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# Financial Adversity in Agriculture: An Overview

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**FINANCIAL ADVERSITY IN AGRICULTURE:  
AN OVERVIEW**

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## FINANCIAL ADVERSITY IN AGRICULTURE:

### AN OVERVIEW

Over the past several years, increased attention has been paid to the financial stress being experienced by many agricultural producers in the United States. This adversity, which is being felt in varying degrees of intensity (depending on crop and region) can be characterized by combinations of operating losses, negative cash flows, insolvency, and/or inability to bear risk. Associated impacts include falling land and equipment values, increased loan defaults, foreclosures, and bankruptcies. Some observers have likened the present era to that of the 1920s when inflated farm incomes and asset values were followed by collapse and a farm depression which extended into the 1930s (Soth, 1985).

There were three primary objectives for this paper. The first was to document the historical factors that led to the current financial adversity situation in agriculture. The second was to provide an overview of research designed to explore the nature of the current financial adversity problems and related results pertaining to approaches that might be used to deal with that adversity. The final objective was to identify policies and procedures that might help currently solvent farms avoid the pitfalls of financial adversity.

### Historical Perspective

In the last 30 years, aggregate earnings from farm assets and the value of farm real estate were increasing at about the same percentage rate (Melichar, 1983). During the 1960s, moderate increases in farm wealth (asset values) were created in nominal terms through capitalization of farm earnings growth, which was induced partly by government farm income enhancement programs. That was followed in the 1970s by large increases in farm asset values as a boom level of earnings was capitalized at very high asset value to earnings ratios. This was supported in part by a general farm sector expectation that earnings growth would climb to even higher levels in the 1980s.

Preservation of the newly created farm wealth of the 1970s would have required that the earnings growth from those assets be sustained. But the farm supply-demand relationships so far during the 1980s have not produced the required level of earnings. Short of effective government programs or improved marketing strategies to bolster sagging earnings, the decline in farm wealth was inevitable. Furthermore, Melichar (1983) shows convincingly that there is little evidence to support public programs which would supply funds to replace farm income no longer forthcoming from commodity markets. From the general public's viewpoint, government policies aimed at perpetuating the wealth created during the farm boom of the 1970s are expectedly challenged. Further downward adjustments in asset values and human and capital resource reallocation are already occurring.

### Agriculture's Financial Crisis in the 1980s

Financial stress (a debt-asset ratio above 40 percent and negative cash flow) has been noticeable in agriculture since 1981 (Brake, 1983). The impact of lower incomes was magnified by a decline in borrowing capacity caused by falling asset values and the inability to generate enough cash flow to service previous debt commitments. Debt service became difficult for many producers, but most affected those operators who recently started farming or who had recently undertaken a debt-financed expansion. In many cases debt obligations were tied to variable interest rates which contributed to financial stress as interest rates increased.

A major factor contributing to the adverse cash flow situation for many farms was certainly higher interest rates which began in 1980 (Melichar, 1984; Harrington and Stam, 1985; and Johnson, Baum, and Prescott, 1985). Cash flow before interest payments, while down from the boom peaks of the previous decade, was still quite positive. In contrast, cash flow after interest payments severely declined for those farmers with substantial debt loads. Thus, the financially troubled farmers in this country have primarily consisted of heavily indebted operators. Unfortunately for lenders, heavily indebted producers owe a significant portion of total farm debt (Melichar, 1984).

There are some exceptions to the rule that highly leveraged farmers are financially troubled today. More than two-thirds of all farms (by Census of Agriculture standards) are small and are not highly leveraged. Of those that are, however, most have sufficient off-farm income available to service debt. The second major exception is operators of large farms who are highly leveraged. As a group they have continued to earn high rates of return. In addition to likely economies of size, the high profitability of these very large farms stems from their product/expense mix. Typically they are not grain farms which have been especially hard hit by low prices in recent years (Melichar, 1984).

Although there is some overlap, most of the farms that are experiencing financial stress are heavily leveraged operations with annual sales in the \$40,000 to \$499,999 category (Melichar, 1984; Harrington and Stam, 1985; and Johnson, Baum, and Prescott, 1985). These studies show that farmers, especially cash grain farmers, in that category with debt-asset ratios above 40 percent are likely to be financially stressed. These operators constitute about 9 percent of all farmers, own about 14 percent of all farm assets and owe about 39 percent of U.S. farm debt. Furthermore, one-third of those farmers owe nearly two-thirds of the group's debt. A very large percentage of these farms are in the Midwest.

As farm income and asset values have continued to decline, farm financial stress has become more pronounced (Jolly, et al., 1985). In 1985, almost 13 percent of U.S. farm operators had both debt-asset ratios above 40 percent and a negative cash flow. More than 60 percent of these operators are located in the Corn Belt, Lake States, and Northern Plains regions. About 62 percent of all U.S. farm debt in 1985 was held by operators with debt-asset ratios above 40 percent.

A recent study highlighted in Jolly, et al. (1985) reported that financial

stress was severe enough in all regions of this country to generally erode farmer net worth, deplete lender funds available for farm loans, and weaken land and machinery prices. The study shows that transfer of commercial farm assets to new owners has been hampered by a lack of buyer interest and a continuing deterioration in cash flow due to low commodity prices. Assets put on the market in 1985 saw little buyer interest despite declines in asking price.

In another recent study (Washington State Department of Agriculture, 1986), investigators found that Washington farms on average had a 24.2 percent debt-asset ratio in 1985, 2 percentage points higher than the 1984 level and more than 6 percentage points higher than the average for the 1970s. By comparison, they found that the national average was 22 percent, with some hard-hit midwest regions running as high as 32 percent. During 1985, 20 percent of Washington's farms were classified by the investigators as being in serious financial trouble.

The duration of widespread financial stress in agriculture certainly depends in part on the rate at which asset ownership transfers take place and the ability of creditors to restructure existing debt or provide new debt to qualified buyers. Jolly, et al., suggest that it may take a decade or more for asset ownership transfers to be completed. Furthermore, they suggest that it may take such steps as new price-support mechanisms to complete the process of overcoming this period of financial adversity.

### **Possibilities for Relief of Financial Adversity in the Near-Term**

Certainly commodity markets in recent times have not provided any relief to the financial adversity problem in agriculture (Drabenstott and Duncan, 1985). Large supplies of many crops and livestock products have exerted downward pressure on commodity prices. Export volume increased but export value decreased due to declining prices and a relatively adverse exchange rate. Government subsidies were not expanding.

The farm sector faces an increasingly difficult financial situation (Pacific Northwest Outlook Task Force, 1986). About 20 percent of commercial farms nationally with gross sales above \$40,000 were expected to show financial stress -- high debt load and negative cash flow. Another 10 percent were considered at risk because of debt loads.

Prospects for higher farm commodity prices are not bright. Short of a major price-stimulating change in commodity markets (e.g. foreign crop failures), a frequently mentioned solution (even in the present Gramm-Rudman deficit reduction fiscal environment) is expanded price and income supports. This approach continues to be discussed despite its high cost to implement and tendency to encourage resource misallocation (increasing production in the face of lower demand).

The Food Security Act of 1985 sets the tone of U.S. farm policy through 1990 (Sanders et al., 1986 and Stucker and Collins, 1986). The Act is designed to increase the market orientation of U.S. farm policy. Thus, it continues target prices, but they are scheduled to decline over the life of the legislation. Acreage reduction programs are specified either in

response to specified stock levels being exceeded or retirement of erodible croplands. The Act is designed to encourage lower commodity prices in order to reduce excessive stocks and resources in agriculture. This is encouraged by low, non-recourse loans. Substantial deficiency payments are maintained through a transition period. However, they are expected to decline as farm profitability is "restored."

As the cost and complexity of agricultural subsidies continue to increase worldwide, U.S. domestic farm policies, as well as those in other countries, have become the subject of international trade talks (Townsend, 1987). In an effort to maintain farm income, governments have been setting production incentives too high given current world consumption levels. On the other hand, there is a perceived need on the part of these governments to cut subsidy costs. For fiscal year 1987, U.S. farm subsidies alone are expected to be \$24.6 billion, \$1.2 billion less than the previous year, but eight-fold the level of 1980. By comparison, farm subsidy expenditures by the European Community in fiscal 1987 are expected to reach \$26.2 billion. Yet, no country can reform its policies unilaterally without subjecting its farmers to subsidized competition from others. Although the trade negotiations under way will continue for some time to come, gradual reductions in production and export subsidies, as well as lower import barriers, are expected. Thus, the target price reduction trends observed recently for both the U.S. and the European Community are expected to continue.

For unfavorably leveraged farms, what are the prospects for improved financial condition if farm-level commodity prices could be influenced upward beyond current ranges? If that were to happen (e.g., expanded government price support programs), what price levels would be needed to offset adverse debt conditions?

A study by Burt and Wirth (1986) was directed toward those questions. In that study, a computer simulation model was employed to analyze the impact of price variation on farm financial condition under various debt-asset levels (Burt and Wirth, 1986). That price/debt variation model was used to help answer those questions by analyzing a large pacific northwest grass seed-grain case study over a simulated 15-year passage of time.

In order to concentrate on the impact of debt and income variation on financial performance, the physical size of the model farm was held constant over the 15-year simulation period. However, financial size as represented by the model farm's balance sheet was permitted to vary as affected by prices, yields, costs, interest and principal payments, and other key variables assumed in the study.

The base level assumptions used in simulating the model farm reflected variability in yields and prices that have been experienced and could be expected from year to year in many farming situations. Under such circumstances, the results of the study clearly showed that even unusually high prices could not be expected to do more than mitigate the financial crisis of the farm in extremely high leverage situations. Under the present adverse price-cost conditions in agriculture, it seems likely that a number of highly leveraged farmers find themselves in situations similar to those simulated for the model farm. Their need for revenues sufficient

to avoid insolvency is much above that which could be realistically expected. The attainment of such high revenue levels would require that both prices and yields vary to the high extremes simultaneously. Such an event in reality would not be likely.

The foregoing study in a realistic setting raised questions about whether income enhancement policies alone could be expected to help highly leveraged farms escape from the adversity associated with costly debt service requirements. Under many circumstances, the price levels necessary for a favorable leverage situation would greatly exceed the range observed historically.

In an earlier study, Musser, White, and Smith (1984) analyzed adverse economic conditions which created severe financial stress for many Georgia farmers -- 30 percent of those surveyed were insolvent. The evidence suggested that several expansion situations could have created the financial stress. Yet, the strategy found most likely to help alleviate the stress was growth through purchase of additional land early in the historical period. As with similar studies, the strategy would be expected to work only under limited conditions where operating conditions are immediately profitable and land values are appreciating (an unlikely event under current conditions) so as to provide a financial cushion. The existence of economies of size as the additional land was brought into production was critical to the success of that financial strategy.

In another study, Leathers and Chavas (1986) used a farm production model as a base for analyzing the potential benefits from public programs designed to reduce or eliminate the threat to financially stressed farms from loan defaults or foreclosures. Among their findings, the research results showed that income transfer and production subsidy mechanisms were not practical for reducing the threat of default because of the inability to gather the information to target the programs properly. At best the results helped to identify the limited number of groups which clearly should not have been included in such a program.

A price stabilization program was found to help reduce the threat of default, but price enhancement programs were clearly identified by the authors as undesirable in a general economic sense. In conclusion, the authors suggest that publicly funded retraining programs for farmers and subsidization of capital movement out of agriculture may be more effective methods for reducing the economic costs of default than price/income support programs.

Barry, et al. (1986) looked at a range of alternatives that farm managers might use under current financial stress conditions. The purpose of the study was to provide a comprehensive information base that could be used to evaluate the financial impact of various financial stress management strategies on farm businesses. Representative farms were analyzed over a four-year period using a simulation model to make financial projections.

In the study, the range of farm types was broad with respect to geographical area, farm size, tenure position, enterprise mix, and asset composition. Cash grain, livestock, and dairy operations were included. Three representative debt-asset ratios were specified: 20 percent, 40

percent, and 70 percent. The analysis for each farm type was also conducted under three different scenarios of the farm's economic environment: baseline, optimistic, and pessimistic.

A central focus of the study was on possible improvements in financial performance from each strategy given the beginning leverage position and specified economic scenario. The strategies included asset and liability management practices, equity capital control, use of government assistance programs. Specifically, debt reduction, interest rate deduction, debt deferrals, asset sales with/without lease back, and new equity infusions were among those things considered.

For the baseline situation, many of the representative farms with initial debt-asset ratios of 40 percent or above had weak performance measures at the end of the four-year simulation. Deteriorating debt-asset ratios were especially noticeable for the 70 percent initial debt-asset ratio case. Even some farms with initial debt-asset ratios set at 20 percent exhibited deteriorating solvency conditions.

The optimistic scenario had a more favorable effect for farms with an initial debt-asset ratio of 40 percent or less. All of the farms in that category experienced improvements in financial performance over the four-year simulations relative to their beginning positions. The results, however, were mixed for the most highly leveraged farms. The debt-asset ratios for those farms were largely unchanged over the four-year simulations compared to their respective initial levels.

In contrast, the pessimistic scenario pushed most of the higher-leveraged farms toward insolvency. Even at lower initial debt-asset ratios, ending values for many of the four-year simulations were approaching a two-fold increase. Ending debt-asset ratios above 60 percent were common.

Performance gains were strongest for the asset sale strategies while only modest gains were observed for the debt management options. Infusion of new equity capital was rated somewhat above the debt management strategies. The results called attention to the need for fine tuning the use of strategies to match the specific characteristics and needs of the farm type under consideration.

A clear implication from the study reinforced the idea that public assistance programs must be developed to take into account the financial characteristics of farm recipients. The study results showed that farms with relatively low debt-asset ratios of 20 percent are capable of surviving financially without public assistance. The highest-leveraged cases could only be maintained in their critical financial situations by public assistance programs. Farms with intermediate-leverage situations clearly received the most benefit from public programs.

In a continuation of the Barry, et al., research, Barry, Ellinger, and Eidman (1987) extended the analysis to the Illinois and Minnesota farm situation. Each of the management options was evaluated at several levels of use. In addition, a composite score (performance index) was formulated to reflect the effects of selected sets of combined management options.



Six policy options and response strategies were emphasized in the research. They included: farm asset sales with a lease-back provision (proceeds going toward debt retirement), farm asset sales without a lease-back provision, a write-down of the farm's initial indebtedness, an interest rate reduction, a two-year deferred interest and principal payment schedule on intermediate- and long-term debt with no accrued interest charges, and replacement of debt with an outside equity investment. Debt-asset ratios between zero and 70 percent were simulated in increments of 10 percent.

The research results generally paralleled those of the Barry, et al, study in which a broader range of farm types were analyzed. All six policy options improved the performance of the farm types studied, but varied greatly based on policy option chosen, farm type being analyzed, and the performance measure being used. The research results again clearly indicated that the prospects of improved financial performance for highly leveraged farms are not good. That was found to be the case for even some medium-leveraged farms. Neither financial assistance nor a more optimistic setting for farm returns and land values were enough to turn those situations around.

The results re-emphasized the need to develop and deliver public assistance programs only to farms with financial characteristics that would indicate a high probability of benefiting the operation. Farms with low debt-asset ratios survived without participation in any of the public program options. On the other hand, farms in the highest debt-asset ratio situations were at best maintained in their critical financial condition with no prospects for improvement. It was instead the medium debt-asset farms that had the best prospects to benefit from the programs. To successfully target appropriate farms for consideration, study results also showed the importance of completing a comprehensive farm-by-farm financial analysis to determine program eligibility.

### **Innovative Approaches for Dealing with Financial Adversity**

In the last few years the search has been on for new and innovative approaches to help farmers overcome the financial adversity that threatens to force so many out of business. One of the attempts to identify such approaches was made by Boehlje and Eidman (1983). They suggested asset liquidation as a possibility, but only under favorable conditions related to (1) the cash generated after accounting for secured indebtedness and other costs associated with the liquidation; (2) the cost of discounting/liquidation; (3) the loss of cash earning power of the asset; (4) the interest rate and terms on secured debt; (5) the tax and tax recapture implications; and (6) any legal constraints and obligations. Other suggestions for further study included sale-leaseback arrangements, liquidity management strategies, equity infusion, and reorganization under the Bankruptcy Act of 1978. Additional ideas for preserving farm collateral and liquidity were suggested that would involve government programs such as subsidized credit or a "land bank for troubled farms," similar to a Canadian plan for the government to buy farms from operators who are liquidating and lease them to beginning farmers.

In another study, Grisley (1985) examined the financial position of a large sample of Pennsylvania dairy producers. Five different debt assistance programs were analyzed to determine the number of moderately and severely distressed farms that might be kept in business by each program. The programs included (1) a moratorium on all principal payments for 5 years; (2) refinancing all debt at 14 percent interest over 25 years; (3) refinancing all debt at 7 percent for the first 5 years and at 14 percent for an additional 20 years; (4) a lender writeoff of 25 percent of all principal and accrued interest balances for 5 years; and (5) a lender permanent writeoff of 10 percent of all debt outstanding. All the proposed assistance programs were found to be defective in terms of high cost to dairy farmers and/or lenders.

Brake and Boehlje (1985) extended the discussion of potential solutions to farm financial stress by first identifying the five major long-run adjustments that they believe are necessary for a financially stable agriculture: (1) lower interest rates; (2) the mothballing of excess capacity; (3) reduce debt levels; (4) lower resource values; and (5) the restructuring of asset ownership. A number of possible public transition policies were then discussed. In general all of them involve significant government and/or lender costs. Included were programs to encourage debt restructuring, principal forgiveness, interest buy-down, foreclosure moratoria, and facilitation of changes in asset ownership patterns.

Boehlje (1985) has emphasized that an important element of any public policy to alleviate financial stress must be protection of resource markets from collapse -- critical to maintaining the stability of the agricultural production sector and rural communities. Given significant wealth losses in agriculture recently, he suggests that public policy should in large part address how those losses will be distributed among elements of the private sector, e.g., farmers, lenders, input suppliers, and landlords. Boehlje, however, cautions that government intervention in input resource or commodity output markets to stabilize values at levels not supportable in the long run can be counterproductive, resulting in very high government costs, inefficient resource allocation, and higher consumer food prices.

Using a simulation model, Pederson, Boehlje, Doye, and Jolly (1987) studied more closely the feasibility of lenders altering loan terms vis-a-vis use of public programs as a way to offset the adverse impact of financial stress. The emphasis in analyzing voluntary forbearance strategies was to find those that would allow lenders to continue carrying loans that were nonperforming. The strategies included interest rate decreases, modification of the debt repayment schedule, and a partial write-off of the principal balance due. It was presumed that lenders would pursue activities that would improve loan quality and thus reduce the likelihood of forced asset liquidation or foreclosure. The focus of the research was to find strategies that would reduce debt service requirements to levels consistent with likely farm borrower earnings and simultaneously result in higher loan service costs that would be acceptable to the lender.

The study results showed that altering loan terms provided little opportunity to help severe farm financial stress. A combination strategy

including a principal write-off was the only way found to assist highly leveraged farms. Yet, that strategy would in turn threaten the solvency of many lenders. Given the limited ability of lenders to absorb losses, the study results pointed toward lender emphasis on developing work-out plans for those borrowers with moderate debt loads who are experiencing only moderate levels of financial stress. A reduction of interest rates was shown to have greater prospects for reducing farm financial stress than modifying the principal repayment schedule.

Public assistance programs might be appropriate in combination with voluntary lender forbearance, but the authors point out that their analysis shows some very important limitations to such an approach. Simple substitution of public sector debt for private sector debt will do little for those farming operations that have too much debt. Even if the substitution strategy could help the overall problem, the resources of the public sector are too limited to resolve the problem. In addition, no matter what the level of available public resources, implementation of a substitution strategy would inherently raise problems related to efficiency, cost effectiveness, and equity.

Because financial stress in agriculture is of sufficient scale and severity, some policy analysts have suggested that limited public intervention would be desirable. Harl (1986) has advocated the creation of an "Agricultural Financing Corporation" which would provide supplemental financing for "buying down" interest rates on farm loans for feasible cash flow/reorganization plans and provide a mechanism for temporarily acquiring assets, primarily farm land, for those farmers who are unable to develop such plans. This sort of intervention would be broad enough to help all sectors of agriculture under financial stress, would avoid a collapse of the lending system, be targeted only to farmers in financial difficulty, and would lessen the problems of government intervention as cited by Boehlje (1985). But, Harl cautions that the corporation must be structured so as to keep the ownership of farm assets widespread -- a longstanding policy goal. This may be difficult since it is not clear what impact this new program would ultimately have on the structure of agriculture. It would, however, assure that the land previously owned would still be available to the operators and that the land could be repurchased by operators at a later date or would at least remain in the operator's hands.

As a part of their study of whole-farm risk reduction, Pederson and Bertelsen (1986) analyzed various techniques for managing downside financial risk for highly leveraged farms. Using risk programming and simulation methods, traditional enterprise diversification was shown to have the greatest risk reduction impact on the optimal farm plan. Furthermore, the ability to manage downside financial risk was shown to be extended when a flexible cropshare rental strategy was employed as a substitute for fixed-cash rental arrangements. Fixed financial obligations could then be reduced. Strategic production and market management practices had the potential to compound the benefits of enterprise diversification and flexible rental arrangements. The results showed that a farm experiencing financial stress could improve its financial performance and ability to service debt through the use of the risk management techniques discussed in the study.

Important work is already underway to study the microdynamics of structural change in agriculture as the industry responds to the severe financial stress conditions currently exhibited. In one case study (Gladwin and Zabawa, 1984), full-time farmers under financial stress underwent a differentiation process in which a few increased in size to relieve the stress while most either exited farming or became part-time farmers with income supplemented by off-farm employment.

In another study (Bartlett, 1984), part-time farmers and retirees who were farming were much more successful at avoiding financial stress than full-time farmers. This was certainly due in part to more conservative financial management practices and greater access to off-farm sources of supplemental income. Even full-time family farms seemed less likely to face severe financial difficulties. In contrast, full-time renters and large-scale farms using hired labor on large acreages were more likely to face severe financial difficulties due to crippling debt loads.

Whatever the approach used to deal with financial adversity, a well-designed workout plan can be invaluable to a farm manager faced with such a problem. Dalsted (1986) developed a comprehensive and well-organized structural procedure for completing such a process in a workable and timely manner. The procedure is a relatively simple step-wise problem-solving process which requires the farm manager to identify and establish goals; completely inventory resources available to the farming operation; develop enterprise budgets for all existing/potential commodities that could be produced/marketed; project cash flow for at least a two-year (preferably a five-year) planning horizon; plan for the sale of surplus assets; specify needed improvements in management practices (including the use of paid professionals such as farm/financial management consultants, attorneys, and accountants); construct a long-run business (action) plan; and formulate needed legal agreements between the parties involved to ensure a sense of dedication and commitment to making the plan function as the goals have stipulated.

Dalsted points out that a workout plan may identify termination of the farm business as the optimal approach. In other cases, continuation of the business may be indicated. Whatever the case, Dalsted emphasizes the importance of conserving profitability and net worth during the workout process. Thus, threshold levels must be established where continuation or cessation decisions are re-evaluated. For financially unstable farms, he also underscores the importance of implementing the plan quickly before viable options are reduced or eliminated.

Despite the best workout plan or government-provided economic assistance program, market forces may make business failure inevitable for many farm operations struggling to avoid it. In anticipation of that, Jones and Heffernan (1987) have called for the implementation of educational and social programs for financially stressed farm managers and their families that would help them cope with any financial or emotional problems related to their predicament. The six programs considered were: information assistance about government as well as nongovernment services available in the community to aid in the transition process; emotional support through organized social and recreational activities; legal assistance, including arbitration alternatives to bankruptcy, financial counseling, and

education; vocational education to help farmers and their families develop marketable skills; and temporary financial assistance for those farmers exiting agriculture.

Jones and Heffernan point out that government programs have provided many farmers with the financial resources necessary to avoid the problems associated with farm business failure. However, relatively little has been done to eliminate, or at least moderate, the hardship experienced by farm families when their businesses fail. Thus, they conclude that the need for farm financial assistance programs arises, in part, because of a lack of programs to help farm families avoid severe stress when they go out of business. Hence, social and educational programs designed to help farmers cope with financial and emotional problems could serve as an alternative to farm financial assistance programs. Such programs would in effect serve as a shield for farm families against the hardships associated with farm financial failure.

While the impacts of the 1986 Tax Reform Act are not yet clear, Stinson and Boehlje (1987) conclude that the changes in investment incentives, tax sheltering, and write-off provisions, along with lower tax rates, may alter who and how much is invested in agriculture in the future. They expect taxes for small-scale crop producers to generally increase while large-scale crop farms are expected to experience decreased tax liability. This is primarily attributed to lower tax rates on large taxable incomes and the adverse impacts of the elimination of the investment tax credit on lower taxable incomes. They also show that livestock operators will be hard hit by the additional loss of favorable capital gains treatment.

### Management Ideas for Avoiding Financial Adversity

Despite the focus of many on the current financial adversity problems in agriculture, some in farming are pointing to a quite positive long-term outlook for the industry (Ferguson, 1987). Technology, better educated managers, and more highly trained consultants are being brought together to make U.S. agriculture more cost efficient and competitive. Opportunities are already becoming brighter for many farm sectors. A renewed entrepreneurial spirit for many will encourage the adoption of new crops and methods.

As a part of the renewal in agriculture, financing mechanisms will need to be reviewed and perhaps improved. In that regard, Freshwater and Trechter (1987) analyzed four innovative approaches to financing long-term farm debt with respect to creating satisfactory agreements between farm borrowers and lenders, and avoiding financial adversity in the future. The four financial mechanisms include: secondary mortgage markets, commodity based loans, shared-appreciation mortgages, and warehousing foreclosed farmland.

They emphasized that the four financing alternatives would not assist farmers who are currently experiencing financial adversity. Instead they represent possible responses that financial markets can make to accommodate the special capital needs of agriculture by reducing lender exposure to risk. Hence, an adequate supply of long-term credit for

agriculture could be maintained. Although the mechanisms are largely untried in U.S. agriculture, they have been used in the nonfarm economic sectors of other countries.

A secondary agricultural mortgage market would enable lenders to sell loans that they originate to other institutions and thereby reduce some of the risk associated with farm borrower default. Advantages of such a mechanism might include an increase in the supply of credit available to agriculture, lower transaction costs by pooling numerous small loans, and allowing local lenders to offer long-term farm loans without having to maintain a large long-term loan portfolio. Disadvantages might include adverse competition for the ailing Farm Credit System in the bond market, and adverse fiscal impacts if the federal government must provide loan default guarantees to get the market established.

Commodity-based loans are structured so that payments vary according to production value. The principal outstanding, the interest rate, or the term of the loan are adjusted in response to changes in the value of a farm's production. This allows farmers to absorb varying commodity prices more easily by linking debt levels and the capacity to repay, reduces farmer defaults, and gives lenders a higher rate of return in compensation for increased income variability. However, farm borrowers would be discouraged from such a mechanism because of loan costs higher than that of conventional loans. Lenders could also be expected to be less attracted to the mechanism when prices are volatile (ironically an attractive situation for borrowers). In addition, lenders would have difficulty matching receipts and expenses since receipts would vary with commodity prices. Even the federal government might be wary of such a mechanism since floor prices for commodities might need to be guaranteed before lenders would consider participation in such a loan program.

In a shared-appreciation mortgage, a lender gives a farmer-borrower a lower interest rate or larger loan. In return, the lender receives a specified share of any capital appreciation when the farm is sold. That sale or purchase of the lender's share might be required within a specified time. This sort of mechanism could encourage lenders to provide fixed, low-interest loans to farmers, ease farmer-related cash flow problems related to debt service, reduce the federal government's direct role in credit markets, and encourage farmer/lender negotiations for setting the terms of credit. On the other hand, lenders would have to expect that the capital gains prospects exceed the foregone current income, a timetable match-up for disposition of the property would have to exist between the farmer and the lender, transaction costs between farmer and lender would increase because of more complicated loan negotiations, and legal problems in some states related to nonfarm corporate ownership of farmland and legislation restricting bank activities would have to be addressed.

The concept of warehousing foreclosed farmland involves the federal government purchase and warehousing of farmland acquired by lenders through bankruptcy or foreclosure. Such a mechanism might improve the willingness of lenders to make farm loans, help stabilize farmland values, lessen the financial adversity of many lenders by decreasing the amount of non-earning farmland assets on their books, and reduce the level of

surplus agricultural capacity by withdrawing some of the warehoused farmland from production. Potential disadvantages of such a mechanism include increased federal government costs related to guaranteed payments, high carrying costs for acquired land as market prices recover slowly, and government purchases financed through tax-exempt bonds, direct appropriations, or deficit financing; acquisition of land that might not have produced commodities that are in excess supply; and increased production costs because of higher rent and input mix distortions due to a government-induced artificial scarcity of land.

A recent proposal to help the Farm Credit System might have an indirect positive effect on financially troubled farms by allowing the System to expand the number and size of its loans to farmers at competitive rates and terms (Scott, 1987). He points out that the System has been severely hurt in its ability to finance agriculture by a large number of outstanding bonds at interest rates significantly above current market levels, an expensive administrative structure, and a large inventory of foreclosed properties with market values greatly exceeded by their associated mortgage values. Scott suggests that one way to relieve the financial pressure on the System would be for it to sell zero coupon bonds, similar to U.S. EE Savings Bonds. The future maturity value would include the original value plus interest in the intervening years. Interest would not be paid by the System on an annual basis. While a number of strategies might be employed for such bond sales, Scott shows that the proposal will work only if the system and potential bond holders expect land values to rise -- accumulated rents would not be sufficient to pay off the bond holders at maturity.

### Conclusions

Farm financial adversity for many farmers in the 1980s has replaced the relative prosperity conditions of the 1960s and 1970s when both farm earnings and asset values were increasing to ever higher levels. Cash flow problems compounded by high interest rates have encouraged erosion in farm net worth, adversely affected farm lenders, and weakened land and machinery values. An increasingly difficult situation is expected in the near term since prospects for higher commodity prices are not bright.

Given current market indications and retrenchment of government programs, it is all but certain that some resources, including labor and farm operators, will be forced to exit agriculture. Land conversion out of cultivation is an important part of this shift. This situation is now beginning to take its toll on farm lenders and input/service suppliers. Clearly, asset values will continue to decline in value and there will be more conservative financial strategies employed that include less debt to finance purchases.

This environment, in combination with to lower interest rates, may help the industry to recover. The apparent transformation of medium-sized, full-time farmers into smaller, part-time operations may also aid the recovery by helping the resource exit process. But, increased attention must be given to the development of programs and policies that help people overcome the current level of farm financial adversity. Thus, the

personal and social costs as well as loss of productivity from this adversity might well be reduced to a minimum. After the present financial trauma has subsided, production agriculture will certainly be leaner with fewer operators, but likely more healthy financially.

To aid the recovery process, more research is needed to determine innovative strategies that might help farmers recover from the impacts of financial adversity. In that regard, strategies that don't appear to work also need to be identified. These efforts might have the effect of lessening the impacts of financial adversity on farmers. Alternatively, results from such research might shorten the expected lengthy recovery period that agriculture is now just beginning.



## References

- Barry, Peter J., Paul N. Ellinger, and Vernon R. Eidman. 1987. "Firm Level Adjustments to Financial Stress." Agricultural Finance Review, 47(Special Issue):73-99.
- Barry, Peter J., et al. 1986. Financial Stress in Agriculture: Policy and Financial Consequences." Agricultural Experiment Station, University of Illinois at Urbana-Champaign, Bulletin AE-4621, November 1986.
- Bartlett, Peggy F. 1984. "Microdynamics of Debt, Drought and Default in South Georgia." American Journal of Agricultural Economics, 66(December):836-843.
- Boehlje, Michael and Vernon Eidman. 1983. "Financial Stress in Agriculture: Implications for Producers." American Journal of Agricultural Economics, 65(December):937-944.
- Boehlje, Michael. 1985. "Financial Stress in Agriculture: Implications for Farmers, Lenders and Consumers." Testimony Presented Before U.S. House of Representatives, Subcommittee on Economic Stabilization of the Committee on Banking, Finance and Urban Affairs, October.
- Brake, John R. 1983. "Financial Crisis in Agriculture: Discussion." American Journal of Agricultural Economics, 65(December):953-954.
- Brake, John R. and Michael D. Boehlje. 1985. "Solutions (or Resolutions) of Financial Stress Problems from the Private and Public Sectors." American Journal of Agricultural Economics, 67(December):1123-1128.
- Burt, Larry and M.E. Wirth. 1986. "The Impact of DEbt and Income Variation on the Simulated Financial Performance of a Large Pacific Northwest Grass Seed-Grain Farm." Agricultural Experiment Station, Oregon State University, Corvallis, Research Bulletin SB 0666.
- Dalsted, Norman. 1986. "Financial Workouts - A Procedure." Journal of the American Society of Farm managers and Rural Appraisers, 50(October):28-30.
- Drabenstott, Mark and Marvin Duncan. 1985. "Another Troubled Year for U.S. Agriculture." Journal of the American Society of Farm Managers and Rural Appraisers, 49(April):58-66.
- Ferguson, Judy. 1987. "Restructuring American Agriculture." Ag Consultant, 43(March):6-7.
- Freshwater, David and David Trechter. 1987. "New Approaches to Financing Long-Term Farm Debt." Economic Research Service, U.S. Department of Agriculture, Agricultural Information Bulletin 511.
- Gladwin, Christina H. and Robert Zabawa. 1984. "Microdynamics of Contraction Decision: A Cognitive Approach to Structural Change." American Journal of Agricultural Economics, 66(December):829-835.

- Grisley, William. 1985. "Financial Distress on Pennsylvania Dairy Farms." Agricultural Finance Review, 45:1-10.
- Harl, Neil E. 1986. "A Proposal for Interim Land Ownership and Financing Through an Agricultural Financing Corporation." Journal of Agricultural Taxation and Law, 8(Spring):19-33.
- Harrington, David H. and Jerome M. Stam. 1985. "The Current Financial Condition of Farmers and Farm Lenders." Economic Research Service, U.S. Department of Agriculture, Agricultural Information Bulletin 490.
- Johnson, Jim, Kenneth Baum, and Richard Prescott. 1985. "Financial Characteristics of U.S. Farms, January 1985." Economic Research Service. U.S. Department of Agriculture, Agricultural Information Bulletin 495.
- Jolly, Robert W., Arnold Paulsen, James D. Johnson, Kenneth H. Baum, and Richard Prescott. 1985. "Incidence, Intensity, and Duration of Financial Stress Among Farm Firms." American Journal of Agricultural Economics, 67(December):1108-1115.
- Jones, Bruce L. and William D. Heffernan. 1987. "Educational and Social Programs as a Response to Farm Financial Stress." Agricultural Finance Review, 47(Special Issue):148-155.
- Leathers, Howard D. and Jean-Paul Chavas. 1986. "Farm Debt, Default, and Foreclosure: An Economic Rational for Policy Action." American Journal of Agricultural Economics, 68(November):828-837.
- Melichar, Emanuel. 1983. "Farm Wealth: Origins, Impact, and Implications for Public Policy." Presented at the W.I. Myers Memorial Lecture, Department of Agricultural Economics, Cornell University, A.E. Research Paper 83-40.
- Melichar, Emanuel. 1984. "The Incidence of Financial Stress in Agriculture." Presented at the Agricultural Seminar, Congressional Budget Office, U.S. Congress. Economic Activity Section, Division of Research and Statistics, Board of Governors of the Federal Reserve System, Washington, D.C., November.
- Musser, Wesley N., Fred C. White, and G. Scott Smith. 1984. "Current Financial Stress Among Farmers in South Georgia." Agricultural Finance Review, 44:1-7.
- Outlook Task Force. 1986. "Pacific Northwest Agricultural Situation and Outlook." A Pacific Northwest Cooperative Publication, Washington-Idaho-Oregon Extension Services, January.
- Pederson, Glenn, Michael Boehlje, Damona Doye, and Robert Jolly. 1987. "Resolving Financial Stress in Agriculture by Altering Loan Terms: Impact on Farmers and Lenders." Agricultural Finance Review, 47(Special Issue):123-137.

- Pederson, Glenn D. and Diane Bertelsen. 1986. "Financial Risk Management Alternatives in a Whole-Farm Setting." Western Journal of Agricultural Economics, 11(July):67-75.
- Sanders, Larry D., Luther Tweeten, and Daryll Ray. 1986. "The Food Security Act of 1985: Analysis & Impacts Part II." Agricultural Policy and Economic Issues, Cooperative Extension Service, Oklahoma State University, Volume 2, Number 3, April 1986.
- Scott, John T. 1987. "One Way to Bail Out the Farm Credit System." Choices, 2(Second Quarter):35-36.
- Soth, Lauren. 1985. "Financial Stress Among Farm Firms: Discussion." American Journal of Agricultural Economics, 67(December):1121-1132.
- Stinson, Tom F. and Michael D. Boehlje. 1987. "Dramatic Tax Rule Changes: Significant But Not Immediate Effects." Choices, 2(Second Quarter):13-17.
- Stucker, Barbara C. and Keith J. Collins. 1986. "The Food Security Act of 1985: Major Provisions Affecting Commodities." National Economics Division, Economic Research Service, U.S. Department of Agriculture, Information Bulletin No. 497.
- Townsend, Terry. 1987. "Agricultural Outlook: The Agricultural Economy." Economic Research Service, U.S. Department of Agriculture, June.
- Washington State Department of Agriculture, Agricultural Statistics Service. 1986. "The Farm Financial Situation in Washington." A survey report, September.