



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

THE PROFITABILITY OF AGRICULTURAL LOANS BY COMMERCIAL BANKS

Eddy L. LaDue, Jerry L. Moss, and Robert S. Smith

ABSTRACT

Data collected from a sample of New York banks were used to assess factors expected to influence the profitability of the various loan programs of commercial banks. Loan loss and loan service costs were lower for farm loans than for either installment or commercial loans. Although not required to maintain compensating balances, farmer time and demand deposits represented 23 percent of outstanding loan balances. The high rate of turnover on farm mortgage loans resulted in an average loan repayment period of 6.2 years, only 40 percent of the original financing period. Lower farm loan costs indicate that banks could charge $3/4$ percent lower interest on farm loans than commercial loans.

Most commercial banks do not maintain cost accounting systems that are sufficiently sensitive to provide net returns information for the various activities of the bank. This lack of net income data forces management to make loan funds allocation decisions on the basis of gross yield indicators such as the interest rate charged. Although experienced managers may subjectively modify the data to reflect factors known to be excluded, management is essentially operating under the implicit assumption that net income parallels gross income.

Agricultural loan representatives, and others, frequently argue that gross yield underestimates the real profitability of agricultural loans. It is argued that farm loans involve less loan risk and less administration time than many other types of loans. However, bank management frequently counters that farmers maintain no compensating balances and require large amounts of scarce long term funds.

This article reports the results of a study designed to assess the profitability of agricultural loans made by commercial banks. First, the study design is outlined. This is followed by a topic-by-topic discussion of various factors which may influence loan profitability. Finally, the monetary impacts of the various factors are combined to provide a measure of the relative profitability of agricultural loans.

THE STUDY

Eight banks known to be committed to serving agriculture were selected for the study. The banks selected were geographically dispersed throughout New York State and represent most of the major agricultural regions of the State. The eight banks had average assets of \$125 million, deposits of \$113 million, and total loans of \$69 million. Agricultural loans averaged \$11 million or 16 percent of total loans. Agricultural loans as a percent of total loans for individual banks ranged from 7 to 53. Each of these banks had a local reputation for lending to agriculture and had at least one person who was actively involved in agricultural lending.

Eddy L. LaDue is Associate Professor, Jerry L. Moss is a former Graduate Research Assistant, and Robert S. Smith is Professor, Department of Agricultural Economics, Cornell University.

To collect the data a researcher allocated one week to each bank. During that week he worked with the bank staff to collect the data needed and discussed agricultural lending with bank management. Nearly all of the data collected were not items normally reported by the bank. Considerable staff time was provided by each bank to collect the required data. When the data for a bank were complete, they were summarized and returned to the bank for review. After the data for each bank had been received the information for all banks was summarized.

LOAN RISK

A major factor influencing the ultimate profitability of any loan program is the level of loan loss. Loss of principal on a few loans can easily offset the interest collected on a large number of other loans. Items of importance in evaluating the risk of loss include frequency of bankruptcy, magnitude of loan losses and level of recovery.

In a survey of all New York banks with significant agricultural loan volume LaDue, Moss, and Smith found an annual bankruptcy rate of one per 1500 farm borrowers. This is low compared to most other bankruptcy statistics and is consistent with the 4.8 percent delinquency reported by New York Federal Land Bank Associations in June of 1975.

At least two factors contribute to the low bankruptcy rate. A farmer's home and his hobbies are frequently part of his farm business. Thus, bankruptcy represents a immense personal loss which makes the process a personal defeat rather than a chance to wipe his business slate clean in preparation for a fresh start.

Also, the character of farm assets are such that they normally represent salable assets that frequently increase in value over time. Farm real estate values have been rising over the past 40 years. Under reasonable management, livestock inventories tend to increase over time.

Magnitude of Loan Losses

One would expect the low farm bankruptcy rate to lead to a low level of farm loan loss. For the purposes of this study loan loss is defined as that amount of any loan that is written off as a loss when it becomes clear that the borrower is not going to be able to repay the loan. For the study banks, the agricultural loan loss rate was 25 percent of nonagricultural loss rate (Table 1). In interpreting this 25 percent relative loss rate it should be remembered that the rate represents the agricultural losses for an aggressive farm loan program. In adequately servicing the entire agricultural community, banks make some higher risk loans which results in some loan losses.

TABLE 1.
Farm and Nonfarm Loan Losses, 1975

Loan and Loss Type	Average Per Bank
Farm Loans:	
Total Loss (\$)	6,919
Loss per million dollars of loans (\$)	837
Nonfarm Loans:	
Total loss (\$)	76,178
Loss per million dollars of loans (\$)	3,348
Percent farm loss rate is of nonfarm loss rate	25

Some banks (not included in this study) have very conservative farm lending policies resulting in the making of relatively few but very secure farm loans. Thus, they experience no farm loan losses.

Rate of Recovery

Some portion of most losses are recoverable through normal procedures. The true bank cost of loan losses is the difference between total losses and the amount recovered—unrecovered losses. Due to the character of farmers and farm assets, the recovery rate on farm loans is high (Table 2). Based on 1973-75 data for the case study banks, the recovery rate on farm loans is considerably above the rate for installment loans and over twice the rate achieved for commercial loans.

TABLE 2.
Loan Loss Recovery Rates, 1973-75 and 1975

Loss Type and Year(s)	Percent of Loan Loss Recovered
1975	
Farm	54
All	32
1973-75	
Farm	72
Installment	51
Commercial	31
Mortgage	99
All	39

Cost of Losses

To determine the relative impact of losses on bank costs, the 1975 net loss (gross loss minus recovery) per dollar of loan outstanding was calculated for each type of loan (Table 3). Compared to both commercial and installment loans, farm loan loss expense was very low. Commercial loan losses were nine times and installment losses were seven times as great as farm loan losses. Although the losses on all types of loans were less than one percent of loans outstanding, average loan losses for case study banks were nearly twenty percent of operating profit before taxes and gains or losses on security transactions.

COMPENSATING BALANCES

Compensating balances are frequently used to increase the effective interest rate and reduce the risk of default on loans. It is sometimes argued that farm loans are less profitable than other commercial loans because farmers maintain no minimum compensating balances. However, even though farmers are not

TABLE 3.
Loan Loss Expense by Type of Loan, 1975

Type of Loan	Loan Loss Expense Per 100 Dollars of Loans
Commercial	\$0.73
Installment	.53
Farm	.08
Mortgage	.02

required to maintain minimum balances, their volume of purchases and sales dictate that they maintain some account balances. Though not mandated, these balances would have the same impact on bank profitability as required balances.

Level of Balance

To determine the level of deposits held by different groups of bank customers, random samples of five customer classes were selected at each of the case study banks. For each selected customer, the current level of savings and certificate of deposit balances and the average checking account balance for the last six months¹ were ascertained. The average deposits for the five classes are shown in Table 4. Variation around these averages was smallest for the active farmers and greatest for the retired farmers.

Based on the average dollars loaned per farm customer, the \$6,079 deposit balances for active farmers represents an average compensating balance of 23.5 percent. Since the active farmer deposit class included both borrowers and nonborrowers, the 23.5 percent is correct only if the level of deposits of borrowers and nonborrowers are identical. The banks included in the case study have aggressive farm loan programs and there appears to be little reason to expect that those farmers who borrow from FHA and the Farm Credit Service would necessarily have larger or smaller account balances. Some nonborrowers may no longer borrow money from any source and may have larger balances than borrowers. However, these customers are likely to be depositors at this bank because they were former borrowers or because the bank is known to serve agriculture. If nonborrower active farmers are attracted to a bank that makes farm loans, the 23.5 percent figure may underestimate the true compensating balances held by farmers.

TABLE 4.
Customer Deposit Balances, 1976

Customer Class	Average Deposits
Active Farmers	\$ 6,079
Retired Farmers	12,021
Agri-business	25,399
Other industry ^a	24,565
Individuals	2,811

^aCommercial businesses unrelated to agriculture.

¹In cases where the six-month average was unavailable, checking account balances were calculated as the average of the balances on the fifteenth and thirtieth of the most recent month.

For most farmers, equity in the farm business is their retirement fund. Thus, they tend to retire on or near the farm and if it is sold, tend to stay in the community rather than move south with all their belongings. This means that retired farmers are likely to have higher account balances than either active farmers or other individuals and they are likely to leave that money in the bank that serviced them while they were active farmers. This is supported by the data in Table 4.

While the character of agri-business depends upon the type of agriculture in the area and the proximity of major cities to the bank service area, agri-business deposits were essentially the same as the deposits of other industry. If agri-businesses choose to do their business at banks which service agriculture with the expectation that such banks would also better understand agri-business, the impact of servicing farming could be magnified.

Form of Balances

The type of account in which balances are held can influence both the cost of the deposit funds to the bank and the time period for which the funds can be expected to remain with the bank. Over half of the active farmers' deposits were held in the form of checking accounts, one-third was in savings accounts and about ten percent in some type of certificate of deposit (Table 5).

TABLE 5.

Form of Active Farmer Deposit Balances, 1976

Deposit Form	Percent of Deposits
Checking	55
Savings	35
Certificate of Deposits	10

LOAN SERVICE COSTS

Data on the use of personnel time for the case study banks were collected by allocating the working time of all loan officers and clerical personnel to five categories.

- 1. Farm loans including farm mortgages,
- 2. Commercial and industrial loans,
- 3. Consumer and personal installment loans,
- 4. Nonfarm mortgage loans, and
- 5. Other loans and/or nonloan activities.

Personnel cost for each loan category was then calculated by applying the compensation rates for each employee to the allocated work time. Loan volume for each of the categories was calculated as the dollars of loans outstanding at the time of the study.

Personnel Productivity

Most of the case study banks had a farm loan department. The others either had a specialized loan officer or a number of officers with farm backgrounds who made farm loans. Farm lending officers had a slightly higher level of loans per person than commercial lenders and over double the loan volume achieved by installment lending officers (Table 6). The real difference, however, occurred in clerical time. Clerical personnel working on farm loans were 50 percent more productive than those working on installment loans. While there is

TABLE 6.
Personnel Productivity by Type of Loan, 1976

Type of Loan	Personnel Type			Value of Loan Per Dollar of Salaries
	Lender	Clerical Staff	Lender and Clerical Staff	
	— — — Million Dollars	of Loans	— — — Dollars	
Farm	4.9	8.2	2.9	239
Commercial	4.4	5.0	2.0	188
Installment	2.2	2.8	1.2	109
Mortgage	11.7	7.2	4.4	390

likely somewhat more clerical type work required with installment and commercial loans, a major part of the difference in productivity results from farm loan officers doing more of the processing connected with individual loans. The highest level of productivity was achieved by residential mortgage lenders. This, of course, reflects the standardized procedures used and the long term of the loans.

A more comprehensive measure of productivity is loans per dollar of salary. This measure can be influenced by the salary levels paid officers assigned to the different types of loans and for any particular bank the salary levels in different areas will be somewhat randomly influenced by the particular career stage of the bank officers working on specific types of loans. However, loans per dollar of salary is directly related to bank profitability.

As is implied by the loan productivity data, loans per dollar of salary is highest for mortgage loans. Farm loans are second highest; significantly above commercial loans and over double the rate achieved with installment loans.

In evaluating the commercial loan productivity it must be recognized that commercial loan business handled by these banks includes primarily small and medium sized businesses. Banks with a major account for a national or multinational corporation will have a much larger volume of loans per lender for the lenders handling those large loans. However, even for these banks, the bulk of their customers will be of the type and size represented in the data in Table 6.

Personnel Expense

For the case study banks, personnel expense made up 23 percent of total bank expenses. Given the importance of the cost item and the variability in personnel productivity among loan types, one would expect significant differences in loan service costs by type of loan. As shown in Table 7, personnel expense varied from \$0.26 to \$0.92 per \$100 of loans outstanding. Installment loans were the most expensive to

TABLE 7.
Personnel Expense by Type of Loan, 1976

Type of Loan	Personnel Expense Per 100 Dollars of Loans
Installment	\$0.92
Commercial	.53
Farm	.41
Mortgage	.26

service and had a cost more than double that of farm loans. Personnel cost for commercial loans was approximately 25 percent above farm loan personnel cost. The high productivity possible in servicing mortgage loans made them the lowest cost loans to service.

REPAYMENT PERIODS

The repayment period for farm loans varies by type of loan (Table 8). Over two-thirds of all commercial bank credit is nonreal estate credit which normally has a repayment period of less than seven years. Many production loans are written for a year or less. A large portion of farm debt has repayment characteristics similar to installment and short term commercial loans.

TABLE 8.

Maximum Repayment Period by Type of Farm Loan, 1976

Type of Loan	Years
Production	3.4
Machinery	5.7
Capital Improvement	9.4
Real Estate	21.4

However, to appropriately service a farm customer some amount of long term real estate financing is normally required. Repayment periods for these loans are frequently 15 to 25 years. Many bankers feel uncomfortable with the long time periods. To look at the actual turnover rate of mortgage loans, all of the case bank's long term (over seven years) farm mortgage loans that were paid off during the five-year 1971-75 period were examined.

The average original repayment period for the paid-off loans was 15.2 years. As expected, this period was shorter than the maximum indicated since these loans were written during the 1950's and 60's when the normal financing period at some banks was shorter than the current normal periods.

The average period that these paid-off loans were actually on the books was 6.2 years. This implies that the loans were active for only about 40 percent of the original finance period. Only 31 percent of the loans utilized the complete original repayment period. The average period of time that the loan was outstanding was only slightly longer than the loan periods used for nonreal estate farm machinery loans.

One can ask why banks are so concerned about having some reasonable amount of long term loans. Given the relatively high reserve requirements and the relatively large amount of short term lending in installment, commercial, and farm loans, it seems unlikely that a modest increase in long term loans would materially influence the bank's liquidity position. As a contrast, the Farm Credit System, through its fiscal agency, finances a significant amount of long term credit with short term bonds and notes. But, if the concern is with liquidity, the short period that farm mortgages are actually on the books makes them much more similar to other types of loans than normally inferred.

It should be pointed out that although a large number of farm mortgage loans were fully paid ahead of schedule, the most important reason for early pay-off was refinancing. This is not unlike many commercial loan payouts where a loan is paid from the proceeds of another loan (frequently at another

bank). However, it does mean that the bank's commitment to this individual continues. If the customer operates a good business, this is good for the bank. More generally the refinancing is good for the bank in that it gives it a chance to decide whether to continue with this customer and provides an opportunity to adjust the interest rate if that is desirable.

INTEREST RATE

In light of inflation and the cyclical nature of interest rates, the turnover rate on loans also influences the effective rate that a lender receives on the outstanding loan portfolio. As indicated in Table 9, the portfolio rate for long term loans for the case banks was slightly over 8 percent and the portfolio rate for all loans was over 9 percent. Although these banks had undoubtedly made mortgage loans ten to fifteen years ago for less than seven percent, their average current long term portfolio rate was only one-half percent below the predominant long term rate on new loans.

TABLE 9.

Farm Portfolio Interest Rates, 1976

Loan Term	Bank Average Rate (Percent)
Short term (1 year or less)	8.94
Intermediate term (1-7 years)	9.32
Long term (over 7 years)	8.08
Weighted average	9.12

The relatively short period of time that mortgage loans are actually on the books allows banks to keep the long term portfolio rate nearer the current long term lending rate than is commonly assumed. A variable interest rate would of course, allow perfect correspondence between the new loan and portfolio loan rates, but may present a competitive disadvantage in obtaining new loans. Even in a period of rapidly rising interest rates the turnover of loans kept the portfolio rate from getting appreciably below current new loan rates.

PROFITABILITY

As indicated earlier the level of compensating balances held by farmers is at least as high as balances required of other commercial loan borrowers and is many times higher than the balances held by individuals. In addition, retired farmers tend to stay in the community and leave their retirement funds with the bank that they did business with while active farmers. Thus, compensating balances likely contribute more to profitability for farm loans than for commercial loans and certainly contribute more to profitability than installment or mortgage loans.

The costs incurred for loan loss and loan service expenses are lower for farm loans. When these two expense items per dollar of loan are added (Table 10), the cost for farm loans was .77 percentage points below commercial loans and 1.01 percentage points below installment loans. Mortgage loans had somewhat lower costs for these two items than farm loans.

The lower loss and service costs and higher compensating balances for farm loans imply that a bank could charge three-fourths of a percent lower interest on farm loans than commercial loans and be better off. That is, a bank charging 9.25 percent interest on commercial loans would make more

TABLE 10.
Loan Loss and Loan Service Costs by Loan Type

Type of Loan	Cost Per \$100 of Loan	Difference From Farm Loans
		Dollars
Farm	.49	
Commercial	1.26	+ .77
Installment	1.50	+ 1.01
Mortgage	.28	- .21

money by lending to farmers at 8.50 percent. The difference in loss and service costs would offset the difference in rate charged, and the higher farm compensating balances would provide the margin of profit.

SUMMARY

Farmers have a low delinquency rate and a low bankruptcy rate. Farm loans have a lower level of loss and a higher rate of recovery than nonfarm loans. Thus, farm loans represent a lower level of risk than most other types of loans. Farm loan losses per dollar of loan are only one-seventh and one-ninth of the losses experienced on installment and commercial loans, respectively.

Active farmers maintain compensating balances equal to about 23.5 percent of their loans outstanding. In addition, retired farmers maintain significant deposit balances which will likely be held in the same bank that serviced them while they were active farmers. Somewhat over half of the balances held by active farmers were in the form of checking deposits.

Productivity is higher for personnel servicing farm loans than for either installment or commercial loans. This higher productivity makes farm loan service costs significantly lower than similar costs for installment or commercial loans.

The period that farm mortgage loans are actually on the books averages only about 40 percent of the original financing period. Although part of this turnover is caused by refinancing, the bank has an opportunity to reevaluate the loan and/or change the interest rate whenever a refinancing occurs.

The lower loan service and loan loss costs of agricultural loans indicate that farm loans will be at least as profitable as commercial loans if the interest rate charged on farm loans is 3/4 percent below the commercial rate. Thus, if the commercial loan rate is 9.25 percent, a comparable farm loan rate would be 8.5 percent.

REFERENCES

- LaDue, E.L. J.L. Moss, and R.S. Smith. *Farm Loans in New York State, Highlights of a Study on the Profitability of Agricultural Loans for Commercial Banks*, New York State Bankers Association, 1977.