Taking Stock of the Farm Credit System: Riskier for Farm Borrowers

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On November 9, 1984, two farm lending cooperatives in Nebraska announced that they were freezing the stock that their borrowers must hold in them. Several years of low farm income had caused many of the co-ops' borrowers to fall behind in their debt payments, and losses on these loans had depleted the co-ops' financial reserves. As a result, the co-ops had to suspend their normal procedures for buying back at its original price the stock of those who paid off their loans. Instead, the co-ops were to be liquidated, and the stockholders were eventually to receive their share of whatever assets remained after the co-ops' debts were paid. By December 1985, these liquidations still weren't complete, so stockholders still didn't know how much they will receive.

Though the failed Nebraska co-ops were relatively small, their problems concerned farmers across the United States. The co-ops were two of hundreds of local farm lending cooperatives in the nationwide Farm Credit System (FCS), whose farm loan portfolio of over $60 billion makes it the nation's largest farm lender. The stock freeze at the two Nebraska co-ops thus reminded hundreds of thousands of farmers who bought stock in FCS co-ops in order to borrow from them that this stock might be at risk. Furthermore, that risk may have seemed to be growing, because the farm depression largely responsible for the liquidations seemed to be worsening. The following summer, in fact, the system's chief regulator publicly questioned whether the FCS, and thus the value of its stock, could be preserved without federal assistance (McCoy 1985b).

The farmers' worries, in turn, aggravated the system's problems. Stories began circulating that fear of losses on their stock was causing farmers to try to pay off their co-op loans early in order to redeem their stock at full price. Of course, this effort is most feasible for the system's financially strongest borrowers, those with the liquidity to finance themselves or the wealth and earning power to easily obtain financing from other lenders. The effect of such an exodus from the FCS would be a decline in both the size and quality of the system's already troubled loan portfolio. By some accounts, this exodus has been occurring. For example, most of the agricultural bankers surveyed by the American Bankers Association in mid-1985 reported getting requests for refinancing from FCS borrowers, and one of the main reasons given for those requests was the farmers' concern that FCS stock "might not be recoverable" (Herr 1985, p. 6). On average, banks reporting such requests received 13 of them, but granted only 2 or 3—presumably those of financially healthy FCS borrowers.

Despite reports that concern about taking losses on FCS stock is driving some financially strong farmers out of the system, the number of FCS borrowers who have actually lost money on their stock remains very small. Therefore, skeptics might wonder whether farmers' worries about this stock significantly affect their decisions about where to borrow. Such skeptics must acknowledge, though, that the system's farm loan portfolio has declined in size and quality recently, and they might even agree that the decline has been greater among FCS co-ops than

among farm banks. They could still counter, however, that most of the decline in the system's portfolio has probably been caused by other factors—the lost size, by the overall decline in farm borrowing, the increase in federal government farm lending, and the more competitive interest rates offered by farm banks; the lost quality, by that rate competition and, mostly, by the general depression of farm income and asset values.

Here I won't try to either support or rebut these skeptical views. I agree that much, and perhaps most, of the decline in the system's farm loan portfolio can be explained without regard to the risk of loss on FCS stock. Furthermore, even rough estimates of how much this risk has actually risen and thus contributed to the decline in the system's portfolio depend on factors that I will not analyze in depth, such as the size of FCS capital reserves and problem loans, their distribution among FCS co-ops and the workability of arrangements to share them among co-ops, the federal government's willingness to extend financial aid to the system, and farmers' views of the riskiness of co-op stock. What I will do here is demonstrate that the FCS portfolio has in fact declined with farmers' fortunes recently and try to explain in detail both how an increase in the riskiness of FCS stock has played at least a small part in reinforcing the decline and how its role could be larger under certain circumstances. That possibility raises the question of how the system's portfolio declines should be responded to by the FCS, its regulators, and the federal government (which recently established procedures to aid this commercial lender). I will therefore conclude by explaining why that is a difficult question, one involving the fundamental issue of how risk is shared in these co-ops.

The Fortunes of Farmers and Their Lenders

The basic business of the FCS is to sell its securities in the money market and lend the proceeds to its stockholders, or members, who are mostly farmers. In the 1970s that business was prosperous, and the FCS was able to significantly enlarge its loan portfolio with apparently no serious increase in problem loans. In the 1980s, however, the system's business soured, as depressed prices for farm products and assets led to widespread losses on agricultural loans. Partly as a result, the FCS portfolio of farm loans declined in size and quality.

A Network of Farm Lending Co-ops

As a group, U.S. farmers are big borrowers. At the end of 1985, they collectively owed $194 billion, much more than the foreign debts of well known borrowing countries like Argentina or Brazil (Melichar, forthcoming).[1] A bit more than half of this debt consists of loans secured by first mortgages on farm real estate. Non–real estate debt is backed primarily by nonland physical capital (equipment or livestock, for example), the debtor's capacity to generate income (from either farm assets or off-farm employment), and second and third mortgages on farm real estate. Besides their individual businesses, farmers also own many agricultural processing and marketing co-ops, which are also deeply in debt (Ginder, Stone, and Otto, undated).

Again, farmers' single biggest source of credit is the FCS. At the end of 1985, it held $61 billion, or almost one-third, of their debt (Melichar, forthcoming). The FCS provides both real estate and non–real estate credit to both farmers and farm co-ops across the nation. It is divided along functional and geographic lines, with separate real estate, non–real estate, and farm co-op lending organizations in each of 12 FCS districts. (See the accompanying chart.)

Farm real estate lending is the system's primary activity. Each of the 12 FCS districts has a Federal Land Bank to make loans, mostly to farmers, that are secured by first mortgages on farm and rural real estate. The land banks operate through hundreds of local Federal Land Bank Associations that process and provide advice on farmers' loans. As of December 1985, the 12 land banks held over $45 billion in real estate loans to farmers, or about 74 percent of the system's total farm loan portfolio and 42 percent of farmers' total real estate debt (Melichar, forthcoming).

All of these FCS real estate lenders are directly or indirectly borrower-owned co-ops. To get a mortgage from a Federal Land Bank, a farmer typically agrees to use 5 percent of the loan to buy nontransferable voting stock in the farmer's local Federal Land Bank Association. That association then buys an equal amount of stock in the district's land bank, which entitles the association's directors to participate in the election of the FCS district board of directors.

Non–real estate lending to farmers is the system's second biggest activity, and it, too, is done by borrower-owned co-ops. FCS non–real estate loans are both processed and made primarily at the local level by hundreds of Production Credit Associations. The associations in each FCS district get most of the funds they lend by borrowing from the district's Federal Intermediate

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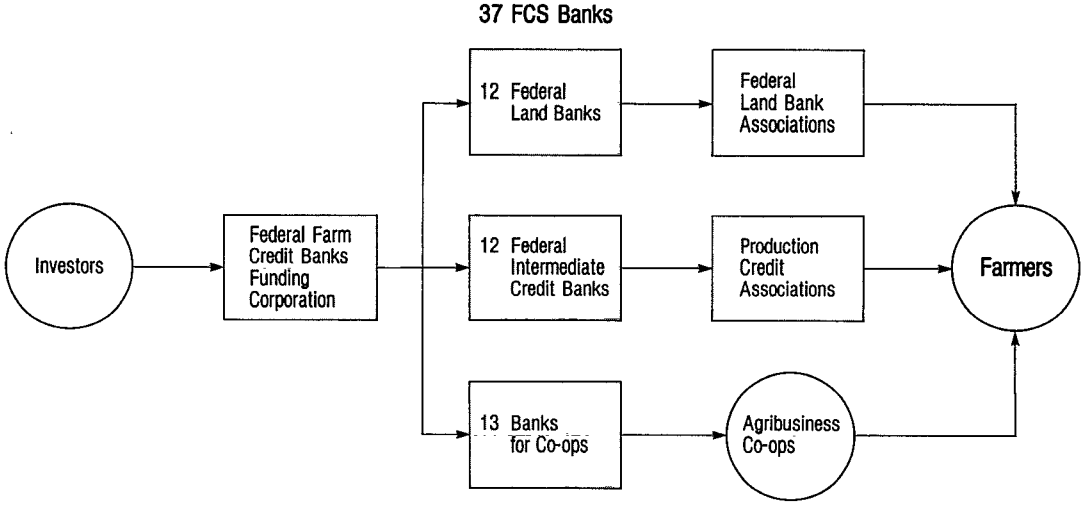
[1] At least 10 percent of the debt I am attributing to farmers is actually held by farm landlords rather than active farmers.

How the Farm Credit System Lends to Farmers



Credit Bank. Borrowers from a Production Credit Association must buy an amount of nontransferable voting stock in the association equal to at least 5 percent (and often 10 percent) of their loan, and that association then buys stock in its district intermediate credit bank and can participate in the election of the FCS district board. As of December 1985, the Production Credit Associations held $15 billion in non–real estate loans to farmers, or about 25 percent of the system's total farm loan portfolio and 17 percent of farmers' total non–real estate debt, excluding price support loans (Melichar, forthcoming).

The FCS also lends to other farm co-ops and to nonfarmers and nonfarm businesses (including banks) in rural areas. In each FCS district, the loans to other farm co-ops are made by the district Bank for Cooperatives and the national Central Bank for Cooperatives.

All the FCS banks fund their loans mainly through the sale of bonds and notes to investors worldwide. The sale of these securities is managed by the Federal Farm Credit Banks Funding Corporation, which acts as the system's fiscal agent. The FCS raises most of its funds through the sale of Federal Farm Credit Banks Consolidated Systemwide Bonds. This form of funding is supplemented by Federal Farm Credit Banks Consolidated Systemwide Notes, which are the system's main means of flexible short-term (less than one year) funding. The funds obtained through the sale of these bonds and notes are distributed among the FCS banks. Each bank has the primary responsibility for meeting its share of the scheduled interest and principal payments on the systemwide bonds and notes, but these securities are ultimately backed by the combined financial resources of all the banks. (FCS securities are not obligations of or guaranteed by the U.S. government.) At the end of 1984, outstanding balances of about $62 billion in systemwide bonds and $5 billion in systemwide notes accounted for about 82 and 7 percent, respectively, of the system's total liabilities (FCS 1985a, p. 24).

Although FCS district banks and local co-op associations retain considerable autonomy, a certain degree of nationwide supervision is required by law. All the system's banks are chartered by the U.S. government and now operate under the provisions of the Farm Credit Act of 1971, as amended. Under the most recent amendments, which take effect in January 1986, the nationwide policies and regulations that govern the FCS are set by the Farm Credit Administration Board, whose three members are appointed by the President. Enforcement of the board's policies and regulations and the financial examination of FCS banks and associations are the

responsibility of an independent agency in the executive branch of the government, the Farm Credit Administration. (For a summary of the major provisions of the recent amendments, see the accompanying box.)

Prosperity and Growth in the 1970s

Because the FCS is almost exclusively a farm lender, its financial condition is closely linked to that of its farm borrower-owners. As growth in farmers' income and wealth accelerated in the 1970s, the entire farm lending business expanded too. A variety of factors helped the FCS capture a growing share of this growing market with apparently no serious deterioration in the quality of its loan portfolio.

Real (inflation-adjusted) farm income grew moderately in the 1960s and then jumped in the 1970s. Most of the jump was due to the increased earning power of farmland and other farm assets. That increase was fueled mostly by strong growth in the worldwide demand for the products they were needed to produce.

As the earning power of farm assets increased, so did farmers' willingness to bid for them. The result was rapid growth in farm asset prices and thus in farm wealth and debt. The real value of farm real estate began accelerating in 1972; by 1980 it was 80 percent higher than in 1970 (USDA 1984, Table 81).[2] The real value of all farm assets also rose 80 percent in the 1970s and caught up with income from these assets (Melichar 1985a, Table 101). At the same time, the real value of farm debt rose 70 percent, as farmers borrowed to expand their operations (Melichar, forthcoming). With real capital gains on farm assets totaling over $500 billion and the growth in farm asset values outstripping the growth in farm debt, real farm equity grew 82 percent between 1970 and 1980 (Melichar 1985a, Tables 112 and 101).

The real value of farm debt held by the FCS grew even more in that decade: 127 percent (Melichar, forthcoming). This rapid growth boosted the FCS share of the farm real estate loan market more than 10 percentage points, from 23 percent in 1970 to 35 percent in 1980 (Melichar 1985a, Table 521). Its share of the market for farm non–real estate loans (excluding price support loans) expanded more moderately—from 23 to 25 percent. This gain is still impressive, though, considering that expanded government lending in the period helped cut the market share of all commercial lenders (banks plus the FCS) from 71 to 66 percent of non–real estate farm loans (Melichar 1985a, Table 531).

According to its financial statements, the FCS managed to significantly increase its lending in the 1970s without seriously decreasing the quality of its loans. At Federal Land Banks, for example, loan losses equaled only 0.0003 percent of average outstanding loans in 1971–76 (FCS 1977, p. 5). In the two years after a temporary fall in farm income in 1976, this loss rate climbed as high as 0.025 and 0.008 percent (FCS 1977, 1978), but even these rates were far below the 0.2 and 0.3 percent rates typical on all loans at agricultural banks in the 1970s (Melichar 1984, Table E.1). In 1979–80, after the farm economy had recovered from its mid-decade recession, the levels of the land banks' loan losses were actually negative [collections on loans previously written off as uncollectible exceeded new write-offs (FCS 1980, 1981)].

Several factors helped the FCS expand and safeguard its farm loan portfolio in the 1970s. The overall expansion in farm borrowing, coupled with generally high farm income and rapid appreciation of farm assets, accounts for much of the growth and safety in 1970s farm lending generally. Other factors may explain the increase in the system's market share. One is an increase in the lending authority of Federal Land Banks: the Farm Credit Act of 1971 allowed these banks to lend up to 85 percent of the purchase price of farm real estate, instead of the previous limit of 65 percent of conservatively appraised value. Another factor is the competitive interest rates the FCS charged in the 1970s. The FCS typically used an average-cost-of-funds formula to set interest rates. Since interest rates generally trended upward in the 1970s and the system's liabilities were primarily intermediate- and long-term, this formula led the FCS to set rates that commercial banks found hard to match. Still another factor in the market share increase may be the system's routine access to national money markets. In the 1970s, interest rates in those markets pushed against the maximum rates banks were allowed to pay on deposits. Partly because of that, deposits at rural banks grew more slowly than their loans, particularly in 1976–79. Funding further loans then required attracting funds through nondeposit liabilities, an activity at which the FCS may have been more efficient.

Interest rate movements may also have boosted the quality of the FCS farm loan portfolio in the 1970s. Because the FCS generally charged the same rate to all its

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[2] Some of the data on farm assets and debt I refer to in this paper were adjusted for inflation by me, using the Commerce Department's personal consumption expenditures deflator. Most of the annual data so adjusted are for December 31 or January 1 and were deflated by the average level of the deflator in the adjacent fourth and first quarters. Land values are measured in February or April and were deflated by the first quarter deflator. Quarterly data were deflated by the corresponding quarter's deflator.

borrowers (a traditional co-op practice),[3] banks might have tended to compete by offering interest rates comparable to the system's but only to borrowers better than the average FCS borrower.[4] To the extent that rising interest rates drove an increasing wedge between the cost of funds for banks and for the FCS, banks may have had to restrict their lending to a narrower and narrower group of farmers. This would tend to raise the average quality of the system's loans, as it came to dominate better and better segments of the market.

Depression and Decline in the 1980s

Farmers' gains turned to losses in the first half of the 1980s, an experience that ranks among the worst reversals in American agricultural history. Real farm income, asset values, and debt all peaked and fell in this period. Many of the factors that boosted FCS lending in the 1970s were reversed too. As a result, after 1982, FCS farm lending fell faster than total farm lending and the quality of the system's loan portfolio deteriorated significantly.

Two of the sharpest declines on farmers' financial statements came in two categories: the income attributable to farm assets and the cash flow remaining to farmers and landlords after payment of operating expenses and interest on debt. A comparison of the 1972–79 boom with the 1980–84 bust shows real average gross farm income down only about 6 percent. This moderate decline more than doubles when real noninterest operating expenses (which did not decline) are netted out: cash flow after payment of noninterest operating expenses fell about 14 percent. The decline more than doubles again after deductions of real depreciation (which rose in the 1980s) and real returns attributable to operators' labor and management (which fell less than cash flow after noninterest expenses). The residual—real income attributable to farm assets—fell an extraordinary 36 percent. Alternatively, if real interest payments (which rose 80 percent due to a rise in debt and interest rates) are deducted, the result is roughly a 31 percent decline in cash flow after interest and noninterest expenses (Melichar 1985a, Tables 112 and 122).

As the income earned by farm assets fell in the 1980s, so did the value of those assets. Nationwide, the real value of farm real estate fell 32 percent from 1980 to 1985 (USDA 1984, Table 81; 1985a, Table 1), and by the beginning of 1985, the real value of all farm assets was about 28 percent below its peak five years earlier (Melichar 1985a, Table 411). In many parts of the country, the declines were even steeper.

Falling income and asset values together made many farm loans unpayable and uncollectible. In 1985, even with off-farm sources of income, over 200,000 farms did not generate enough cash to cover both interest payments and typical family living expenses (USDA 1985b, p. iii). Among small commercial banks with large farm loan portfolios, loan losses ballooned from between 0.2 and 0.3 percent of outstanding loans in the 1970s to 1.2 percent in 1984, and they appeared to be expanding further in 1985 (Melichar 1984, Table E.1; 1985b, Table 11).

Problems in paying off and collecting on farm loans eventually led both farmers and their lenders to reduce farmers' indebtedness somewhat. Real farm debt continued to expand through 1981, partly because some farmers' first reactions to the decline in their income was to extend and refinance their loans. Since then billions of dollars of farm loans have been either paid down or written off as indebted farmers have tried to reduce their debt or have gone out of business. At the same time, farmers and their lenders have been more cautious about taking on new debt. As a result, by the end of 1985, real farm debt had dropped 12 percent below its peak at the end of 1981 (Melichar, forthcoming).

FCS lending declined more than that. By the end of 1985, the real value of the system's total farm loan portfolio was down about 19 percent from 1981. Most of the decline was in non–real estate loans; they were down 37 percent. But FCS real estate loans were also down, 9 percent. The system's share of all farm loans (excluding price support loans) fell from its peak value of 34 percent in 1982 to about 31 percent at the end of 1985 (Melichar, forthcoming).

The slippage in the quality of FCS loans was even more dramatic. Net loan losses in just the first nine months of 1985 exceeded 0.4 percent of average loans outstanding, far more than the miniscule loss rates of the 1970s. Furthermore, the system's financial statement for the third quarter of 1985 states that the FCS banks "may be exposed to loan losses aggregating $3.0 billion or more [over 4 percent of September 1985 loan volume] during the 1985–1987 period" (FCS 1985b, p. 12). These

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[3] A notable exception is the system's New England district (headquartered in Springfield, Massachusetts), where FCS lenders have for many years charged higher interest rates to riskier borrowers.

[4] The logic behind this view is that no one who could qualify for an FCS loan would be willing to pay more for a bank loan. Banks would thus have to match the system's effective rate for all borrowers except those too risky for FCS credit (whom banks could either charge a higher rate or, perhaps more likely, refer to the government's Farmers Home Administration loan programs). But since the cost of funds was higher for banks, they couldn't afford to offer this rate to the full range of FCS borrowers and would instead have to limit it to the least risky borrowers.

potential losses have raised questions about the solvency of the FCS and helped push up the interest rates it must pay in order to sell its bonds.

A reversal of many of the factors that helped the FCS loan portfolio grow in the 1970s contributed to its decline in the 1980s. The decline in the volume of FCS farm lending partly reflects the overall decline in farm loans outstanding (including many unpaid loans that lenders partially or totally wrote off). However, special factors are again needed to account for the change in the system's market share. A surge of farm lending by the federal government is one factor. Excluding price support loans, federal farm lending rose from 10 percent of total farm lending at the end of 1979 to over 14 percent at the end of 1985 (Melichar, forthcoming). (When price support loans are included, the federal share rose from 13 to 21 percent over that period.) Falling interest rates in national money markets are another important reason for the recent decline. They reduced banks' marginal cost of funds, bringing it closer to the system's long-term average cost and thus narrowing the spread between farm loan interest rates at banks and FCS co-ops. In addition, as loan growth generally slowed and fell behind deposit growth and banks gained both experience and more regulatory freedom, their problems in obtaining funds for ag lending greatly eased, making them better able to compete with the FCS for borrowers. The decline in the quality of FCS loans is primarily due to the generally reduced farm income and asset values. However, the more competitive interest rates may have been a factor in this as well, because the borrowers best able to leave the system and get bank credit at these more competitive rates are the financially strongest.

The Stock Factor

Although other factors probably account for most of the growth and decline in the FCS farm loan portfolio, the risks and rewards of being a stockholder (as well as a borrower) in this system are probably responsible too. The return on co-op stock is part of the effective cost of borrowing from the FCS. By increasing the chances that the value of FCS stock will fall, the agricultural depression of the 1980s reduced this return and helped raise the cost of FCS loans. And any increase in the cost of these loans tends to reduce both their amount and quality (assuming, of course, that other interest rates don't change).[5] Overall, the increased risk of loss on stock may have affected the system's loan portfolio only a bit, but in some co-ops it may have been, and still may be, much more important.

Complicating the Cost of Borrowing

In a plain, no-strings-attached loan, the total cost of the borrowed funds can be thought of quite simply, as the interest rate times the amount of cash the borrower obtains.[6] The cost of funds borrowed from the FCS is not as easily computed, for they have an important string attached: an FCS borrower must agree to buy at least one $5 share of FCS stock for every $100 borrowed.[7] The borrower cannot sell the stock and remain a borrower. Upon either repayment of the principal of the loan or liquidation of the co-op, the borrower's stock is redeemed, that is, sold back to the co-op.[8] The price the borrower receives is either the original price (*par value*) of $5 per share or the stock's current *book value* (co-op assets minus liabilities, divided by the number of shares), whichever is less.

Because FCS borrowers must also be stockholders, the annual cost of borrowing from an FCS co-op reflects the return on the co-op's stock as well as the interest cost. In fact, the total cost of this borrowing can be decomposed into the interest cost of a plain loan less the return on the stock that must be held to obtain that loan, or

$$\text{Total cost of borrowing} = \text{Effective interest cost} - \text{Return on stock.}$$

For most borrowers, the effective interest component is slightly complicated by the difference between the principal of the loan and the amount of cash the borrower

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[5] The effects of the riskiness of FCS stock on the system's loan portfolio can be viewed as feedback effects that reinforce the decline in its portfolio. That is, the decline in the portfolio is the primary factor and explains why FCS stock is now riskier to own. But that increased risk aggravates the decline in the size and quality of the portfolio.

[6] Here I will analyze the cost of borrowing money for one year only, rather than compute a present value of the cost of borrowing in all future years. In effect, I'm assuming that all farm loans are for exactly one year, that each year borrowers and lenders negotiate completely new loans, with borrowers only concerned about getting the best terms for the coming year and lenders only concerned about accurately evaluating borrowers' financial conditions during that year. This one-year analysis is strictly valid only under the assumption that switching lenders involves no transaction costs or penalties (for example, penalties for prepaying long-term loans). Farm borrowers do face at least some such costs, but these costs don't seem large enough to invalidate my analysis. For example, FCS co-ops generally have not formally differentiated between borrowers based on whether they have been faithful or fickle customers.

[7] This is not unlike the arrangement at many banks in which some borrowers are at least expected, if not required, to also purchase a bank asset, generally a deposit paying a low rate of return.

[8] Production Credit Associations have tended to redeem a borrower's stock steadily, in proportion to the repayment of principal. Federal Land Banks have tended to delay redemption until much or even all of the principal has been repaid, and Production Credit Associations in the system's Omaha district have recently adopted this procedure. Co-op liquidations have been rare. In fact, between 1938 and 1983 only one co-op was liquidated, in 1972 (U.S. Congress 1985).

actually obtains (after also buying stock). For example, if borrowers want the use of $C from the FCS, the stated amount of their loan must be higher. The difference can be thought of as extra borrowings used to buy FCS stock.[9] The total interest cost of the $C obtained is most directly computed from the stated amount of the loan, or

$$\text{Effective interest cost} = [(1 + r)/(1 - s)]C$$

where r is the stated loan interest rate, $[1/(1 - s)]C$ is the stated loan amount, and s is the proportion of the stated loan amount which must be used to buy co-op stock. (The amount of stock bought is thus $[s/(1 - s)]C$.) Alternatively, since $(1 + r)/(1 - s) = 1 + [(s + r)/(1 - s)]$, the interest cost can be viewed as resulting from an effective interest rate of $(s + r)/(1 - s)$ applied to the cash actually obtained, $C.

The borrowing cost's return on stock component itself decomposes into the difference between dividends and capital losses. If d is dividends per dollar of stock held at the beginning of the year, then annual dividends are d times total stock held then, or $d[s/(1 - s)]C$. Dividends, of course, are never negative. If L is the annual percentage decline in the redemption price of co-op stock, then capital losses are L times total stock, or $L[s/(1 - s)]C$. Capital losses also may be zero or positive but never negative. That is, no one realizes gains on co-op stock because it is always purchased (from the co-op) at par and always sold (back to the co-op) at par or less (as when a liquidated co-op turns out to have a subpar book value). The total annual return on stock is, then,

$$\text{Return on stock} = (d - L)[s/(1 - s)]C.$$

The return on stock component further complicates the computation of the cost of FCS borrowing by introducing uncertainty. The interest cost is known when the borrowing decision is made, but the return on stock is not. This means that profit-maximizing farmers will evaluate FCS loans based on the expected total cost of borrowing, which is the effective interest cost, as given above, minus the expected return on stock:

$$\text{Expected return on stock} = E(d - L)[s/(1 - s)]C$$

where $E(d - L)$ is the margin between the dividends and

[9]Though typical, this situation is not universal. A small percentage of borrowers pay interest to the FCS only on the $C because they pay for their stock with funds not borrowed from the FCS.

A New Law for the Farm Credit System

In December 1985, Congress passed and President Reagan signed the Farm Credit Amendments Act of 1985 (Public Law 99-205). This new law is designed to financially strengthen the Farm Credit System (FCS) without excessively burdening either its borrowers or the nation's taxpayers. The law primarily establishes new procedures for handling the system's loan losses, standardizes the regulation and examination of FCS lenders, clarifies and extends the rights of FCS borrowers, and mandates a 1986 study of U.S. agricultural credit markets.

Self-Help

Under the old legislation, a cumbersome procedure had to be followed for a financially healthy FCS lender to help a troubled one. The new law creates a new Farm Credit System Capital Corporation with broad powers to arrange financial aid packages within the system (Title I, Secs. 103, 104).[1] The Capital Corporation can provide funds to FCS banks and associations through loans, purchases of their stock, or outright contributions. At the request of a troubled FCS lender or as a condition for financial aid, the Capital Corporation can purchase problem assets (nonaccrual loans or repossessed properties) "at fair market value" (Sec. 103). In managing these assets, it can renegotiate the terms of loans, sell property, and take action against borrowers. To cover its operating expenses it can assess FCS lenders, and to fund its financial aid packages it can require healthy FCS lenders to contribute or lend to it or buy its stock. In so doing, however, the Capital Corporation cannot force these lenders to draw on their stock or loan loss reserves, and it must not weaken them to the point that they could not provide credit to "eligible borrowers on reasonable and competitive terms" (Sec. 103).[2]

To prevent the Capital Corporation from evolving into a nationwide agricultural bank, its authority is expressly directed toward helping the FCS through its current difficulties. The corporation's authority to initiate financial aid packages expires on December 31, 1990.

Federal Help

The old law severely limited the financial aid that the federal government could offer troubled FCS lenders. The new law relaxes those limits somewhat by allowing federal aid to be

channeled through the Capital Corporation (Title I, Sec. 103). Under certain conditions, the Secretary of the Treasury is authorized (but not required) to purchase obligations of the corporation, up to an amount appropriated by Congress. The conditions are basically that

- The FCS needs "financial assistance to address financial stress" of its lenders.
- The system has already "committed" its surplus capital (all but its members' stock) and loan loss reserves "to address" that stress.
- "The salaries and benefits of the senior executive officers" of FCS banks have been frozen.
- The FCS has used its surplus capital and loan loss reserves to the extent that further contributions or loan losses will likely prevent system lenders "from making credit available to eligible borrowers on reasonable terms."

Regulation

Previously the Farm Credit Administration faced a potential conflict of interest because it both regulated and helped manage the FCS. Furthermore, this agency lacked some powers of other financial regulators. The new law makes the agency a more independent and powerful regulator (Title II).

The new law separates the Farm Credit Administration from the Farm Credit System. The agency's new board will be appointed by the President, with no formal input from the FCS. The agency will give up its management responsibilities and concentrate on regulating the FCS.

The new law strengthens the Farm Credit Administration as a regulator by giving it some powers similar to those of the Federal Reserve System and the Comptroller of the Currency. To enforce its regulations, the agency now can issue cease and desist orders to FCS lenders and managers and remove managers who violate those orders. It can arrange mergers for failing FCS banks and associations and appoint receivers to liquidate them. It (rather than the FCS) now directly examines all FCS lenders and must require them all to have their annual financial statements audited by an independent auditor. It sets standards for FCS financial performance, such as capital levels, interest rates on bonds and loans, and dividends and patronage refunds.

Borrower Protection

The financial stress shared by the FCS and its borrowers has sometimes led to grievances. The new law tries to address some borrowers' complaints by mandating that the FCS offer its customers more information and that the FCS and its regulator develop new procedures for reaching credit decisions (Title III).

For loans not already covered by the Truth in Lending Act, FCS lenders must now tell borrowers more about the interest rate as well as the amount, frequency, and criteria by which variable interest rates may change. To clarify the effects of FCS stock ownership, the system must also disclose "the effect, as shown by a representative example or examples, of the required purchase of stock . . . on the effective rate of interest" (Sec. 301b).

In addition, new procedures must be established for handling farmers with credit problems. The Farm Credit Administration must provide FCS lenders with a written policy on the standards its examiners will use to judge the soundness of their loans. FCS lenders must set up semi-independent review committees to which farmers who are denied credit can appeal.

A Study

Finally, the new law suggests that further changes in the nation's farm lending system are not far away. The law (Title V) creates a National Commission on Agricultural Finance, consisting of 15 volunteers that represent "the financial community, the agricultural sector, and government" (Sec. 501a). The commission is to study "methods to ensure the availability of adequate credit to agricultural producers and agribusiness, taking into account the long-term financing needs of the agricultural economy; the roles of the commercial banks, the Farm Credit System, and the Farmers Home Administration" (Sec. 501b). By the end of 1986, the commission must report to Congress the results of its study and its "recommendations for legislation providing for a sound, reasonable, and primarily self-supporting credit program for farmers" (Sec. 501d).

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[1] The legislation terminates a much weaker Farm Credit System Capital Corporation.

[2] Accounting principles should prevent healthy FCS lenders from padding their loan loss reserves in order to evade contributions to the Capital Corporation.

the losses per dollar of stock that the borrower expects in the coming year.

An increase in the chances of a loss on FCS stock raises the expected total cost of borrowing from the FCS. It does this by increasing the size of $E(L)$, the percentage loss that FCS borrowers expect in the coming year on the co-op stock they must own. That reduces the expected return on FCS stock and raises the total cost of an FCS loan.

Increasing Risk

In the 1970s and early 1980s, the expected return on FCS stock was probably small but positive. In those years, the system's considerable capital surplus and record of only minor loan losses probably made the chances that a co-op would be liquidated at less than par seem remote. Therefore, the expected return on stock was approximately just expected dividends, or $E(d)[s/(1 - s)]C$. From 1976 to 1982, actual dividends paid by FCS banks (including stock as well as cash dividends) ranged between 0.30 and 0.44 percent of average outstanding loans (FCS 1977–83). In the 1970s and early 1980s, expected dividends were probably also within that range, so the expected return on stock probably offset between 0.3 and 0.4 of a percentage point of the effective interest cost of borrowing from FCS co-ops.

Recently, though, the expected return on FCS stock has almost certainly declined. Dividends have fallen from their peak values. In both 1983 and 1984, they equaled about 0.25 percent of loans outstanding (FCS 1984, 1985a), and with the system expecting to post large operating losses in 1985, dividends will probably fall further. Besides that, the system's deteriorating financial condition seems to make the chances of losses on FCS stock less remote. Since mid-1983, 11 Production Credit Associations have entered liquidation. For at least 4 of these, the district Federal Intermediate Credit Bank provided the funds to redeem borrowers' stock at par, but that may not happen for the others. By mid-1985, the magnitude of loan losses already incurred and still likely in the Omaha and Spokane districts helped prod other FCS banks into agreements to transfer funds to those two districts. By October 1985, billions of dollars in system-wide operating and loan losses were projected for 1985–87, and since January the surplus capital of the FCS banks had slipped from 5.3 to 5.1 percent of their loan volume (FCS 1985b). Partly in response, in December 1985, legislation was enacted to ease the transfer of capital from stronger to weaker FCS co-ops and to authorize (but not mandate) government financial aid to the system under certain circumstances (again, see box)—but even this apparently does not preclude capital losses by FCS shareholders.

The actual level of a borrower's expected loss on FCS stock depends on the expected decline in the redemption price of FCS stock and on the amount of stock the borrower owns.[10] For the extreme case where a total loss in the coming year (liquidation with stock redeemed at a zero price) appears certain, the loss would be equivalent to $[s/(1 - s)]100$ percentage points of interest on the borrowed cash. (Recall that s indicates the amount of stock held per dollar of loan principal and the principal of an FCS loan equals cash borrowed plus stock purchased.) Since, according to system rules, s is at least 0.05 (and may be higher), this would add at least 5.2 percentage points to the effective cost of borrowing. Even a 10 percent chance of such a total loss would add at least 0.52 of a percentage point to that cost, enough to exceed the peak rate of dividends and thus probably make the expected return on stock negative.

Estimating this return more precisely is not easy because it varies among individuals and because the system's future financial condition and access to government aid are uncertain. Nonetheless, it seems reasonable to assume that the return is somewhat lower than just a few years ago and that its decline has raised the effective cost of borrowing from the FCS. By so doing, it has made at least a small contribution to the general decline in the size and quality of the system's farm loan portfolio.

The contribution may be more than small, however. Two possible reasons are farmers' attitudes toward risk and toward their co-ops' financial accounts.

The expected return on FCS stock may have fallen only slightly, but even a slight decline could sharply change the behavior of farmers who are very reluctant to take risks. This is because such farmers worry about more than their expected profits. Unlike the profit-maximizing farmers discussed above, these risk-averse farmers highly value behavior that reduces the chance that actual profits will turn out to be less than expected, and they are even willing to reduce their expected profits somewhat in order to reduce their risk. An increase in the chance of a loss on FCS co-op stock thus hits these farmers in two ways. The greater chance of a loss not only reduces the expected return on co-op stock and therefore the borrowers' expected profits; it also raises the risk that actual profits will fall below even that lower level. Measuring only the decline in the expected return on co-op stock thus

[10] Algebraically the expected loss is given by setting the dividend term d to zero in the equation for the expected return on stock and changing the sign of the resulting expression.

understates the increase in these farmers' desire to obtain a less risky source of credit. The greater their aversion to risk, the greater the degree of this understatement.

Another source of understatement is farmers' views of their co-ops' books. In analyzing the expected return on FCS stock, I mainly used official financial statements for the system as a whole. However, these systemwide statements may seriously understate the risk perceived by stockholders in some FCS co-ops. This could happen because a co-op's financial statements are accurate but either weaker than the systemwide average or simply not believed by the co-op's stockholders. It could also happen because a co-op's financial statements are overly optimistic. In fact, some think that is true: The FCS has recently been accused of being slow to officially recognize the problems in its farm loan portfolio and reduce the value of the assets (mainly farm loans) shown on its books (McCoy 1985a; McCoy and Bailey 1985; Dahlman, Rinkey, and Silverman 1985).

Such a delay can create strong incentives to leave the co-op. Any delay in reducing the book value of a co-op's loans merely creates a backlog that is likely to be reduced eventually. This decreases the odds of a loss on co-op stock today but at the cost of increasing those odds tomorrow. If the co-op's borrowers think its accounting has lagged in this way, they may foresee a great risk to their stock if the accounts suddenly catch up with reality. In the meantime, the accounting lag probably means that the co-op still values and hence redeems its stock at par. Borrowers can therefore avoid what may seem like almost inevitable large losses on their co-op stock by quickly paying off their co-op loans and redeeming their stock at par. Once again, however, those most likely to be able to respond are the co-op's financially strongest borrowers. So, by building up the potential for sudden large loan losses, the accounting delays could have made return on co-op stock a major factor in the decline in the size and quality of some co-ops' loan portfolios.

What to Do?

A deteriorating farm loan portfolio has hurt the FCS financially. Considering new loan pricing strategies is an obvious way to try to prevent further losses. However, this might mean moving away from the co-op tradition of treating all members alike. That possibility suggests that risk-sharing in the FCS may be—and may have to be—unequal.

A declining loan portfolio can make a financial institution like the FCS less profitable. The lower volume of lending makes covering its overhead costs more difficult. The lower quality of loans makes loan losses more likely and raises the cost of managing the loans. For the FCS, both of these effects are especially unwelcome now that the cost of the funds it borrows from bondholders has become more sensitive to its financial prospects. In 1985, the interest rate premium demanded by FCS bondholders (relative to the rate on comparable U.S. Treasury debt) rose steeply, from 0.1 of a percentage point to more than 1 percentage point (Taylor 1985). Costlier funds, of course, cut into FCS profits.

One strategy for restoring a co-op's profits is to uniformly raise the interest rates it charges borrowers. A danger in this strategy, of course, is that it might simply lead the co-op's stronger borrowers to find other lenders, thereby further reducing the volume and quality of the co-op's farm loans. For that reason this strategy is more of an option for Federal Land Banks than for Production Credit Associations. The land banks' longstanding domination of the market for farm real estate credit may mean that other farm mortgage lenders—banks, life insurance companies, and individuals—are not now ready or willing to refinance much of the land banks' large pool of good mortgages. The danger to the credit associations in the non–real estate credit market is greater because commercial banks dominate that market and can rapidly expand their market share.

To prevent strong borrowers from leaving, a co-op might consider instead uniformly lowering its rates to levels that would attract strong borrowers. The obvious problem with this strategy is that the lower interest rates may not cover expenses, especially on loans to the co-op's weaker borrowers. If applied widely within the FCS, the strategy might even cause the system's bondholders to demand higher interest rates in compensation for its reduced earnings.

A co-op intent on charging uniform interest rates to borrowers would probably do best to choose some middle course between these high and low interest rate strategies. However, some co-ops might want to move away from uniform rates by charging lower rates to the financially stronger borrowers and higher rates to the weaker.[11] For example, if strong borrowers expressed concern about taking losses on their co-op stock, the co-op could reduce their interest rates enough to offset their expected loss. At the same time it could continue to charge a higher rate to its more captive weaker borrowers. This strategy of differential pricing of loans would give the co-op's managers more flexibility in maintaining loan volume and

[11] In fact, FCS lenders in the Omaha district have recently made arrangements to do this.

quality without sacrificing current income. The strategy might even be extended to the co-op's existing long-term loans, those whose variable rates are adjusted annually to reflect the co-op's cost of funds. Since funding a sound loan costs less than funding a shaky loan, under this strategy the variable rates on old loans would be lower for strong than for weak borrowers.

The potential exodus of strong FCS borrowers and the strategies for handling it ultimately focus attention on how risk is shared in FCS co-ops. When a co-op's loan losses lead to higher effective costs of borrowing from the co-op (through either higher interest charges or greater risk of a loss on co-op stock), stronger borrowers can escape the burden by either borrowing elsewhere or, under differential pricing, negotiating a special interest rate break from the co-op. As the stronger borrowers avoid the co-op's losses, the burden of these losses falls increasingly on the co-op's weaker borrowers, further weakening them and possibly also the co-op. This disparate sharing of risk among co-op members suggests that some broader insurance-like arrangement might be more efficient than the current system of FCS stockholding.

Whether or not that is true is hard to say, though, for broader risk-sharing arrangements may not be workable. For example, if the co-op's potential borrowers knew which of them were most vulnerable to an agricultural downturn, the least vulnerable (the ones who would remain strong borrowers even after the downturn) might refuse to join the co-op unless arrangements were made for them to escape the burden of the weaker borrowers' losses. Absence of risk-sharing between strong and weak borrowers would then be a precondition for the existence of the co-op. Broad risk-sharing arrangements would be more likely if the potential borrowers did not know which of them were more vulnerable, but even then enforcing the arrangements after a downturn could be difficult.[12] An efficient arrangement for the sharing of risk (and other costs) among FCS co-op members is a topic that deserves further research.

[12]See Staatz 1985 for a general discussion of the problems in organizing cooperatives.

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