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COMMERCIAL BANKS' INCENTIVES FOR DIVESTMENT IN AGRICULTURE

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Dean W. Hughes and Nancy K. Osborn

The purpose of this paper is to explore the actions and conditions of agricultural banks during 1980 through 1984, a period of time that has been generally recognized as one of financial stress for farmers. This goal is not unique; several other studies have dealt with similar topics (Barry and Lee, Melichar, Hughes). The approach used is, however, different from those studies and raises significant questions about some commonly held opinions.

Previous studies have analyzed the condition of agricultural banks, where the definition of an agricultural bank has been related to the bank's ratio of farm loans to total loans in a given year. Older studies used a fixed ratio of 25 percent. More recently the definition has shifted so that agricultural banks are defined to be those with a ratio of farm loans to total loans greater than the average for the banking system as a whole. Such a procedure has several benefits, but does suffer from the fact that the population of agricultural banks shifts over time. By definition the entrance and exit of banks does not allow for the tracing of the actions of a given set of banks.

In this study, the agricultural banks for 1980 were identified and the actions and conditions of the same set of banks were constructed as of December 31 of each of the years 1980 through 1984. As the years passed, most of the 1980 agricultural banks continued to be

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agricultural banks, others de-emphasized farm loans and could no longer be considered agricultural banks, and some went out of existence (i.e., were no longer in the data set). For convenience, these three types of banks will be referred to as agag, agnonag and agnonbanks respectively.

Conditions in the Farm Sector

1980 marked the first year of a half decade of low farm incomes. Using net farm income as an accural measure of profits, rather than the net cash income figures commonly used by the USDA, and adjusting for inflation, by dividing by the gnp deflator with 1982=1.0, yields the data graphed in Figure 1 (USDA, 1986). There are, of course, fluctuations in real net farm income. Yet, the five year averages given in Table 1 show the rather drastic decline in farm profitability since 1979 to levels lower than have been seen since the 1930s.

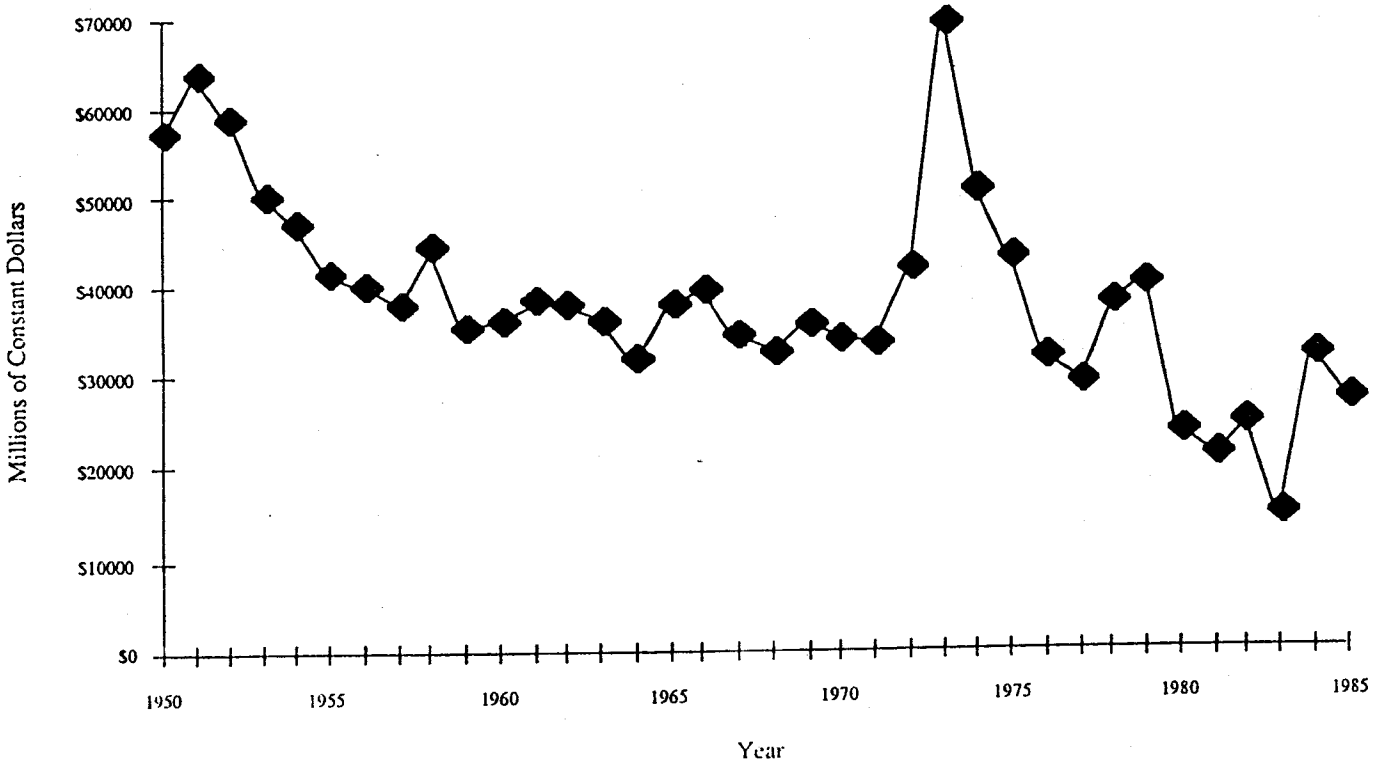
Table 1: Five Year Average Real Net Farm Incomes

Years	Average Real Net Farm Income
	Millions of Constant Dollars
1925-29	38,621
1930-34	24,946
1935-39	35,546
1940-44	66,850
1945-49	64,496
1950-54	55,284
1955-59	39,856
1960-64	36,128
1965-69	36,203
1970-74	45,952
1975-79	36,581
1980-84	23,138

Equity in farming operations also declined dramatically over this time (USDA, 1986). While nominal values of farm assets peaked in 1981 constant dollar values peaked in 1980 and showed rapid declines over the entire 1980 through 1984 period. Constant dollar debt levels peaked later and have been relatively slow to decline. From 1980 through the end of 1985, this combination has led to a decrease in equity for farm sector participants of $452.6 billion in 1982 dollars.

Figure 1. Real Net Farm Income

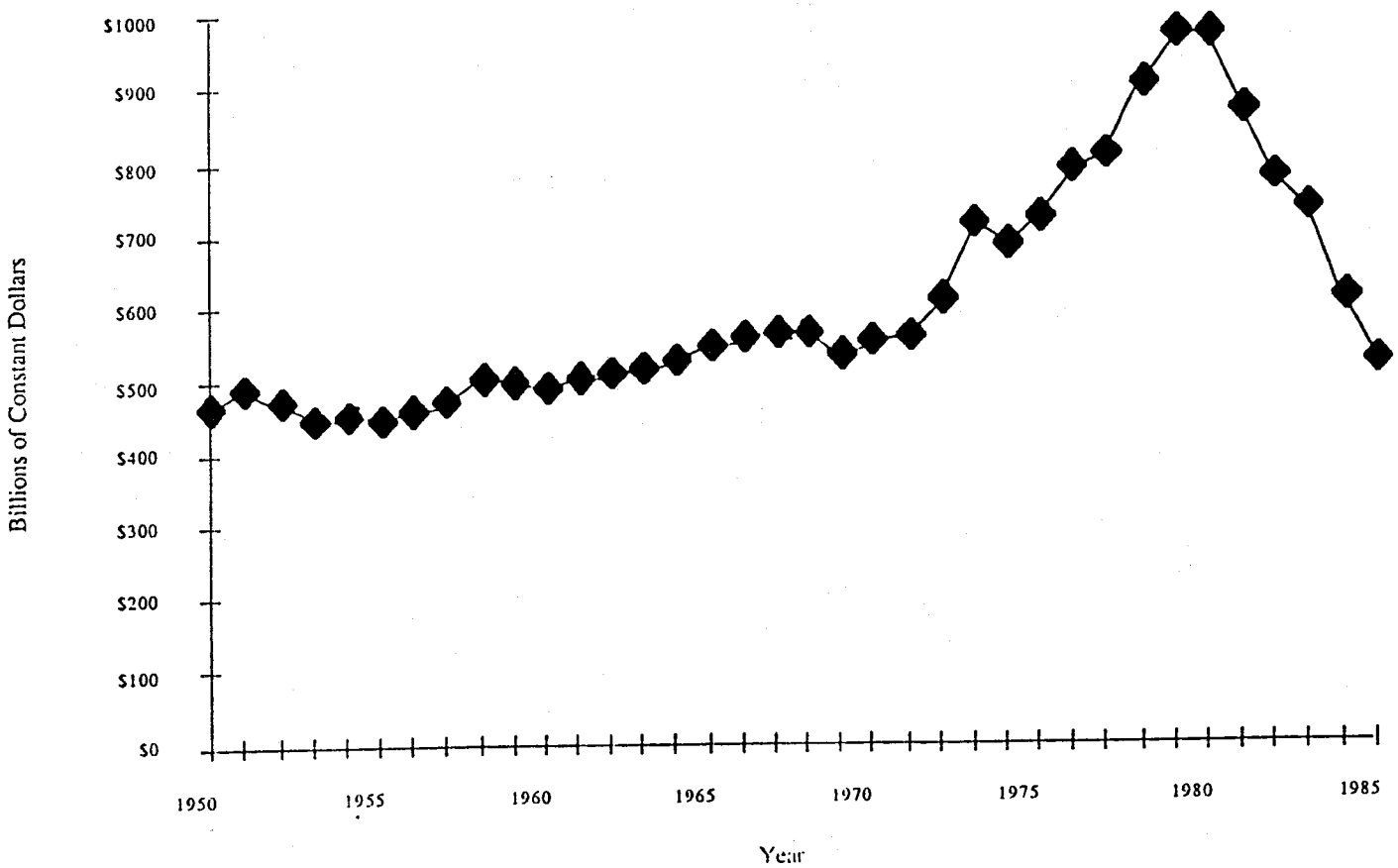
1950-1985



Midpoint of USDA estimated range used for 1985.
Nominal net farm income deflated by gnp deflator with 1982 equal to 1.0

Figure 2. Real Farm Equity

1950-1985



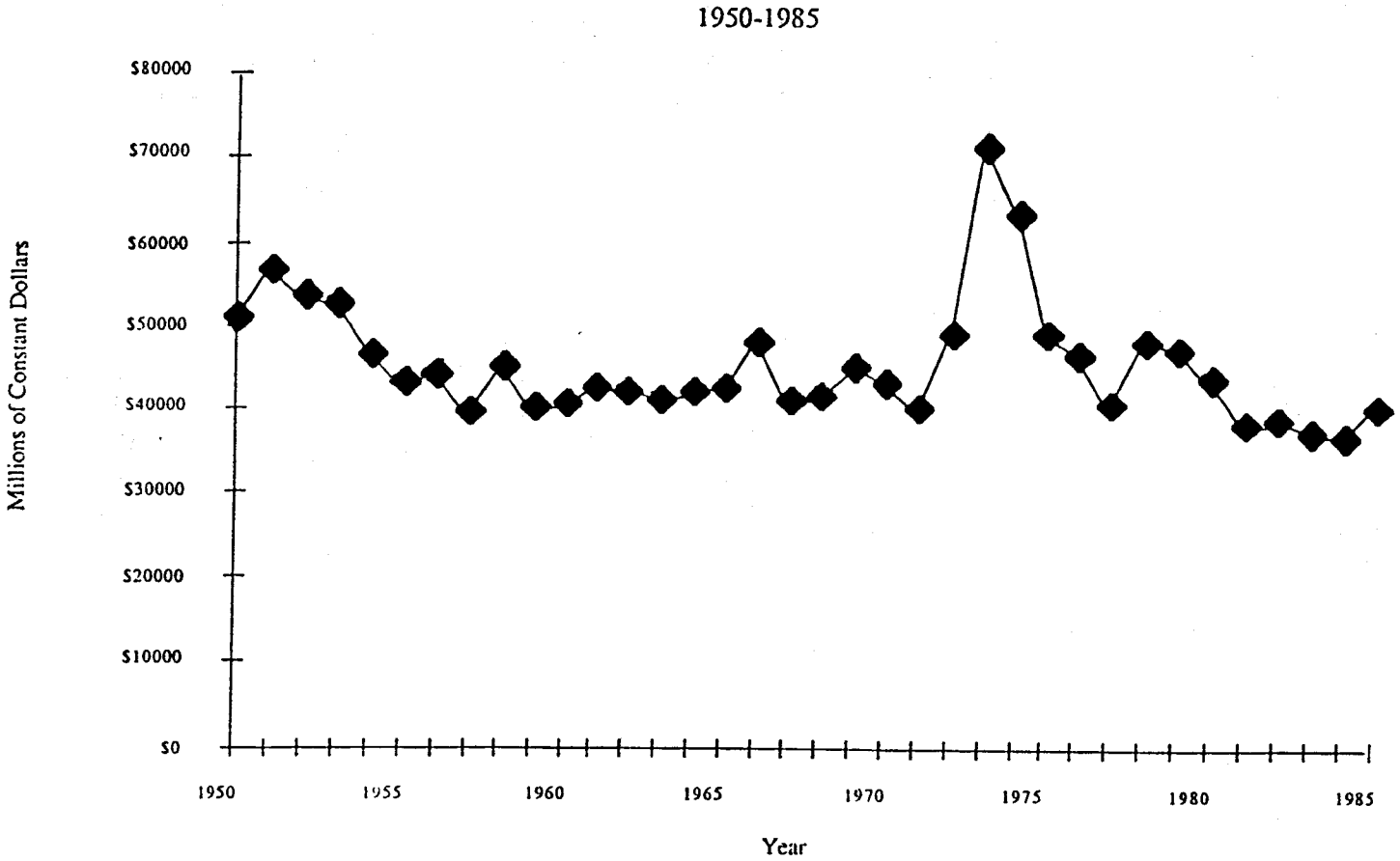
Midpoint of USDA estimated range used for 1985. Nominal farm equity deflated by gnp deflator with 1982 equal to 1.0.

Constant dollar cash flows have also been affected. As a proxie for cash flow, the USDa's net cash income figure is graphed in Figure 3 after adjustments for inflation are made to be consistent with Figures 1 and 2. Before adjusting for inflation many of the statements made by the USDA and others suggesting that "farm income" has not declined substantially in the 1980s seem reasonable. However, after deflating it can be seen that since 1981 net cash farm income has been at levels lower than any time since prior to 1950. Generally then, the period 1980 through 1984 has been one of growing financial stress for farmers and their lenders. Lower profitability combined with higher risks of insolvency and illiquidity have reduced incentives to lend to farmers. It is, therefore, easy to explain why some commercial banks have disinvested in agriculture and shifted their loan portfolios to less risky industries.

Several questions remain, however. How many agricultural banks have been eliminated either through merger, acquisition or failure? What advantages have accrued to banks that reduced their farm loan exposure compared to those that remained heavily dependent on agricultural loans over the 1980 through 1984 period? Finally, have there been regional differences in behavior and coordination that combine to mask results at the national level?

The data used in the analysis of banking behavior is from the Call Income Data Tape currently being sold by the National Technical Information Service (NTIS). This data source did not prove very satisfactory in terms of reliability or cost effectiveness. NTIS charges $325 for every computer tape they provide. To the user, this charge seems utterly preposterous. On a marginal basis, the costs to NTIS of providing the tape would seem to be far less than $100. The product includes one or two computer tapes that each cost less than $20, a computer operator's time required to run an already established program to copy the information and mailing costs of perhaps $10. Even the $325 may be acceptable to the user if the tapes could be purchased once, were in standard formats, and were free of errors. However, such is not the case. Only preliminary versions of the data sets are available for a period of 1 1/2 years past the reporting date. Moreover, changes continue to be made to the data for up to five years. Thus, the data for the end of 1985, which would have been extremely helpful in this study, will not be available in any reasonably reliable form until the middle of 1987. And, the number of missing observations on data for the end of 1984 precluded other analyses planned for this work.

Figure 3. Real Net Cash Income



While the authors have made reasonable checks to eliminate some of the obvious errors in the data received from NTIS, such errors were sufficiently frequent to lead to questions about the number of small errors that probably exist in the file. Caution is, therefore, advised to all those who read this study and others based on the Call Income Data Tapes. Also, let future researchers planning to utilize this data beware since they can easily fall into a trap of making almost limitless expenditures for data that does not approach validity until it is almost worthless.

Distribution of Banks Over Time

Table 2 presents data on how agricultural banks of 1980 changed categories over time. On a national level, the only intuitive hypothesis supported by the data is that agricultural banks have been disappearing in accelerating numbers. It is not true that commercial banks delayed disinvestments in agriculture. The largest number of agnonag banks appeared in 1981, before the declines in land values and after only one year of poor farm incomes. In addition, the data seems to show that the Payment in Kind Program of 1983 and 1984 may have had a small effect in slowing the rate of increase of bank disappearance for 1983, but did not allow the banks time to diversify out of farm lending. In fact, the smallest growth in agnonag banks occured in 1983.

The regional categories also raise some questions. In particular, the data does not support hypotheses regarding concentrations of financial stress that revolve around the production of undifferentiated export grains. The Corn Belt does have the largest decline in the number of agag banks and the greatest number of bank disappearances. However, the Corn Belt also started with the greatest number of banks. Using percentage changes and eliminating the Northeast and the Pacific regions because of small base numbers, the story is quite different. Appalachia and the southeast States have the lowest retention rates of agricultural banks at 61 and 55 percent, respectively. The next group of regions is the Delta States and the South Plains with retention rates of 68 and 73 percent, respectively. The Lake States, the Corn Belt and the Northern Plains, which have generally been described as having the greatest farm problems, retained 92, 90 and 95 percent of their agricultural banks through 1984. In terms of the percent of 1980 agricultural banks missing from the 1984 data set, the Lake States and Northern Plains have only had 2 percent of their agricultural banks disappear and the Corn Belt has seen a reduction of 4 percent.

Table 2: Classification of 1980 Agricultural Banks: 1980-1984

Area	1980	-----1981-----			-------1982-------			-----1983-----			------------1984------------					
	Ag	Ag	NAg	Dis	Ag	NAg	Dis	Ag	NAg	Dis	Ag	%80	NAg	%80	Dis	%80
Northeast	33	28	4	1	24	6	3	20	8	5	16	48	11	33	6	18
Lake States	754	734	19	1	726	24	4	711	36	7	695	92	43	6	16	2
Corn Belt	1724	1649	70	5	1611	89	24	1593	89	42	1545	90	108	6	71	4
Northern Plains	1170	1153	16	1	1114	24	2	1140	20	10	1114	95	29	2	17	2
Appalachia	288	256	31	1	228	55	5	203	72	13	177	61	91	32	20	7
Southeast	251	214	34	3	189	54	8	163	74	14	137	55	98	39	16	6
Delta States	217	173	42	2	167	43	7	160	46	11	148	68	56	26	13	6
Southern Plains	613	541	72	0	508	102	3	486	124	3	448	73	139	23	36	6
Mountain States	232	219	12	1	215	16	1	216	14	2	206	89	18	8	8	3
Pacific States	27	22	5	0	23	4	0	22	5	0	22	81	5	11	0	0
National Total	5309	4989	305	15	4835	417	57	4714	488	107	4508	85	598	11	203	4
Change in National Total	NA	-320	305	15	-154	112	42	-121	71	50	-206	NA	110	NA	96	NA

NA - Not Applicable
Ag banks are those that were agricultural banks in 1980 and continued to be agricultural banks.
NAg banks are those that were agricultural banks in 1980 and reduced their percentage of farm loans to total loans below the national average.
Dis are banks that were agricultural banks in 1980 but disappeared from the data set.
%80 is the percent that the preceeding column represents of the row's 1980 value.
The Northeast region includes the states Maine, New Hampshire, Vermont, New York, Massachusetts, Rhode Island, Connecticut, New Jersey, Pennsylvania, Maryland, and Delaware.
The Lake States region includes the states Mississippi, Wisconsin, and Minnesota.
The Corn Belt region includes the states Ohio, Indiana, Illinois, Iowa, and Montana.
The Northern Plains region includes the states North Dakota, South Dakota, Nebraska, and Kansas.
The Appalachian region includes the states West Virginia, Virginia, North Carolina, Kentucky, and Tennessee.
The Southeast region includes the states South Carolina, Georgia, Alabama, and Florida.
The Delta States region includes the states Arkansas, Mississippi, and Louisiana.
The Southern Plains region includes the states Oklahoma and Texas.
The Mountain region includes the states Montana, Idaho, Wyoming, Connecticut, Utah, Nevada, New Mexico, and Arizona.
The Pacific region includes the states Washington, Oregon, and California.

These are far lower percentages than the 6-7 percent disappearances in the Appalachia, Southeast, Delta and South Plains states.

While these results do not correlate well with many analyses of the farm problem, they are supported by a paper written by Gabriel, Peterson and Starr. Their paper ranked the regions of the country where lenders had the highest risk borrowers in 1980. These rankings from riskiest to least risky were Delta States, Southeast, Pacific, Mountain, Northern Plains, Appalachia, Southern Plains, Corn Belt, Lake States, and the Northeast. While the correspondence between results from their study and this study is not exact, it seems closer than most other results.

Returns on Assets

Tables 3 and 4 show rates of return on assets before and after provisions for loan losses. As has been noted in other studies (Melichar, Hughes) the returns to agricultural banks were higher than returns in other banks in the early 1980s. However, it is somewhat surprising that this relationship continued to hold, at least through the end of 1983. In 1984, banks that continued their emphasis on agricultural lending still had a higher return on assets before provisions for loan losses both nationally and in all but two regions of the country. National returns after provisions for loan losses in 1984 were marginally higher for those banks that de-emphasized farm loans. Even in 1984 returns on assets after provisions for loan losses were still higher for agag banks in such notable regions as the Corn Belt and the Northern Plains. It was only in the Southeast Region that the banks that de-emphasized agricultural loans did substantially better than their agricultural counterparts in 1984.

Overall, there has been a surprisingly small payoff to disinvesting in agricultural loans. Perhaps this is due to the fact that the data ended in 1984 since there seems to be a trend developing in the data in favor of returns to agnonag banks. However, as shown in Table 2, more than one-third of the banks that became nonagricultural banks in the sample did so in 1981. Thus, it still seems somewhat mysterious that the advantages of a disinvestment strategy were not obvious well before 1984.

Table 3: Return on Assets Before Provision for Loan Losses for 1980 Agricultural Banks: 1980-1984

Area	1980	---1981---		---1982---		---1983---		---1984----	
	Ag	Ag	NAg	Ag	NAg	Ag	NAg	Ag	NAg
	Percent								
Northeast	1.27	1.36	1.26	1.39	1.25	1.35	1.26	1.57	1.25
Lake States	1.28	1.29	1.01	1.36	1.05	1.35	1.09	1.38	1.20
Corn Belt	1.39	1.33	1.21	1.43	1.04	1.43	1.12	1.42	1.29
Northern Plains	1.60	1.59	1.12	1.65	1.45	1.59	1.45	1.67	1.58
Appalachia	1.49	1.47	1.06	1.51	1.31	1.56	1.39	1.50	1.44
Southeast	1.72	1.73	1.70	1.70	1.68	1.71	1.57	1.60	1.55
Delta States	1.43	1.42	1.37	1.48	1.45	1.49	1.52	1.40	1.62
Southern Plains	1.68	1.74	1.77	1.86	1.86	1.82	1.65	1.75	1.54
Mountain States	1.58	1.57	1.99	1.65	1.58	1.67	1.32	1.61	1.64
Pacific States	1.35	1.50	1.06	1.56	1.24	1.78	1.34	1.75	1.05
National Average	1.49	1.47	1.41	1.55	1.45	1.53	1.42	1.53	1.45

Ag banks are those that were agricultural banks in 1980 and continued to be agricultural banks.

NAg banks are those that were agricultural banks in 1980 and reduced their percentage of farm loans to total loans below the national average.

For definitions of regions see Table 2.

Table 4: Return on Assets After Provision for Loan Losses for 1980 Agricultural Banks: 1980-1984.

Area	1980	---1981---		---1982---		---1983---		---1984---	
	Ag	Ag	NAg	Ag	NAg	Ag	NAg	Ag	NAg
	Percent								
Northeast	1.12	1.15	1.11	1.17	1.11	0.98	1.15	1.39	1.08
Lake States	1.15	1.12	0.85	1.11	0.76	0.95	0.73	0.96	0.97
Corn Belt	1.19	1.11	0.90	1.06	0.58	0.96	0.62	0.96	0.90
Northern Plains	1.38	1.32	1.01	1.16	1.07	0.98	0.93	0.96	0.87
Appalachia	1.22	1.11	0.74	1.06	0.87	0.87	0.22	1.08	1.08
Southeast	1.39	1.35	1.31	1.24	1.08	1.07	1.04	1.12	1.23
Delta States	1.23	1.14	1.09	1.10	1.10	1.03	0.96	1.03	1.01
Southern Plains	1.47	1.49	1.41	1.44	1.29	0.94	0.89	1.14	1.14
Mountain States	1.39	1.27	1.70	1.21	1.36	1.10	0.64	1.08	1.12
Pacific States	1.14	1.24	0.98	1.24	0.81	0.86	0.88	0.83	0.77
National Average	1.28	1.22	1.12	1.15	0.99	0.97	0.77	1.00	1.04

Ag banks are those that were agricultural banks in 1980 and continued to be agricultural banks.
NAg banks are those that were agricultural banks in 1980 and reduced their percentage of farm loans to total loans below the national average.
For definitions of regions see Table 2.

Loan Charge-Offs

There is one hypothesis that would explain the lack of incentives for disinvestment, or at least the slow development of such incentives. Provisions for loan losses do not necessarily reflect actual loan losses in any given year. They do represent bankers' best analyses regarding their average losses over a business cylce. Thus, if agnonag banks were overstating their losses over the period, or agag banks were underestimating theirs, returns after provisions for loan losses would be biased in favor of agag banks.

Ratios of gross loan charge-offs to provisions for loan losses were developed to test this hypothesis and are presented in Table 5. Gross losses were used rather than net losses to more accurately reflect actual lending conditions within a given year. Net charge-offs have recoveries from past loan losses subtracted from current charge-offs. Thus, they blend the current year's loan losses with the resolution of preceding years' problems. An average value of one for this ratio would be extremely pessimistic, indicating that the bank was anticipating no recoveries from past losses.

The data show that rather than having pessimistic agnonag banks or optimistic agag banks, the opposite is true. Agnonag banks have in almost every case a higher ratio of charge-offs to provisions than do agag banks. In fact, by 1984, agag banks as a whole were setting aside provisions for loan losses that exceeded their gross loan charge-offs. Agnonag banks still had charge-offs exceeding provisions in that year. Returns to assets after provisions for loan losses were, therefore, skewed in favor of agnonag banks and the small incentives for disinvestment in agriculture are overstated in Table 4.

There were two regions with significant differences from the national situation, the Corn Belt and Mountain States. In both cases, the agnonag ratio of charge-offs to provisions was less than one and substantially less than the agag ratio. One possible explanation of such pessimistic behavior would be that while banks in these two areas may be able to reduce their direct farm lending, their alternative uses of funds are also directly tied to primary industries. Given the outlook for all primary industries in 1984, such conservative behavior might have been justified. The explanation does not, however, explain why banks in other regions, such as the Northern Plains, the South Plains, the Lake States, and Appalachia, did not pursue the same behavior.

Table 5: Ratio of Gross Loan Charge-Offs to Provision for Loan Losses for 1980 Agricultural Banks: 1980-1984

Area	1980	---1981---		---1982---		---1983---		---1984---	
	Ag	Ag	NAg	Ag	NAg	Ag	NAg	Ag	NAg
	Percent								
Northeast	125.1	114.9	85.5	118.2	86.3	95.5	127.7	120.1	107.0
Lake States	99.9	103.9	103.9	101.6	114.0	95.0	83.5	95.1	118.9
Corn Belt	112.1	116.7	111.8	106.7	105.0	101.4	104.1	91.1	80.1
Northern Plains	113.3	109.1	165.9	104.1	102.6	102.1	95.3	91.8	108.6
Appalachia	115.3	111.2	120.7	107.8	139.0	100.5	107.5	100.1	136.6
Southeast	122.1	133.5	111.9	113.8	122.4	120.6	122.3	118.4	113.3
Delta States	135.7	131.9	138.4	125.9	104.4	113.6	107.8	111.4	102.1
Southern Plains	125.3	124.8	113.7	114.6	109.1	97.9	109.3	101.3	100.8
Mountain States	123.7	117.3	70.4	106.0	114.9	107.0	133.7	93.6	80.5
Pacific States	152.7	111.5	195.3	111.1	118.6	103.8	101.1	85.9	158.6
National Average	116.0	116.1	116.5	107.7	113.0	101.7	108.2	94.4	101.5

Ag banks are those that were agricultural banks in 1980 and continued to be agricultural banks.

NAg banks are those that were agricultural banks in 1980 and reduced their percentage of farm loans to total loans below the national average.

For definitions of regions see Table 2.

Summary and Conclusions

This study raises far more questions than it answers and hopefully will generate some debate and further analysis. Data presented in this paper suggest that many agricultural bankers were quick to see problems developing for farmers with the most rapid loss of agricultural banks occurring in 1981. There is little doubt that lenders' difficulties have been growing over time, but the severity of bankers' problems may not be consistent with generally accepted research on farmers' problems. Data do suggest that the reduction in banking services for farmers has been far greater in Appalachia and the Southeast than in the Corn Belt and the Northern Plains. Finally, it is not absolutely clear from the data that agricultural banks gain very much by de-emphasizing farm lending.

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