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Financial Stress in Agriculture: Its Causes and Extent

EDITOR'S NOTE: This special issue is the first in a series of three publications that address the financial problems incurred by many Minnesota farmers during the past few years. This first issue outlines the national and international economic development that led to the current agricultural financial situation in this state. It also presents the best available information on the extent of financial stress in the Minnesota agricultural economy.

A second special issue will set forth and discuss public sector assistance programs at the state and federal levels that attempt to resolve or reduce the impact of adverse farm finances. A third special issue will consider alternative private sector responses: How can farmers, alone or in conjunction with lenders, properly address their financial plight?

Ian R.M. Bain and Jo Ann Paulson*

I. Financial Stress in Agriculture

The 1970s were prosperous years for American agriculture. Worldwide demand for U.S. agricultural products was strong and helped maintain farm income levels. Farm land values rose over the course of the decade by about 50 percent in real (or inflation-adjusted) terms. The process of long-term structural adjustment toward a smaller, more capital-intensive agricultural sector seemed to have run its course.

In the past five years a dramatic turnaround has occurred. Farm incomes and land values have plummeted and export markets have dwindled. Operating expenses, especially interest costs, have greatly increased. Many farmers now have insufficient cash flow to service existing debt, finance continued operation of their farms, and provide for their families' liv-

ing needs. Some highly stressed farmers are facing foreclosure, forced liquidation, or bankruptcy.

Financial stress among farmers varies considerably, by nature of farm, by size of farm, and by location and region. Cash grain and livestock farms are the hardest hit. Typically, larger farms (above \$100,000 of annual sales) are the most financially stressed. The Great Lakes states, the northern Plains, and the Corn Belt are the most seriously affected regions. Also, the incidence of stress is higher among young farmers and operators who started farming in the late 1970s.

Financial stress is not limited to farmers. As net farm incomes have fallen, farmers have cut back on their purchases of farm equipment, farm buildings, and other capital assets. This has compromised the financial viability of farm capital asset manufacturers and suppliers. In addition, many farmers have been unable to meet their repayment obligations on existing loans and provide sufficient evidence of credit-worthiness for additional borrowing. As a result, the financial health of farm lenders and suppliers who provide credit for farmers has been threatened. In severe cases, rural communities themselves may be in jeopardy as farm operators leave

farming and rural banks and agribusinesses fail.

II. The 1970s: Good Years for American Agriculture

During the 1970s, few farmers encountered difficulties in financing farm asset expansion, repaying operating loans, or servicing longer-term debt obligations such as those arising from previous purchases of farm land or equipment. Several key factors combined to create such a situation. The first was high and increasing inflation.

The 1970s were years in which an unusually wide variety of supply shocks, demand shocks, and other changes in the general economic environment affected the American economy. Between 1973 and 1974 and again in 1979 there were large increases in the price of crude oil. In the first period, per barrel prices rose from about \$3 to about \$12. American businesses, farms, and consumers were confronted with sharply higher energy costs. At about the same time, the wage and price controls imposed by President Nixon in August 1971 were removed, releasing a large domestic demand for goods and services. The annual rate of inflation jumped



Ian R. M. Bain, left, and Jo Ann Paulson are the authors of this article.

*Bain wrote the section on macroeconomics and Paulson wrote the section on farm financial conditions in Minnesota

to over 11 percent in 1974 from about 3 percent in 1972.

Inflationary pressures reappeared in the early years of the Carter administration. Fiscal policies (the use of government spending and tax programs to affect economic growth, unemployment, and inflation) were unduly stimulative. In 1979, the price of crude oil again increased; this time it more than doubled. As before, the effects on inflation were significant. In 1977 the annual rate of inflation was about 6 percent. By the end of 1979, inflation exceeded 11 percent.

Apart from the reduction in monetary growth rates in 1974 and 1975, the Federal Reserve System (the Fed) typically responded to macroeconomic developments that otherwise would have lowered output and led to higher unemployment by pursuing a more expansionary monetary policy. (Monetary policy is the attempt by the Federal Reserve System to affect the availability of money and credit. Expansionary monetary policy increases the supply of money and credit and typically their rates of growth. Often expansionary monetary policy leads to higher rates of inflation, though this effect takes time to appear.)

Related to the inflation of the 1970s were increases in real estate values in general and farm land values in particular. Expectations that high rates of inflation and further increases in farm land values would continue into the 1980s appear to have become firmly entrenched in the minds of farmers and farm lenders in the last few years of the 1970s.

A second factor that contributed to the favorable conditions farmers faced in the 1970s was low "real" interest rates. In 1972, inflation and market rates of interest began to climb. Although the recession of 1975 temporarily halted their rise, both had reached double-digit levels by the end of the decade. However, nominal (or market) interest rates did not keep abreast of inflation. Indeed until 1980, the *ex post* real interest rate on financial assets (the nominal rate less actual inflation) was typically negative. For some financial assets, such as savings deposits at commercial banks, federal regulations limited the nominal interest rate payable to 5¹/₄ percent. Low *ex post* real returns on other financial assets presumably occurred because actual price increases were not fully anticipated. In any case many savers were led to invest in physical assets, such as valuable *objets d'art*, gold, and real estate, as a way of protecting the real value of their wealth. Farm land became an attractive hedge against inflation, even for those who had no interest in agriculture *per se*. The result was to add to the upward pressure on farm real estate

prices caused by inflation. Indeed, farm land values increased faster than the inflation rate, as they had done each year since World War II with only two exceptions.¹

American farmers also responded to the typically negative *ex post* real interest rates that characterized the last half of the 1970s. Many purchased extra farmland or new farm equipment that was financed by borrowing. This expansion of farm assets may well have been an attempt to take advantage of the economies of size present in agricultural production. Presumably, farmers rationalized such behavior by their expectation that export demand for U.S. agricultural products would remain strong, that land prices would continue to appreciate in real terms, and that real interest rates would remain low.

In any event, farmers who wished to borrow to finance farm expansion met little resistance. Rural banks were only too willing to grant loans out of the large pool of cheap funds they had available because of interest rate ceilings imposed by federal regulations. As nominal interest rates increased towards the end of the 1970s, lending became especially attractive. There is evidence that the Cooperative Farm Credit Banks also pursued lenient credit granting practices.² Many financial institutions appear to have based loan decisions on collateral values which included unrealized capital gains on farm land, and on the expectation that future cash flows would continue to be strong. It was this as much as anything that enabled many farm operators to refinance existing debt or purchase additional land and equipment in the later years of the decade.

Favorable international developments were the third main factor that made the 1970s relatively prosperous for American farmers. One was the move to a system of flexible exchange rates. From 1946 to early 1973, most countries were party to the Bretton Woods exchange rate regime. Its key provisions were that the U.S. government stood ready to buy or sell gold at \$35 per ounce and that other nations fix the values of their currencies to either the U.S. dollar or the British pound. An important requirement for the successful continuation of the Bretton Woods system was that inflation rates in different countries not differ appreciably.

This was not the case in the late 1960s as inflation rates in America started to increase while those in many countries—most notably West Germany and Japan—did not. The prices of German goods began to decline relative to those of American goods. German exports increased and imports fell, while American exports fell and imports increased. West

Germany began to experience large trade surpluses and the United States large trade deficits. This led many to believe that the Deutsche mark would be revalued. Were this to happen the prices of German goods would rise relative to those of American goods and trade between the two countries would come closer to being balanced.

Given the large trade imbalances, the Bretton Woods provisions could not and did not last. In May 1973, after three unsuccessful attempts to keep exchange rates fixed by revaluation of the mark, the fixed rate regime broke down. Countries moved instead to a system of flexible exchange rates. The legacy of the breakdown of the Bretton Woods system is that the American economy has been subjected to rather large variations in exchange rates. American agriculture, which has become critically dependent on strong export demand for its well-being, is now extremely sensitive to changes in world trade patterns and those factors that determine exchange rates.

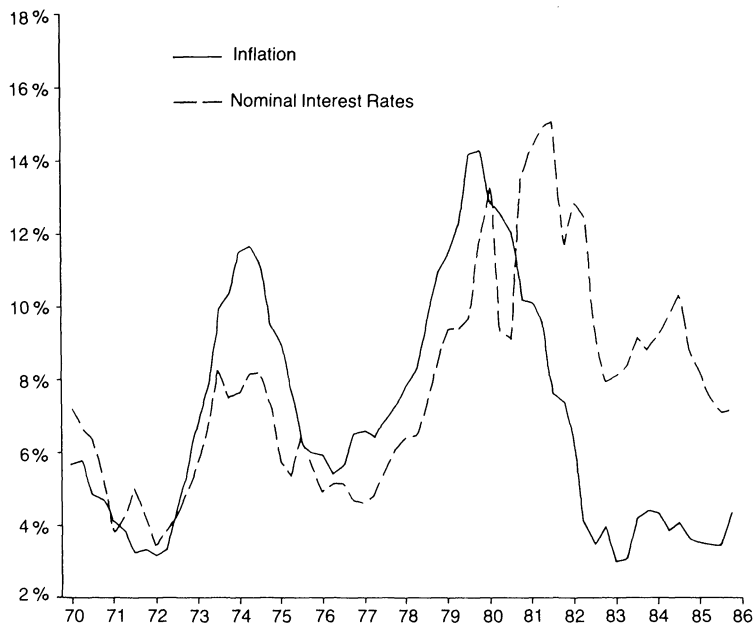
The second favorable international development was that between 1970 and 1980 the real value of American farm exports almost tripled. One important reason for this was the decline in the value of the dollar that began after the breakdown of the Bretton Woods System, and the stimulative effects that a lower valued dollar had on all American exports. Decisions about international trade involve three different prices. The first is the domestic price of the commodity under consideration. The second is the price of the commodity that prevails in another country, measured in the currency of that country. The third is the foreign price of the domestic currency, the exchange rate. The exchange rate is the amount of a foreign currency that can be exchanged for one dollar. If the exchange rate falls the dollar is said to decline in value or depreciate, since one dollar now purchases fewer units of the foreign currency.

Other things being equal, a low-valued or weak dollar reduces the prices of American agricultural products to overseas buyers. As a result they tend to purchase more food and fiber from the United States. This increases agricultural exports and helps maintain the prices of American agricultural products and farm income. A weak dollar also increases the prices that American consumers must pay for commodities produced overseas. As the prices of European wine and cheese become more expensive, domestic consumers are likely

¹See Duncan and Harrington (1986).

²See Knutson and Klinefelter (1986).

Figure 1. Annual Inflation and Nominal (or Market) Interest Rates, 1970-1985.



III. The 1980s: The Emergence of Financial Stress

In important senses, financial stress in the 1980s has its roots in the prosperity and optimism of the previous decade. Towards the end of the 1970s, people began to act as if the favorable conditions then prevailing would continue into the 1980s. Such expectations turned out to be quite wrong. Major changes took place in the late 1970s and early 1980s that brought about a tremendous turnaround in the fortunes of American agriculture. Domestic inflation, which reached double-digit levels in 1979 and 1980, fell dramatically. By 1983, the inflation rate was running at about 4 percent per year. Although nominal interest rates fell from the levels they reached in 1981, *ex post* real interest rates rose to historically unprecedented heights. Also, the value of the dollar stopped declining in 1980. Between 1980 and March 1985, the dollar appreciated by about 75 percent. World demand for American farm products began to weaken as they became increasingly expensive for foreign buyers. Strong export demand, which had contributed to the increase in farm incomes that took place during the 1970s, peaked in 1981. Since then, farm exports have fallen.

The lower inflation, higher *ex post* real interest rates, and appreciating dollar are a consequence of the interactions among the deregulation of financial markets, generally restrictive monetary policy, and overly expansionary fiscal policy. Over the past ten years or so, deregulation has had significant effects on both national and rural financial markets. Until the late

to purchase more Californian wine and Wisconsin specialty cheeses. Thus a weak dollar, other things constant, tends to benefit American agriculture by increasing exports and reducing imports.

Between 1970 and 1973, the trade-weighted value of the dollar fell by about 20 percent. Between 1973 and 1977, the trade-weighted value of the dollar was fairly stable. Between 1977 and 1980, there was another depreciation, of about 16 percent. Over the decade, the dollar declined in value against the currencies of the major trading partners of America by about 30 percent. This accounts for part of the dramatic growth in the exports of American agricultural products that occurred in the 1970s. Export growth was particularly strong in the early 1970s and after 1977, until exports reached a peak in 1981.

A second important cause of increasing U.S. farm exports was strong economic growth abroad. Growth was especially strong among the developing countries. Their real gross domestic product grew at an average annual rate of more than 5 percent over the decade. This, together with population growth and credit that was readily available from the industrialized countries, stimulated world demand for food and fiber. Indeed, developing countries had become important purchasers of American agricultural products. By the end of the 1970s, almost half (the dramatically larger volume) of U.S. farm exports were bought by these countries, compared with only 30 percent in 1970.³

Third, American exports of agricultural products were buoyed by poor crops. Bad weather over large parts of the world

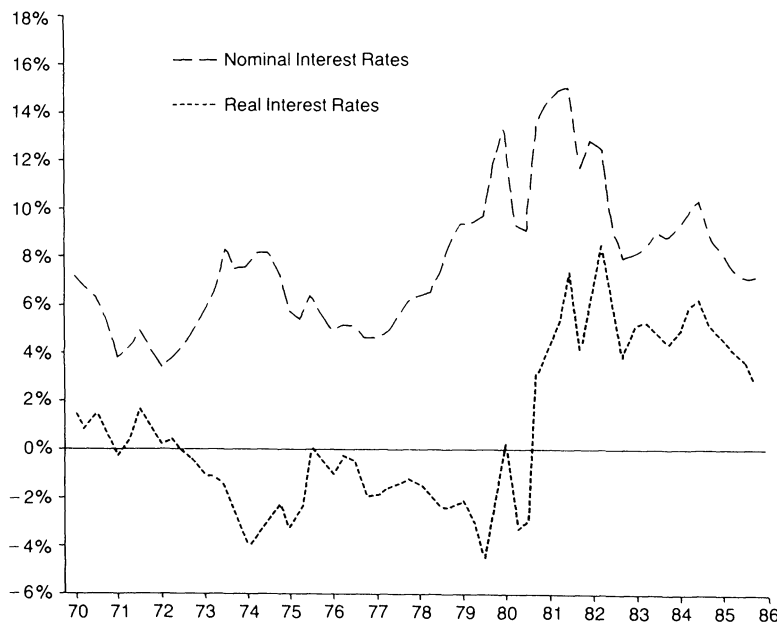
in 1972 led to a decline in world grain production for the first time in 20 years.⁴ The crops in the Soviet Union and other parts of Asia were particularly poor. In 1973, the Soviet Union imported over 20 million tons of grain, a large fraction of which was purchased from the United States. World grain production was also poor in 1974 and 1975.⁵ This ensured that American grain producers were able to sell all that they grew at very favorable prices.

³See Drabensstott (1985).

⁴See Johnson (1975).

⁵See Cochrane (1977).

Figure 2. Annual Nominal (or Market) and Ex Post Real (or Inflation-Adjusted) Interest Rates, 1970-1985.



1970s, American agriculture relied primarily on borrowing and internal sources of equity capital to finance investment in farm land and equipment. In addition, most of the credit sought was provided by a limited range of financial instruments and institutions. Institutional sources of credit have included the Farm Credit System and rural banks.

Before the 1970s, rural banks were largely isolated from national financial developments such as changes in interest rates. Like other commercial banks, rural banks have been heavily regulated since the Great Depression. Regulation Q, issued by the Federal Reserve System under legislation passed in 1933, prohibited the payment of interest on demand deposits, and imposed interest rate ceilings on pass-book savings deposits. Rural banks thus had access to a reliable source of cheap funds, which enabled them to offer a plentiful supply of reasonably-priced credit.

Deregulation began in the early 1970s. In 1974, money market mutual funds began allowing depositors to make withdrawals or payments from their interest-bearing accounts by check. Also, in mid-1978, depository institutions were allowed to offer market-related interest rates on a particular kind of consumer savings account called a money market certificate.

These and other innovations spread to rural financial markets by the late 1970s. Rural savers responded by moving their deposits from low-yielding savings accounts to money market certificates and money market mutual funds to take advantage of interest rates more in line with prevailing market rates. In 1979, for example, the annualized yield on a three month Treasury bill exceeded 10 percent. Rural banks could no longer depend on a reliable source of cheap deposits. Higher costs of funds and greater competition for savings resulted in lending rates that were higher and more responsive to market conditions.

The process of deregulation accelerated in the 1980s with the passage of the Depository Institution Deregulation and Monetary Control Act in 1980 and the Garn-St. Germain Depository Institutions Act in 1982. The former act provided for the gradual elimination of Regulation Q ceilings on interest rates for both checking and savings accounts, authorized other depository institutions to compete with commercial banks for consumer loans, and equalized the regulatory burden on different types of depository institutions. The Garn-St. Germain Act permitted new types of deposit accounts at depository institutions that were intended to be competitive with money market mutual funds.

In response to the high and increasing

inflation rates of the late 1970s, new objectives and operating procedures for monetary policy were introduced. In early October 1979, the newly appointed Chairman of the Board of Governors of the Federal Reserve System, Paul Volcker, announced steps intended to control monetary growth more effectively. The discount rate was increased, and reserve requirements were imposed on certain types of commercial bank liabilities. Of greater significance was that the Federal Reserve System undertook to shift its emphasis from controlling interest rates to targetting growth rates for the various measures of the money supply, such as M1. (M1 consists primarily of currency and checkable deposits at all types of depository institutions. These include commercial banks, savings and loans, and credit unions.) It was expected that these changes would enable the Fed to exert stricter control over the growth of the monetary aggregates and would result in interest rates that were more responsive to market forces. Finally, it was announced that the growth rate targets for M1 would gradually be lowered so as to reduce inflation.

The effects of the October 1979 changes were dramatic. Monetary growth rates became more variable than they had been since World War II, even though the new procedures for monetary policy implementation were intended to provide stricter control over monetary growth. Nominal interest rates also became more volatile. More importantly, they significantly increased. At the beginning of October 1979, the prime rate charged by commercial banks was about 13 percent. By the end of 1980 the prime rate had reached 21½ percent. It remained above 15 percent until the summer of 1982.

In August 1982, the Federal Reserve System began to ease monetary policy, for at least two reasons. The first involved the severity of the 1982 recession. The unemployment rate in the summer of 1982 was almost 10 percent, and there was little evidence to suggest that it would soon fall. The second reason was attributed at least in part to the deregulation of financial institutions that had been quickening over the 1970s and early 1980s. As a result, the Fed allowed monetary growth to accelerate.

Despite the volatility of monetary growth rates and nominal interest rates since 1979, inflation has steadily fallen. The average annual rate of inflation in 1980 and 1981 was about 10 percent. By 1983, the annual inflation rate had fallen to 4 percent, and has remained there since.

In 1981, fiscal policy once again became unduly expansionary when legislation proposed by the recently-elected

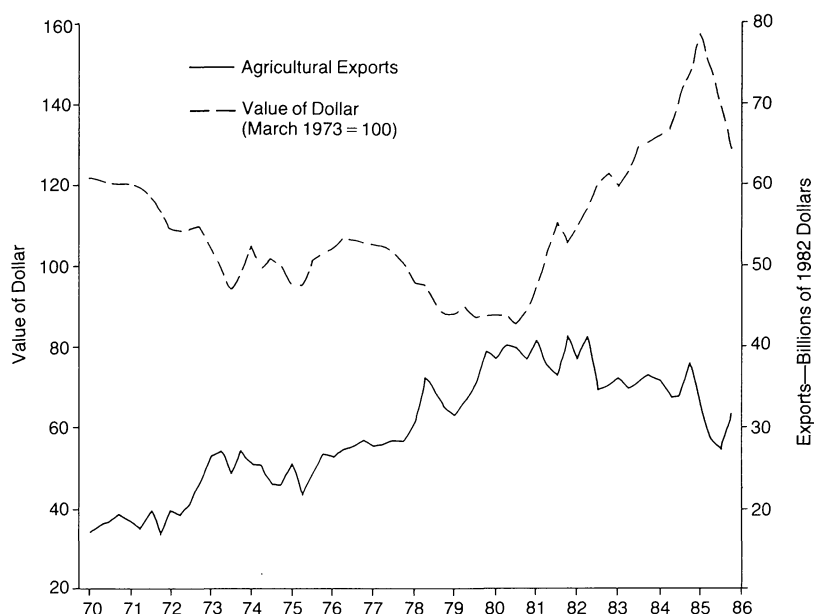
Reagan administration was enacted by Congress. Personal income tax rates and business taxes were cut with the announced aim of stimulating saving, investment, and growth, and improving productivity. At the same time real defense expenditures were increased. Tax revenues fell and government outlays rose. The real federal government budget deficit, which had averaged about \$50 billion between 1977 and 1980, significantly increased. Its average value from 1981 to 1985 exceeded \$140 billion. As the federal government sought to borrow sums of this magnitude from private savers, *ex post* real interest rates climbed to record highs.

By 1983, on-going financial market deregulation, restrictive monetary policy, and large budget deficits had led to a severe worldwide recession, lower domestic inflation, and high *ex post* real interest rates. High interest costs have hit American agriculture especially hard for two reasons. First, the farm sector is more than twice as capital-intensive as all other production sectors in the economy combined. Second, a large proportion of the farm land and new equipment that was purchased in the late 1970s was debt-financed.

Lower world demand for agricultural products has also adversely affected American farmers. Since 1979, world trade in agricultural products has grown at an annual rate of just 1.6 percent and the market share of U.S. farm exports has dropped significantly. These changes occurred for several reasons. First, an embargo on grain sales to the Soviet Union was imposed by President Carter in 1980 as a response to the Soviet invasion of Afghanistan. Because the embargo was lifted in early 1981 by the new Reagan administration, its direct impact on American agricultural exports was only temporary. A more damaging consequence is that the embargo brought into question the reliability of the United States as a supplier of agricultural commodities. It seems likely that importing countries concluded that they would be better served by buying such commodities from several countries rather than just one. Indeed, American farmers have yet to regain their pre-embargo share of the world market for agricultural products.

A second important reason for the fall in American farm exports is the behavior of the dollar since 1980. Partly because of falling domestic inflation and partly because of high *ex post* real interest rates, the dollar appreciated by about 75 percent between 1980 and 1985. As American agricultural products became increasingly expensive in terms of the domestic currencies of importing countries, less were purchased and American farm exports fell.

Figure 3. The Value of the Dollar and American Agricultural Exports, 1970-1985.



The third reason is that the United States is now widely perceived as being committed to keeping inflation under control. This, together with its traditional political stability, has made America a safe and attractive place to invest. However, the resulting inflow of additional foreign capital has put further upward pressure on the value of the dollar. American farm exports became even less competitive in already shrinking world markets. Other countries, primarily Canada, Argentina, Australia, and members of the European Common Market, moved quickly to capture the American market share.

Financial stress in American agriculture can also be linked to recent domestic macroeconomic policies. Although inflation has been significantly reduced, a severe recession was created both at home and abroad. Many developing countries began to experience problems repaying the debts they had taken on in the 1970s. As their economies slid into recession, *ex post* real interest rates rose, and the dollar appreciated. Foreign exchange was urgently needed for servicing external debt and little remained to pay for imported food and fiber. American exports to the developing countries fell dramatically in the 1980s, even though just a few years earlier in the late 1970s these countries had become the fastest growing market for American farm products.

The drop in American agricultural exports to the developing countries was exacerbated by national policy objectives of self-sufficiency in food production. Farm output in these countries rose by 33 percent

between 1972 and 1982, due largely to technological advances. New varieties of wheat, rice, and sorghum have been introduced and new, more resilient hybrids with higher yields are being grown. New irrigation programs and more successful pest control and fertilizer use have also significantly improved yields.⁶ The result has been that many countries once net importers of food and fiber are now self-sufficient, and several countries once self-sufficient are now net exporters. Today, India produces nearly all of its food requirements domestically. The People's Republic of China is now exporting cotton and corn. Even the Soviet Union, although still a major grain importer, is producing more grain internally as yields per acre have increased by about 30 percent over the last 10 years.

Domestic food markets are also growing more slowly than in the 1970s. This trend will continue. First, population growth in the United States has declined. This in itself tends to slow the growth in demand for American agricultural products. In addition, slower population growth leads to an increasing median age, which also tends to reduce growth in the demand for food. Second, there has been over the past 10 years or so a noticeable shift in demand away from red meats and dairy products towards poultry, vegetables, and fruits. Part of the response is due to relative price changes and the increasing median age of the American population. Another important influence has been the growing recognition that red meat and dairy products have untoward effects on health. To-

gether these have led to reduced demand for other agricultural products, which livestock and dairy farmers rely on for feed.

Federal tax and agricultural policies have also adversely affected American agriculture. By providing special benefits to those who make investments in agriculture, federal tax policies enable people to shelter income from taxation. Many agricultural investments provide opportunities to defer income from one year to another. In some cases, land development can be written off as a current expense and ordinary income can be converted into capital gains, which are taxed at a much lower rate. Agricultural investments are also eligible for investment tax credits and accelerated cost recovery programs.

Each of these factors stimulated additional investment in agriculture in the 1970s. Quite generally, federal tax policies seem to have led to over-investment in farm equipment and machinery. There is also evidence that too much new investment in livestock and livestock rearing facilities was carried out, partly because of favorable tax treatment. The use of agricultural investments as tax shelters has also increased the supply of certain farm products such as wine and avocados.

Recent domestic agricultural policies, in their attempt to maintain farm incomes, have often had the effect of holding excess resources in agriculture. In the 1970s, conditions were extremely favorable for profitable agricultural production. Demand for farm products was strong and real interest rates were very low. Yet price support programs in 1977 and 1978 maintained prices at levels higher than warranted by the market, thereby subsidizing the continued operation of marginal production units. As a result, excess resources were prevented from leaving agriculture in an orderly manner, backlogging the adjustment process that would be needed once economic conditions became less favorable.

Price support programs have had especially harmful effects in the 1980s. These programs place floors on the domestic prices of many agricultural commodities that are traded internationally. If the world price is lower than the domestic loan rate, American farmers sell what they have produced to the Commodity Credit Corporation (CCC) rather than exporting it. By 1985 farm exports had fallen from their 1981 peak and CCC stocks were at record highs. Another consequence is that the price risks faced by foreign farmers producing for export are reduced when the dollar is appreciating. This gives rise to

⁶See Avery (1985).

powerful incentives for increasing agricultural production abroad.

Thus, American price support programs in the 1980s have made it difficult for American farmers to maintain their share of world demand for farm products. Moreover, by setting unwarrantedly high loan rates as economic conditions deteriorated, recent domestic agricultural policies have inhibited necessary market adjustments. The result has been the re-emergence of excess capacity in American agriculture.

Excess capacity has been exacerbated by growing productivity in the U.S. farm sector due to the adoption of new cost-effective technologies. At current prices, domestic production capacity exceeds domestic and rest-of-world demand. The situation seems unlikely to change substantially in the next few years, since farmers in other countries have also taken advantage of new technological innovations.⁷ Production capacity elsewhere has increased, especially in the developing countries. At the same time, world production costs have fallen to levels below those for some less efficient American farmers.

To summarize, significantly different economic conditions in the 1980s have led to financial stress in American agriculture. Financial market deregulation and the fiscal and monetary policies pursued have resulted in record high real interest rates, a significant appreciation of the dollar, and a severe worldwide recession. The consequences have been dramatic. As U.S. farm exports fell and farm interest costs rose, net farm income declined. Financial problems were compounded by inappropriate federal tax and agricultural policies, which brought additional resources into American agriculture in the 1970s and prevented the orderly exit of excess resources thereafter as conditions deteriorated. Growing productivity both at home and abroad suggests that American farmers are likely to experience financial hardship for several years to come.

IV. The Distribution of Farm Financial Stress in Minnesota

The distribution of financial problems among farmers is central to our understanding of the long-term economic consequences of the current situation. These consequences will have both human and structural implications for the agricultural sector. First, there is very little reliable information about who is leaving the farm sector, how many are leaving, and why

they are leaving. How many farmers left in the last few years because of retirement postponed during the high income years of the 1970s, because of the long-term structural adjustment to a smaller farm population evolving for decades, or because many were inefficient managers who survived only because of high income during the 1970s? How many were young farmers who entered in the late 1970s? To the extent that more productive farmers are being forced to leave the sector, the long-run productivity of the sector will be hurt.

Second, so far most financial restructuring has taken place through the market system. Little is known about how this has changed the concentration in the ownership and control of assets. Will the results be acceptable? It is not known how changes in productivity, concentration, and financial performance will effect the longer-term ability of the farm sector to compete in world agricultural markets. The answers to these questions would help to clarify the nature of farm financial problems and serve as a basis for policy recommendations.

Questions on the distribution of financial problems can not be answered from aggregate data. Average values can not be used to determine how many farmers are in trouble. Distribution questions must be answered from cross-sectional farm surveys. There are three farm financial surveys with information relevant to conditions in Minnesota: 1) the USDA Cost and Returns Survey completed in late 1984 combines results for Wisconsin, Michigan, and Minnesota; 2) the Minnesota Department of

Agriculture Farm Financial Survey done in September 1985; and 3) a nine-state survey conducted by other Midwestern states in January 1986. These studies will be discussed in chronological order.

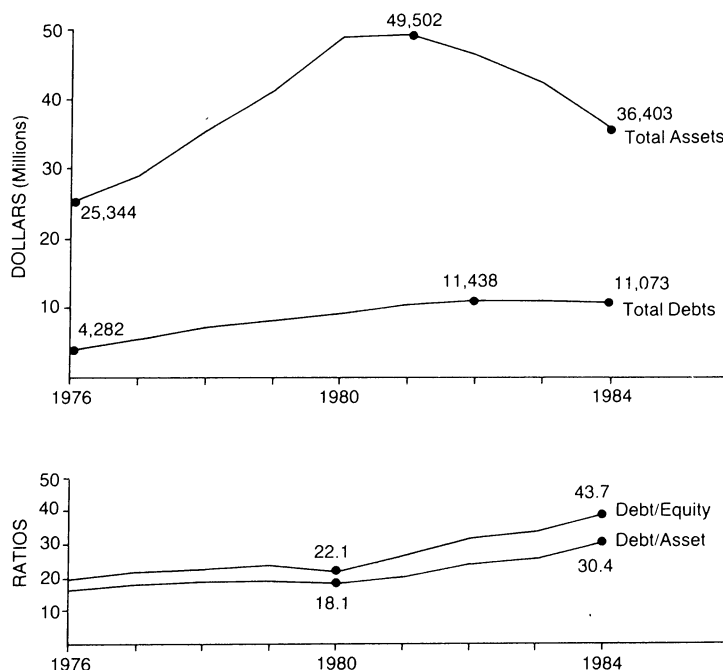
USDA Costs and Return Survey⁸

The USDA Cost and Returns Survey found that farmers in the Great Lakes states of Minnesota, Wisconsin, and Michigan were operating with appreciably higher debt-to-asset ratios than the national average. As of January 1, 1985, 15.8 percent of the producers in the Great Lakes states had debt-to-asset ratios of 40 to 70 percent, 9.8 percent had ratios of 70 to 100 percent, and 3.3 percent were technically insolvent with debts greater than assets. One-third of the farm debt in these states was held by producers with debt-to-asset ratios of 40 to 70 percent, and an additional 30 percent of the debt was held by producers with ratios of over 70 percent. However, the USDA survey also found that farmers in the northern Plains states (North Dakota, South Dakota, Nebraska, and Kansas) and the Corn Belt (Iowa, Illinois, Indiana, Missouri, and Ohio) are also experiencing financial stress. So, the USDA study found that farmers in Minnesota are indeed facing financial problems, similar to the problems in surrounding states.

⁷See Avery (1985).

⁸U.S.D.A./E.R.S., "Financial Characteristics of U.S. Farms, January 1985." Agricultural Information Bulletin No. 495, July 1985.

Figure 4. Minnesota Aggregate Farm Assets and Debts, 1976-1984.



The 1985 Minnesota Farm Financial Survey⁹

The Minnesota Department of Agriculture conducted a survey in September 1985 on the financial position of farmers. Questionnaires were mailed to a sample of 26,000 farmers operating 80 acres or more. Approximately 5,400 forms were returned, a response rate of about 20 percent, although many questionnaires were incomplete. The survey provided some information about the extent of financial problems. However, it is difficult to evaluate how representative the survey results are because of possible response bias and lack of comparable base-line information.

The sample for the 1985 Farm Financial Survey was selected randomly, but those who responded did so voluntarily, thus, creating a bias in the response pattern. There is no agreement on the expected direction of this bias. Voluntary surveys typically show more financial stress than is found in studies with better control of the response pattern, suggesting that producers with financial problems are more likely to respond to voluntary surveys. However, some have argued that mail surveys may understate financial stress, because farmers with severe financial difficulties might be less likely to take the time to respond to a questionnaire.

An additional problem with estimating representativeness is the lack of base-line information about the farm sector. The last agricultural census was done in 1982. By Minnesota Department of Agriculture estimates, there are 6,000 fewer farms today.¹⁰ It is not known to what extent this has changed the size distribution of farms. The 1982 census covered all producers with sales over \$1,000, while the 1985 Minnesota Farm Financial Survey sampled only producers with over 80 acres. Because of the decline in the number of farms and the difference in sample selection, the 1982 census is not directly comparable to the 1985 survey, but it is the only base-line information available.

A comparison of the 1982 census and the 1985 survey shows that the 1985 survey included fewer respondents under 35 and a greater proportion of middle-age producers, especially those age 55 to 64. The 1985 survey provides more representation from the southern and central parts of the state and less from the northwestern part of the state. Also, a higher proportion of large producers responded to the 1985 survey than to the 1982 census. Because of uncertainty in the response bias and the lack of reliable tests for representativeness, the results from the 1985 survey must be treated with caution.

To date, the Minnesota Department of Agriculture has released some descriptive statistics from the 1985 survey, most of which use the debt-to-asset ratio as the indicator of financial stress. Three groups seemed to be more likely to be highly leveraged: young farmers, large producers, and farmers in southern Minnesota.

While the overall average debt-to-asset ratio on January 1, 1985, was 51.1 percent for all survey respondents, the average for operators under age 35 was 76.1 percent. Of the respondents under age 35, 27.4 percent were technically bankrupt (debts greater than assets), 30.1 percent had debt-to-asset ratios between 71 and 99 percent, and 26.0 percent had debt-to-asset ratios between 41 and 70 percent. The age group 35 to 44 also showed a significant number of highly leveraged producers. Of operators age 35 to 44, the average debt-to-asset ratio was 64.7 percent. Two-thirds of the technically insolvent producers were under age 45.

On average, large producers had higher debt-to-asset ratios than small or medium-sized producers. The 208 respondents (8.3 percent of those responding to this question) with gross sales of \$250,000 or more held almost 30 percent of the debt reported. For the portion of this group with gross sales from \$250,000 to \$499,999, the average debt-to-asset ratio was 61.2 percent. For the respondents with gross sales over \$500,000, the average debt-to-asset ratio was 74.6 percent. However, financial stress was not limited to large farms. Almost one-third of mid-sized farms (gross sales \$40,000 to \$249,000) had debt-to-asset ratios of greater than 70 percent.

A high proportion of respondents from southern Minnesota showed financial stress. About one-third of the respondents in the southern part of the state claimed to have a debt-to-asset ratio of over 70 percent. Farmland values have declined more in the southern part of the state than other areas, driving down the value of farm assets.

The Minnesota study also found most debt is held by a minority—albeit a signifi-

cant minority—of producers. About 30 percent of the respondents had debt-to-asset ratios of 70 percent or more. These producers held 56 percent of the debt but only 29 percent of the assets (Table 1).

Most of the information released by the Minnesota Department of Agriculture has used the debt-to-asset ratio as a measure of financial stress. This characterization of financial stress alone is incomplete. Other important dimensions of financial position include annual debt-servicing requirements, owned equity levels of the producers, return earned on assets, and total level of non-farm and farm income. Some enterprises or ownership arrangements may be capable of servicing a high debt load with a small asset base.

The Minnesota Department of Agriculture also provided limited information on one other dimension of the financial position of producers: interest payments. At the end of 1984, USDA estimated that interest paid on farm mortgage debt was 7.4 percent of gross farm income in Minnesota. Results from the farm record-keeping associations in the state suggest that total interest payments were about 15 percent of gross income. Some 45 percent of the respondents to the 1985 survey were paying 10 percent or less of gross farm income for interest, an additional 26 percent of the respondents were paying between 11 and 20 percent, and 15 percent were paying 21 to 30 percent. About 13 percent of the respondents were paying over 30 percent of their gross income in interest payments. While this clearly shows the heavy debt-servicing burden of some producers, the results also show that almost half of the respondents who claimed to have debt-to-asset ratios of 100 percent or more were paying 20 percent or less of their gross income in interest payments. This finding illustrates the point that financial stress is a

⁹The report from the 1985 Farm Financial Survey of the Minnesota Department of Agriculture is available in the Interagency Task Force Report.

¹⁰This estimate is subject to a wide margin of error since it is calculated as a residual.

Table 1: Distribution of Debts and Assets Among Survey Respondents By Debt-to-Asset Ratio, January 1, 1985

Debt-to-Asset Category	Percent of Farmers	Percent of Debt	Percent of Assets
0-10%	24.4	1.1	17.8
11-40%	23.4	13.7	26.4
41-70%	22.7	29.3	27.2
71-99%	16.8	31.2	19.0
100% and Over	12.7	24.7	9.6
Total	100.0	100.0	100.0
Respondents = 3,708			

Source: Minnesota Farm Financial Survey, 1985. Minnesota Department of Agriculture.

multidimensional concept, and suggests that more detailed analysis of the survey results is needed.

Nine-State Survey

During January 1986, nine Midwestern states—Illinois, Iowa, Kansas, Michigan, Missouri, Nebraska, North Dakota, Ohio, and Wisconsin—carried out coordinated surveys of farm financial conditions. In that survey, Iowa, North Dakota, Nebraska, Kansas, and Illinois showed the most financial stress with the average debt-to-asset ratio of survey respondents over 30 percent. These five states also had over 10 percent of respondents with debt-to-asset ratios of 70 percent or greater. The Minnesota survey showed an average debt-to-asset ratio of 51 percent, and 29 percent of respondents claimed to have debt-to-asset ratios of 70 percent or greater (Table 2).

How can the pessimistic findings of the Minnesota survey be reconciled with the less bleak assessments of the other two surveys? One possibility involves the timing of the surveys. This seems an unlikely avenue of reconciliation, since the Minnesota survey was conducted between the other two surveys. A more likely explanation is based on sample selection criteria and the different methodology of follow-up for those who did not initially respond to the surveys. USDA and the other states sampled from producers with gross sales of \$1,000 or more, while the Minnesota survey selected the sample from producers with 80 acres or more. Also, the USDA and the nine-state studies had more controls for response bias. The other states collected information from non-respondents by telephone. Minnesota contacted some non-respondents and encouraged farmers to return the questionnaire but did not collect information over the phone. Preliminary results from the Iowa survey suggest that small farmers were less likely to respond by mail. Most information for farmers cultivating between 10 and 50 acres was obtained by telephone. Because Minnesota did not gather information over the telephone, the Minnesota survey gave better coverage to large rather than small farmers. The USDA survey found that operators of small farms are least likely to be experiencing financial stress. The Minnesota survey emphasis on large farms undoubtedly contributed to the finding that farm financial conditions are worse in Minnesota than in other areas. However, there is no way to separate the effects of the large farm bias from the response bias, so no clear conclusions can be drawn.

Table 2. Financial Information for All Farms in Nine Midwest States, January 1, 1986

States	1985 Avg. Gross Sales	Average Debt/Asset Ratio	Operators with Debt/Asset Ratio			Operators Expecting to Quit in 1986
			Less than .40	.40 – .69	.70 and greater	
	\$		percent			
Illinois	89,286	0.31	71	18	11	5
Iowa	112,220	0.37	62	22	16	5
Kansas	70,352	0.32	69	18	13	6
Michigan	77,665	0.29	77	18	6	4
Missouri	42,251	0.25	79	14	7	6
Nebraska	117,921	0.34	63	23	14	6
North Dakota	95,946	0.35	62	23	15	3
Ohio	59,424	0.21	83	13	5	5
Wisconsin	94,115	0.26	75	19	7	4
Minnesota	112,356	0.51	48	23	29	N/A

Note: The Minnesota data are as of January 1, 1985, and the gross sales are for 1984.

Source: North Dakota Crop and Livestock Reporting Service. "Farm Financial Survey, January 1986," and Minnesota Department of Agriculture.

Other Surveys

Three other sources of information exist on one of the implications of financial stress in agriculture: farm exit. These include the surveys of rural bankers conducted by the Federal Reserve Bank of Minneapolis and Norwest Bank, and the farmland survey done by Dion and Raup.

In October 1985, the 250 rural Minnesota bankers who responded to the Norwest Bank survey, estimated that 3.7 percent of their farm customers went out of business during the preceding 12 months and 5.9 percent were likely to leave in the next 12 months. The 100 bankers from throughout the Ninth Federal Reserve District¹¹ who responded to the Federal Reserve survey in September 1985 estimated that 7.1 percent of farmers in the district left farming during the period April-September 1985—4.7 percent left for financial reasons, while 2.4 percent left for reasons unrelated to financial stress. An additional 6.9 percent of district farmers partially liquidated assets. The September estimates were up considerably from the estimates of March 1985, which indicated that 4.1 percent of district farmers had gone out of business between October 1984 and March 1985—3.2 percent because of financial stress and .9 percent for reasons unrelated to financial stress. Farm exits for reasons other than financial stress were important throughout 1985.

Corroborating these results, the Dion and Raup farmland survey found that retirement was the most important single reason for land sales in the first half of 1985, accounting for 25 percent of the number of tracts sold, with an additional 17 percent of the sales attributed to death. The survey found 18 percent of land sales were to reduce the size of the farm operation, and 16 percent were directly related to financial difficulties or foreclosures.¹² In addition the farmland survey found that at least part of the farming community was willing and

able to invest in the agricultural sector at that time. Of the purchased acreage reported to the Dion and Raup survey in 1985, expansion buyers accounted for 67 percent, investor buyers who do not plan to operate the farms directly accounted for 19 percent, and sole-tract buyers purchased 14 percent.

To conclude, the information available does not provide a clear picture of the distribution of financial problems in agriculture in Minnesota or on which farmers are leaving agriculture and why. A great deal of uncertainty continues because of the often conflicting findings of the surveys. The sources of data available are not complete enough or reliable enough to provide a detailed analysis of farm financial conditions and the implementation of the current financial relief programs.

V. Lenders and Lending Rates

The combination of bank failures, legislative debate on the Farm Credit System in 1985, and response of lenders to the Minnesota farm legislation passed early in 1986 focused attention on the viability of the major agricultural lenders. Two concerns have emerged. First, as financial problems of farmers are transmitted to the lending institutions, the resulting financial problems will be passed back to farmers through reduced credit availability and higher interest rates. Second, the weak financial position of some farm lenders will lead to institutional failures, leaving some viable producers without access to credit and restricting the supply of financial services in rural areas.

According to USDA data for the end of

¹¹Includes Minnesota, North Dakota, South Dakota, Montana, northwestern Wisconsin, and the upper peninsula of Michigan.

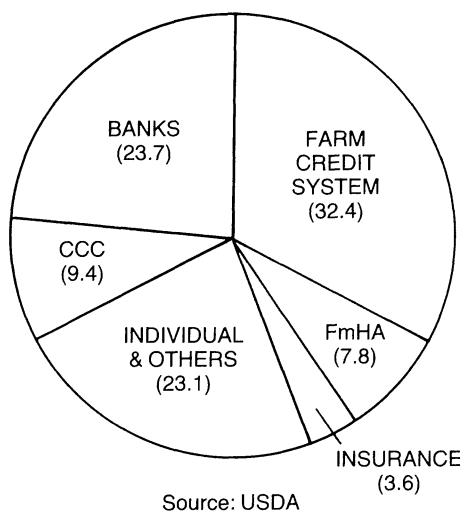
¹²See Dion and Raup (1986).

1984, Minnesota farm debt (including farm household debt and the debt of non-operator farm landlords) totaled \$11.7 billion, with \$5.8 billion of farm real estate debt and \$5.9 billion in non-real estate debt. Most of the farm real estate debt was owed to the Federal Land Bank or to individuals and others. The break-down in farm real estate credit by lender was \$2.7 billion to the Federal Land Bank, \$1.9 billion to individuals and others, \$427 million to life insurance companies, \$391 million to Farmers Home Administration (FmHA), and \$372 million to commercial banks. The major sources of non-real estate debt were banks with \$2.4 billion, the CCC with \$1.1 billion, and Production Credit Associations (PCAs) with \$1.0 billion. Official estimates of debt outstanding at the end of 1985 will not be ready until near the end of 1986. Information available now suggests that credit from individuals and others, commercial banks, and Farm Credit System all fell. Direct lending and loan guarantees by FmHA increased.

Nominal interest rates in the economy have declined from the extremely high levels of the early 1980s, but agricultural interest rates are still high and now include significant risk premiums for some borrowers. Borrowing rates at the Federal Land Bank have increased twice in recent years, partially to cover loan losses and bad credit risks. The borrowing rate from the Federal Land Bank Associations (FLBAs) was 12.75 percent in the third quarter of 1985, which was an effective borrowing rate of 13.42 percent after adjusting for the stock requirement. The average weighted PCA borrowing rate at that time was 12.5 percent, an average effective PCA rate of 13.96 percent after adjusting for the stock requirement. Average nominal agricultural lending rates at commercial banks have also declined from the extremely high levels of 1980 and 1981, but not as rapidly as the prime lending rate or urban interest rates. The average lending rate on agricultural operating loans was just under 13 percent in December 1985. With inflation less than 4.0 percent, the average *ex post* real agricultural interest rate was about 9 percent, which was still very high by historical standards. However, there was considerable variation in the rates paid by borrowers depending on the risk of the loan, the financial condition of the lender, and the use of credit guarantees or interest rate reduction programs.

Attention is now turned to the stability and performance of the three major institutional sources of farm credit: Farm Credit System, commercial banks, and Farmers Home Administration.

Figure 5. Market Share of Minnesota Farm Debt by Lender, December 1984.



Farm Credit System

The Farm Credit System (FCS) provides about one-third of total farm credit in Minnesota. The FCS grew and prospered with the strong farm economy of the 1970s. FCS repayment rates were even better than agricultural banks, and interest rates were lower. However, in recent years lending by the system has declined because of the financial problems of the agricultural sector and the FCS. Nationally, and in Minnesota, FCS lending has declined but the market share of the Farm Credit System has remained almost constant. Total farm credit from the Federal Land Banks and the Production Credit Associations in Minnesota was \$3.6 billion at the end of 1983, \$3.4 billion at the end of 1984, and \$3.2 billion by September 1985. There are approximately 40,000 Farm Credit System borrowers in the state.

It is clear that the problems of the farm sector have led to a deterioration of the quality of the FCS portfolio and a decline in earnings, but it is difficult to evaluate the large losses reported in 1985. A host of factors confound interpretation of the information released by the Farm Credit System in the past few months: new accounting procedures, poor repayment, a new loss sharing agreement among districts, and the call for federal assistance. The FCS adopted new accounting procedures and standards in 1985 which increased reserves for future loan losses and dramatically reduced reported income. In addition, FCS had to balance the needs to calm outside investors who hold Farm Credit System bonds with convincing Congress of the

need for federal financial assistance.

Reports of expected loan losses and declining earnings for the Farm Credit System during 1985 led to the Farm Credit Amendments Act of December 1985. This legislation seemed to relieve some, but not all, of the uncertainty surrounding the viability of the Farm Credit System. The legislation relieved the immediate fears in money markets about investing in the FCS, but did not remove the long-term uncertainty about whether federal funds will be made available or about the viability of the new capital corporation.

The Farm Credit Amendments Act also formalized a mechanism for supporting weaker regions within the Farm Credit System. The 12 FCS districts are now linked by a mandatory system of sharing funds to cover losses. Over \$600 million were channeled to the Spokane and Omaha regions, including a \$52 million contribution by the St. Paul district in 1985. The provisions for pooling future losses may have clouded year-end financial reports. The loss-sharing arrangement was an incentive for the stronger districts to increase their own loan-loss reserves rather than support the weaker districts.

The Farm Credit System in the upper Midwest showed large losses in 1985. Of the reported losses of \$2.689 billion in the Farm Credit System, \$573.6 million were losses reported in the St. Paul district, which covers Minnesota, North Dakota, Wisconsin, and Michigan. The St. Paul district had 15 percent of the FCS loan volume, but reported 21.3 percent of the losses in 1985. Heaviest losses were reported by the Federal Land Bank. Total allowance for future losses rose from \$187.8 million at the end of 1984 to \$605.8 million at the end of 1985. Additions to reserves were subtracted from 1985 profits and are not subject to the loss-sharing arrangement among regions, and therefore signal that the St. Paul district will have limited funds to share with the weaker districts. Of the 12 districts in the Farm Credit System, only the Springfield (Mass.) and Baltimore districts did not report losses in 1985.

Even though the large losses reported for the St. Paul district in 1985 may have overstated the decline in earnings, other financial indicators also showed a decline in performance between the end of 1984 and the end of 1985. The capital base declined from \$1.9 billion to \$1.2 billion. Loans in non-accrual status rose dramatically from \$301 million to \$1 billion. Loan losses rose from \$65.4 million in 1984 to \$210.8 million in 1985. The amount of farm property acquired by FCS also increased from \$58.2 million at the end of 1984 to \$139.2 million

at the end of 1985. Most of the land acquired or repossessed by the St. Paul district was financed during the peak of land prices from 1979 to 1981, and less than 1 percent of the land was of top quality.¹³ This will change if conditions continue to worsen and farmers must relinquish control of better quality land under foreclosure and voluntary forfeitures.

A separate break-down of losses just for Minnesota is not available yet. However, there is evidence that repayment problems for the Farm Credit System in Minnesota have gotten worse in the last few years. Bankruptcies and foreclosures of Farm Credit System borrowers in Minnesota rose during 1984 and 1985, but were still relatively rare compared to the number of borrowers. The PCA loan volume involved in bankruptcy or foreclosure proceedings went from 1 percent or less before 1983 to 1.6 percent in 1984 and 3.1 percent in September 1985. Loan volume in bankruptcies and foreclosures status for the Federal Land Banks jumped from 2.9 percent at the end of 1984 to 4.9 percent in September 1985.

The Farm Credit System has responded to the less optimistic outlook for the farm sector in the 1980s by adjusting operating procedures. Local PCA and FLBA offices are continuing the process of restructuring and merging to strengthen the financial position of FCS in the state. However, consolidating weaker units may not be enough. The FCS will suffer if better clients are afraid of losing their stock value and withdraw from the system to search for cheaper sources of credit.¹⁴ In April 1986, the Federal Land Bank of St. Paul started charging differential interest rates on loans, depending on the quality of the loan, to attempt to stop the exodus of the most credit-worthy clients. Differential interest rates alone may not halt the exodus of the best clients from the Farm Credit System if they are afraid of losing the value of their required stock holdings.

Despite poor financial performance in 1985, St. Paul district officials of the Farm Credit System are predicting smaller losses in 1986 and positive earnings by 1987. It is too early to say how the Farm Credit System, especially the Federal Land Bank, will perform if farmland values continue to decline. Since most districts set aside large reserves for loan losses in 1985, and these reserves are not subject to the loss-sharing arrangements among districts, the weaker districts may still need federal assistance during the next few years. Uncertainty about federal assistance could easily drive the costs of funds for the Farm Credit System higher in the future.

Commercial Banks

The level of agricultural credit from commercial banks in Minnesota was \$2.68 billion at the end of 1983, \$2.70 billion in December 1984, and estimated to be \$2.4 billion at the end of 1985. This was about 8.5 percent of the total outstanding credit from banks in December 1985. While the aggregate ratio of farm loans to total loans in Minnesota is less than 10 percent, many rural banks are heavily exposed to farm credit risk. Some banks can, and have, diversified away from agricultural credit. However, many of the outstate banks have few other lending opportunities. The 582 commercial banks outside the Twin Cities metropolitan area have an average ratio of farm loans to total loans of 37 percent. Almost one-third of these banks have over 50 percent of total loans to farmers. This means that while the banking system as a whole in the state is not threatened by agricultural credit problems, many individual banks are.

Lending to farmers was a profitable business during the 1970s and early 1980s, but rural bankers, like farmers, have seen an erosion of earnings in the mid-1980s. After 1982, agricultural banks (the 63 percent of Minnesota banks with the ratio farm to total loans above the national average of 17 percent) experienced a decline in return on equity and on assets and repayment performance. The rate of return on equity for agricultural banks in Minnesota fell from 14 percent in 1982, to 11 percent in 1983, to 9 percent in 1984. Both nationally and in Minnesota, the delinquency rate at agricultural banks was lower than for non-agricultural small banks until 1982, about the same in 1983, but higher in 1984 and 1985. Between December 1984 and June 1985, the percentage of total loans more than 90 days delinquent in all banks in outstate Minnesota rose from 3.5 to 4.9. The percentage of total loans listed as renegotiated or troubled debt rose from .5 to 1.0. The higher delinquency rate reflects not only the problems in the farm sector but also the poor performance of the rural economy as a whole. The limited information available on farm loan repayment shows a sharp decline in repayment. There has also been an increase in the volume of farm loans moved to non-accrual, renegotiated, or troubled status. By September 1985, 8.4 percent of the farm portfolio was classified as nonperforming. Year-end 1985 data are expected to show a further increase in farm delinquencies in banks throughout the upper Midwest.

Commercial banks have had to absorb large loan losses as a result of agricultural

credit problems. Minnesota has one of the highest rates of farm loan losses in the country. While farm credit was under 10 percent of lending, almost one-third of the net loan losses taken by September 1985 were for farm loans.

For bankers, like agricultural producers, it is hard to generalize about financial conditions. Most banks are still considered "safe and sound." Many banks have transferred their weakest agricultural customers to FmHA. However, some banks have experienced high loan losses for several years. At the end of 1984, there were eight banks in Minnesota with non-performing loans greater than bank capital. By September 1985, there were 30 banks with non-performing loans greater than bank capital. Only part of this can be attributed to farm credit problems since several of the troubled banks were not heavily involved in farm lending. The combination of significant non-performing loans, low or negative earnings, and bank capital eroded from high loan losses over the last few years could signal future trouble for some commercial banks.

There was one bank failure in Minnesota in 1983, four in 1984, and six in 1985. Because bank regulators have decided to impose market discipline on small banks and allow banks to fail rather than bailing them out, the number of bank failures is likely to increase. Agricultural loans, like commercial real estate and energy loans, are areas of rapidly declining asset quality, and there will continue to be a relationship between banks heavily exposed to agricultural credit risk and bank failures. However, few bank failures have been exclusively due to agricultural credit problems. Most failed banks have been taken over by new management immediately, which guarantees continuing service for depositors, but not necessarily for borrowers.

Most commercial banks in Minnesota are not short of funds, but most are hesitant to increase farm lending. The average loan-to-deposit ratio reported by agricultural banks in the December 1985 survey of the Federal Reserve Bank of Minneapolis was 60 percent, and most bankers indicated that this was lower than desired. The problem is not lack of funds, but rather lack of viable lending opportunities and overexposure to agricultural credit risk.

¹³See General Accounting Office (1985).

¹⁴See Todd (1986).

Farmers Home Administration

The Farmers Home Administration (FmHA) is the "lender of last resort" for the farm sector. This federal agency has historically played a major role in absorbing questionable farm debt in areas with less profitable agriculture. In 1985, FmHA played a small but pivotal role in agricultural credit markets in the upper Midwest.

At the end of 1984, FmHA held about 12 percent of the farm debt nationally and about 8 percent of the farm debt in Minnesota. FmHA credit outstanding in Minnesota increased from \$835 million in September 1983, to \$919 million in September 1984, and to \$1,055 million in June 1985. The amount of credit outstanding from Farmers Home Administration understates the important role FmHA played in farm credit markets in 1985 by guaranteeing farm credit from commercial banks and Farm Credit Services. The guarantee program extends credit to farmers who might not qualify from other sources, and it also transfers some of the expected farm loan losses from local lenders to the federal government. Between October 1, 1984, and September 30, 1985, the FmHA guaranteed 1,962 farm operating loans and 44 farm ownership loans in Minnesota totaling \$190.6 million. This was a dramatic increase over FmHA guarantees for 90 farm borrowers for \$9.2 million in Minnesota during 1984.

Throughout the upper Midwest both direct lending and loan guarantees from FmHA during 1985 were much higher than originally planned. Total new lending and guarantees in Minnesota in 1985 was \$422.7 million, compared to the original allotment of \$140.9 million. Federal funds to supplement the state allotments may be more limited in 1986. The Minnesota FmHA allocation for fiscal year 1986 for farm operating loans is \$76.5 million for insured (direct) lending and \$79.2 million for guarantees. For farm ownership loans, the allocation is \$17.4 million for direct lending and \$11.1 million for guarantees. The ability of FmHA to absorb loan losses from other farm lenders and fund high-risk borrowers in the future may be limited by deficit reduction measures and lack of discretionary funds to supplement the original allotment.

As the lender of last resort, FmHA has a poorer repayment record than other farm lenders. Farm loan losses for FmHA are likely to be even greater in the future because of the guarantees provided to high-risk borrowers in 1985. In Minnesota, loan delinquencies at least one day past due rose from \$53.2 million in September 1982, to

\$92.3 million in September 1983, to \$121.8 million in September 1984, and to \$177.4 million by June 1985. FmHA delinquencies continued to increase throughout 1985 while the agency was under court order to change operating procedures before resuming foreclosure activities. Foreclosure action was resumed in February 1986 when FmHA sent notices to all delinquent borrowers. FmHA delinquency notices were sent to 2,800 Minnesota farmers. At that time, there were 10,262 FmHA borrowers in Minnesota with 27,893 loans, so almost one-fourth of the FmHA borrowers were behind schedule in repayment.

To summarize, during 1985 credit outstanding from commercial banks and the Farm Credit System in Minnesota declined. The FmHA increased both direct lending and guaranteed farm loans through other institutions. By the end of 1985 many farm lenders had taken large loan losses and still had loans in non-accrual status that must be written off.

There were six bank failures in Minnesota in 1985 and by the end of the year over 30 banks had non-performing loans greater than bank capital. Farm repayment problems were compounded by the poor performance of the rural economy in general. But there is tremendous variation in the financial conditions of rural banks. Many remain quite profitable. Some will have to take advantage of the new leniency by federal regulators and let their capital drop below the required limit to survive. Others will not survive.

The Farm Credit System ended 1985 with large losses and high non-performing loans. The Farm Credit Amendments Act passed late in 1985 was only a temporary bandage for the repayment problems of the system. The critical question of how much federal assistance will be available for the FCS has not yet been resolved. Since most districts reported large losses in 1985, there is little hope that the FCS can remain viable without federal aid. In addition, the system faces the threat of exit by its most credit-worthy customers.

FmHA played a pivotal role in 1985 with supplemental allotments to the direct lending and guarantee program. The guarantee program allowed private-sector lenders to continue extending credit to farmers while transferring most of the associated risk to FmHA. As a federal agency, FmHA has already cut the credit allotment to Minnesota for 1986 to comply with deficit-reduction measures, and discretionary funds may not be available. The ability of FmHA to serve as lender of last resort may be crippled by federal spending

limitations. The information reviewed signals restricted farm credit availability from all sources in 1986.

VI. Concluding Remarks

The first part of this paper reviewed the macroeconomic trends that converged in the 1980s to squeeze farmers who had relied heavily on debt-financing. The transition from a high-inflation to a low-inflation economy with a large federal deficit forced significant adjustment costs on many sectors of the American economy, including the agricultural sector. Real interest rates rose, agricultural exports fell, and farmland prices plummeted. Hindsight gives a fairly clear view of the forces that caught heavily-indebted farmers in a financial squeeze. Unfortunately, we do not have nearly as clear a view of how the financial problems are spread across the agricultural sector.

Past farm surveys have found considerable variation in the financial position and profitability of farmers by region, farm enterprise, ownership, size of farm, age of operator, and financing arrangement. For Minnesota we need answers to the following questions: What are the dimensions and distribution of financial problems in the farm sector? Who is leaving the farm sector and why? Is market adjustment compatible with long-run social and economic goals for the farm sector? What is happening to the control of farm assets? For most of these questions, there has been informed speculation but little solid evidence. Attempts to gather reliable information for Minnesota in 1985 through a farm survey were hampered by a low response rate, probable response bias, and incomplete characterization of financial stress.

Lack of reliable information has compounded the already difficult task of designing policies for the agricultural sector that respond to the call for short-term aid which is compatible with the long-term needs of the sector. Without detailed information it is difficult to identify those farm operators who realistically can be placed back on a firm financial footing. In a time with limited public-sector aid for the sector, tightly-crafted eligibility criteria are needed to help as many people as possible without dissipating program benefits. The information needed to devise finely-targeted aid programs for the farm sector in Minnesota is not available.

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