

R. Alton Gilbert

R. Alton Gilbert is an assistant vice president at the Federal Reserve Bank of St. Louis. Christopher A. Williams provided research assistance.

Federal Reserve Lending to Banks That Failed: Implications for the Bank Insurance Fund¹

DEBATE THAT LED TO PASSAGE of the Federal Deposit Insurance Corporation Improvement Act (FDICIA) in 1991 focused on changes in public policy to reduce losses of the deposit insurance funds. One aspect of public policy subject to such scrutiny was lending by the Federal Reserve to troubled banks. A report prepared by congressional staff indicated that over 300 of the banks that failed in 1985-91 were borrowing from the Fed when they failed, and that 90 percent of the banks that borrowed for extended periods of time eventually failed.² Other evidence caused the authors of that congressional staff report to conclude that Fed credit extended the life of borrowers that ultimately failed. Critics of Fed lending practices concluded on the basis of this evidence that lending to troubled banks increased losses to

the Bank Insurance Fund (BIF).³ This concern led to constraints on Federal Reserve lending to troubled banks in FDICIA (see the shaded insert on page 4, "Restrictions on Federal Reserve Lending Under FDICIA").

Restrictions on Federal Reserve lending to troubled banks raise several issues, including the proper role of the discount window and the necessary freedom of action for a central bank in limiting systemic impacts of problems in the operation of a banking system. Failures of banks may have systemic impacts if they cause other banks to fail or cause disruptions in the payment system or financial markets. This article focuses on the more narrow issue of whether Federal Reserve lending to troubled banks in recent years raised the losses of BIF. Critics of

¹The author thanks Kenneth Spong and Walker Todd for helpful information and insights. The views of the author do not necessarily reflect the views of the Federal Reserve Bank of St. Louis or the Federal Reserve System.

²See U.S. House of Representatives (1991c).

³See Garsson (1991), Rehm (1991), Starobin (1991) and Todd (1991, 1992). The FDIC insures the deposits of banks and savings and loan associations but maintains BIF as a separate fund for commercial banks and mutual savings banks. Banks pay insurance premiums into BIF, which then covers any losses when banks fail.

Restrictions on Federal Reserve Lending Under FDICIA

FDICIA restricts Federal Reserve lending to banks that do not meet the minimum capital requirements. For purposes of the various provisions restricting lending, a bank that fails to meet one or more of the minimum capital requirements is classified as undercapitalized. In addition, a bank is classified as undercapitalized if it has a composite CAMEL rating of 5 by its supervisory agency (or an equivalent rating under a comparable rating system), even if it meets the minimum capital requirements. A CAMEL rating of 5 indicates imminent danger of failure. A bank is classified as critically undercapitalized if its tangible equity is less than 2 percent of its total assets.

Under certain circumstances, the Federal Reserve may be liable to the FDIC for losses resulting from loans to undercapitalized or critically undercapitalized banks. If the Federal Reserve lends to a bank for more than five days after it becomes critically undercapitalized, and an FDIC deposit insurance fund incurs a loss greater than would have been incurred in the absence of the loan, the Board of Governors may be liable to the FDIC for part of the additional loss.

FDICIA restricts Federal Reserve lending to an undercapitalized bank to no more than 60 days in any 120-day period, unless the head of the appropriate federal supervisory agency or the chairman of the Board of Governors certifies the bank's viability. A certification of viability is a determination that, in light of the economic conditions and circumstances in the local market, the bank is not critically undercapitalized, is not expected to become critically undercapitalized and is not expected to be placed in conservatorship or receivership. A certification of viability suspends the limit on lending for more than 60 days in any 120-day period. A Reserve Bank may lend to a bank certified as viable for 60 days, beginning on the day of the certification. This 60-day period may be extended for additional 60-day periods on receipt of additional written certifications of viability. If the Federal Reserve extends credit to an undercapitalized bank beyond the limit of 60 days in any 120-day period without a certificate of viability in effect, the Board of Governors may be liable to the FDIC for part of the additional loss incurred by one of its deposit insurance funds as a result.

Fed lending practices have emphasized anecdotal evidence from a few bank failure cases, particularly the failures of the Bank of New England and the Madison National Bank.⁴ This article, in contrast, examines whether the record of Fed lending to many failed banks supports the arguments of the critics.

The evidence in this study indicates that loans from the Fed to many of the failed banks in their last year were concentrated near the time of failure and were allocated to the banks with the greatest liquidity needs. The evidence does not support the argument that Federal Reserve lending to troubled banks increased the losses of the FDIC.

FEDERAL RESERVE POLICY ON LENDING TO TROUBLED BANKS PRIOR TO FDICIA

Prior to passage of FDICIA in 1991, the Federal Reserve had a long-standing policy of not lending to nonviable institutions, except when such lending would facilitate an orderly resolution of institutions. Lending to facilitate orderly resolutions had been undertaken in cooperation with the institutions' supervisors and with the deposit insurance authorities. Under this policy, the Federal Reserve loaned to some troubled banks for extended periods of time. Two of the large banks that received Fed credit for extended

⁴See Schwartz (1992), Todd (1992) and comments by policymakers in Rehm (1991). For hearings on the failures of these banks, see U.S. House of Representatives (1991a, 1991b).

periods of time were the Franklin National Bank, in 1974, and the Continental Illinois National Bank, in 1984.⁵

In response to public criticism that the Federal Reserve had subsidized the Franklin National Bank, the Fed amended its lending regulations to establish a new, higher special discount rate for protracted emergency assistance to particular banks. Figure 1 indicates that such emergency assistance—which has been called extended credit since 1980—at times has been the predominant form of discount window lending. Prior to passage of FDICIA late in 1991, there were no legal constraints on the size or duration of Federal Reserve lending to troubled banks.

THE DEBATE OVER LENDING TO TROUBLED BANKS

The Issues

Public discussion that led to passage of limits in FDICIA on the authority of the Federal Reserve to lend to troubled banks involved two issues. The first issue, philosophical in nature, involved the proper purpose for lending. Walker Todd (1988, 1991, 1992), a major contributor to this debate, has asserted that the proper role for the discount window is to lend for short periods of time to solvent banks that are temporarily illiquid. Todd has described Federal Reserve lending to troubled banks for extended periods of time as the substitution of credit from the Federal Reserve for capital of the banks, which he considered inappropriate use of the discount window.

The second issue involved the implications of Federal Reserve lending practices for BIF losses. This second issue appears to have been more important to Congress than the philosophical issues raised by Todd, because BIF losses may affect the budget of the federal government. For that reason, this article focuses on the second issue in the debate, the implications of Fed lending practices for BIF.

Critics of Fed lending practices cited two reasons why lending to troubled banks may have

increased BIF losses. First, credit from the Federal Reserve may have given the borrowers extra time to assume additional risk. Banks may have increased risk through rapid growth of their assets, in desperate gambles to regain financial strength, or through actions to benefit shareholders, such as paying dividends.

The second argument involved reductions in borrowers' uninsured deposits. Deposits often decline when the public becomes aware of a bank's troubles, but deposits in denominations above the insurance limit of \$100,000 per account tend to fall more rapidly than fully insured deposits. Credit from the Fed may have allowed the borrowers to remain in operation while funding relatively rapid declines in their uninsured deposits. Without credit from the Fed, these banks may have been unable to fund deposit withdrawals some time prior to their failure dates. Chartering agencies might have closed these banks earlier, when their uninsured deposit liabilities were larger, if the Fed had not made its credit available.

Implications of declines in uninsured deposits for the losses to BIF in bank failure cases depend on the methods used by the FDIC to resolve these failures.⁶ The simplest method is liquidation, in which the failed bank is closed and the FDIC pays insured depositors in full. The FDIC over time pays the uninsured depositors a fraction of their deposits, which depends on the value of the failed bank's assets. If the value of the assets is less than the value of the liabilities, the FDIC and the uninsured depositors share as losses the gap between the value of assets and liabilities. A decline in uninsured deposits raises the cost to BIF if a case is resolved through liquidation, since a decline in uninsured deposits forces the FDIC to absorb more of the shortfall of the value of assets below liabilities.

In cases resolved through transfer of insured deposits, banks bid for the deposit accounts of a failed bank in denominations below the insurance limit. The winning bidder assumes the insured deposit accounts of the failed bank, and the FDIC makes a cash payment to the winning bidder equal to the deposits, minus the premi-

⁵For a view on the history of Federal Reserve discount window lending, see Schwartz (1992). Thrift institutions have had access to credit from the discount window since 1980, under provisions of the Monetary Control Act. This paper focuses on lending to commercial banks. For convenience, all depository institutions are called banks.

⁶See the appendix to Gilbert (1992) for an analysis of the distribution of losses between the FDIC and uninsured depositors under alternative methods of resolving bank failure cases.

um paid by the winning bidder.⁷ The cost of a resolution arranged as a transfer of insured deposits tends to be lower than what the cost would have been under liquidation by the amount of the premium, net of administrative costs of arranging the resolution. The FDIC shares with the uninsured depositors any losses from resolving the failed bank. Declines in uninsured deposits have the same implications for BIF losses under liquidation and transfer of insured deposits.

During the years covered by this study, 1985-90, the FDIC resolved most bank failure cases through a third method called purchase and assumption (P&A). In a case resolved through P&A, the bank with the winning bid assumes all of the deposit liabilities of the failed bank and purchases some of its assets. The cash payment from the FDIC to the winning bidder equals all deposit liabilities (insured and uninsured), minus the value of assets purchased by the winning bidder, minus the premium. The FDIC does not share any of the losses with uninsured depositors in cases resolved through P&A, since the winning bidder assumes all of the deposit liabilities. Even in cases resolved through P&A, however, declines in uninsured deposits may increase BIF losses. In some cases, resolution costs might have been lower if the failed banks had been closed prior to the declines in uninsured deposits and resolved through liquidation or transfer of insured deposits.

The Evidence

The staff of the House Banking Committee issued a report in 1991 that summarized patterns in Federal Reserve lending to insured depository institutions from January 1, 1985, through May 10, 1991. The report concluded:

1. Ninety percent of all institutions that received extended credit during this period subsequently failed.
2. The Federal Reserve routinely extended credit to institutions with CAMEL ratings of 5 by

their supervisory agencies (the rating that indicates imminent danger of failure).⁸

3. Borrowers that failed remained open for 10-12 months on average after being rated CAMEL 5 by their supervisory agencies. The report implies that the banks would not have stayed open that long after being rated CAMEL 5 without Federal Reserve credit.
4. Borrowings increased dramatically as the condition of institutions deteriorated.
5. The Federal Reserve took the highest quality assets as collateral when banks borrowed, in amounts substantially in excess of the loan amounts.
6. Of the 530 failed institutions that borrowed from the Federal Reserve in the three-year period prior to their failure, 320 were borrowing at the time of their failure, with \$8.3 billion in discount window credit outstanding.

This paper investigates the implications of these conclusions for BIF losses.

BORROWINGS BY A SAMPLE OF FAILED BANKS

This section presents information on Federal Reserve lending to a sample of banks that failed from 1985-90. The number of bank failures per year was relatively large during that period. Including these years yields a large sample of failed banks. The sample ends in 1990 to avoid failures in periods in which Federal Reserve lending to troubled banks was influenced by the provisions in FDICIA. Since the content of FDICIA was discussed and debated throughout most of 1991, the sample ends with the failures in 1990. Note in Figure 1 that extended credit borrowings were relatively low throughout 1991 and have been zero or relatively small since late 1991, when FDICIA was enacted.

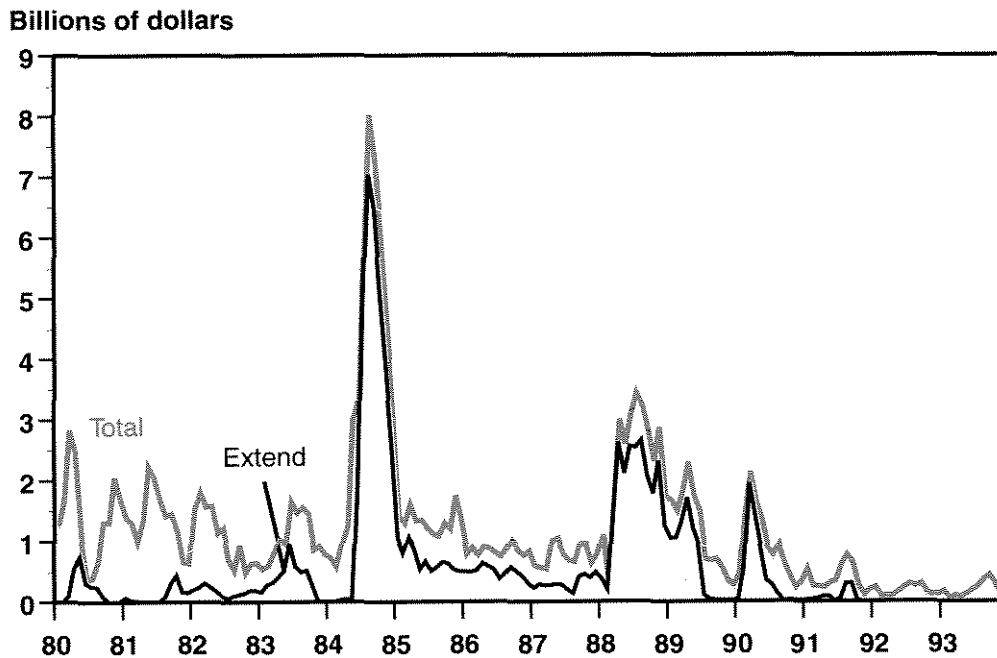
The sample is restricted to failed banks that reported their deposits to the Federal Reserve

⁷Winning bidders in cases resolved through transfer of insured deposits often purchase some of the assets of the failed banks.

⁸When government supervisors examine a bank, they give it ratings from 1 (the best) to 5 (the worst) on five aspects of its operations: Capital adequacy, Asset quality, Management, Earnings and Liquidity (CAMEL, for short). In addition, supervisors assign a composite CAMEL rating from 1 to 5, based on the ratings for these five components. Banks with composite ratings of 4 or 5 are classified as

problem banks and subjected to relatively close supervision. Banks rated composite CAMEL 5 are in such poor condition that their supervisors consider them to be in imminent danger of failing.

Figure 1
Total and Extended Credit Borrowings



each week in their last year, because the analysis involves deposit data in their last year. This restriction affects the size distribution of the banks in the sample. Relatively small banks report their deposit liabilities and vault cash for one week in a quarter, and their required reserves are set at the same level for a quarter based on their reports. The maximum asset size of the quarterly reporters was changed over the years 1985-90.

Restricting the sample to those that reported deposit data to the Fed in each of their last 52 weeks reduces a potential sample of 870 failed banks to 318. Figure 2 presents the size distribution of the banks in the sample, based on their total assets as of failure date. Restricting the sample to banks that reported their deposits weekly for their last 52 weeks eliminates the very small banks. None of the banks in the sample had total assets below \$10 million, and only 19 of the 318 banks had total assets below \$20 million as of their failure date.

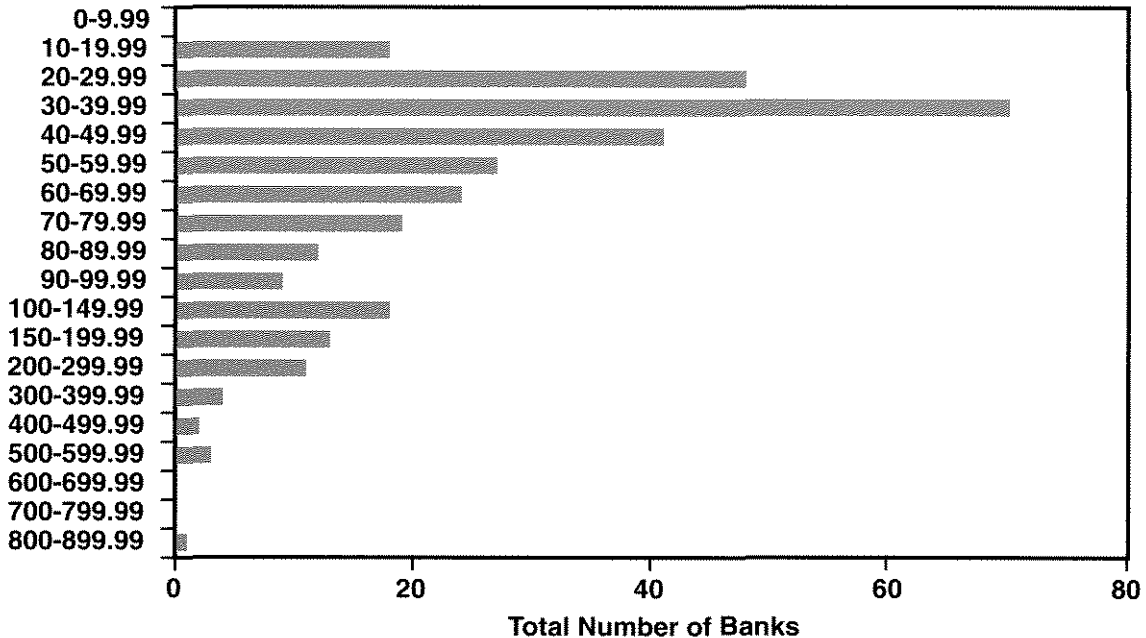
Results derived from this sample of 318 banks may not apply for smaller banks. In several ways, however, the observations on borrowings

in the report of the House Banking Committee are similar to the patterns of borrowings by banks in this study. Also, among the 870 banks in the broader sample, ratios of BIF loss to total assets are not related systematically to asset size, and the distributions of banks by resolution methods are similar for the larger and smaller samples of banks.

Table 1 presents the distribution of the 318 banks in the sample by year of failure and borrowings in their last 52 weeks. Failures of the banks occurred fairly uniformly over the 1985-90 period. About 58 percent of these banks borrowed in at least one of their last 52 weeks. Borrowings tended to be concentrated in the weeks just prior to failure. Of the 185 banks that borrowed in their last 52 weeks, 154 (83.2 percent) borrowed in at least one of their last 13 weeks. For the 318 banks as a group, about 54 percent of the total dollar amount of borrowings in their last 52 weeks occurred in their last 13 weeks. This observation confirms the conclusion in the report by the staff of the House Banking Committee that borrowings increased as the condition of the banks deteriorated.

Figure 2
Distribution of Banks in the Sample by Total Assets as of Failure Date

Total Assets as of Failure Date
 (in Millions of Dollars)



Conclusions of the staff report of the House Banking Committee leave the impression that many failed banks borrowed for long periods prior to their failure. For instance, the observation that borrowers remained in operation 10 to 12 months on average as CAMEL-5 rated banks leaves the impression that credit from the discount window was essential for keeping the borrowers in operation during their last 10 to 12 months. This study indicates, in contrast, that only a small minority of the banks borrowed for at least half of their last year. Only 28 of the 318 banks (8.8 percent) borrowed in at least 26 of their last 52 weeks.⁹ The discount window may have become less accommodating to troubled banks in 1989-90; only four of the 94 banks that failed in those years borrowed in half or more of their last 52 weeks.

The sample of failed banks is distributed very unevenly across Federal Reserve Districts, with

88 percent of the banks located in Districts 6, 10, 11 and 12 (Table 2). These Districts also account for most of the banks that borrowed in their last 52 weeks. The banks that borrowed in half or more of their last 52 weeks were concentrated in Districts 10 (Kansas City) and 11 (Dallas), which may reflect differences in Reserve Bank lending practices. While the 12 districts follow the same general policies on lending, the staff of the district Reserve Banks have some freedom to follow different lending practices.

Banks in the sample also differ substantially by the amount of their borrowings relative to the size of their total deposits. For most of the banks that borrowed from the Fed in their last year, average borrowings were small relative to their average total deposits. Over their last 52 weeks, for instance, 85 percent of the failed banks either didn't borrow from the Fed or their borrowings were less than 1 percent of

⁹The extreme cases in this sample involved two banks in the Kansas City District that borrowed almost continuously for about two years and then failed.

Table 1

Distribution of Sample Banks by Borrowings from the Federal Reserve in Their Last Year

Year of failure	Number of banks	Borrowed in their last 52 weeks (percent)	Borrowed in their last 13 weeks	Borrowed in at least 26 of their last 52 weeks
1985	50	26 (52.0)	24	4
1986	60	36 (60.0)	28	8
1987	60	43 (71.7)	39	6
1988	54	30 (55.6)	26	6
1989	44	26 (59.1)	18	2
1990	50	24 (48.0)	19	2
TOTAL	318	185 (58.2)	154	28

Table 2

Distribution of Sample Banks by Federal Reserve District

Federal Reserve District	Number of banks	Borrowed in their last 52 weeks	Borrowed in their last 13 weeks	Borrowed in at least 26 of their last 52 weeks
1	4	2	1	0
2	7	3	1	0
3	0	0	0	0
4	3	2	1	0
5	0	0	0	0
6	36	22	19	2
7	14	6	4	2
8	2	1	1	0
9	7	2	2	0
10	66	46	37	10
11	148	85	75	12
12	31	16	13	2
TOTAL	318	185	154	28

their average total deposits (Table 3). In contrast, borrowings were large relative to total deposits at a few of the banks. Borrowings of three banks exceeded 10 percent of their total deposits over their last 52 weeks. Ratios of borrowings to total deposits tended to be higher over the last 13 weeks than over longer periods prior to failure dates, since borrowings tended to rise and deposits decline as banks approached their failure dates. For instance, borrowings of 15 banks exceeded 10 percent of their total deposits over their last 13 weeks.

IMPLICATIONS OF BORROWINGS FOR THE BANK INSURANCE FUND

Direct Comparisons of BIF Loss Ratios

Analysis of the effects of Federal Reserve lending to troubled banks on the losses of BIF begins with comparisons in Table 4 of BIF losses associated with the failed banks that borrowed from the Federal Reserve and those that did not

Table 3

Distribution of Sample Banks by the Size of Their Borrowings Relative to Their Average Total Deposits

Range of ratios of borrowing to total deposits	Sum of borrowings divided by the sum of total deposits over the following periods ending on failure dates:					
	Last 13 weeks		Last 26 weeks		Last 52 weeks	
	No. of banks	Cumulative percent	No. of banks	Cumulative percent	No. of banks	Cumulative percent
Zero	164	51.57%	149	46.86%	133	41.82%
0.000 < x ≤ 0.001	28	60.38	54	63.84	65	62.26
0.001 < x ≤ 0.005	29	69.50	29	72.96	52	78.62
0.005 < x ≤ 0.010	23	76.73	23	80.19	21	85.22
0.010 < x ≤ 0.020	20	83.02	22	87.11	23	92.45
0.020 < x ≤ 0.050	25	90.88	24	94.65	15	97.17
0.050 < x ≤ 0.100	14	95.28	10	97.80	6	99.06
0.100 < x ≤ 0.200	11	98.74	5	99.37	2	99.69
0.200 < x	4	100.00	2	100.00	1	100.00

borrow in their last year. The mean BIF loss ratios in Table 4 for banks that did and did not borrow from the Fed in their last year are not adjusted for differences among the banks, other than borrowings, that might explain differences in BIF loss ratios, such as the condition of banks prior to borrowing or regional effects.

Mean BIF loss ratios are about 5 percentage points higher among the failed banks that borrowed from the Federal Reserve in their last year, and differences in the mean loss ratios are highly significant. The high *t*-statistics for differences in mean BIF loss ratios indicate that there is only a very small chance that the BIF loss ratios of the borrowers and nonborrowers were drawn from the same distribution.

The association between borrowings and BIF loss ratios in Table 4 does not necessarily indicate that Fed lending practices *caused* higher BIF losses. Perhaps the banks that borrowed from the Fed in their last year would have had higher BIF loss ratios than the other banks if the Fed had not loaned to them. Two observations raise doubts about the argument that loans by the Fed caused the higher BIF loss ratios among the borrowers. First, borrowings of most banks were concentrated near the time of their failure dates, long after they had assumed the risk that led to their failure. Second, if Federal Reserve lending caused the higher BIF loss

ratios among the borrowers, we would expect the banks that borrowed the most relative to their deposit size to have the highest BIF loss ratios. This is not the case. Figures 3 and 4 present information on the association between BIF loss ratios and ratios of borrowings to deposits among the banks that borrowed in their last year. Measuring borrowings over the last 13 weeks (Figure 3) and the last 52 weeks (Figure 4), there does not appear to be a positive association between BIF loss ratios and borrowings ratios.

The remainder of this section attempts to determine whether Fed lending practices caused the higher BIF loss ratios among the borrowers by investigating whether evidence supports the assumptions that underlie such a direction of causality.

Did Federal Reserve Credit Help Keep Problem Banks Open?

Credit from the Fed may have allowed the borrowers to remain open longer as troubled banks than the nonborrowers. Supported by Fed credit, the borrowers may have assumed additional risk just prior to their failure, resulting in larger losses to BIF when they failed. The report by the staff of the House Banking Com-

Table 4

Association Between BIF Loss Ratio and Borrowings by Failed Banks in Their Last Year

Group of banks based on borrowings from the Federal Reserve	Number of banks	Mean BIF loss ratio* (standard deviation in parentheses under mean)	t-statistic for difference in means
Borrowings in last 13 weeks:			
Yes	154	0.3067 (0.1181)	
No	164	0.2514 (0.1253)	4.01
Borrowings in last 26 weeks:			
Yes	169	0.3079 (0.1228)	
No	149	0.2445 (0.1186)	4.73
Borrowings in last 52 weeks:			
Yes	185	0.3007 (0.1253)	
No	133	0.2468 (0.1175)	4.02

*The BIF loss ratio is the ratio of the loss to BIF from a bank failure divided by total assets of the failed bank as of its failure date.

mittee emphasized such a link between borrowings and BIF losses. One of the key conclusions was that the failed banks which borrowed from the Federal Reserve in their last three years remained open on average about 10 to 12 months after supervisors rated them as CAMEL 5. The report implies that these banks would have been closed earlier if the Federal Reserve had not provided credit.

There are two problems with such an inference. First, the report does not indicate when in their last three years these banks borrowed from the Federal Reserve. Suppose a bank borrowed for one day three years prior to its failure and was rated CAMEL 5 one year prior to failure. This case would be included among the observations supporting the inference that Federal Reserve credit helped some CAMEL 5 banks stay open for relatively long periods.

A second problem is a lack of comparison to the length of time that nonborrowers were rated CAMEL 5 prior to their failure dates. Table 5 provides such a comparison. The sample of 318

failed banks is divided into two groups: those that borrowed from the Federal Reserve in their last 13 weeks and those that did not. Borrowings are observed over the last 13 weeks because any banks kept open only through access to Federal Reserve credit would be borrowing from the Fed near the time of their failure. Table 5 presents the distributions of these banks by the length of time they were rated CAMEL 4 or 5, and rated CAMEL 5, prior to their failure. Banks rated CAMEL 4 or 5 are classified as problem banks. It is relevant to know whether Federal Reserve credit helped banks rated CAMEL 4 or 5 remain in operation for relatively long periods prior to their failure, in addition to analysis that focuses exclusively on CAMEL 5-rated banks.

The distributions of banks by the number of months they were rated CAMEL 4 or 5 prior to their failure are almost identical for the borrowers and nonborrowers. The median number of months between the time the banks were rated problem banks and their failure was 20.5 months

Figure 3

Relationship Between Borrowings Ratios and BIF Loss Ratios Among Banks that Borrowed: Last 13 Weeks

Average Total Borrowings Divided by Average Total Deposits

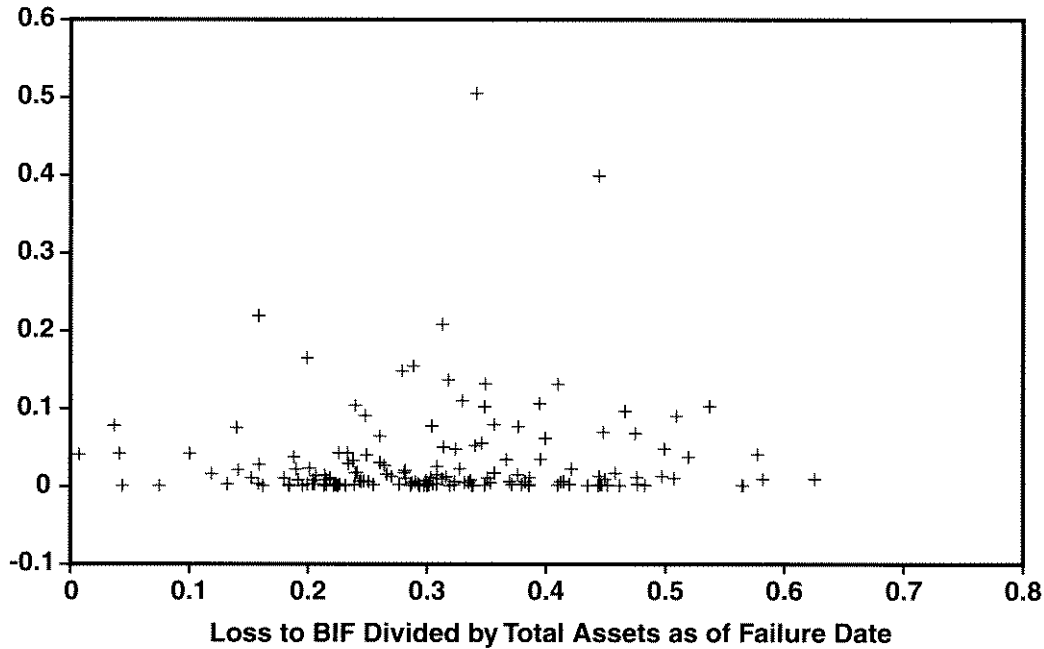


Figure 4

Relationship Between Borrowings Ratios and BIF Loss Ratios Among Banks that Borrowed: Last 52 Weeks

Average Total Borrowings Divided by Average Total Deposits

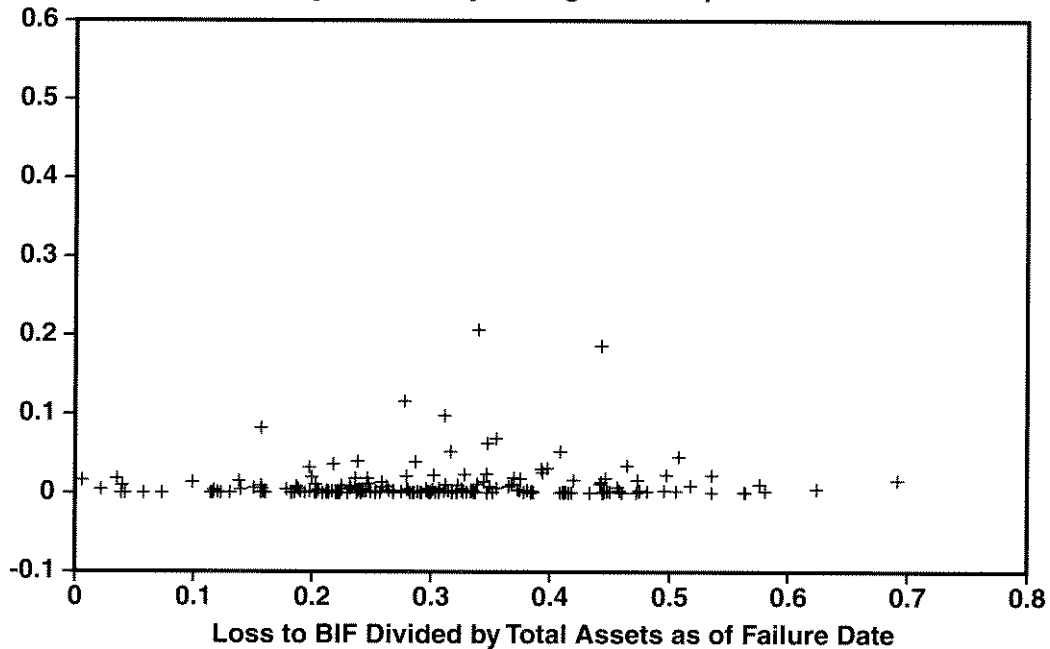


Table 5

Cumulative Distributions of Banks by the Length of Time They Were Problem Banks Prior to Failure

No. of months rated CAMEL 4 or 5: less than	Borrowed from the Federal Reserve in their last 13 weeks:			
	Yes		No	
	No. of banks	Percent	No. of banks	Percent
1	5	3.2%	6	3.7%
2	11	7.1	10	6.1
5	15	9.7	13	7.9
10	27	17.5	27	16.5
15	47	30.5	52	31.7
20	72	46.8	77	47.0
25	96	62.3	105	64.0
30	111	72.1	120	73.2
36	130	84.4	135	82.3
36 or more	154	100.0	164	100.0
Median no. of months rated CAMEL 4 or 5	20.5		20	
No. of months rated CAMEL 5: less than				
1	15	9.7%	22	13.4%
2	30	19.5	40	24.4
5	46	29.9	63	38.4
10	77	50.0	102	62.2
15	111	72.1	130	79.3
20	135	87.7	146	89.0
25	148	96.1	153	93.3
30	152	98.7	158	96.3
36	153	99.4	162	98.8
36 or more	154	100.0	164	100.0
Median no. of months rated CAMEL 5	9.5		7	

for the borrowers and 20 months for the non-borrowers.¹⁰

The banks that borrowed in their last 13 weeks tended to be rated CAMEL 5 somewhat longer than the nonborrowers. The median period the banks were rated CAMEL 5 prior to failure was 9.5 months for borrowers, compared to seven months for the nonborrowers.

Access to credit from the discount window, however, does not appear to have been the only

factor determining how long the borrowers and nonborrowers rated CAMEL 5 remained in operation. If access to Fed credit had been the only factor, all of the borrowers would have been rated CAMEL 5 for relatively long periods prior to their failure, and all of the nonborrowers rated CAMEL 5 for relatively short periods. This was not the case. Periods that both borrowers and nonborrowers were rated CAMEL 5 ranged from less than one month to three years or more. About 20 percent of the borrowers were closed within two months of the time

¹⁰The median is used, instead of the mean, because the few failed banks that remained open for long periods as problem banks could distort comparisons of means. For instance, among the 154 borrowers, three banks were rated CAMEL 4 or 5 for over 60 months prior to failure; among the 164 nonborrowers, four banks were rated CAMEL 4 or 5 for over 60 months.

when their supervisors rated them CAMEL 5, whereas many of the nonborrowers remained in operation rated CAMEL 5 for much longer periods.

Suppose Table 5 is interpreted as indicating that access to credit from the Federal Reserve allowed borrowers to remain in operation slightly longer as CAMEL 5-rated banks. What would this imply for losses to BIF? The idea that troubled banks should be closed promptly to keep them from taking actions that expose BIF to larger losses is based on the assumption that supervisors have been ineffective in preventing troubled banks from taking such actions. This author, however, has found evidence that supervisors have been effective in constraining the behavior of most of the troubled banks under their jurisdiction.

Some of the evidence reveals the behavior of banks while their capital ratios were below required levels or while supervisors rated them as problem banks. Supervisors attempt to limit asset growth, dividends and loans to officers and directors of the banks (the insiders) of undercapitalized and problem banks. Gilbert (1991) reported that large majorities of the banks that operated in 1985-89 for four or more consecutive quarters with capital ratios below the minimum capital requirement in effect at the time reduced their assets, refrained from paying dividends and had lower insider loans while undercapitalized. Gilbert (1992) found that the banks undercapitalized the longest prior to failure had the fastest declines in their total assets in their last year, and the group of banks undercapitalized the longest prior to their failure had the smallest percentage paying dividends in their last year. Gilbert (1993) found that banks reduced the growth rates of their assets and reduced their dividends when supervisors downgraded them to problem status.

Another study tests directly the association between the length of time prior to their failure that banks operated with capital ratios below the minimum required level and the losses to the deposit insurance fund resulting from their failures. Gilbert (1992) found no association between losses to the deposit insurance fund and the length of time banks were undercapitalized prior to their failure. Thus, if Federal Reserve lending practices allowed some CAMEL 5-rated banks to remain in operation slightly longer than others, it is not clear that those lending practices had any effect on BIF losses.

Behavior of the Banks That Borrowed

Conclusions about the behavior of most troubled banks may not apply to those that borrowed from the Fed near the time of their failure. Since these banks were privileged to have access to credit from the discount window near the time of their failure, they may have had other privileges not available to all troubled banks.

The articles cited above indicate that troubled banks subject to relatively close supervision tended to reduce their assets and refrain from paying dividends. Table 6 examines the deposit growth and dividends of borrowers and nonborrowers that were rated CAMEL 4 or 5 one year prior to their failure. Of these 238 banks, 96 did not borrow from the Fed in their last year, and the remaining 142 banks borrowed at least once in their last year. The 142 borrowers are divided into several groups, based on their average borrowings over their last year as a percentage of average total deposits over their last year. For each of the groups in Table 6, based on their borrowings ratios, the mean of the percentage change in total deposits in their last year was negative. The borrowers tended to have more rapid declines in total deposits in their last year than the nonborrowers, and those that borrowed more relative to the size of their total deposits tended to have faster rates of decline in total deposits than the banks with lower borrowings ratios. These observations are consistent with the view that the banks that borrowed most relative to their deposits had the greatest liquidity needs.

About 15.5 percent of the banks rated CAMEL 4 or 5 in their last year paid dividends in their last year, and this percentage was about the same for the borrowers and nonborrowers. Dividends as a percentage of total assets, however, were smaller among the borrowers that paid dividends in their last year (mean of 0.29 percent) than among the nonborrowers that paid dividends in their last year (mean of 0.45 percent). Based on deposit growth and dividends, supervision of the problem banks that borrowed in their last year appears to have been at least as strict as the supervision of problem banks that did not borrow from the Fed.

Table 6

Deposit Growth and Dividends of Banks Rated CAMEL 4 or 5 Over Their Last Year

Range of ratios of borrowings to total deposits over the last 52 weeks	No. of banks	Mean of percentage change in total deposits over last 52 weeks	No. of banks that paid dividends in their last year	Of banks that paid dividends, mean of dividends as percentage of average total assets over the last year
Zero	96	-12.1%	15	0.45%
$0 < x \leq 0.001$	53	-13.1	5	0.12
$0.001 < x \leq 0.005$	35	-17.2	8	0.41
$0.005 < x \leq 0.010$	16	-20.2	3	0.22
$0.010 < x \leq 0.020$	17	-19.5	3	0.27
$0.020 < x \leq 0.050$	13	-27.3	0	N/A
$0.050 < x \leq 0.100$	5	-29.9	3	0.35
$0.100 < x \leq 0.200$	2	-19.2	0	N/A
$0.200 < x$	1	-58.3	0	N/A
TOTAL	238		37	

Did Borrowers Have Larger Declines in Uninsured Deposits?

One of the arguments that Fed lending practices raised BIF losses rests on the assumption that uninsured deposits declined more rapidly at borrowing banks than at nonborrowing banks. Table 7 indicates that for the banks that borrowed in their last year, the mean of the percentage change in large denomination time deposits over their last 52 weeks (negative 34.3 percent) was significantly different from the mean percentage change in other deposits (negative 9.6 percent). Large denomination time deposits of the banks that borrowed from the Fed in their last 26 weeks also declined more rapidly on average than their other deposits over their last 26 weeks (negative 26.2 percent compared to negative 8.6 percent).

This pattern of more rapid declines in large denomination time deposits than in other deposits at borrowing banks, however, is almost

identical to the record for the banks that did not borrow from the Federal Reserve in their last year.¹² Credit from the Federal Reserve does not appear to have facilitated more rapid declines in large denomination time deposits at the banks that borrowed from the Fed. These observations fail to support one of the arguments linking access to credit from the discount window and BIF losses: that declines in uninsured deposits near the time of failure were more rapid for borrowers than nonborrowers.

Federal Reserve Lending to Troubled Banks May Have Limited BIF Losses by Promoting Orderly Resolutions

Resolution of a failed bank through methods other than liquidation takes some time for the FDIC to arrange. The FDIC has to prepare a package of assets and liabilities for bidders to

¹¹Instructions for reporting deposits call for classifying brokered deposits in denominations of \$100,000 or less as small denomination time deposits.

¹²The *t*-statistics for differences between the mean growth rates of large denomination deposits at the borrowers and

nonborrowers, measured over their last 26 weeks and over their last 52 weeks, are less than 0.2.

Table 7

Deposit Growth of Failed Banks in the Last Year: Borrowers and Non-borrowers

	Banks that borrowed from the Fed in their last 52 weeks	Banks that <i>did not</i> borrow from the Fed in their last 52 weeks
Mean percentage change in total deposits in their last:		
26 weeks		
(<i>t</i> -statistic for difference in growth rates for borrowers and nonborrowers)	- 13.0 % (-2.38)	- 10.3 %
52 weeks		
(<i>t</i> -statistic for difference in growth rates for borrowers and nonborrowers)	- 17.3 (-2.79)	- 11.7
Mean percentage change in large time deposits in the last 26 weeks	- 26.2	- 25.6
Mean percentage change in deposits other than large time deposits in the last 26 weeks	- 8.6	- 7.0
<i>t</i> -statistics for difference in means of growth rates of large time deposits and other deposits	- 9.01	- 5.63
Mean percentage change in large time deposits in the last 52 weeks	- 34.3	- 33.5
Mean percentage change in deposits other than large time deposits in the last 52 weeks	- 9.6	- 6.0
<i>t</i> -statistics for difference in means of growth rates of large time deposits and other deposits	- 6.83	- 5.51

examine, allow them time to assess its value, and arrange for transfer of the assets and liabilities to the winning bidder. Resolutions arranged as P&A tend to be less expensive to the FDIC than other types of resolutions.¹³ Lending by the Federal Reserve may have allowed some banks to remain open while the FDIC worked to minimize resolution costs.

One form of evidence that Federal Reserve lending facilitated orderly resolutions would be a lower percentage of liquidations among the banks that borrowed from the Federal Reserve

near the time of their failure. Table 8 indicates that the percentages of banks resolved by each of the three methods were about the same for the banks that borrowed in their last 13 weeks and those that did not.¹⁴ These observations do not support the argument that Federal Reserve lending near the time of failure facilitated resolutions through methods other than liquidation.

Liquidations of failed banks might have been more common without Federal Reserve credit to troubled banks, since borrowers had more rapid declines in their total deposits in their last

¹³See Gilbert (1992).

¹⁴Results are similar to those in Table 8 if the division between the two groups of banks is based on borrowings in the 26 weeks ending in failure.

Table 8

Distribution of Banks by Borrowings Near the Time of Their Failure and by Resolution Method

Resolution method	Borrowed from the Federal Reserve in their last 13 weeks:			
	Yes		No	
	Number	Percent	Number	Percent
Purchase and assumption	122	79.2%	129	78.7%
Transfer of insured deposits	23	14.9	24	14.6
Liquidation	9	5.8	11	6.7
TOTAL	154	100.0	164	100.0

year than nonborrowers (Table 7). Without credit from the Federal Reserve, rapid deposit declines might have forced the FDIC to liquidate more banks. This argument, however, does not provide a strong defense for Federal Reserve lending to troubled banks, since the FDIC has authority to use its resources to keep troubled banks open until it can determine the least costly method of resolution. Options available to the FDIC include lending to troubled banks, injecting capital through open bank assistance, and operating failed banks as bridge banks while they search for buyers, as in the case of the Bank of New England.

CONCLUSIONS

About 60 percent of the sample of banks that failed in 1985-90 borrowed from the Federal Reserve in their last 52 weeks. In addition, losses of the Bank Insurance Fund were larger among the banks that borrowed from the Federal Reserve in their last year. The combination of these observations could be interpreted as evidence that the Federal Reserve engaged in a major operation of sustaining the life of troubled banks that eventually failed, and that the Federal Reserve increased BIF losses substantially by lending to many banks near the time of their failure.

This evidence, however, does not necessarily prove that Fed lending practices caused the higher BIF loss ratios of the borrowers. Perhaps the Fed made loans to banks which would have had relatively high BIF loss ratios with or without

Fed loans. This article investigates whether evidence supports the arguments that Fed lending caused larger BIF losses.

One argument is that Fed credit extended the life of the borrowers, giving troubled banks with little to lose additional time to assume risk. Borrowers were rated CAMEL 5 by government supervisors (in imminent danger of failing) slightly longer prior to their failure than the nonborrowers. Additional evidence, however, indicates that the borrowers tended to have faster declines in total deposits and tended to pay smaller dividends than the nonborrowers in their last year. These observations on deposit growth and dividends are consistent with the view that the banks which borrowed from the Fed in their last year were under strict supervision appropriate for troubled banks.

The evidence does not support the argument that borrowers had relatively rapid declines in their uninsured deposits near the time of their failure, which would have raised the cost of resolution through methods other than purchase and assumption. Large denomination time deposits declined at about the same rates on average for borrowers and nonborrowers over their last 26-to-52 weeks.

It is possible to make an argument that, in many cases, Federal Reserve lending to failed banks helped limit BIF losses. In most cases, borrowings were concentrated in a few weeks just prior to failure. These loans may have allowed the banks to remain in operation, funding deposit withdrawals, while the FDIC worked to arrange resolutions less costly to BIF than

liquidations. Evidence on resolution methods in the bank failure cases, however, does not support this interpretation. Percentages of failed bank cases resolved through purchase and assumption, transfer of insured deposits to other banks and liquidation were about the same for borrowers and other failed banks.

Overall, the evidence does not support the argument that Federal Reserve lending to failed banks affected the costs of bank failures to BIF.

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