

Chapter 8

Banking and the Agricultural Problems of the 1980s

Introduction

Agricultural markets severely deteriorated in the 1980s, with attendant effects on agricultural banks. The roots of the deterioration lay in the events of the previous decade. In the early 1970s the demand for farm commodities significantly increased; the increased demand caused farm prices to grow at a much faster rate than expenses; and farm income therefore began rising rapidly. By 1973, real farm income had reached a record high of \$92.1 billion, nearly double the \$48.4 billion of three years earlier.¹ The combination of rising farm income and high inflation caused the value of farmland to escalate, while at the same time a ready availability of credit caused farm debt to rise sharply. In the late 1970s, however, the boom period came to an end: interest rates soared after the Federal Reserve Board tightened monetary policy to fight inflation, and changing conditions in worldwide supply and demand caused export demand for farm commodities to decrease sharply. Real farm income fell to \$22.8 billion in 1980 and to \$8.2 billion in 1983; and in 1981 prices for farmland began a dramatic contraction.²

The financial performance of banks with a large proportion of farm loans generally coincides with the performance of the farm economy. Loan demand usually increases as farm income grows; and the volume of nonperforming loans and loan losses expands when the farm sector is in a downturn. The correlation between the farm economy and banks in the agricultural sector continued to hold true during the 1980s. Events in the farm economy were reflected in farm bank failures in 1981 and 1985: in 1981 only 1 agricultural bank was

¹ Kevin L. Kliesen and R. Alton Gilbert, "Are Some Agricultural Banks Too Agricultural?" *Federal Reserve Bank of St. Louis Review* 78, no. 1 (January/February 1996): 26.

² *Ibid.*

among the nation's 10 bank failures, but in 1985, 62 agricultural banks failed, accounting for over half of the nation's bank failures that year.³

In this chapter we examine, first, the farm economy of the 1970s and 1980s: the history and causes of the agricultural boom-and-bust cycle of those two decades, and the degree to which forecasts accurately predicted the problems that arose. Next we survey the various nonbank sources of farm credit, and then we examine the effect the downturn in the farm economy had on the banking system—more particularly, on institutions with sizable holdings of farm loans. Finally, we analyze financial data for agricultural banks and compare them with data for small non-agricultural banks.

The Agricultural Cycle in the 1970s and 1980s

Agriculture is by nature a cyclical industry. The cycle in its most simplistic form traces the following course: when crops are plentiful, prices drop, so plantings are reduced the next year. The attendant reduction in supply then generally causes prices to rise. The higher prices lead to increased plantings and excessive production; prices decline; and the cycle repeats itself. Obviously, external forces may affect this pattern. For example, studies conducted by Louis M. Thompson, emeritus associate dean of agriculture at Iowa State University, suggest that there is a global weather pattern which, in his opinion, drives the economic cycle in agriculture.⁴ Or some event may alter the economic outlook, providing new opportunities for profits. When that happens, the opportunities may be seized and sometimes are overdone to such an extent that the usual agricultural cycle is transformed into a cycle of speculative excess followed by a reaction of crisis and panic. (Such speculative cycles have been common historical occurrences.)⁵ In the speculative, or manic, phase, characteristically individuals with wealth or credit employ available funds to purchase financial assets. The unsustainable prices may persist for years, but eventually they reverse themselves.⁶ Few of the participants in such speculative bubbles are able to anticipate reversals perfectly and therefore cannot avoid substantial losses when the bubble bursts.

Agriculture went through such a period of speculative excess in the 1970s and then encountered significant problems—the reversal—in the 1980s. This boom/bust cycle was vastly different from the usual agricultural ups and downs. Indeed, the dynamic was far more reminiscent of a speculative bubble than a “normal” agricultural cycle.

³ An agricultural bank is defined as a bank in which farm loans make up 25 percent or more of total loans.

⁴ See Louis M. Thompson, “The Boom and Bust Cycle in the Agricultural Economy,” *Journal of Agricultural Lending* 2, no. 2 (summer 1988): 20–21.

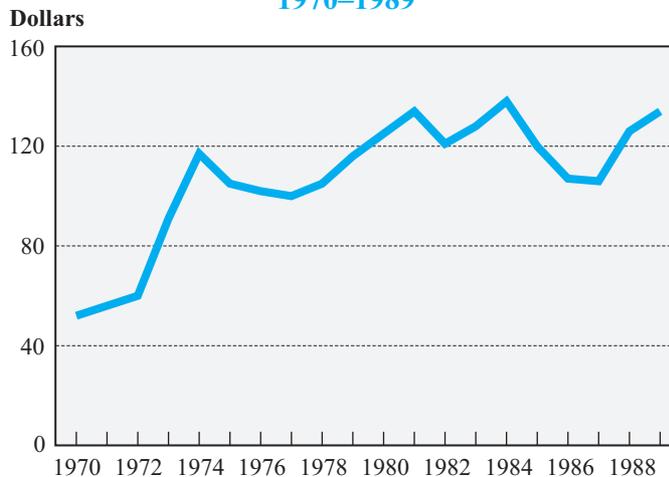
⁵ Charles P. Kindleberger, *Manias, Panics, and Crashes* (1978), 4.

⁶ Burton G. Malkiel, *A Random Walk down Wall Street* (1981), 32.

The boom in the 1970s was stimulated essentially by a substantial rise in crop prices during the first half of the decade (see figure 8.1). An important component of the boom—one that would have a significant effect on the problems of the 1980s—was the escalating value of farm real estate. There were several factors that combined to bring about the increased demand for and rising price of farmland, including inflation, rising farm income (partly caused by farm enlargement), the export market, and credit availability.⁷

The high inflation of the 1970s meant that real capital gains on farm real estate (excluding operators' dwellings) dwarfed those of preceding decades (the total real capital gain on farm real estate for 1972 through 1979 was \$447 billion in 1983 dollars—an annual average of \$56 billion).⁸ This new wealth led many farmers to purchase additional acreage. Furthermore, the sharp rise in farmland prices helped create a speculative frenzy and brought many outside investors into the farm real estate market as well. Neil Harl, an Iowa State University economist, noted the volume of investments being made in farmland and

Figure 8.1
Index of Prices Received by Farmers for All Crops,
1970–1989



Source: Index compiled by National Agriculture Statistics Service, U.S. Department of Agriculture.

Note: 1977=100

⁷ C. Stassen Thompson, “The Effects of the 1970s Farmland Market on Today’s Agriculture Crisis,” *The Appraisal Journal* (January 1988): 18.

⁸ Emanuel Melichar, “A Financial Perspective on Agriculture,” *Federal Reserve Bulletin* 70, no. 1 (January 1984): 5.

commented at the time that “anytime you see an asset growing in value about 25% a year for several years, everybody wants in on the action.”⁹

The demand for farmland in the 1970s also increased because of rising farm income. Net farm income in the 1970s was volatile but, for the decade as a whole, was approximately twice the income of the 1960s. Nominal income (which does not reflect the effect of inflation) per farm jumped from \$4,900 in 1970 to \$12,200 in 1973, then declined to \$7,800 by 1977, before rising to \$13,300 in 1979.¹⁰ This increase in farm income boosted returns on investments in farm real estate so that farmland became an even more attractive investment, and the demand for it grew greater still.

An important contributor to the rise in farm incomes, and therefore to the escalating demand for farmland, was the availability of improved technologies that made possible a more efficient use of farm labor. This prompted farmers to make substantial purchases of farmland in order to spread fixed costs and to reach sufficient size so they could employ the new technology. Many farmers’ attitudes about expensive machinery reinforced the demand for farmland as a means toward enlarging their farms.¹¹

Increased demand for farmland was also fueled by a sharp rise in farm exports in the 1970s, an important component of the decade’s agricultural prosperity. In 1970, exports of agricultural products were \$6.7 billion (approximately 11 percent of U.S. farm production); nine years later they had risen to \$31.9 billion (nearly 22 percent of U.S. production).¹² This jump in exports was stimulated by increased worldwide global liquidity, rising incomes, and several crop shortfalls in other parts of the world.¹³ Another reason foreign demand expanded was that the cost of U.S. crops declined as a result of a depreciating dollar and reduced U.S. price-support levels.¹⁴ In 1980, the export market for U.S. farm commodities looked so promising that Secretary of Agriculture Robert Bergland declared, “The era of chronic overproduction . . . is over.”¹⁵

Finally, the availability of almost unlimited amounts of credit played an important role in expanding the farmland market of the 1970s. Commenting on the heady economic out-

⁹ “Land Boom in the Farm Belt,” *Forbes* (April 15, 1977), available: LEXIS, Library: NEWS, File: FORBES.

¹⁰ C. S. Thompson, “Effects of Farmland Market,” 19.

¹¹ Porter Martin, who assembled limited partnerships for farm investors, explained that machinery was a “status symbol” and noted, “These guys own too much of it and they’re eager to spread the cost” (cited in “Land Boom”).

¹² C. S. Thompson, “Effects of Farmland Market,” 19. The statistics in this article were derived from the U.S. Department of Agriculture, *Agriculture Statistics* (1983), 517.

¹³ Kenneth L. Peoples, David Freshwater, Gregory D. Hanson, Paul T. Prentice, and Eric P. Thor, *Anatomy of an American Agricultural Credit Crisis* (1992), 14.

¹⁴ John Rosine and Paul Balides, “Perspectives on the Food and Agricultural Situation,” *Federal Reserve Bulletin* 68, no. 1 (January 1982): 4–5.

¹⁵ Gregg Easterbrook, “Making Sense of Agriculture: A Revisionist Look at Farm Policy,” *The Atlantic* 256 (July 1985), available: LEXIS, Library: NEWS, File: ASAPII.

look of the period, Michael E. Fitch, vice president of Wells Fargo's Agribusiness Affairs Division, noted that everyone "concluded that never again were we going to experience depressed farm prices; that our biggest challenge was to gear up our productive capacity. As a result, there were tremendous resources placed in agriculture, one of which was credit."¹⁶ It is not surprising that this environment led farmers as well as lenders to change their attitudes toward credit-financed farmland purchases.¹⁷

The expansion of credit was greatly facilitated by the fact that many agricultural bankers continued basing their farm loans on collateral value rather than on cash-flow analysis. As a result, farmers were able to use leverage as a means to benefit from the increasing value of farmland. They would purchase farm real estate with modest down payments and, after the value of this newly purchased land increased, would use the equity to buy additional farmland with minimal down payments. A telling example of the easy access to credit during this period is the story of Benjamin R. Riensche. When he graduated from high school in the late 1970s, land prices around Jesup, Iowa, were climbing so fast that it was possible for him—a teenager—to borrow a considerable amount of money from a bank. He purchased 80 acres of farmland for \$228,000.¹⁸

Farmers' ability to obtain loans easily in order to purchase farm real estate made it possible for farm debt to rise in tandem with soaring real estate values, even though farm income levels were frequently insufficient to support the higher debt burdens. Between 1970 and 1979 farm real estate debt rose from \$29 billion to \$71 billion.¹⁹ This increase in debt may not appear excessive when compared with the rise in farm values, but if the income generated from the additional acreage purchased should prove insufficient to meet the higher debt-service payments, financial difficulties could ensue. Moreover, the substantial increase in farm real estate debt was a major factor in the rise of total liabilities of farm businesses, from \$52 billion in 1970 to \$162 billion in 1979.²⁰

Higher levels of real estate debt were supplemented by debt incurred to finance machinery and equipment to maintain the larger farms. But not all the machinery acquired was economically justified. Such purchases might have contributed to the later financial problems of some farmers.

¹⁶ "In Search of a Solution to the Farm Crisis," *ABA Banking Journal* (April 1985), available: LEXIS, Library: BANKING, File: ABABJ.

¹⁷ C. S. Thompson, "Effects of Farmland Market," 20.

¹⁸ Scott Kilman, "High Grain Price Lifts Farmers, But Will They Overexpand As Before?" *The Wall Street Journal* (March 21, 1996), A1, A8. Another insight into the ready availability of credit comes from Pat Meade, a farmer from Milo, Iowa, who recalled that "during the 1970s there were times when lenders quite literally drove up and down the road, knocked on people's doors, and asked them if they could use more credit." See Easterbrook, "Making Sense of Agriculture."

¹⁹ C. S. Thompson, "Effects of Farmland Market," 18.

²⁰ Data supplied by Haver Analytics; from the *Flow of Funds Accounts of the United States*.

The optimism of the 1970s came to an end late in the decade because of changes in domestic economic policies and in the worldwide supply and demand conditions for agricultural commodities.

In the fall of 1979, the Federal Reserve Board tightened its monetary policy to fight inflation. As a result, interest rates soared—the prime rate averaged 15.3 percent in 1980. The high interest rates contributed immensely to the decline in farmland values and to the overall reversal of conditions in the agricultural sector. The elevated interest rates significantly increased farm operating costs, such as the interest cost of money borrowed to cover planting expenses. This led to reduced net-income expectations and, in some cases, to cash-flow problems. Moreover, high interest rates automatically deflated the price of productive assets—such as farmland—by reducing the capitalized value of the land’s earning capacity.²¹

When the high interest rates helped send the farm sector on a downward spiral in the early 1980s, many farmers found themselves unable to service their debts. Although many lenders tried to accommodate the farmers, the problems were often insuperable. Oliver Hansen, president of an Iowa bank, noted, “We are working with customers if at all possible. But for any farmer who has become overextended, I am sure it is going to be hell.”²² Farmers whose loans contained variable-interest-rate clauses found the soaring interest rates of the early 1980s particularly onerous. One Iowa farmer who had been forced to declare bankruptcy complained, “They said I had nothing to worry about—that rates had varied only a fraction of a point since 1970. My rate went from 7 percent to 18.5 percent.”²³

The blow dealt by changes in the worldwide supply and demand for agricultural commodities—causing foreign demand for domestic agricultural products to decline at a time of expanded domestic production—did serious damage as well. For example, the volume of U.S. exports of agricultural products increased at an annual rate of 5.9 percent between 1973 and 1980 and peaked at \$44 billion in 1981, but by 1986 it had dropped to only \$26 billion. Over the same period, agriculture’s share of total U.S. exports fell from 19 percent to 13 percent.²⁴ Fred W. Greer, Jr., chairman of the Agricultural Bankers Division of the American Bankers Association (ABA), noted in 1984 that “farming is not an isolated sec-

²¹ Peoples et al., *Anatomy*, 33.

²² “A Credit Drought Hits the Farmers,” *Business Week* (December 20, 1982), available: LEXIS, Library: NEWS, File: BUSWK.

²³ Easterbrook, “Making Sense of Agriculture.”

²⁴ Dallas S. Batten and Michael T. Belongia, “The Recent Decline in Agricultural Exports: Is the Exchange Rate the Culprit?” *Federal Reserve Bank of St. Louis Review* 66, no. 8 (October 1984): 5; and Gerald H. Anderson, “The Decline in U.S. Agricultural Exports,” *Federal Reserve Bank of Cleveland Economic Commentary* (February 15, 1987): 1.

tor of the economy and we are not an isolated country. We have competition from around the world that we didn't have a few years ago."²⁵

Export demand was dampened by unfavorable monetary exchange rates and by the less-developed-country (LDC) debt crisis (see Chapter 5). High domestic interest rates caused a significant strengthening of the dollar. From the third quarter of 1980 to the first quarter of 1985, the Federal Reserve Board's trade-weighted average index for the dollar rose by 83 percent.²⁶ This rapid appreciation in the value of the dollar made U.S. exports more expensive in foreign currencies, not only reducing foreign demand but also encouraging foreign supply.²⁷ In addition, many developing countries that had previously been major importers of American farm products had debt problems, which led them to restrict agricultural imports in order to conserve foreign exchange. Banks in those countries reduced credit to finance agricultural imports. Moreover, creditor banks or the International Monetary Fund required austerity programs as a condition for restructuring existing loans. The decline in foreign demand caused by both the unfavorable exchange rates and the LDC debt crisis led in turn to an accumulation of huge surpluses of farm commodities in the early 1980s.²⁸

²⁵ Nancy Buckwalter, "Agricultural Banking Crisis; Bankers Struggling with Workouts to Help Farm Customers Survive," *United States Banker* (September 1984): national edition, available: LEXIS, Library: BUSFIN, File: BIS.

²⁶ Anderson, "Decline in Exports," 4.

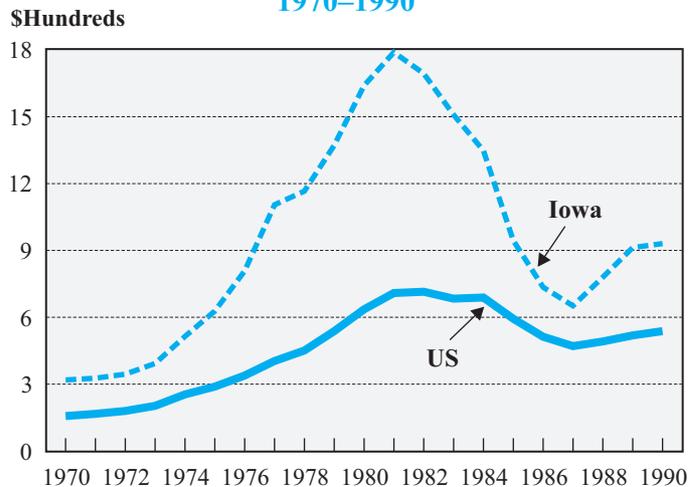
²⁷ Dallas S. Batten and Michael T. Belongia, "The Recent Decline in Agricultural Exports: Is the Exchange Rate the Culprit?" *Federal Reserve Bank of St. Louis Review* 66, no. 8 (October 1984): 5. The authors conclude that foreign income, not exchange rates, is the primary determinant of agricultural exports. However, Barbara Chattin and John E. Lee, Jr., attributed at least half of the export decline in 1982 and 1983 to the appreciation of the U.S. dollar ("United States Agricultural Policy in a 'Managed Trade' World," *United States Farm Policy in a World Dimension*, special report 305, Agricultural Experiment Station, University of Missouri-Columbia [November 1983], 18-27). According to Batten and Belongia, causal relationships between exchange rates and agricultural exports were reported by Robert G. Chambers and Richard E. Just, "An Investigation of the Effect of Monetary Factors on Agriculture," *Journal of Monetary Economics* (March 1982): 235-47; Luther Tweeten, "Economic and Policy Outlook for U.S. Agriculture," *United States Farm Policy in a World Dimension*, special report 305, Agricultural Experiment Station, University of Missouri-Columbia (November 1983), 13-17; Dale E. Hathaway, "Agricultural Trade: 1984 and Beyond," *United States Farm Policy in a World Dimension*; special report 305, Agricultural Experiment Station, University of Missouri-Columbia (November 1983); and G. Edward Schuh, "Future Directions for Food and Agricultural Trade Policy," *American Journal of Agricultural Economics* (May 1984): 242-48.

²⁸ In an effort to deal with the problem of overproduction, the Reagan administration introduced its "Payment in Kind" (PIK) program in 1983. Under this program, farmers who agreed to reduce plantings were compensated with surplus commodities from federal stockpiles of the same type they typically planted. The PIK program was especially attractive to cotton and grain (wheat, corn, sorghum, and rice) farmers, who took 82 million acres, more than a third of their total productive acreage, out of production. The program succeeded in helping to reduce the huge surplus of federally owned farm commodities. Commenting on the PIK program, Alan Tubbs, vice chairman of the ABA's Agricultural Bankers Division and president of First Central Bank in DeWitt, Iowa, said, "It bought a year for those who took part in it. It helped the farmers who were able to benefit from it to hold their own, and it held up the price of grain for everybody" (Buckwalter, "Agricultural Banking Crisis").

In 1981, as inflation declined and the problems of the agricultural sector increased, farmland prices began sliding downward. Farmland values for the United States and Iowa between 1970 and 1990 demonstrate both the boom-and-bust cycle and the dramatic changes that occurred within some states (see figure 8.2). In the nation as a whole, the value of farmland per acre rose 355 percent between 1970 and its peak in 1982 (from \$157 to \$715) but then declined 34 percent from 1982 to 1987 (down to \$471). In Iowa, farmland value per acre soared from \$319 in 1970 to \$1,694 in 1982, an increase of 431 percent, but then dropped 62 percent by 1987 (down to \$652).

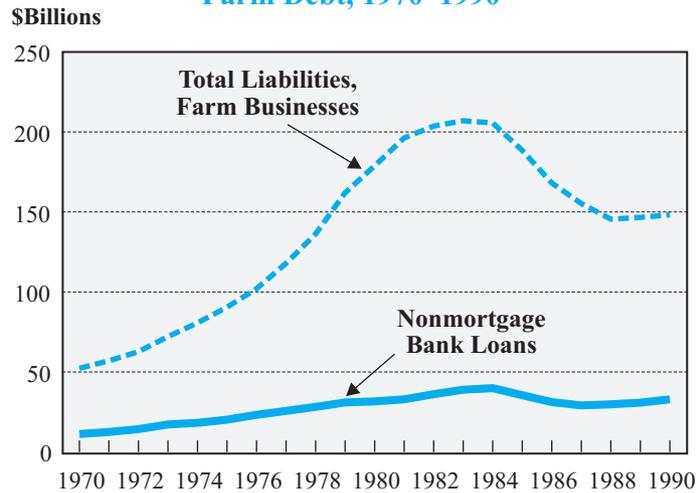
The boom in farmland values had been supported by an explosive growth in farm debt. That growth and the subsequent contraction are illustrated by the annual data for non-mortgage bank loans and total liabilities for farm businesses from 1970 through 1990. From 1970 through 1984, nonmortgage bank loans increased from \$11.2 billion to \$39.9 billion, a rise of 256 percent, but then in 1987 they declined to \$29.1 billion, a drop of 27 percent. Similarly, from 1970 through 1983, total liabilities of farm businesses rose from \$52.3 billion to \$207.0 billion, a 296 percent increase, and then in 1988 fell to \$145.5 billion, a decline of 30 percent (see figure 8.3). A large portion of the decline in farm debt that began in the mid-1980s was due to the rapid liquidation and restructuring of troubled loans. An additional source of debt reduction, however, was the behavior of those farmers who were in sound financial condition: when returns on liquid assets fell below the interest rates being

Figure 8.2
Farmland Value per Acre, U.S. and Iowa,
1970–1990



Source: Economic Research Service, U.S. Department of Agriculture.

Figure 8.3
Farm Debt, 1970–1990



Source: Haver Analytics.

paid on farm debt, many prosperous farmers chose to use their available cash to reduce or eliminate their debt. Repayment of farm debt might also be attributed to a change in attitude among farmers. Leslie W. Peterson, president of Minnesota's Farmers State Bank of Tri-mont, observed in 1985 that many farmers "now realize that debt is nothing but a noose around their neck."²⁹

Assessing the decision-making processes of the 1970s and early 1980s requires evaluating the correlation between the escalating farmland values and the profitability of agriculture. For both the United States and Iowa farmland value per acre increased every year from 1970 through 1981, but gross income per acre actually experienced several year-to-year decreases. For example, gross income per acre for corn and soybeans generally declined during 1973–75, 1976–77, and 1980–81 (see table 8.1). Thus, farmland values and investment returns were decoupled. More particularly, from 1970 through 1973 both land values and returns on investment increased, but in 1974–75, while land values continued to rise, returns declined—though they still compared favorably with those of 1970–71. Beginning in 1976, however, returns fell significantly below those of the early 1970s, even as farmland values continued to increase dramatically.

²⁹ John N. Frank et al., "The Farm Rut Gets Deeper," *Business Week* (June 17, 1985), available: LEXIS, Library: NEWS, File: BUSWK.

Table 8.1
Gross Income per Acre and Return on Farmland Investment,
U.S. and Iowa, 1970–1990

Year	U.S.				Iowa			
	Corn		Soybeans		Corn		Soybeans	
	Gross Income per Acre	% Return on Investment	Gross Income per Acre	% Return on Investment	Gross Income per Acre	% Return on Investment	Gross Income per Acre	% Return on Investment
1970	\$ 96	61	\$ 76	48	\$108	34	\$ 92	29
1971	95	57	83	50	106	32	100	31
1972	152	84	121	67	191	55	171	50
1973	233	115	158	78	276	70	192	49
1974	217	85	157	62	238	46	178	35
1975	219	76	142	49	225	36	173	28
1976	189	56	178	53	187	23	219	27
1977	183	45	180	45	171	15	210	19
1978	227	50	196	43	250	21	249	21
1979	272	51	202	38	311	23	231	17
1980	284	45	201	32	330	20	286	17
1981	269	38	183	26	293	16	238	13
1982	289	40	180	25	323	19	214	13
1983	260	38	205	30	271	18	272	18
1984	281	41	164	24	281	21	179	13
1985	263	44	172	29	255	27	190	20
1986	179	35	159	31	190	26	196	27
1987	232	49	199	42	246	38	260	40
1988	215	44	200	41	206	26	227	29
1989	274	53	184	35	270	30	219	24
1990	270	50	196	36	278	30	234	25

Source: Raw data are from U.S. Department of Agriculture.

Note: Gross income per acre is yield per acre in bushels multiplied by average price per bushel during the year. Return on investment is gross income per acre divided by the farmland value per acre for each year.

When U.S. farmland values reached their zenith in 1982, returns on investment for corn and soybeans were less than two-thirds of their 1970 level and only approximately one-third of what they had been in 1973. Similarly, when Iowa farmland values peaked in 1981, investment returns for corn and soybeans were less than half what they had been in 1970, and only approximately a quarter of their 1973 level (table 8.1).

From 1981 onward, U.S. farmland prices declined. At the same time, returns for corn showed virtually no improvement, and those for soybeans grew only moderately. Returns during the period 1983–90 for both crops based on land prices were never close to those of 1970. Moreover, although returns for corn and soybeans in 1990 were 25 and 44 percent

higher than they had been in 1982, they remained less than half of the returns attained in 1973. Iowa's trends were somewhat different. Here again, farmland prices began declining in 1981, but returns rose and compared reasonably well with those of 1970; returns in 1990 for corn and soybeans were almost twice those of 1981. Nevertheless, returns continued at levels half what they had been in 1973, or even less. A significant conclusion can be drawn from these pre- as well as post-1982 trends: the spectacular increases in farmland prices from 1976 through the early 1980s could not be justified by high or rising investment returns. The dramatic rise in the value of farmland had been the result of a speculative boom.

Although the review of the agricultural cycle of the 1970s and 1980s has focused on agriculture nationally, it is important to point out that the effects of this cycle on agricultural banks and the resulting bank failures were primarily regional in nature (see figure 8.7, p. 278). Problems for agricultural producers and commercial banks largely occurred in the Midwest—Iowa, the Dakotas, Nebraska, Kansas, Illinois, Minnesota, Missouri—as well as in Oklahoma and Texas. The primary reason for this is, of course, that substantial agricultural production took place in the Midwest and the economies in these states were more dependent on agriculture than the economies in most other states. Thus, a large majority of agricultural banks, and therefore most failures, were located in this region. In 1986 approximately 70 percent of the nation's agricultural banks were located in the West North Central census region (North and South Dakota, Minnesota, Nebraska, Iowa, Kansas, and Missouri—the Midwest) and the West South Central region (Oklahoma, Arkansas, Texas, and Louisiana).³⁰ However, there may be another reason for the midwestern location of agricultural banking problems. The types of crops produced in these states, such as wheat, corn, and soybeans, were greatly influenced by the export boom of the 1970s. Consequently, the Midwest experienced unusually large increases in farm real estate prices during this period. For example, from 1974 through 1978, when the price of an acre of farmland nationally rose at an average annual rate of 15 percent, in Iowa and Illinois the increase was approximately 22 percent annually.³¹ In the 1980s, declines in midwestern farmland prices were similarly dramatic. For example, after peaking in 1981, farmland prices had fallen by 49 percent in Iowa, 46 percent in Nebraska, 42 percent in Illinois, 39 percent in Minnesota, and 38 percent in Missouri.³² The financial difficulties caused by these declines, coupled with the substantial debt midwestern farmers had incurred for purchases of farmland and machinery to support crop expansion during the export boom, made farmers in the region

³⁰ Lynn A. Nejezchleb, "Declining Profitability at Small Commercial Banks: A Temporary Development or a Secular Trend?" *FDIC Banking and Economic Review* (June 1986): 12.

³¹ Linda Snyder Hayes and Kathleen Carroll Smyth, "Investors in Farmland Are on Dangerous Ground," *Fortune* (January 29, 1979), available: LEXIS, Library: NEWS, File: FORTUN.

³² Timothy B. Clark, "Borrowing Trouble," *National Journal* 17, no. 36 (September 7, 1985), available: LEXIS, Library: NEWS, File: NTLJNL.

much more vulnerable than farmers in other parts of the country to the declines in exports of wheat, corn, and soybeans, as well as to the higher interest rates of the 1980s.

In summary, agriculture flourished in the 1970s: in the first half of the decade crop prices soared, farm exports escalated, and real farm incomes reached all-time highs. This prosperous environment, combined with high levels of inflation, led farm real estate values to skyrocket. The bubble burst in the early 1980s, after monetary policy was tightened to fight inflation and, at the same time, foreign demand for domestic agricultural products plummeted. In 1981, farmland prices began a devastating spiral. Farm debt, which had supported the agricultural expansion and farmland speculation by almost quadrupling from 1970 through 1983, became a painful burden to farmers. However, by 1988, total liabilities had declined 30 percent.

The Reliability of Forecasts

The kinds of economic information available to bankers as they loaned funds to the agricultural sector are indicated by contemporary views on the agricultural situation. In this section we focus on forecasts for the boom years of 1976 and 1978; for the period 1980–82, when the expansion was winding down; and for 1985—the middle of the contraction phase.

The outlook for agriculture for the first half of 1976 was quite positive.³³ Rising gross income was expected to more than offset higher farm production expenses, so analysts anticipated a sizable increase in net farm income. Farm product exports were expected to set a record in Fiscal Year 1976, increasing approximately \$1 billion from Fiscal Year 1975 to nearly \$23 billion. Unlike the previous year's rise, this one was projected to come from larger volume rather than higher prices.

By 1977, however, in contrast to what had been forecast, the farm sector had begun to experience difficulties. Bernard Johnson, president of the Production Credit Association of Fargo, North Dakota, noted that “some of our farmers are in a real financial strain. Many are just hanging on by their boot straps. And some we’ve had to close out. The problem is, there is no profit at \$2.50 for wheat.”³⁴

Forecasts for 1978 were in accord with such experiences: the nation's farmers were expected to endure a year of relatively low prices and incomes.³⁵ Net farm income, which

³³ Forecast is taken from Sada L. Clarke, “Outlook for Agriculture Optimistic,” Federal Reserve Bank of Richmond *Economic Review* 62, no. 1 (January/February 1976): 19–21, and is based on the U.S. Department of Agriculture's National Agricultural Outlook Conference held in November 1975.

³⁴ “Bountiful Crops—So Why Are Farmers and Bankers Worried?” *U.S. News & World Report* (June 27, 1977), available: LEXIS, Library: NEWS, File: USNEWS.

³⁵ Forecast is taken from Sada L. Clarke, “The Outlook for Agriculture in '78,” Federal Reserve Bank of Richmond *Economic Review* 64, no. 1 (January/February 1978): 7–11, and is based on the U.S. Department of Agriculture's National Agricultural Outlook Conference held in November 1977.

had fallen 27 percent during the previous two years, was expected to improve little, if at all, in 1978. A combination of lower crop prices and moderate increases in farm production expenses was anticipated. In addition, the value of U.S. farm exports was expected to decline from \$24 billion in Fiscal Year 1977 to approximately \$22 billion in Fiscal Year 1978.

In contrast to these somewhat pessimistic forecasts, 1978 turned out to be an excellent year for farmers. Although lower crop prices were anticipated, the index of prices received by farmers for all crops increased 5 percent from 1977 to 1978. While farm production expenses rose 12 percent from 1977 to 1978, gross income from farming increased by 17 percent during the same period. As a result, net farm income jumped 46 percent from 1977 to 1978. Finally, U.S. farm exports soared from \$24 billion in 1977 to \$29 billion in 1978, rather than declining, as had been expected.

Predictions for 1980 (and these were made before the January 1980 embargo on grain exports to the Soviet Union) foresaw farm income falling sharply from the 1979 level, perhaps by as much as 20 percent, primarily because of surging production costs.³⁶ Agricultural exports were expected to increase by approximately 19 percent, from \$32 billion in 1979 to \$38 billion in 1980. And the value of farmland was expected to increase by only 5 to 10 percent in 1980, compared with an actual increase of 14 percent the previous year. These projections proved to be quite accurate: in 1980, net farm income declined by 20 to 25 percent; exports exceeded \$40 billion; and farm real estate values increased 7 to 12 percent.

A considerable rebound in net farm income was anticipated for the following year.³⁷ In addition, exports of U.S. farm products were expected to rise as much as 20 percent above the 1980 record level of more than \$40 billion, and farm real estate values were projected to increase by between 11 and 16 percent. Exports did increase to just under \$44 billion and farm real estate values did rise approximately 11 percent, but farm income failed to keep pace with the optimistic projections. Indeed, farm income was disappointing for the second consecutive year, and many farmers developed serious cash-flow problems. By mid-1981, Marlin Jackson, chairman of the ABA's Agricultural Bankers Division, confirmed that farm income had failed to meet expectations, noting, "The uncertainty for farm production combined with ever-increasing production expenses for energy, chemicals, and the cost of loan-production funds will eat seriously into an increased gross farm income, resulting in another

³⁶ Forecast is taken from Sada L. Clarke, "The 1980 Outlook for Agriculture," Federal Reserve Bank of Richmond *Economic Review* 66, no. 1 (January/February 1980): 14–18, and is based on the U.S. Department of Agriculture's 1980 Agricultural Outlook Conference held in November 1979.

³⁷ Forecast is taken from Sada L. Clarke, "The Outlook for Agriculture in '81," Federal Reserve Bank of Richmond *Economic Review* 67, no. 1 (January/February 1981): 21–26, and is based on the 1981 Agricultural Outlook Conference held in November 1980.

marginal net-farm-income year.”³⁸ The forecasts and results for 1981 were classic endings to a boom period. With expenses rising more quickly than gross income, net income was clearly declining. The market price of overvalued collateral peaked and began a major, long-term descent. The transition from boom to bust may take a few years, but eventually a virtual free-fall occurs. On this occasion, the free-fall began in 1981.

Little improvement in net farm income was anticipated for 1982, but exports were expected to increase approximately 4 percent to \$45.5 billion, which would have set a record for the 13th consecutive year.³⁹ As had been expected, farm income was low, and cash-flow difficulties grew as cash receipts declined while production expenses continued to rise. What exacerbated the problem, though, was that exports not only failed to increase but actually plunged 11 percent.

By the end of 1984, the farm sector was suffering from a variety of economic and financial problems, so the prospects for 1985 were considered bleak. The adverse trends that had been plaguing the agricultural sector since the early 1980s—low income, inadequate cash flow, and declining farmland prices—were expected to continue and possibly deteriorate further in 1985.⁴⁰ Agricultural net cash income in 1985 was expected to be the lowest since 1980, and the volume of U.S. exports was expected to continue declining. The future for the farming sector appeared so hopeless that sociologist Paul Lasley of Iowa State University believed “the current agriculture crisis is likely to change the face of rural America drastically, leaving it with fewer people, fewer businesses and more dependent on government aid.”⁴¹

The projections made for the period 1980 through 1982 had generally been accurate except in two important respects: a substantial recovery in net farm income had been forecast for 1981 but did not occur, and the export market was expected to increase in 1982, whereas in fact it began declining. But these forecasting failures were critical, for they meant that there was no warning of the massive regional and national agricultural problems that began in 1981. Once the downturn in agriculture had started, of course, analysts recognized the nature and severity of the problems and, as the outlook for 1985 indicated, correctly anticipated their continuation.

³⁸ Phil Battey, “High Interest Rates Squeeze Farmers and Their Lenders; Bankers Across US Note Decline in Quality of Agricultural Loan Portfolios,” *American Banker* (June 25, 1981), 2.

³⁹ Forecast is taken from Sada L. Clarke, “The Outlook for Agriculture in ’82,” Federal Reserve Bank of Richmond *Economic Review* 68, no. 1 (January/February 1982): 25–29, and is based on the 1982 Agricultural Outlook Conference held in November 1981.

⁴⁰ Forecast is derived from Raymond E. Owens, “The Agricultural Outlook for 1985 . . . Little Promise Seen,” Federal Reserve Bank of Richmond *Economic Review* 71, no. 1 (January/February 1985): 27–32, and is based on the 1985 Agricultural Outlook Conference held in December 1984.

⁴¹ C. Robert Brenton, “How Can Agricultural Bankers Weather the Storm?” *The Magazine of Bank Management* (January 1986), available: LEXIS, Library: BUSFIN, File: BJS.

Nonbank Sources of Farm Credit

Banks were a major provider of farm credit, but farmers also had other important sources to which they could turn. A substantial amount of agricultural credit was originated through the Farm Credit System (FCS), a nationwide network of financial institutions owned by borrower-stockholders. The elements of the FCS were established by the government between 1917 and 1933 to serve the credit needs of agricultural producers.⁴² The FCS's major lending arms were the Federal Land Banks (FLBs), the Federal Intermediate Credit Banks (FICBs), and the Banks for Cooperatives (BCs). The FCS was organized into 12 districts, and all three types of lenders were located within every district. In addition, a Central Bank for Cooperatives, located in Washington, D.C., helped finance loan requests that were too large to be handled by a single district cooperative bank.⁴³ The FCS was (and still is) regulated by the Farm Credit Administration, an independent agency that is not financed by the federal government but generates funds for lending by selling bonds and notes in the national money markets.⁴⁴

The FCS attracted borrowers by aggressively offering loans equal to a high proportion of collateral value and at lower interest rates than the rates charged by other primary farm lenders, including commercial banks. In 1985, the FCS held more than \$74 billion in agricultural debt nationwide and was thus the largest single source of credit for agriculture. The FLBs provided long-term farmland mortgages, and in 1985 held \$51 billion in farm debt through 437 affiliated offices. The FICBs provided operating loans to farmers and competed directly with commercial banks. The FICBs generated loans through their Production Credit Associations (PCAs), which held \$17 billion in farm debt in 1985.⁴⁵

Because of the FCS's substantial holdings in farmland mortgages, it was particularly devastated by the steep drop in farmland values that began in 1981. Since the 1930s the FCS had not incurred deficits, but by 1985 its financial condition had deteriorated so severely that it was forced to ask Congress for \$6 billion in federal aid to prevent its own collapse. The situation in which the FCS found itself was put succinctly by its chief spokesman when he was requesting aid before Congress: "Our request for assistance is one of the most difficult decisions we have ever made. But we have no choice."⁴⁶

The FCS was not the only important nonbank source of farm credit: the Farmers Home Administration (FmHA), the principal credit agency of the U.S. Department of Agri-

⁴² W. Gifford Hoag, *The Farm Credit System: A History of Financial Self-Help* (1976), 1.

⁴³ Gene D. Sullivan, "Changes in the Agricultural Credit Delivery System," Federal Reserve Bank of Atlanta *Economic Review* 75, no. 1 (January/February 1990): 13.

⁴⁴ "Hat in Hand; Farm Credit Beggars for Bailout," *Time* (November 11, 1985), available: LEXIS, Library: NEWS, File: TIME.

⁴⁵ Patrick Eugene McNerney, "Evaluating and Managing Ag Credit Risk in the Midst of the Farm Debt Crisis" (thesis, Stonier Graduate School of Banking, 1986), 29–31.

⁴⁶ "Hat in Hand."

culture, also served in this role. The FmHA was established in 1946 as the successor to the Farm Security Administration to function as a lender of last resort for farmers who were unable to obtain credit from other lending sources.⁴⁷ As a result, FmHA credits were generally lower in quality and riskier than loans of commercial banks or the FCS. During periods of economic weakness from 1974 to 1977, many loans that might have caused losses to banks were refinanced at the FmHA. In addition, from 1978 to 1981 the FmHA lent \$6.6 billion under the Economic Emergency Credit Act of 1978. Declining farm income in the early to mid-1980s, as well as adverse weather conditions in parts of Iowa in 1983 and 1984, led many farm operators to turn to the FmHA for some or all of their borrowing needs. In late 1984, about 30 percent of the \$22 billion in FmHA loans outstanding were delinquent.⁴⁸

After Vance Clark's appointment as secretary of agriculture in August 1985, a significant change was made at the FmHA. Clark had inherited a little-used FmHA program under which the government would guarantee 90 percent of an agricultural loan, and a private lender would assume the risk of the remaining 10 percent. Clark stressed the need to expand this program because it allowed borrowers to do business with local banks instead of the government while reducing the government's lending risk by 10 percent. An increasing number of banks became participants in the program; as a result, direct lending by the FmHA decreased from \$115 million in Fiscal Year 1988 to \$50 million in 1990.⁴⁹

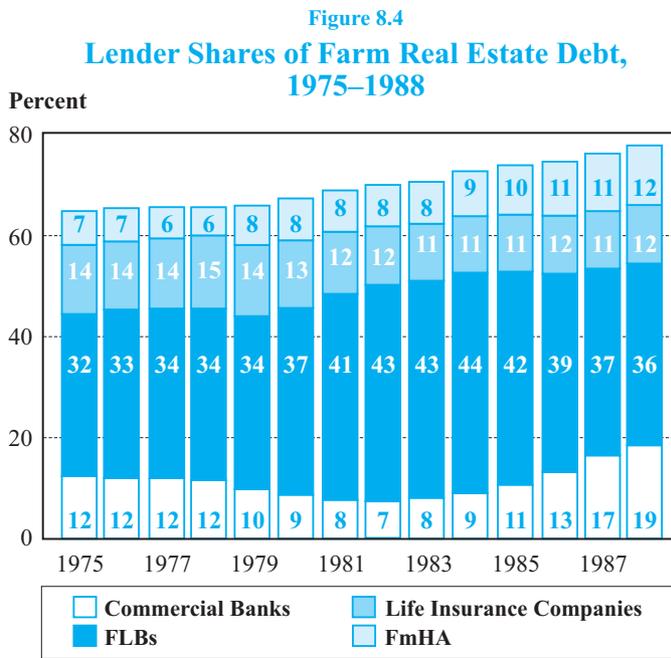
An analysis of the proportions of outstanding real estate and non-real estate debt held by commercial banks and other major agricultural lenders from 1975 to 1988 reveals that commercial banks provided a relatively small quantity of farm real estate financing. Indeed, banks' share of farm real estate debt steadily declined from 1975 to 1981, the period of booming farmland prices. Conversely, during the same period the share of financing provided by the Federal Land Banks continued to increase. Meanwhile, the FmHA exhibited fairly steady, though moderate, increases in its share of farm real estate debt from 1978 to 1988 (see figure 8.4).

For non-real estate farm credit, banks were the dominant providers from 1975 to 1988. Contrary to what might have been expected, the proportion of non-real estate farm loans held by banks declined continuously from 1976 to 1981, the final years of agriculture's boom period, but remained quite stable during agriculture's troubled years, 1983–86. FmHA lending significantly increased in importance, as its share of non-real estate debt increased more than sixfold, from 3.6 percent in 1976 to 22.8 percent in 1987 (see figure 8.5).

⁴⁷ Marvin Duncan, "Government Lending: Some Insights from Agriculture," Federal Reserve Bank of Kansas City *Economic Review* 68, no. 8 (September/October 1983): 5.

⁴⁸ McNerney, "Ag Credit Risk," 32–33.

⁴⁹ Gordon S. Carlson, "Vance Clark: Looking Back," *Journal of Agricultural Lending* 2, no. 4 (April 1989): 12–14.



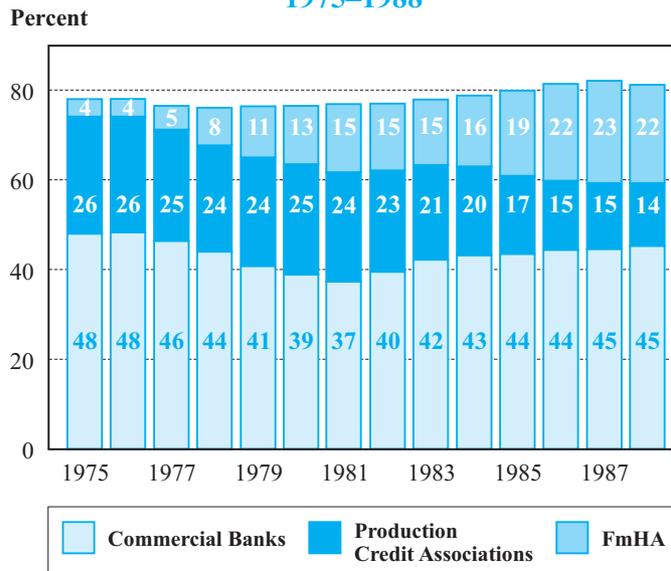
Source: Gene D. Sullivan, "Changes in the Agricultural Credit Delivery System," Federal Reserve Bank of Atlanta *Economic Review* 75, no.1 (1990): 18.

The Effect of Agricultural Problems on Banks

Between the Great Depression and the early 1980s, few agricultural banks failed. In 1984, however, the number of agricultural bank failures began increasing dramatically, and it remained high through 1987.⁵⁰ Thereafter it rapidly declined (see figure 8.6). Between 1983 and 1985 the proportion of agricultural bank failures among all bank failures more than quadrupled, going from 12.5 percent to 51.7 percent. With the farm economy's subsequent improvement, however, agricultural banks became a relatively small factor in the bank failures of the late 1980s. Although agricultural banks constituted 37.4 percent of all bank failures (205 out of 548) from 1984 through 1987, the comparable figure for the years 1988 through 1990—a period when bank failures nationally remained very frequent—was only 9.5 percent (62 out of 655). It is noteworthy that even though farmland prices peaked around 1981 and net farm income began declining in the early 1980s, agricultural bank fail-

⁵⁰ The large number of agricultural bank failures led to two forbearance programs: a capital forbearance program established by the regulatory agencies and a loan-loss amortization program instituted by Congress. For discussions of these forbearance programs, see Chapters 1 and 2.

Figure 8.5
**Lender Shares of Farm Non-Real Estate Debt,
 1975–1988**



Source: Gene D. Sullivan, "Changes in the Agricultural Credit Delivery System," Federal Reserve Bank of Atlanta *Economic Review* 75, no. 1 (1990): 18.

ures did not increase significantly until 1984. This suggests that the equity amassed by farmers and bankers during the boom years was sufficient to absorb losses and postpone bank failures for several years.

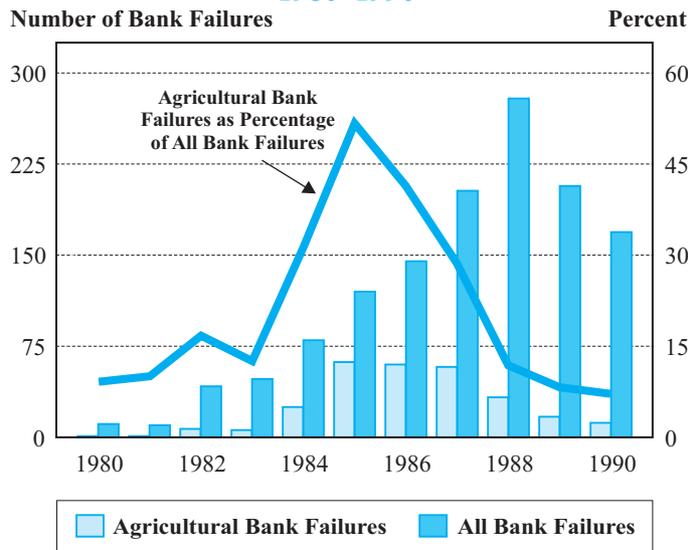
There was a pronounced geographic clustering among the agricultural bank failures, with the majority occurring in the Midwest and in the two southwestern states of Oklahoma and Texas (see figure 8.7). There were 22 or more failures in seven states—Iowa, Kansas, Minnesota, Missouri, Nebraska, Oklahoma, and Texas—while no other state had more than 9 failures.⁵¹ As another example of this clustering, in 1985, 62 agricultural banks failed, 52 of which were located in six of these seven states (all except Texas).⁵²

Fortunately for the deposit insurance fund, agricultural banks were relatively small. For example, the average asset size of agricultural banks was only approximately \$18 million in December 1979, \$28 million in December 1984, and \$32 million in December

⁵¹ Energy and real estate problems may have contributed to the large number of agricultural bank failures in Texas and Oklahoma. See Chapter 9 for further discussion of the effect of agricultural problems on banks in these two states.

⁵² "Agricultural Conditions and the Prospects for Farm Banks," FDIC *Banking and Economic Review* (March 1986): 5–6.

Figure 8.6
Agricultural Bank Failures versus All Bank Failures, 1980–1990



1989.⁵³ Moreover, from 1980 through 1990, when agricultural banks constituted at least 23 percent of all banks annually, they were less than 1 percent of all banks with more than \$200 million in assets—and in no year in the 1980s did more than nine agricultural banks have over \$200 million in assets. Despite their small size, however, agricultural banks were a very significant factor in the farm economy. Each year from 1980 through 1990, although agricultural banks had less than 5 percent of all bank assets, they held at least 44 percent of all commercial bank farm loans (see table 8.2).

The small size of agricultural banks meant that deposit insurance fund losses remained relatively low even when the proportion of such bank failures was at its highest level (see table 8.3). From 1984 through 1987, years when agricultural bank failures constituted 37.4 percent of all bank failures, deposit insurance fund losses averaged approximately \$1.6 billion per year, or less than \$12 million per failed bank. Indeed, in 1985 when the 62 failed agricultural banks accounted for 51.7 percent of all bank failures, deposit insurance fund losses were the lowest for the period from 1982 through 1990, totaling approximately \$1.0 billion, or just \$8.4 million per bank. In contrast, from 1988 through 1990, when agricultural

⁵³ The comparable measures for all commercial banks were \$125 million, \$182 million, and \$263 million.

Table 8.2
Farm Loans and Bank Assets, Agricultural Banks versus All Banks, 1979–1990

Report Date	Number of Banks			Number of Banks over \$200 Million in Assets			Farm Loans (\$Billions)			Bank Assets (\$Billions)		
	Ag.	All	% Ag.	Ag.	All	% Ag.	Ag.	All	% Ag.	Ag.	All	% Ag.
12/79	4,365	14,688	29.72	7	875	0.80	\$20.80	\$40.03	51.95	\$ 81.85	\$1,838.98	4.45
12/80	4,316	14,758	29.25	8	940	0.85	20.80	40.86	50.91	88.80	2,008.27	4.42
12/81	4,214	14,745	28.58	7	989	0.71	21.26	42.01	50.61	95.54	2,185.08	4.37
12/82	4,107	14,768	27.81	8	1,076	0.74	22.99	45.40	50.64	102.61	2,349.48	4.37
12/83	4,064	14,747	27.56	9	1,180	0.76	24.83	49.23	50.44	110.91	2,474.99	4.48
12/84	3,918	14,774	26.52	5	1,281	0.39	25.05	50.60	49.51	109.51	2,686.30	4.08
12/85	3,685	14,796	24.91	7	1,412	0.50	21.88	47.50	46.07	103.59	2,933.22	3.53
12/86	3,513	14,668	23.95	5	1,510	0.33	19.90	44.31	44.90	101.75	3,174.34	3.21
12/87	3,337	14,186	23.52	7	1,542	0.45	19.51	43.86	44.48	99.19	3,259.51	3.04
12/88	3,241	13,613	23.81	9	1,599	0.56	20.12	45.74	44.00	98.84	3,412.54	2.90
12/89	3,174	13,196	24.05	8	1,685	0.47	21.34	47.85	44.60	101.29	3,475.59	2.83
12/90	3,093	12,815	24.14	11	1,699	0.65	22.70	50.65	44.82	106.77	3,647.83	2.93

Table 8.3
Total Deposit Insurance Fund Losses
and Average Loss per Bank, 1980–1990
(\$Millions)

Year	Total Deposit Insurance Fund Losses	Average Loss per Bank
1980	\$ 30.59	\$ 2.78
1981	776.16	77.62
1982	1,148.28	27.34
1983	1,425.12	29.69
1984	1,494.91	18.69
1985	1,007.70	8.40
1986	1,724.53	11.89
1987	2,020.68	9.95
1988	6,871.88	31.09
1989	6,123.14	29.58
1990	2,813.17	16.65

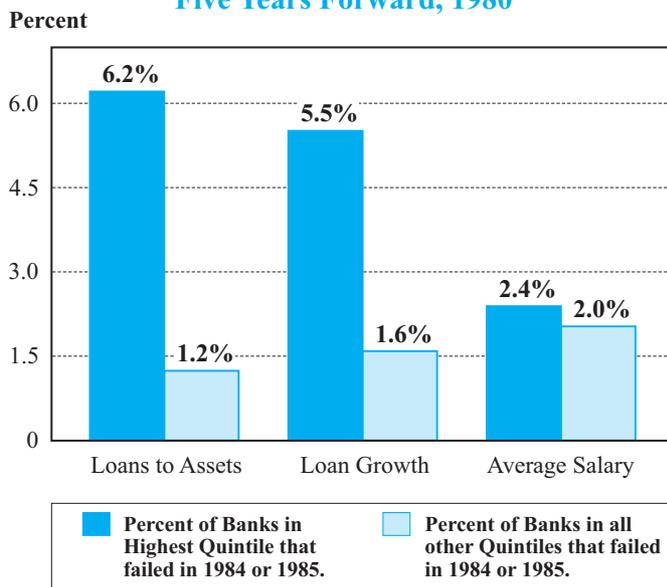
bank from 1984 through 1986: 105 farm banks failed in 96 different agricultural counties. Had the farm bank failures primarily reflected conditions in the local agricultural economy, a pronounced geographic clustering would have appeared. Moreover, research related to these bank failures demonstrated that at the approximate peak of farmland prices in 1981, farm banks that later failed had significantly higher ratios of total loans to assets than did other banks in the same counties. These findings suggest that total loans-to-assets ratios of farm banks are important to the assessment of failure risk.⁵⁵

To determine which factor is the best long-range predictor of agricultural bank failure, researchers studied eight measures of bank risk. The eight measures were (1) loans-to-assets ratio, (2) return on assets, (3) asset growth from the previous year, (4) loan growth from the previous year, (5) operating expenses to total expenses, (6) average salary expenses, (7) in-

⁵⁵ Belongia and Gilbert, “The Effects of Management Decisions,” 902. A high loans-to-assets ratio by itself would not necessarily indicate a problem bank because not all banks with high ratios failed or became problem banks. Agricultural banks with elevated loan ratios that diversified their loan portfolios and maintained rigorous underwriting standards, including performing thorough cash-flow analysis on their borrowers, might have been safer than those with lower ratios that did neither. It should be noted that banks in most agricultural areas cannot effectively diversify their loan portfolios. Loans to farm-implement dealers or to the local feed store probably have risks related to agricultural prices that are similar to the risks inherent in farm loans.

terest on loans and leases, and (8) interest plus fees on loans and leases.⁵⁶ To assess whether timing or various risk factors affected agricultural banks, the researchers studied two sets of banks, one each in two different time periods. The first group included all agricultural banks that existed in 1980 and either failed in 1984 or 1985 or never failed; the second group included all agricultural banks that existed in 1982 and either failed in 1986 or 1987 or never failed. In each set, each bank was ranked from high to low within each financial ratio. The ranked banks were then divided into five groups, and each of these smaller groups was analyzed for each risk measure to determine which measure was the best predictor of failure. For both of the specified periods, banks in the highest loans-to-assets group had the highest probability of failure, a finding that confirmed previous research. For the 1980 banks, the highest loans-to-assets group had a failure rate of 6.2 percent, over five times as high as the failure rate for the rest of the agricultural banks (see figure 8.8). For the 1982 banks, the

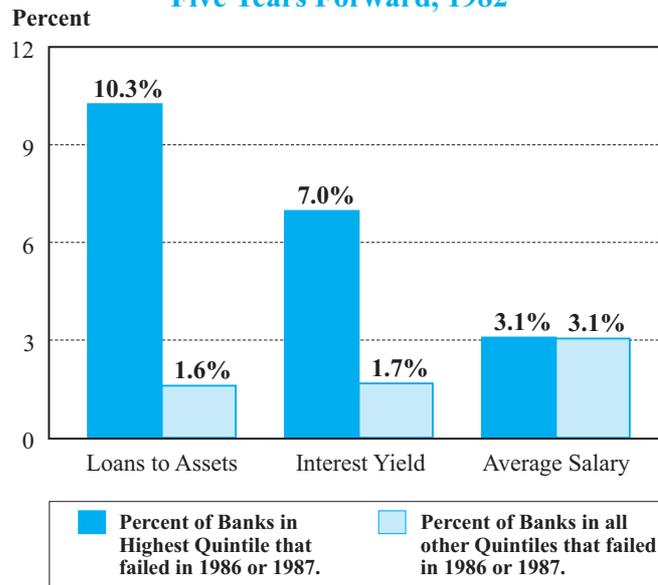
Figure 8.8
Comparison of Selected Factors in Predicting
Agricultural Bank Failures Four and
Five Years Forward, 1980



Note: These three factors represent the two highest risk factors (left and center) and the lowest risk factor (right) in predicting bank failures.

⁵⁶ For a complete description of this analysis, see Chapter 13, the section entitled “Analysis by Risk Groups.”

Figure 8.9
Comparison of Selected Factors in Predicting
Agricultural Bank Failures Four and
Five Years Forward, 1982



Note: These three factors represent the two highest risk factors (left and center) and the lowest risk factor (right) in predicting bank failures.

highest loans-to-assets group had a failure rate of 10.3 percent, more than six times as high as the remaining agricultural banks (see figure 8.9). Because the proportion of loans to assets can be largely controlled through decisions made at each bank, management prudence with regard to risk, to underwriting standards, or to the concentration of agricultural lending apparently could have improved the probability that a bank would survive.

Analysis of Agricultural Bank Data

The geographic pattern of farm bank failures and the ratio analysis indicate that management decisions were the crucial determinants of bank survival. At the same time, it is apparent that the agricultural problems of the 1980s caused the failures of many banks that might otherwise have continued to operate. The adverse effect of the weakening farm economy on agricultural banks is clearly evident in the sharp increase in these banks' levels of

nonperforming loans and the deterioration of their CAMEL ratings.⁵⁷ Nevertheless, for most agricultural banks the statistics related to capital and profitability continued to be favorable, which is another fact suggesting that more-conservative management practices could have prevented many failures.

The CAMEL ratings of agricultural banks generally mirrored the slumping farm economy (see tables 8.4a and 8.4b). For example, among all agricultural banks, the proportion of CAMEL 1-rated agricultural banks declined steadily between year-end 1981 and year-end 1986, from 43.8 percent to 20.8 percent. Similarly, during the same period the percentage of 4-rated banks among all agricultural banks increased from 0.9 percent to 13.7

Table 8.4a
CAMEL Ratings for All Agricultural Banks, 1981–1990

Report Date (Year-end)	Number of Agricultural Banks/Percentage of Total					Total
	CAMEL Ratings					
	1	2	3	4	5	
1981	1,858 43.8	2,184 51.5	164 3.9	36 0.9	3 0.1	4,245 100%
1982	1,691 40.5	2,118 50.8	281 6.7	72 1.7	9 0.2	4,171 100
1983	1,501 36.4	2,039 49.5	426 10.3	133 3.2	21 0.5	4,120 100
1984	1,265 32.5	1,752 45.0	563 14.5	283 7.3	34 0.9	3,897 100
1985	936 25.6	1,556 42.5	689 18.8	424 11.6	54 1.5	3,659 100
1986	727 20.8	1,483 42.4	735 21.0	477 13.7	73 2.1	3,495 100
1987	683 19.8	1,669 48.3	685 19.8	342 9.9	74 2.1	3,453 100
1988	726 22.0	1,742 52.7	558 16.9	234 7.1	46 1.4	3,306 100
1989	758 24.0	1,765 55.8	438 13.8	167 5.3	36 1.1	3,164 100
1990	818 26.5	1,714 55.6	388 12.6	135 4.4	28 0.9	3,083 100

Note: Examination ratings were obtained from the FDIC's historical database. In some instances examination ratings were missing; however, from 92 to 99 percent of banks' ratings were in the database. As a result, the number of CAMEL-rated banks each year was slightly smaller than the total number of agricultural banks in other tables.

⁵⁷ The CAMEL rating system refers to capital, assets, management, earnings, and liquidity. In addition to a rating for each of these individual or "component" categories, an overall or "composite" rating is given for the condition of the bank. Banks are assigned ratings between 1 and 5, with 5 being the worst rating a bank can receive. See Chapter 12 for a detailed explanation of CAMEL ratings.

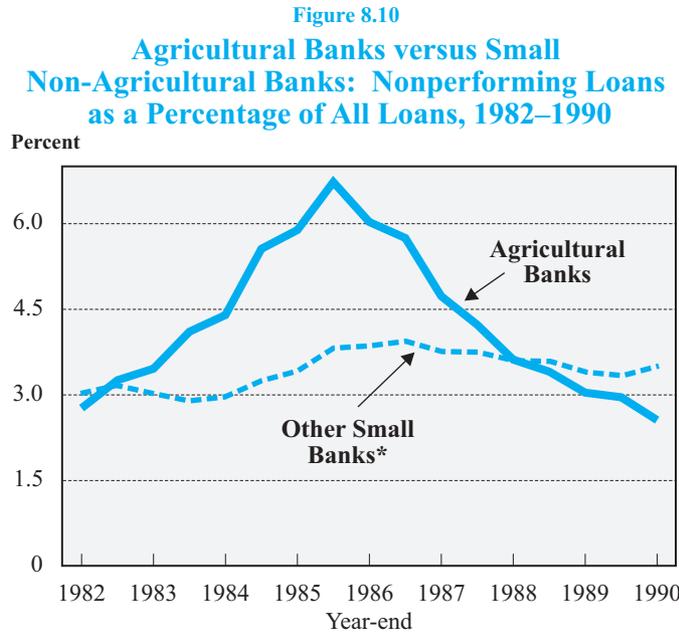
Table 8.4b
CAMEL 4- and 5-Rated Institutions, Agricultural Banks
versus Small Non-Agricultural Banks, 1981–1990

Report Date (Year-end)	Number of Banks/Percentage of Total		Total
	Agricultural Banks	Small Non-Agricultural Banks	
1981	39	142	181
	21.5	78.5	100%
1982	81	294	375
	21.6	78.4	100
1983	154	402	556
	27.7	72.3	100
1984	317	454	771
	41.1	58.9	100
1985	478	604	1,082
	44.2	55.8	100
1986	550	745	1,295
	42.5	57.5	100
1987	409	744	1,153
	35.5	64.5	100
1988	278	702	980
	28.4	71.6	100
1989	203	671	874
	23.2	76.8	100
1990	163	655	818
	19.9	80.1	100

Note: Small non-agricultural banks are defined as those with less than \$100 million in assets.

percent. By mid-1987, both measures had begun what would turn out to be a steady improvement. The percentage of agricultural banks among *all* 4- and 5-rated banks also reflected the farm economy (table 8.4b): at year-end 1981, only 21.5 percent of all 4- and 5-rated banks were agricultural banks, but this ratio rose steadily until year-end 1985, when the comparable figure was 44.2 percent. In absolute numbers, in 1981 only 39 agricultural banks were 4 and 5 rated; in 1986, 550 were. From 1986 to the end of the decade, both the percentage and the number of 4- and 5-rated agricultural banks declined steadily.

A primary cause of the deterioration in agricultural bank CAMEL ratings was a rapid rise in the nonperforming loans of agricultural banks (see figure 8.10). Between year-end 1982 and midyear 1986, nonperforming loans as a percentage of all loans at agricultural banks went from 2.8 percent to 6.7 percent. The percentage then declined steadily, reaching 2.6 percent at year-end 1990. In contrast, for other *small* banks (defined as those with less



than \$100 million in assets) the ratio of nonperforming loans was relatively constant between 1982 and 1990, reaching a low of 2.9 percent in 1984 and a high of 3.9 percent in mid-1987.

Despite the severe problems many agricultural banks had in the 1980s, by certain aggregate measures agricultural banks actually compared favorably with small non-agricultural banks (see table 8.5). For example, every year from 1979 through 1990 the median ratio of equity to assets for agricultural banks exceeded that of other small banks.⁵⁸ In addition, profitability ratios of agricultural banks were equivalent to or higher than the ratios for other small banks: the median return on assets was higher for agricultural banks than for small non-agricultural banks in 10 of the 12 years from 1979 through 1990, while the median return on equity was higher in 8 of those 12 years.

More significantly, when we compare agricultural and small non-agricultural banks in terms of the percentage that incurred losses in the 1980s, we find that for agricultural banks the percentage was far lower (see figure 8.11)—only in 1985 did the percentage of agricul-

⁵⁸ It is noteworthy that the equity-to-assets ratio for agricultural banks was quite stable during the agricultural downturn of the 1980s. This stability is probably due to the fact that many agricultural banks with relatively low ratios of equity to assets had failed.

Table 8.5
Median ROA, ROE, and Equity Ratios, Agricultural Banks versus Small Non-Agricultural Banks, 1979–1990

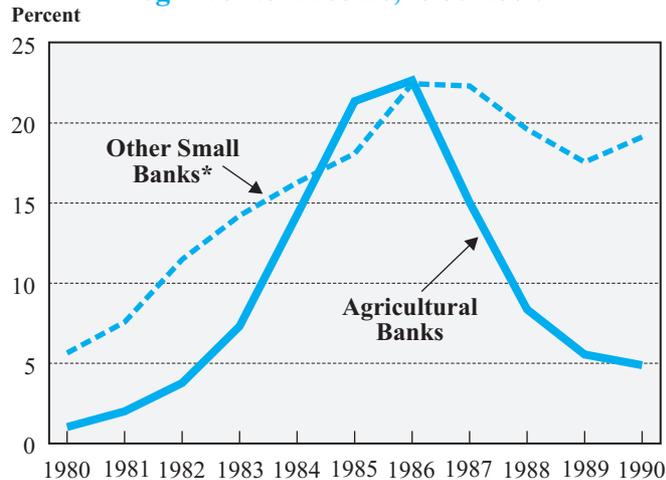
Report Date (Year-end)	Number of Banks		ROA		ROE		Equity to Assets	
	Ag. Banks	Small Non-Ag.	Ag. Banks	Small Non-Ag.	Ag. Banks	Small Non-Ag.	Ag. Banks	Small Non-Ag.
1979	4,365	8,584	1.24	1.05	14.40	13.14	8.43	8.04
1980	4,316	8,543	1.31	1.05	14.82	12.63	8.66	8.24
1981	4,214	8,471	1.30	1.02	14.42	12.07	8.71	8.25
1982	4,107	8,416	1.22	0.99	13.46	11.83	8.86	8.26
1983	4,064	8,238	1.12	0.93	12.03	11.41	8.98	8.16
1984	3,918	8,236	0.93	0.90	10.01	10.98	8.87	8.10
1985	3,685	8,241	0.83	0.90	8.91	10.83	8.83	8.14
1986	3,513	7,911	0.70	0.78	7.59	9.47	8.67	7.96
1987	3,337	7,615	0.80	0.75	8.52	8.99	8.74	8.07
1988	3,241	7,083	0.94	0.78	9.91	9.30	8.89	8.10
1989	3,174	6,735	1.01	0.84	10.47	9.73	9.01	8.21
1990	3,093	6,360	0.97	0.78	10.21	9.04	8.88	8.15

Note: Small non-agricultural banks are defined as those with less than \$100 million in assets.

tural banks significantly exceed that of small non-agricultural banks. And whereas the proportion of agricultural banks with negative net income rose dramatically from 1980 through 1986 (consistent with the deterioration in the farm economy) and declined sharply after 1986 (as the farm economy gradually improved), the proportion of small non-agricultural banks with negative net income not only increased rapidly through 1986 but also remained high through 1990.

Data on equity and reserves to assets also demonstrate that the majority of agricultural banks were in sound financial condition during the 1980s (see tables 8.6a and 8.6b). From 1979 through 1983, an average of 21.8 percent of agricultural banks had a ratio of equity and reserves to assets exceeding 11 percent. From 1984 through 1987 the average proportion of agricultural banks with such ratios increased to 29.1 percent, even with agricultural bank failures constituting a large percentage of all bank failures. These figures are quite favorable when compared with data for other small banks: the measures for the same periods for such banks were 18.7 percent and 21.1 percent. In addition, throughout the 1980s at least 30 percent of agricultural banks had a ratio of equity and reserves to assets of between 9 and 11 percent, and the proportion of such banks in that category held steady: from year-end 1979 through 1983 it averaged 32.6 percent, and from 1984 through 1987, 32.0 percent. In contrast, less than 27 percent of other small banks had ratios of equity and reserves to assets of 9 to 11 percent each year. Finally, the percentage of agricultural banks with very low

Figure 8.11
Agricultural Banks versus Small Non-Agricultural Banks: Percentage of Institutions with Negative Net Income, 1980–1990



*Small banks are banks with assets of less than \$100 million.

ratios (less than 5 percent) of equity and reserves to assets was minimal before the wave of agricultural bank failures, never exceeding 0.4 percent of all agricultural banks from 1979 through 1984. In contrast, for other small banks during the same period this ratio ranged from 0.7 percent to 1.4 percent. Such patterns indicate that low capital ratios were not a significant contributor to the large number of agricultural bank failures after 1983. The percentage of agricultural banks with less than 5 percent equity and reserves to assets rose after 1984, following the downturn in the farm economy, and reached a peak of 2.0 percent in 1987. In comparison, the ratio for other small banks peaked at 3.9 percent in 1988.

Conclusion

Agriculture prospered in the 1970s. Real farm incomes reached historical highs, farm exports increased sharply, and long-term prospects were believed to be excellent. An important component of the agricultural boom of the 1970s, and one that had a significant effect on the problems of the 1980s, was the escalating value of farm real estate. In order to invest in or purchase farm real estate, farmers assumed a substantial amount of debt. Because many agricultural bankers continued basing their farm loans on collateral value rather

Table 8.6a
Equity and Reserves to Assets of Agricultural Banks, 1979–1990

Report Date (Year-end)	Number of Banks/Percentage of Total					Total
	Equity Capital and Reserves to Total Assets					
	<5.0	5.0–7.0	7.0–9.0	9.0–11.0	> 11.0	
1979	7	278	1,991	1,321	768	4,365
	0.2	6.4	45.6	30.3	17.6	100%
1980	4	202	1,799	1,446	865	4,316
	0.1	4.7	41.7	33.5	20.0	100
1981	4	199	1,744	1,372	895	4,214
	0.1	4.7	41.4	32.6	21.2	100
1982	6	201	1,551	1,395	954	4,107
	0.2	4.9	37.8	34.0	23.2	100
1983	17	200	1,433	1,324	1,090	4,064
	0.4	4.9	35.3	32.6	26.8	100
1984	17	176	1,349	1,276	1,100	3,918
	0.4	4.5	34.4	32.6	28.1	100
1985	28	179	1,179	1,213	1,086	3,685
	0.8	4.9	32.0	32.9	29.5	100
1986	68	244	1,123	1,109	969	3,513
	1.9	7.0	32.0	31.6	27.6	100
1987	66	185	1,022	1,026	1,038	3,337
	2.0	5.5	30.6	30.8	31.1	100
1988	54	141	935	1,014	1,097	3,241
	1.7	4.4	28.9	31.3	33.9	100
1989	34	118	873	1,023	1,126	3,174
	1.1	3.7	27.5	32.2	35.5	100
1990	24	132	979	916	1,042	3,093
	0.8	4.3	31.7	29.6	33.7	100

than on cash-flow analysis, farm debt rose in tandem with soaring real estate values, even though farm income levels were frequently insufficient to support the higher debt burdens.

The optimism of the early and middle 1970s came to an end late in the decade as interest rates soared and foreign demand for domestic agricultural products declined. Real farm income fell rapidly, as did farm real estate values. Many banks with a large proportion of farm loans were adversely affected by the downturn in the farm economy, and the number of agricultural bank failures increased dramatically in 1984 and 1985 and remained high through 1987, before rapidly declining. Fortunately, because these institutions were small, deposit insurance fund losses were relatively low even when the proportion of agricultural bank failures was at its highest levels.

Table 8.6b
Equity and Reserves to Assets of Small Non-Agricultural Banks, 1979–1990

Report Date (Year-end)	Number of Banks/Percentage of Total					Total
	Equity Capital and Reserves to Total Assets					
	<5.0	5.0–7.0	7.0–9.0	9.0–11.0	> 11.0	
1979	67	1,209	3,813	2,092	1,403	8,584
	0.8	14.1	44.4	24.4	16.3	100%
1980	62	978	3,667	2,285	1,551	8,543
	0.7	11.5	42.9	26.8	18.2	100
1981	80	979	3,588	2,231	1,593	8,471
	0.9	11.6	42.4	26.3	18.8	100
1982	99	995	3,482	2,154	1,686	8,416
	1.2	11.8	41.4	25.6	20.0	100
1983	112	1215	3,272	1,976	1,663	8,238
	1.4	14.8	39.7	24.0	20.2	100
1984	110	1,127	3,357	1,929	1,713	8,236
	1.3	13.7	40.8	23.4	20.8	100
1985	115	959	3,372	2,045	1,750	8,241
	1.4	11.6	40.9	24.8	21.2	100
1986	188	1,104	3,117	1,904	1,598	7,911
	2.4	14.0	39.4	24.1	20.2	100
1987	246	838	2,971	1,883	1,677	7,615
	3.2	11.0	39.0	24.7	22.0	100
1988	275	717	2,728	1,771	1,592	7,083
	3.9	10.1	38.5	25.0	22.5	100
1989	217	642	2,510	1,750	1,616	6,735
	3.2	9.5	37.3	26.0	24.0	100
1990	183	597	2,416	1,612	1,552	6,360
	2.9	9.4	38.0	25.4	24.4	100

Most of the agricultural bank failures occurred in the Midwest, not only because of the concentration of the agricultural industry in those states but also because the crops produced in those states were greatly affected by the export boom of the 1970s. It should be noted, however, that despite the sharp increase in the number of agricultural bank failures, most such banks did not fail. Because agricultural bank failures were widely spread across many midwestern counties, local economic conditions apparently did not play a significant role in causing these failures; rather, it appears that agricultural banks with the highest loans-to-assets ratios were more likely to fail than those that pursued more conservative lending strategies.

After the downturn in the farm economy of the 1980s, agricultural banks recovered, but this does not necessarily mean they will be immune to a similar episode in the future. Almost by definition, such institutions lack diversification in their loan portfolios. A 1996

study by two Federal Reserve economists found that agricultural banks had not greatly diversified their credit risk and that although the number of banks with high ratios of agricultural loans to total loans had decreased, many agricultural banks were continuing to invest very significant proportions of their loans in agriculture. Moreover, as of 1994 most agricultural banks were still within small banking organizations that accounted for approximately two-thirds of total agricultural loans by agricultural banks. By not affiliating themselves with larger banking organizations, banks with the greatest exposure to the agricultural sector had not reinforced their ability to withstand a downturn in the sector.⁵⁹

On the other side of the coin, there are suggestions that agricultural banks and farmers were chastened by their experiences in the 1980s. In the mid-1990s bankers often required larger down payments on loans, and performed extensive analyses to determine if a borrower could generate sufficient cash flow to meet loan payments. Moreover, some banks became reluctant to permit farmers to use the rising value of their land to increase their borrowing power. As an Iowa bank president declared in early 1996, “We’re not going to lend on a grain rally that could be a flash in the pan.” Some farmers, too, have learned from the past: An Iowa farmer stated that “in the 1970s we concentrated on producing crops. Now it’s the financials I worry the most about. We need the computer to figure our cash flows.” Another noted that “a lot has changed since the 1970s. We don’t do things by the seat of our pants anymore.”⁶⁰ But despite such developments and the small size of agricultural banks—both of which make such banks seem less of a threat to the Bank Insurance Fund than larger banks with a comparable lack of diversification—the large number of agricultural banks warrants continued regulatory concern.

⁵⁹ Kleisen and Gilbert, “Are Some Agricultural Banks Too Agricultural?” 30–32.

⁶⁰ All the quotations in this paragraph are reported in Kilman, “High Grain Price,” A.1. Kleisen and Gilbert, however, note that although agricultural banks responded to the problems of the 1980s by increasing lending collateral requirements, by 1994 requirements had fallen back to the levels of the mid-1970s, a trend the authors see as “inconsistent with the argument that these banks have changed their lending practices to reduce . . . credit risk” (“Are Some Agricultural Banks Too Agricultural?” 31).