Estimated Lender Loan Losses Relative to Changes in Farm Debt Levels in the 1980's

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Proceedings of
Regional Research Committee NC-161

FINANCING AGRICULTURE IN A CHANGING ENVIRONMENT: MACRO, MARKET, POLICY AND MANAGEMENT ISSUES

Kansas City, Missouri
September 24-25
1990

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The Pennsylvania State University
University Park, Pennsylvania 16802
May 1991

ESTIMATED LENDER LOAN LOSSES RELATIVE TO CHANGES IN FARM DEBT LEVELS IN THE 1980'S

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Total U.S. farm debt declined from $206.5 billion at the beginning of 1984 to $146 billion at the end of 1989, a decrease of $60.5 billion. This reduction reflects 1) farmers' voluntary pay down of existing debt as highly leveraged farming became less profitable, and 2) lenders' write-off of loan receivables that were considered to be uncollectible. Loan loss estimates based on institutional lenders' reports indicate that combined losses for all lenders totaled approximately $18.5 billion during this period. This suggests that roughly one-third of the decrease in farm debt during the late 1980's could be attributed to lender debt forgiveness.

This paper addresses methodological issues in estimation of lender loan losses, and presents preliminary estimates of loan losses of individual agricultural lenders. A brief description of changes in farm financial structure during the 1980's is followed by a discussion of debt level adjustments for individual lenders from the beginning of 1984 through the end of 1989. After identifying general problematic issues related to loan loss estimation, a specific methodology for estimating losses for each lender is presented. Finally, these losses are evaluated relative to lender reported changes in outstanding debt.

FARM FINANCIAL STRUCTURE ADJUSTMENTS

Agriculture has experienced unusually large cyclical swings in the last 20 years. Real net farm income averaged $42 billion ($1982) during 1972-79. This was higher than all but one year since 1955. In response to economic prosperity, machinery investment increased 192 percent, land values were bid up 235 percent and the debt load in agriculture increased by 181 percent in this eight year period (USDA, Economic Indicators of the Farm Sector).

Because of these and other cost increases, farmers began the 1980's with a cost structure nearly three times higher than in 1970. Nominal interest expense grew from $3 billion in 1970 to $21 billion in 1982. Net farm income declined nearly 45 percent, averaging $24 billion ($1982) during 1980-85. By the mid 1980's more than 100,000 commercial-size farmers were unable to meet their scheduled debt obligations from farm and off-farm earnings. These farmers found the continued operation of their farm businesses to be in jeopardy, and their lenders faced the prospect of substantial losses in their portfolio of farm loans.

Farm financial problems and farm failures became an issue of great concern in the 1980's. No segment of the farm sector has been exempt from loan repayment problems. However, financial stress has been experienced most acutely by those farmers who rapidly increased their use of credit during the 1970's. Debt obligations grew rapidly, as farmers and other investors sought to expand land holdings and to upgrade machinery lines. The collateral based lending policies of lenders allowed many farmers to convert appreciating land values into cash by

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borrowing against rising equity levels. Unfortunately, for many farmers the long run prosperity that would have warranted this financially leveraged expansion failed to materialize.

The inability of many borrowers to repay their debt obligations--due to falling commodity prices and lower farm income--was both a root cause and a visible manifestation of farmers' financial stress during the 1980's. The loss of anticipated interest income and principal repayment effectively conscripted farm lenders as involuntary participants in the financial crisis of their farm borrowers. Agricultural bank failures during the mid-1980's and the highly publicized financial problems of the Farm Credit System (FCS) point out the link between financial difficulties of farmers and problems of their lenders.

As farm asset values declined, the security backing debt eroded and lender exposure increased. As lenders pursued collection action against delinquent borrowers, effects of farm failure rippled through the rural financial community. The Federal Government responded directly to the fiscal problems of farm borrowers and lenders through passage of the Farm Credit Assistance Act of 1987. Even with federal assistance, lenders that specialize in lending to agriculture experienced major losses in the mid-1980's.

CHANGING FARM DEBT LEVELS

Annual changes in farm debt levels mirror the varying intensity of the farm financial crisis during the 1980's. Almost 84 percent of the decrease in debt occurred during the peak stress years of 1985-87 (table 1). The slowing rate of decline reflects land value stabilization and general farm sector financial improvement beginning in 1988.

In simplistic terms, these changes in farm debt levels can be interpreted as the difference between lenders' acquisitions of new loans and dispositions of existing loans. Since agricultural loans are frequently paid off with proceeds from a new loan, many changes in loan balances reflect simultaneous acquistitions and dispositions. This obviously occurs when existing loans are refinanced, and is often true when purchase money loans are issued. Dispositions in the form of loan restructuring or foreclosure will usually entail a loss of loan principal to the lender. In addition to lower loan activity, the decline in reported loan balances in the 1980's reflects principal loss to lenders at time of restructuring or foreclosure.

Farm lenders did not share equally in the $60.5 billion decline in debt from the beginning of 1984 through the end of 1989. Over 50 percent of the total decline in loan volume was absorbed by the Farm Credit System (FCS), through its Federal Land Banks, Production Credit Associations, and Federal Intermediate Credit Banks. Meanwhile, commercial banks reported a 6-year decline of less than $1 billion.

As 1984 began the FCS held over one-third of all farm debt, and commercial banks held less than 24 percent. By the end of 1989, the FCS' share had fallen to 26 percent, while the banks held over 32 percent. Much of this reversal in lender market shares can be attributed to FCS borrowers refinancing through commercial banks to take advantage of their more attractive interest rates during much of this period. While an extensive discussion of changing lender shares in agricultrual credit markets is beyond the scope of this paper, the decline in FCS

lending was probably due as much to the System's loan pricing policies as it was to its position as a specialized lender in a cyclically declining sector.

Farmers Home Administration (FmHA) debt increased during 1984 and 1985, and then dropped during the last 4 years of the period. FmHA's 'lender of last resort' mandate, coupled with its effective mobilization as an ex post alternative to crop insurance, complicate interpretation of its outstanding loan balance at any point in time. A series of court injunctions during the mid-1980's prevented FmHA from instituting collection action against farm borrowers who had defaulted on loan repayment obligations. FmHA also extended their exposure by refinancing farmers unable to meet existing repayment schedules, and by buying out the interest of senior claimants against assets. The combination of legal delays and lenient forebearance policies left FmHA with over $8.3 billion in delinquent loans by the end of FY1989, with over $6.5 billion of this delinquent more than 4 years.

Farm real estate mortgages held by life insurance companies fell by over $3 billion during the 6-year period. During 1989, however, life insurance companies reported their first annual increase in farm loans since 1981. Seller financing, through secured purchase money mortgages and land purchse contracts, has long been an attractive income alternative for retiring farmers. The nearly $22 drop in debt held by individuals and others reflects the impact of the farm financial crisis on sellers who frequently found themselves taking back land on which purchasers could no longer make payments.

LOAN LOSS ESTIMATION ISSUES

Generally accepted accounting principles (GAAP) require that lenders maintain allowances for losses when it appears likely that an asset has been impaired and the amount of the anticipated loss can be reasonably estimated. (American Institute of Certified Public Accountants).

As a practical matter, recognition of loan losses is a complex issue in financial accounting. Determination of exactly when a loan receivable (an asset to the lender) becomes impaired is largely at the discretion of the lender. One or several missed loan payments cause a loan to become delinquent. Depending on the length of the delinquency, the loan can fall into one of three loan delinquency classes: accruing (less than 90 days past due), nonperforming-accruing (90 days or more past due), and nonperforming-nonaccruing.

The instructions provided to commercial banks for reporting delinquencies and loan losses indicate that this somewhat subjective accounting procedure relies on the judgment of the lender. Consolidated Reports of Condition and Income (call reports) must be filed quarterly by every insured commercial bank. The Federal Financial Institutions Examination Council (FFIEC) approves the forms on which the banks report and also issues instructions for their completion.

Banks are instructed to consider loans past due when either interest or principal is unpaid for 30 to 60 days, depending on the loan type and repayment schedule. Reporting institutions are allowed greater flexibility in their assignment of loans to nonaccrual status.

"For purposes of this schedule, loans are ... in nonaccrual status if: 1) they are maintained on a cash basis because of deterioration in the financial position

of the borrower; 2) payment in full of interest or principal is not expected; or, 3) principal or interest has been in default for a period of 90 days or more unless the obligation is both well secured and in the process of collection. A debt is 'well secured' if it is secured 1) by collateral in the form of liens or pledges of real or personal property, including securities, that have a realizable value sufficient to discharge the debt (including accrued interest) in full, or 2) by the guaranty of a financially responsible party. A debt is 'in the process of collection' if collection of the debt is proceeding in due course either through legal action, including judgment enforcement procedures, or in appropriate circumstances, through collection efforts not involving legal action which are reasonably expected to result in payment of the debt or in its restoration to a current status." (Instructions FFIEC 034, p. RC-52).

In general, other lenders follow a similar procedure for reporting nonaccrual loans. The Farm Credit System reported a decrease in nonaccrual loans during 1987, following significant increases during 1985 and 1986. Additions of loans to nonaccrual status continued in 1987, but the total nonaccrual loan volume declined. Rising farm incomes allowed for a reduction in loan delinquencies. Some nonaccrual loans were completely or partially paid off, while a large number were restructured and reinstated to full accrual status. Continued improvement in the general agricultural economy will greatly reduce the Farm Credit System nonaccruals, as evidenced by Summary Report of Condition and Performance issued for 1987 by the Farm Credit Corporation of America:

> "Approximately one-fifth of the System's nonaccrual loans are current as to principal and interest as of December 31, 1987. These loans remain in nonaccrual status because significant doubt or uncertainty exists regarding the ability of borrowers on such loans to meet their next contractual payment, many of which are due only on an annual or semi-annual basis. Many of these loans represent recent restructurings of troubled loans which remain in nonaccrual status until borrowers demonstrate they can comply with the new loan terms. The financial position, repayment capacity and payment history of these borrowers will continue to be closely monitored to determine whether subsequent transfer to accrual status is warranted. The majority of these loans are on a 'cash basis' for recognition of interest; that is, interest income is recognized only when a cash payment is received." (p. 7)

Obviously, the decision to move a loan to nonaccrual status or to restructure a delinquent loan can be costly to stockholders of the affected financial institution, and typically requires the exercise of a considerable degree of judgment. Extreme price and income variability in agriculture often transfers farms between loss and profit columns in the space of twelve months or less, as evidenced by the widely fluctuating profitability of the livestock sector between 1985 and 1989.

RECOGNITION OF LOAN LOSSES

If the lender determines that the status of the borrower is such that a delinquent loan is not likely to be fully repaid, the lender credits a contra-asset account, "allowance for loan losses," to offset anticipated losses on the loan asset. When a loan is foreclosed or restructured, a "charge-off" recognizes he actual loan loss, and an accounting entry is made that reduces both loan receivables and allowance for loan losses by the amount of the charge-off.

To an extent, implementation of FASB-15 (Statement of Financial Accounting Standards Board, No. 15 "Accounting by Debtors and Creditors For Troubled Debt Restructuring") has made the recognition of loan losses a more imprecise process. If the value of restructured principal and interest payments exceed the original loan principal outstanding, then the loss due to loan restructuring can be deducted annually as it occurs in the form of reduced interest income. By permitting recognition of losses on restructured loans to occur over a multi-year period, FASB-15 separates the period of recognition of the loan loss from the period in which the incident creating the loss actually occurred.

Litigation can further muddle the recognition of loan losses. In recent years, class-action lawsuits have resulted in the placement of limits or moratoria on farm foreclosures by the Farmers Home Administration and other lenders. These actions have effectively forced deferral of loan loss recognition of FmHA and others. Additionally, the enactment of legislation designed to protect the interest of farmers, for example, requiring counseling or binding arbitration, has also made recognition of loan losses more complex in some states.

Lender loan losses are often reported as net losses, that is, charge-offs less recoveries. The recent stabilization and improvement of land values may present a challenge to correct interpretation of reported net loan losses and recoveries of past losses. In a foreclosure, the mortgage amount less the charge-off becomes the book value of the property, and, on the lender's balance sheet the asset is reclassified. Whereas the mortgage was included in the asset account "loans receivable," the foreclosed property is listed in the asset account "other real estate owned." The foreclosed property may be periodically appraised, and additional losses charged off, if warranted.

If a foreclosed property is later sold for an amount equal to the amount of the existing mortgage on which the lender foreclosed, the lender may report full recovery of the previous charge-off. If, however, due to appreciating land values, the property later sells for an amount greater than the original mortgage, the lender may still report the recovery of the charge-off, but the amount of the sale above the original mortgage will be identified as a "gain on the sale of other real estate owned." This suggests that, if land values continue to rise in response to sector improvement, future loan losses will be negative. That is, charge-offs in a given time period may be less than the recovery of past losses that occur during that period. However, the recovery of loan losses can not exceed past charge-offs. In an economic sense, any gains from the sale of previously foreclosed property should be included in what might be defined as "net lender loan gains."

ESTIMATED LENDER LOAN LOSSES

The principle institutional agricultural lenders--the Farm Credit System, commercial banks, the Farmers Home Administration, and life insurance companies--annually report outstanding farm loan balances. Unfortunately, agricultural loan losses are not specifically reported, and in most instances cannot be determined directly from charge-offs of farm loans as reported by the individual lenders. However, preliminary estimates developed here are based on the best data currently available.

Commercial Banks

Data of commercial bank debt and loan losses are drawn from the Consolidated Reports of Condition and Income (call reports) that every insured commercial bank (and selected other financial institutions) must file quarterly. Call reports are filed to meet the joint regulatory requirements of the Board of Governors of the Federal Reserve System, the Federal Deposit Insurance Corporation, and the Office of the Comptroller of the Currency. Call report forms are developed and approved by the Federal Financial Institutions Examination Council (FFIEC).

Report forms have been developed and the specific reporting requirements for each bank depend on the size of the bank and whether it has any foreign offices. Every national bank, state member bank, and insured state nonmember bank (all insured commercial banks) must file one of the following:

1) FFIEC031--**International banks**: banks of any size that have any 'foreign' offices.

2) FFIEC032--**Large domestic banks**: banks with domestic offices only and total assets of at least $300 million.

3) FFIEC033--**Medium domestic banks**: banks with domestic offices only and total of at least $100 million, but less than $300 million.

4) FFIEC034--**Small domestic banks**: banks with domestic offices only and total assets less than $100 million.

Financial data reported by commercial banks can vary considerably depending on the type of report file. (Throughout the following discussion, banks will be defined in terms of the above emboldened descriptions, based on the type of report filed).

All banks report farm real estate and nonreal estate loans in the same manner, regardless of form filed. Real estate loans are reported as 'loans secured by farmland' and nonreal estate loans are reported as 'loans to finance agricultural production and other loans to farmers.' International and large domestic banks are less than 7 percent of banks lending to agriculture, but they account for almost 27 percent of all farm loans (table 2). Medium domestic banks hold almost 15 percent of all farm loans, while small domestic banks, the predominant bank size lending to agriculture, provide over 58 percent of all farm loans.

Bank reporting of loan losses varies considerably depending on type of report filed. International and large domestic banks similarly report charge-offs and recoveries only on nonreal estate loans. They do not report charge-offs or recoveries on farm real estate loans directly; any losses on farm real estate loans would be included in losses on 'loans secured by real estate.'

Medium and small domestic banks also report similarly. They report only total charge-offs and recoveries on 1) real estate loans, 2) installment loans, 3) credit card and related plans, and 4) commercial and all other loans. The call report format requires that agricultural charge-off and recoveries be reported only if agricultural nonreal estate loans are greater than five percent of total loans.

In filing year-end 1989 call reports, all commercial banks reported net charge-offs (charge-offs - recoveries) of $97 million on agricultural loans. However, as described above, international and large domestic banks do not report net charge-offs on farm real estate debt, while medium and small domestic banks are not required to report net charge-offs if farm nonreal estate loans are less than 5 percent of total loans.

As a result of the reporting format of the call reports, banks do not report net charge-offs on almost 21 percent of all farm loans (table 3). The exclusion of agricultural loans is greater for larger banks: international banks, which account for 16 percent of all farm loans, do not report net charge-offs on almost 30 percent of these, while large domestic banks (10 percent of all farm loans) omit net charge-offs on over 38 percent. Similarly, medium banks, holding 15 percent of all farm loans, do not report loss data on 34 percent of these. Small banks do not report loss data on 12 percent of loans.

In estimating total commercial bank agricultural loan losses (net charge-offs) during each year of the period 1984 through 1989, net charge-offs on loans for which such losses were not reported were assumed to be proportional to net charge-offs on loans for which losses were reported. The model to estimate individual bank loan losses can be written:

$$LOSS_{it} = RLOSS_{it} + (RLOSS_{it}/RLOANS_{it}) * URLOANS_{it}$$

where: $LOSS_{it}$ = Total estimated loss by bank i in year t
$RLOSS_{it}$ = Reported loss by bank i in year t
$RLOANS_{it}$ = Loans on which loss was reported by bank i in year t
$URLOANS_{it}$ = Loans on which loss was not reported by bank i in year t

For international and large domestic banks, real estate loan losses were assumed proportional to nonreal estate loan losses. For medium and small domestic banks, losses on loans held by banks not reporting losses are assumed proportional to losses on loans held by reporting banks.

In 1989, commercial banks reported total loan losses of $97 million, while an additional $32 million loan loss was estimated on loans for which the banks do not report losses (table 4). The estimation procedure used here suggests that relying strictly on bank data contained in call reports would have underestimated total bank loan losses by almost 33 percent in 1989. The $18 million estimated unreported loss for international and large domestic banks was slightly more than reported losses. Small and medium domestic banks reported losses of $79 million, and experienced unreported losses estimated at $14 million.

Using the modelling procedure described here, commercial bank farm loan losses are estimated at $5 billion over the period 1984-89 (table 5). While over $4.2 billion of this total was reported by banks, an additional $750 million loss was estimated to have been incurred on loans for which banks do not report loss data.

Farm Credit System

Farm Credit System debt and loan loss data are drawn from the quarterly Summary Report of Condition and Performance of the Farm Credit System. Combined Federal Land Bank, Production Credit Association, and Federal Intermediate Credit Bank loans decreased almost $31 billion during 1984-89 (table 6). This reduction in

outstanding loans was not evenly distributed across the FCS, as evidenced by $9.5 billion of the decrease occurring in the St. Paul and Omaha districts. The bulk of the decrease, $25.5 billion, occurred in 1985-87.

Losses on FCS loans are not reported directly, but can be estimated through the analysis of changes in allowance for loan losses accounts. Historically, financial accounting within the FCS has been reported by member institutions at the district level. The model used to estimate losses of each FCS institution within each district is as follows:

$$ALLOW_t = ALLOW_{t-1} + PROV_t - NETLOSS_t$$

where $ALLOW_t$ = Ending allowance for loan losses
$ALLOW_{t-1}$ = Beginning allowance for loan losses
$PROV_t$ = Annual provision for loan losses during t
$NETLOSS_t$ = Charge-offs - Recoveries during t

Rearranging:

$$NETLOSS_t = ALLOW_{t-1} + PROV_t - ALLOW_t$$

Farm Credit System district data were prepared by summing over Federal Land Banks, Federal Land Bank Associations, Federal Intermediate Credit Banks, and Production Credit Associations (table 7). Loan losses with the FCS totaled $3.9 billion for the 1984-89 period.

Farmers Home Administration

Data for FmHA loan losses were drawn from Write-offs, Loss Settlement, and Acquired Property Information for FY1989 Loan Programs, prepared by Farmers Home Administration (table 8). While these estimates are considerably below the FmHA loss estimates produced by the General Accounting Office (US GAO) for the same period, it should be noted that the write-offs reported here include both principal and interest.

While FmHA losses have increased significantly in recent years, it appears that further losses in the near future may be substantial. FmHA borrowers were delinquent more than $6.5 billion on principal and interest payments as of June 30, 1990. Major program delinquencies include over 67 percent of emergency disaster loans, (almost $4 billion delinquent), and 57 percent of economic emergency loans, (over $1 billion delinquent). The economic emergency loan program was discontinued in 1984.

Life Insurance Companies

Life insurance company (LIC) data were provided by the American Council of Life Insurance. While LICs do not directly report loan losses, total farm mortgage loan acquisition and disposition data were reported for 1984-88 (table 9). LICs also annually report foreclosures, which accounted for 20-40 percent of dispositions during this period. For purposes of this research, losses were estimated to be 30 percent of value of mortgages forfeited on property acquired through foreclosure. This estimate is consistent with data reported in individual LIC annual reports.

Generally, life insurance companies are currently reporting market values of acquired property in excess of book value. This suggests that a considerable portion of these losses may be recovered at the time of disposal of these properties. Since these past foreclosures are currently listed as real estate owned in LIC balance sheets, future LIC income statements are likely to report considerable gains on the sale of real estate owned.

Individuals and others

Losses on farm loans held by individuals and others were also estimated for the 1984-89 period (table 10). Losses incurred by individuals and others were estimated to reflect the same percentage of the decrease in real estate and nonreal estate debt experienced by the FCS. Estimates of individuals and others losses are probably understated, since real estate seller financing accounts for over two-thirds of debt in this category. Much of this debt was incurred with mortgage and contract sales financed by sellers and with the extension of second mortgages to assist buyers in purchasing. The true extent of defaulting on these mortgages, and subsequent return of the property to the seller, is unknown. However, anecdotal evidence suggests that seller take-backs of properties sold at peak prices in the early 1980's were considerable.

Total Estimated Loan Losses

Total loan losses for all institutional and noninstitutional lenders during 1984-89 are estimated to total $18.5 billion (table 10). Commercial banks absorbed an estimated $5 billion loss, while cumulative FCS losses approached $3.9 billion. In total, institutional lenders incurred an estimated $16.3 billion in losses. Non-institutional lenders (individuals and others) losses were estimated to be more than $2 billion.

The results presented here are consistent with prior estmates of lender loan losses. Previous studies (Melichar, Hanson) estimated losses of $6.9 billion experienced by the Farm Credit System, Farmers Home Administration, and commercial banks over the period 1984-86, compared with an estimated $7.5 billion loss for those lenders presented here for the same period. The share of agricultural debt held by these lenders were observed to have experienced similar proportions of loan losses. Assuming that other lenders had similar loan loss experience, cumulative loan losses for the farm sector were estimated to be about $11 billion during 1984-86 (Melichar). Estimated 1987 losses would raise cumulative loan losses to about $14-$16 billion (Hanson). In addition, loan losses during 1980-83 likely reached $2 billion, although losses for FCS and FmHA (the only lenders reporting) were slightly less than $1 billion.

In 1989, FmHA accounted for 95 percent of all institutional loan losses. Excluding FmHA, total loan losses have declined annually from 1986 through 1989. Farm Credit System lenders and commercial banks showed reduced loan losses in 1987-89, with the Farm Credit System reporting a net recovery in 1989.

CONCLUSIONS

There would seem to be no conclusive evidence that changes in outstanding lender loan balances were directly attributable to loan losses (table 11). Loan losses estimated for individual lenders appear to have had varying impact on loan balances. In particular, the experiences of commercial banks and the Farm Credit System were dramatically different. Banks incurred an estimated $5 billion in

loan losses, and their total loans outstanding declined only $900 million. Meanwhile, FCS had $3.9 billion in losses, while loan volume decreased over $30 billion. Restated, bank losses were 5.5 times greater than the change in bank loans, while the FCS decrease in loan balances was almost 8 times greater than its combined loan losses.

Even though this reasearch provides no conclusive link between lender loan losses and changing loan volume, the improving loan loss positions of most major lenders does support the view that farmers' financial positions have improved since the peak crisis years of the mid 1980's.

Table 1--Farm debt data (including operator households), by lender, December 31

Lender	1983	1984	1985	1986	1987	1988	1989	1984-89
Total debt outstanding				Million dollars				
Farm Credit System	69,093	67,887	59,146	48,493	42,406	39,458	38,386	
Farmers Home Administration	24,158	25,686	27,148	26,741	26,132	24,265	21,042	
Life insurance companies	12,718	12,443	11,836	10,940	9,896	9,582	9,598	
Commercial banks	48,343	49,785	46,898	43,951	43,496	45,216	47,429	
CCC storage facility	888	623	307	123	46	21	12	
Individuals & others	51,265	47,900	42,578	36,391	31,739	30,000	29,500	
Total	206,465	204,324	187,913	166,639	153,715	148,542	145,966	
Annual change in debt outstanding								
Farm Credit System	(1,206)	(8,741)	(10,653)	(6,087)	(2,948)	(1,072)	(30,707)	
Farmers Home Administration	1,528	1,462	(407)	(609)	(1,867)	(3,224)	(3,116)	
Life insurance companies	(275)	(607)	(896)	(1,044)	(314)	16	(3,120)	
Commercial banks	1,442	(2,887)	(2,947)	(455)	1,720	2,213	(914)	
CCC storage facility	(265)	(316)	(184)	(77)	(25)	(9)	(876)	
Individuals & others	(3,365)	(5,322)	(6,187)	(4,652)	(1,739)	(500)	(21,765)	
Total	(2,141)	(16,411)	(21,274)	(12,924)	(5,173)	(2,576)	(60,499)	
Annual change in debt outstanding				Percent				
Farm Credit System	-1.7	-12.9	-18.0	-12.6	-7.0	-2.7	-44.4	
Farmers Home Administration	6.3	5.7	-1.5	-2.3	-7.1	-13.3	-12.9	
Life insurance companies	-2.2	-4.9	-7.6	-9.5	-3.2	0.2	-24.5	
Commercial banks	3.0	-5.8	-6.3	-1.0	4.0	4.9	-1.9	
CCC storage facility	-29.8	-50.7	-59.9	-62.8	-54.1	-44.9	-98.7	
Individuals & others	-6.6	-11.1	-14.5	-12.8	-5.5	-1.7	-42.5	
Total	-1.0	-8.0	-11.3	-7.8	-3.4	-1.7	-29.3	

Table 2--Commercial bank lending and loans outstanding to agriculture, by bank type, December 31, 1989.

Bank type	Banks reporting 1/	Loans outstanding		
		Real estate	Nonreal estate	Total
	Number	Thousand dollars		
International	146	2,270,453	5,320,339	7,590,792
Large domestic	486	1,926,625	3,129,148	5,055,773
Medium domestic	1,311	2,881,738	4,170,906	7,052,644
Small domestic	7,683	9,567,363	18,162,003	27,729,366
All	9,626	16,646,179	30,782,396	47,428,575
		Percent		
International	1.52	13.64	17.28	16.00
Large domestic	5.05	11.57	10.17	10.66
Medium domestic	13.62	17.31	13.55	14.87
Small domestic	79.82	57.47	59.00	58.47
All	100.00	100.00	100.00	100.00

1/ Banks reporting loans secured by farmland.

Source: FDIC bank call reports

Table 3--Commercial bank reporting of agricultural loan losses, by bank type, December 31, 1989

Bank type	Banks reporting 1/	Loans outstanding 2/		
		Reporting gain/loss	Not reporting gain/loss	Total
	Number	Thousand dollars		
International	146	5,320,339	2,270,453	7,590,792
Large domestic	486	3,129,148	1,926,625	5,055,773
Medium domestic	1,311	4,644,917	2,407,727	7,052,644
Small domestic	7,683	24,409,248	3,320,118	27,729,366
All	9,626	37,503,652	9,924,923	47,428,575
		Percent		
International	1.52	70.09	29.91	100.00
Large domestic	5.05	61.89	38.11	100.00
Medium domestic	13.62	65.86	34.14	100.00
Small domestic	79.82	88.03	11.97	100.00
All	100.00	79.07	20.93	100.00
		Percent of total		
International	1.52	11.22	4.79	16.00
Large domestic	5.05	6.60	4.06	10.66
Medium domestic	13.62	9.79	5.08	14.87
Small domestic	79.82	51.47	7.00	58.47
All	100.00	79.07	20.93	100.00

1/ Banks reporting loans secured by farmland. 2/ International and large domestic banks report charge-offs (losses) and recoveries (gains) on nonreal estate debt, small and medium banks with farm nonreal estate loans greater than 5 percent of total loans report all farm loan charge-offs and recoveries.

Source: FDIC bank call reports

Table 4--Reported and estimated loan losses by banks, leading States ranked by estimated net charge-offs, 1989

State	Net charge-offs									Percent estimated		
	Bank reported losses			Estimated losses			Combined					
	Large/ int'l	Small/ medium	All	Large/ int'l	Small/ medium	All	Large/ int'l	Small/ medium	All	Large/ int'l	Small/ medium	All
	Thousand dollars									Percent		
Large/international banks												
Florida	2,239	1	2,240	3,304	1	3,305	5,543	2	5,545	59.6	48.7	59.6
Texas	4,972	12,567	17,539	2,151	1,856	4,007	7,123	14,423	21,546	30.2	12.9	18.6
New York	918	11	929	1,929	7	1,936	2,847	18	2,865	67.8	39.2	67.6
Washington	10,354	1,012	11,366	1,543	94	1,637	11,897	1,106	13,003	13.0	8.5	12.6
Louisiana	1,342	303	1,645	1,504	86	1,590	2,846	389	3,235	52.8	22.1	49.1
Top five	19,825	13,894	33,719	10,431	2,043	12,474	30,256	15,937	46,193	34.5	12.8	27.0
Medium/small banks												
Michigan	(2,355)	4,514	2,159	16	2,083	2,099	(2,339)	6,597	4,258	-0.7	31.6	49.3
Texas	4,972	12,567	17,539	2,151	1,856	4,007	7,123	14,423	21,546	30.2	12.9	18.6
Georgia	101	1,714	1,815	232	1,447	1,679	333	3,161	3,494	69.7	45.8	48.1
Ohio	(8)	2,393	2,385	139	1,270	1,409	131	3,663	3,794	106.1	34.7	37.1
Tennessee	13	766	779	164	1,168	1,332	177	1,934	2,111	92.7	60.4	63.1
Top five	2,723	21,954	24,677	2,702	7,824	10,526	5,425	29,778	35,203	49.8	26.3	29.9
All banks												
Texas	4,972	12,567	17,539	2,151	1,856	4,007	7,123	14,423	21,546	30.2	12.9	18.6
Florida	2,239	1	2,240	3,304	1	3,305	5,543	2	5,545	59.6	48.7	59.6
Michigan	(2,355)	4,514	2,159	16	2,083	2,099	(2,339)	6,597	4,258	-0.7	31.6	49.3
New York	918	11	929	1,929	7	1,936	2,847	18	2,865	67.8	39.2	67.6
Georgia	101	1,714	1,815	232	1,447	1,679	333	3,161	3,494	69.7	45.8	48.1
Top five	5,875	18,807	24,682	7,632	5,394	13,026	13,507	24,201	37,708	56.5	22.3	34.5
US Total	17,968	79,241	97,209	18,047	13,921	31,968	36,015	93,162	129,177	50.1	14.9	24.7

Source: FDIC bank call reports

Table 5--Estimated insured commercial bank loan losses (net charge-offs) on agricultural loans, by State, ranked by cumulative losses, 1984-89

State	1984	1985	1986	1987	1988	1989	1984-89
				Thousand dollars			
California	264,202	254,972	159,070	104,286	(23,481)	(5,211)	753,838
Iowa	121,190	218,887	184,302	35,503	8,253	2,062	570,197
Texas	46,550	72,246	175,881	56,222	29,948	21,546	402,393
Nebraska	77,009	142,654	103,875	30,255	702	(973)	353,523
Minnesota	56,443	101,610	102,681	44,880	13,020	6,174	324,808
Illinois	57,527	109,394	89,970	39,002	12,263	5,534	313,691
Kansas	54,156	84,787	73,795	39,908	15,845	5,323	273,614
Missouri	50,114	81,411	67,794	20,745	7,307	4,773	232,144
South Dakota	27,421	47,153	69,410	17,680	639	2,561	164,862
Oklahoma	25,981	33,330	40,462	23,615	13,053	8,685	145,127
Indiana	20,012	46,012	40,382	24,778	6,539	6,522	144,245
Michigan	7,375	36,463	49,992	18,210	2,626	4,258	118,924
Colorado	15,564	38,117	37,447	12,997	1,493	3,807	109,425
Wisconsin	13,588	32,605	34,946	14,825	7,399	4,605	107,969
North Dakota	15,080	23,888	32,870	13,656	5,619	4,811	95,923
Montana	8,127	30,698	30,277	13,864	3,628	158	86,752
Louisiana	9,484	20,024	25,012	15,600	3,003	3,235	76,358
Washington	5,034	10,169	22,874	11,192	8,330	13,003	70,601
Ohio	14,991	22,493	11,498	6,357	6,334	3,794	65,467
Kentucky	9,277	21,832	19,025	9,282	3,985	1,322	64,723
Idaho	5,022	11,397	19,302	8,484	7,962	3,428	55,595
Mississippi	8,990	12,233	14,777	11,793	1,890	946	50,629
Arkansas	6,734	15,564	13,042	8,324	4,617	1,928	50,208
Georgia	8,296	8,872	15,124	6,828	2,999	3,494	45,613
Tennessee	8,490	10,470	9,949	7,593	3,603	2,111	42,215
New Mexico	2,489	6,443	6,592	17,160	5,236	1,046	38,965
Arizona	2,685	1,736	6,169	13,310	6,866	6,957	37,723
Florida	1,565	4,480	7,437	11,216	3,107	5,545	33,350
Oregon	4,079	4,584	10,533	6,590	4,450	1,427	31,664
Alabama	7,306	8,693	6,721	2,453	1,606	831	27,610
Pennsylvania	8,564	4,701	1,516	3,341	9,041	375	27,538
Wyoming	4,599	8,938	8,615	2,486	2,093	174	26,905
North Carolina	3,158	5,568	8,054	3,586	3,973	684	25,024
New York	11,292	5,023	2,816	924	1,166	2,865	24,087
Virginia	1,136	2,351	2,746	1,450	357	395	8,436
Utah	229	1,067	2,783	2,278	899	662	7,918
South Carolina	1,248	1,537	1,920	488	184	279	5,656
Massachusetts	1,388	1,816	1,188	214	(146)	(13)	4,447
Delaware	0	0	0	0	3,101	32	3,133
Hawaii	16	1,044	135	278	477	(189)	1,761
Maryland	925	(18)	444	250	(1)	(1)	1,599
West Virginia	313	151	55	216	154	(18)	871
Vermont	(2)	219	12	36	(26)	131	369
New Jersey	11	161	0	0	0	0	172
Alaska	0	0	0	0	95	16	111
Connecticut	0	0	0	0	0	91	91
New Hampshire	0	0	0	0	0	0	0
Rhode Island	0	0	0	0	0	0	0
Maine	(22)	(3)	13	39	(100)	(8)	(81)
Nevada	(277)	0	0	48	6	(1)	(224)
US total	**987,357**	**1,545,775**	**1,511,506**	**662,241**	**189,914**	**129,177**	**5,025,970**

Source: FDIC bank call reports

Table 6--Farm Credit System agricultural loan data, by district, December 31

District	1983	1984	1985	1986	1987	1988	1989	1984-89
				Thousand dollars				
Agricultural loans outstanding								
Springfield	1,584,696	1,557,876	1,473,310	1,279,030	1,240,170	1,347,698	1,492,129	
Baltimore	2,713,167	2,631,424	2,465,130	2,252,086	2,156,800	2,257,800	2,441,000	
Columbia	6,800,577	6,408,801	5,646,144	4,632,953	4,216,086	3,650,678	3,377,255	
Louisville	6,919,437	6,433,593	5,094,576	3,990,911	3,296,871	3,228,942	3,311,295	
Jackson	3,589,209	3,495,866	2,911,720	2,231,505	1,920,988	1,696,694	1,574,880	
St. Louis	6,515,983	6,376,891	5,516,094	4,475,642	3,685,079	3,332,960	3,109,849	
St. Paul	10,443,634	10,493,680	9,202,328	7,512,953	6,578,284	6,000,191	5,881,692	
Omaha	8,399,980	8,048,203	6,281,165	4,840,091	3,887,678	3,610,263	3,459,244	
Wichita	6,554,572	6,339,046	5,572,248	4,353,770	3,726,757	3,463,848	3,357,786	
Texas	3,489,013	3,840,743	3,778,025	3,175,072	3,042,597	2,806,772	2,745,799	
Sacramento	7,082,730	7,471,990	7,039,072	6,240,218	5,686,563	5,292,142	4,996,227	
Spokane	5,000,646	4,788,751	4,165,836	3,508,351	2,968,087	2,769,901	2,638,844	
Totals	69,093,644	66,985,361	58,592,773	48,303,588	41,839,604	39,320,400	38,386,000	
Annual change in debt								
Springfield		(26,820)	(84,566)	(194,280)	(38,860)	107,528	144,431	(92,567)
Baltimore		(81,743)	(166,294)	(213,044)	(95,286)	101,000	183,200	(272,167)
Columbia		(391,776)	(762,657)	(1,013,191)	(416,867)	(565,408)	(273,423)	(3,423,322)
Louisville		(485,844)	(1,339,017)	(1,103,665)	(694,040)	(67,929)	82,353	(3,608,142)
Jackson		(93,343)	(584,146)	(680,215)	(310,517)	(224,294)	(121,814)	(2,014,329)
St. Louis		(139,092)	(860,797)	(1,040,452)	(790,563)	(352,119)	(223,111)	(3,406,134)
St. Paul		50,046	(1,291,352)	(1,689,375)	(934,669)	(578,093)	(118,499)	(4,561,942)
Omaha		(351,777)	(1,767,038)	(1,441,074)	(952,413)	(277,415)	(151,019)	(4,940,736)
Wichita		(215,526)	(766,798)	(1,218,478)	(627,013)	(262,909)	(106,062)	(3,196,786)
Texas		351,730	(62,718)	(602,953)	(132,475)	(235,825)	(60,973)	(743,214)
Sacramento		389,260	(432,918)	(798,854)	(553,655)	(394,421)	(295,915)	(2,086,503)
Spokane		(211,895)	(622,915)	(657,485)	(540,264)	(198,186)	(131,057)	(2,361,802)
Totals		(1,206,780)	(8,741,216)	(10,653,066)	(6,086,622)	(2,948,071)	(1,071,889)	(30,707,644)

Source: Farm Credit Corporation of America

Table 7--Computation of combined Farm Credit System annual net loan charge-offs, by district
1983-1988

District	1983	1984	1985	1986	1987	1988	1984-88
		Thousand dollars					
Annual provision for loan losses							
Springfield		482	1,986	(337)	(1,043)	61	
Baltimore		4,194	10,203	4,214	(12,909)	(19,358)	
Columbia		36,504	148,392	174,372	(124,309)	(88,725)	
Louisville		47,790	219,023	202,761	15,066	(91,863)	
Jackson		20,214	90,945	149,645	12,194	105,957	
St. Louis		19,095	273,584	105,274	(59,791)	(84,775)	
St. Paul		27,967	640,191	448,250	(104,961)	(176,402)	
Omaha		77,406	806,965	237,555	166,169	(271,116)	
Wichita		15,366	502,524	216,564	(108,584)	(118,943)	
Texas		11,389	54,989	35,516	(5,105)	6,188	
Sacramento		25,854	162,905	77,710	93,305	(23,735)	
Spokane		62,801	86,788	132,424	74,227	(32,598)	
Totals		349,062	2,998,495	1,783,947	(55,741)	(795,309)	
End of year allowance for loan losses							
Springfield	39,046	38,677	37,913	34,505	34,932	35,304	
Baltimore	71,071	70,929	71,757	72,445	59,327	27,787	
Columbia	134,564	114,815	188,055	296,203	255,790	164,526	
Louisville	82,708	81,223	187,092	229,764	189,947	110,293	
Jackson	83,311	75,824	113,390	160,914	124,918	22,909	
St. Louis	140,577	127,186	344,708	345,462	257,987	165,568	
St. Paul	207,709	169,870	585,426	673,788	536,213	332,454	
Omaha	123,365	116,180	602,434	552,661	506,997	239,838	
Wichita	98,274	91,304	508,400	538,335	377,259	231,048	
Texas	86,883	96,114	145,537	161,854	133,636	79,249	
Sacramento	135,912	122,324	199,407	206,777	188,185	141,311	
Spokane	91,351	110,120	108,438	216,955	144,769	121,064	
Totals	1,294,771	1,214,566	3,092,557	3,489,663	2,809,960	1,671,351	
Net charge-offs							
Springfield		851	2,750	3,071	(1,470)	(311)	4,891
Baltimore		4,336	9,375	3,526	209	12,182	29,628
Columbia		56,253	75,152	66,224	(83,896)	2,539	116,272
Louisville		49,275	113,154	160,089	54,883	(12,209)	365,192
Jackson		27,701	53,379	102,121	48,190	207,966	439,357
St. Louis		32,486	56,062	104,520	27,684	7,644	228,396
St. Paul		65,806	224,635	359,888	32,614	27,357	710,300
Omaha		84,591	320,711	287,328	211,833	(3,957)	900,506
Wichita		22,336	85,428	186,629	52,492	27,268	374,153
Texas		2,158	5,566	19,199	23,113	60,575	110,611
Sacramento		39,442	85,822	70,340	111,897	23,139	330,640
Spokane		44,032	88,470	23,907	146,413	(8,893)	293,929
Totals		429,267	1,120,504	1,386,841	623,962	343,300	3,903,874

Source: Farm Credit Corporation of America

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during the first quarter of 1987. Comparing this to the Great Depression era, the 1938 Report of the Chief of the Bureau of Agricultural Economics reported approximately 28 million acres of farmland were held by financial institutions as of January 1, 1937. However, the acquisitions during the 1980s occurred much more rapidly than the acquisitions of the 1930s. Land acquired by institutional lenders in the Wichita district of Farm Credit Services (of which Kansas is a part) during 1985 and 1986 was 1.25 million acres which was 26% of the estimated annual farmland sales for this district for the year. This figure was 24% for the nation.

Stam, Gajewski, and Koenig suggest that lender holdings of farmland are a factor in the farmland market when the nation as a whole is considered. They argue that these holdings are not a dominating factor, though, due to a number of reasons. They state that the lenders will not likely sell all of their holdings in any single year. The ratio of acquired property holdings to expected annual transfers therefore overstates their likely importance at any time (Stam, Gajewski, and Koenig). This paper examines characteristics of land acquired by financial institutions and the disposition of land acquired.

Hedonic Pricing Theory

One of the major objectives this study addresses is to determine whether the price of land sold by financial institutions received a similar price as land sold by private institutions. The sale of a parcel of farmland is influenced by many quality factors. When comparing the price of land sold by a financial institution and the price of land sold by an individual, it is important to adjust for quality differences, if these differences exist by seller. The hedonic approach to market analysis will allow these quality differences to be accounted for.

The economic definition of a hedonic price is the marginal cost that an individual is willing to pay to obtain a desired characteristic. The process of estimating hedonic prices for quality differences can be traced back to the early work of Waugh. Ladd and Martin were the first to look at the impact of production input characteristics on the demand for inputs. Ladd and Martin assert that inputs such as land as useful in the production process because of the characteristics of that input. The price of the input is thus the sum of the