most striking fact which emerges from the consideration of the accompanying tables is the regularity with which the percentage decrease in the balances of demand depositors rises as the size of the account increases. Decreases much below the general average are characteristic of accounts between the \$100 and \$200 level.^{1/} The magnitude of the reduction increases with the size of the account until it exceeds 70% in accounts of \$100,000 and over.

In interpreting these figures, it should be remembered that accounts are classified according to their size on the date from which the changes are measured, and consequently the magnitude of the losses in the higher size groups is not attributable to a shift of accounts into lower size groups. The figures do not refer to identical accounts since they reflect the loss of balances in accounts closed and the gain of balances in accounts opened during the period. Accounts opened during the period were classified according to size on date of suspension. Because of the general tendency to reduce balances to nominal amounts immediately before suspension, this procedure was responsible for the

^{1/} For an explanation of the increases shown in the lowest size classes see the following paragraph.

classification in the lower size classes of a number of accounts which might have had larger balances a few months before suspension. This explains the increases shown by the balances classified in the lower size groups. In the higher size classes, the same tabulating procedure prevented the opening of new accounts from having an offsetting effect upon the balances lost through complete withdrawals of accounts. The percentage changes shown in the higher size classes are, therefore, somewhat larger than would be shown for identical accounts. An inspection of the figures for changes in the number of accounts, and of the figures for individual banks, suggests, however, that the net loss of balances attributable to the excess of accounts closed over accounts opened was not an important factor in the total loss of balances in the higher size classes.

The figures for different classes of banks show some fluctuation, but the differences are not so striking as the similarities. The resemblance of the general behavior of accounts, especially in the higher size groups, in banks failing at different times and in widely separated geographical areas, is the more striking in view of the fact that comparatively few accounts fall within the higher groups. For example, in the 9 banks suspended before June 30, 1931, there were only 130 accounts with balances of over \$25,000 on June 30, 1928; in the 14 banks suspended between June 30 and December 31, 1931, there were only 143 accounts of this size; and in the 44 banks suspended after December 31, 1931, there were only 594 accounts of this size.

The allocation of the total loss of balances in demand deposit accounts by size classes is shown for all sample banks in Table 9, and for classes of banks in Table 10.

Table 9

ALLOCATION BY TYPE AND SIZE OF ACCOUNT OF THE DECREASE IN DEMAND DEPOSIT BALANCES BETWEEN JUNE 30, 1931, AND DATE OF SUSPENSION^{1/}

Type of deposit	Percentage composition of the decrease in deposits ^{2/}	Percentage composition of deposits June 30, 1931
Total demand deposits	100.0	100.0
Public funds	5.6	13.0
Certificates of deposit	0.8	0.6
Other demand deposits	93.6	86.4
Inactive and unlisted	0.5	3.1
Less than \$ 1,000	8.9	17.2
1,000- 4,999	17.2	18.1
5,000-24,999	24.3	20.4
25,000-& over	42.7	27.6

^{1/} For banks suspended before June 30, 1931, changes are measured from June 30, 1928, and the composition of deposits is shown as of that date. Accounts opened after June 30, 1931, are classified according to their size on date of suspension.

^{2/} The percentages in this column are percentages of the total decrease shown by decreasing classes of deposits.

The contribution made by a given size class to the total loss of deposits depends partly upon the proportion of total deposits held by that size class on the date from which the loss is measured, and partly upon the magnitude of the percentage reduction in that size class. Because the proportion of total deposits held in very small accounts is small, no serious strain would be imposed upon most banks even if all depositors with balances of less than \$200 decided to withdraw their ac-

Table 10

ALLOCATION BY TYPE AND SIZE OF ACCOUNT OF THE DECREASE IN DEMAND DEPOSIT BALANCES
BETWEEN JUNE 30, 1931, AND SUSPENSION, BY CLASSES OF BANKS
(Percent of decrease in each size class to total decrease shown by decreasing classes)

Type of deposit and size on June 30, 1931 (See footnote 3)	Banks ^{1/} suspended before June 30, 1931	Banks suspended between June 30 and Dec. 31, 1931	Banks suspended after December 31, 1931			
			All banks	Banks in cities of 100,000 and over	Banks in cities of less than 100,000	Banks in suburban areas
Total demand deposits	100.0	100.0	100.0	100.0	100.0	100.0
Public funds	<u>2/</u>	<u>2/</u>	11.1	11.0	13.5	6.8
Certificates of deposit	0.3	<u>2/</u>	1.5	0.7	3.2	0.3
Other demand deposits	-	-	-	-	-	-
Inactive and unlisted	9.1	<u>2/</u>	<u>2/</u>	<u>2/</u>	<u>2/</u>	3.9
Less than \$ 100-	<u>2/</u>	<u>2/</u>	<u>2/</u>	<u>2/</u>	<u>2/</u>	<u>2/</u>
100-	<u>2/</u>	<u>2/</u>	0.9	0.5	1.3	1.1
200-	-	0.4	1.3	0.8	1.5	1.9
300-	1.4	0.5	1.5	1.3	1.5	1.9
400-	0.8	0.8	1.1	1.0	0.6	2.1
500-	3.7	3.8	5.0	3.7	5.0	8.2
1,000-	7.1	9.0	8.3	7.2	7.0	13.2
2,500-	7.3	9.0	8.5	7.5	7.6	12.3
5,000-	11.4	10.0	9.1	8.8	7.4	12.7
10,000-	13.0	14.4	13.7	14.7	10.8	15.5
25,000-	8.4	15.0	9.6	12.0	7.7	6.7
50,000-	4.1	15.7	8.8	10.3	7.5	7.0
100,000-and over	33.4	21.4	19.6	20.5	25.4	6.4

^{1/} For banks suspended before June 30, 1931, size on June 30, 1928, is used for classification purposes and the loss of deposit balances is measured from June 30, 1928.

^{2/} Increase

^{3/} Accounts opened after June 30, 1931, are classified according to their size on date of suspension.

counts entirely. Large accounts hold a very large proportion of total deposits in most banks, but this would not be a source of danger to these institutions if large accounts displayed a high degree of stability in their behavior in times of stress.

An inspection of Table 7 and Table 9 reveals that large accounts constitute a source of danger to banks both because they hold a large proportion of total deposits, and because they display an exceptional degree of instability in times of stress. For example, deposit balances in accounts of \$25,000 and over made up 29% of total demand deposits on June 30, 1931, but they accounted for 43% of the total loss of deposits that occurred between this date and suspension. This was the result of the fact that accounts of this size showed a decrease of 64% during this period as compared with a decrease in total demand deposits of 43%.

Differences between classes of banks with respect to the allocation by size of the total loss of demand deposits are attributable primarily to the differences in the composition by size class of total deposits on the date from which the loss is measured. For example, within the group of 44 banks suspended after December 31, 1931, banks in suburban areas had only 48% of their total loss of demand deposits concentrated in accounts of \$5,000 and over, as contrasted with 73% for banks in urban business districts. This was attributable primarily to the fact that on June 30, 1931 only 40% of total demand deposits in suburban banks was held in accounts of \$5,000 and over, as contrasted with 58% in banks in urban business districts. Thus, although large ac-

counts in suburban banks underwent a somewhat larger percentage reduction than accounts of similar size in banks located in urban business districts, suburban banks had a smaller share of their total deposits in large accounts, and consequently were somewhat less seriously affected by withdrawals of this type.

The greater concentration of losses in the higher size classes shown by the group of banks suspended between June 30 and December 31, 1931, is apparently attributable to the fact that the loss of deposits is measured over a shorter period of time for these banks and consequently reflects withdrawals largely of the type connected with loss of confidence in particular institutions, while in the other groups of banks, because of the length of the interval over which losses are measured, the figures are influenced to some extent by movements cyclical in their nature. This may be reflected in the fact that in the group of banks suspended between June 30 and December 31, 1931, accounts in the smaller size groups show much smaller percentage reductions than in the other groups of banks.

Under the present system of deposit insurance, deposit balances up to \$5,000 are fully insured; larger balances are insured only up to \$5,000. The foregoing figures indicate that from one-half to three-fourths of the losses of demand deposits experienced by banks of the type included in this survey in times when there is a general loss of confidence are attributable to accounts that are now only partially insured. If a similar concentration of deposit losses in large accounts occurs in future periods of banking difficulty, the effective-

ness of the present deposit insurance system in protecting banks against drains resulting from loss of confidence may be limited to smaller banks where large balances are an unimportant factor in total deposits. These banks, although they hold a comparatively small proportion of the total deposits of the existing banking structure, constitute a high proportion of the total number of banks and have made up a still higher proportion of the total number of bank suspensions.

It is possible that deposit movements in future periods of banking difficulty may be essentially different from the movements indicated by the foregoing figures because of the existence of deposit insurance itself. This question, however, will remain in doubt until a longer experience is available for study. Without factual evidence, speculation as to how different classes of depositors may react to the opportunity of securing insurance protection must remain inconclusive.

So far as fully insured balances are concerned, it seems clear that, if any change in their behavior occurs, it will be in the direction of increased stability. Depositors whose balances are only partially insured may reduce them to the \$5,000 level by shifting funds to accounts (also not in excess of \$5,000) in other banks, provided that the balance is not too large to make this step impracticable. Movements of this sort might result in every bank's gaining the same amount of balances that it lost, but it is more likely that there would be a net movement of funds in balances of this size away from particular banks that were believed to be in danger of suspension. The net loss of funds would occur as the result of the actions of depositors

anxious to avoid even the temporary lack of availability of their funds while the Deposit Insurance Corporation was arranging to pay insured claims. The instability of accounts of this type seems likely to be increased by deposit insurance, since before its establishment deposit balances of more than a few hundred dollars could be conveniently converted only into assets carrying an element of risk (that is, into deposits in other banks that might suspend or into other assets that might depreciate in price), while now a riskless investment, in the form of a fully insured deposit, is available.

In so far as depositors take this means of securing full insurance protection, the insurance liability of the Deposit Insurance Corporation may be greater in times of stress than is indicated by statistics collected in normal times. This implies that many depositors whose liquid resources are considerably greater than the insurable limit of \$5,000 will obtain complete protection from the losses involved in bank suspensions by distributing funds among several fully-insured accounts.

While this method of obtaining protection will not be open to depositors whose balances are too large to be distributed in \$5,000 sections, they will continue to be able to shift balances from weak to strong banks, or to convert deposits into low-risk securities, with the consequences indicated by the foregoing statistics. It may be that some depositors of this type, who would otherwise withdraw their accounts entirely, will leave a \$5,000 balance because of insurance protection. Aside from this consideration, which is of minor quantitative

importance, it seems likely that the unstable behavior of large balances which characterized the banking difficulties of 1930-1933 will reappear in future periods of banking difficulty.

v

Deposit Losses by Residence of Depositor

An analysis of deposit losses by the residence of the depositor is given in Tables 11 and 12. There has been considerable discussion of the part played in bank suspensions in smaller cities by withdrawals of comparatively large balances owned by corporations with headquarters in the financial and industrial centers of the country. The group of banks under examination here include no large institution in New York or Chicago, so that the term "non-local" as used to describe the accounts in these banks includes the accounts of corporations with head offices in those centers, although many accounts included in the non-local classification belong to holders in other cities. The group of institutions included in the sample are perhaps too few in number and too small in size to permit a reliable determination of the relative importance of withdrawals of non-local balances. In three of the five groups of banks for which the figures are presented in Table 11, the percentage reductions in local accounts exceed the percentage reductions in non-local accounts. In the two groups for which the balances of non-local holders show greater percentage decreases than the balances of local holders, the differences between the two categories

Table 11

PERCENTAGE CHANGES BETWEEN JUNE 30, 1931, AND DATE OF SUSPENSION IN DEMAND DEPOSIT BALANCES, BY RESIDENCE OF DEPOSITOR

Type of deposit and residence of depositor	All sample banks	Banks ^{1/} suspended before June 30, 1931	Banks suspended between June 30 and Dec. 31, 1931	Banks suspended after December 31, 1931			
				All banks	Banks in cities of 100,000 and over	Banks in cities of less than 100,000	Banks in suburban areas
Total demand deposits	-40.2	-37.2	-27.7	-43.6	-44.2	-39.1	-51.8
Public funds	-17.8	+80.4	+2.2	-34.5	-32.7	-33.1	-54.8
Certificates of deposit	-54.0	-77.5	+208.9	-88.6	-77.9	-93.1	-87.1
Other demand deposits	-43.5	-47.3	-32.8	-44.8	-46.1	-39.5	-51.5
Inactive and unlisted Unidentified depositors	-6.8	-75.3	+2.7	+24.3	+11.2	+361.1	-38.9
Local depositors	-37.5	-50.8	-20.5	-38.8	-38.9	-33.3	-44.1
Non-local depositors	-47.1	-46.3	-38.6	-49.3	-50.1	-46.0	-54.9
	-41.8	-29.1	-21.2	-47.3	-55.0	-33.1	-59.2

^{1/} For banks suspended before June 30, 1931, the loss of deposit balances is measured from June 30, 1928.

Table 12

ALLOCATION BY RESIDENCE OF DEPOSITOR OF THE DECREASE IN DEMAND DEPOSIT BALANCES
 BETWEEN JUNE 30, 1931, AND DATE OF SUSPENSION
 (Percent of decrease in each group to total decrease shown by decreasing groups)

Type of deposit and residence of depositor	All sample banks	Banks ^{1/} suspended before June 30, 1931	Banks suspended between June 30 and Dec. 31, 1931	Banks suspended after December 31, 1931			
				All banks	Banks in cities of 100,000 and over	Banks in cities of less than 100,000	Banks in suburban areas
Total demand deposits	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Public funds	5.7	<u>2/</u>	<u>2/</u>	11.3	11.3	13.7	6.9
Certificates of deposit	0.8	0.3	<u>2/</u>	1.5	0.8	3.2	0.3
Other demand deposits	-	-	-	-	-	-	-
Inactive and unlisted Unidentified depositors	0.5 14.1	9.3 16.1	<u>2/</u> 13.1	<u>2/</u> 12.9	<u>2/</u> 12.2	<u>2/</u> 8.9	4.0 21.1
Local depositors	69.9	69.4	82.0	64.3	64.1	66.3	58.7
Non-local depositors	9.0	4.9	4.9	10.0	11.6	7.9	9.0

^{1/} For banks suspended before June 30, 1931, the loss of deposit balances is measured from June 30, 1928.
^{2/} Increase

of deposits are not marked. Non-local depositors accounted for only 12% of the total loss of demand deposits in the group of banks located in larger cities which suspended after December 31, 1931, where their share in the total loss of deposits was greater than in any other group of banks. Differences between groups of banks in this respect are attributable to differences in the proportions of non-local to total deposits in various groups of banks, as well as to differences in the percentage reductions shown by non-local deposits.

VI

The Relative Importance of Size, Type of Deposit, Residence of Depositor, and Type of Depositor as Determinants of Deposit Behavior

The difference between the behavior of large and small accounts is more marked than the difference between the behavior of demand and time deposits, or the difference between the behavior of local and non-local accounts, or the difference between the behavior of business and personal accounts. These differences are summarized in Tables 13, 14, and 15.

Table 13

PERCENTAGE REDUCTIONS IN DEMAND DEPOSITS
 BETWEEN JUNE 30, 1931, AND DATE OF SUSPENSION, BY SIZE OF ACCOUNT AND
 IN TIME DEPOSITS IN SELECTED BANKS SUSPENDED AFTER DECEMBER 31, 1931

Type of deposit and size of account on June 30, 1931	Percentage reductions
Demand deposits	
Less than \$5,000	31.7
5,000 and over	58.8
Total demand deposits, exclusive of public funds	45.2
Total time deposits, exclusive of public funds	34.4

The figures suggest that the explanation of large scale deposit withdrawals in times of stress is to be found in the circumstances that differentiate the behavior of the large depositor from the small depositor, rather than in the circumstances which differentiate the behavior of the demand depositor from the time depositor, the non-local depositor from the local depositor, or the business depositor from the personal depositor. The importance of size is indicated in a striking way in Table 14 which shows that personal accounts are slightly more unstable than business accounts of comparable size, but business balances as a whole are more unstable than personal balances as a whole. This result is attributable to the fact that large balances are a much more important factor in the composition of business balances than in the composition of personal balances. A more detailed attempt to measure the degree of association between instability and type of deposit, between instability and size of deposit, and between instability and type of holder, will be found in a later

chapter of the general study.

Table 14

PERCENTAGE REDUCTIONS IN DEMAND DEPOSITS BETWEEN JUNE 30, 1931,
AND DATE OF SUSPENSION, BY TYPE OF HOLDER BY SIZE OF ACCOUNT
(Selected banks suspended after December 31, 1931)

Size of account on June 30, 1931	Business	Personal	Business ^{1/} and personal
Less than \$5,000	29.8	37.3	33.5
5,000 and over	57.6	65.0	58.4
Total	50.6	45.5	49.3

^{1/} The percentages in this column differ from those in Table 13 because they are based on figures which exclude fraternal and charitable accounts and accounts classified as to size but not as to type of holder.

Table 15

PERCENTAGE REDUCTIONS IN DEMAND DEPOSITS BETWEEN JUNE 30, 1931,
AND DATE OF SUSPENSION, BY RESIDENCE OF DEPOSITOR BY SIZE OF ACCOUNT
(Selected banks suspended after December 31, 1931)

Size of account on June 30, 1931	Local	Non-local	Local and non-local ^{1/}
Less than \$5,000	32.6	25.0	32.1
5,000 and over	60.5	51.9	58.9
Total	49.3	47.3	49.0

^{1/} The percentages in this column differ from those in Table 13 because they are based on figures which exclude accounts classified as to size but not as to residence of depositor and differ from those in Table 14 because the basic figures include fraternal and charitable accounts.