

May 1984

A.E.Res. 84-5

RECEIVED

JUN 1 1984

INTERNATIONAL AGRICULTURE

# **USE AND CHARACTERISTICS OF VARIABLE RATE LOANS TO FARMERS BY NEW YORK COMMERCIAL BANKS**

by

**Gordon A. Zook and Eddy L. LaDue**

Department of Agricultural Economics  
New York State College of Agriculture and Life Sciences  
A Statutory College of the State University  
Cornell University, Ithaca, New York 14853

It is the policy of Cornell University actively to support equality of educational and employment opportunity. No person shall be denied admission to any educational program or activity or be denied employment on the basis of any legally prohibited discrimination involving, but not limited to, such factors as race, color, creed, religion, national or ethnic origin, sex, age or handicap. The University is committed to the maintenance of affirmative action programs which will assure the continuation of such equality of opportunity.

**USE AND CHARACTERISTICS OF VARIABLE RATE LOANS TO FARMERS  
BY NEW YORK COMMERCIAL BANKS**

by

Gordon A. Zook and Eddy L. LaDue

## Use and Characteristics of Variable Rate Loans to Farmers by New York Commercial Banks

Prior to the late 1970s most farm loans made by commercial banks were made on a fixed interest rate basis. Fixed rates were preferred by farmers because the amount of cash flow required for future debt service could be known with certainty. From a banker's point of view fixed rates provided an effective tool for competing with the Farm Credit System (which used variable rates) and, as long as rates were relatively constant, made farm loan portfolios profitable business for banks.

However, the rapidly rising and volatile interest rates of the late 1970s and early 1980s resulted in bank losses on fixed-rate loans made during earlier lower rate periods. Many of the sources of funds used by banks were market sensitive and, thus, moved up as general interest rates increased, but the income they received on fixed-rate loans was constant. In response to these losses and an expectation that interest rates will be quite variable in the future, banks started searching for ways to manage this increased interest rate risk.

One method of reducing the interest rate risk that was widely used by the Farm Credit System and by banks for many commercial loans was to switch to variable interest rates. The variable interest rate shifts the interest rate risk from the bank to the farmer and allows the banks to avoid the possibility of having a portfolio of fixed low interest rate loans during period of generally high interest rates.

While it is generally known that many banks moved toward increased use of variable rates, little is known about the actual level of adoption of variable rates nor the characteristics of the variable rate plans in use. This publication reports the results of a survey of New York banks serving agriculture. The survey was conducted by mail and was designed to determine the level of use and characteristics of variable-rate loans offered to farmers.

### Respondent Characteristics

The survey was mailed to the 80 banks in New York State with more than \$500,000 of total farm loans according to the Federal Reserve's December 31, 1980 Call report. Three of these banks responded that they were no longer making farm loans. Completed questionnaires were returned by 52 respondents. These 52 banks represented 68 percent of all banks contracted and accounted for 86 percent of the 1980 commercial bank farm loan volume in New York State.

The average farm loan volume of respondents was \$6.1 million. Thirty-five banks had farm loan volume of less than \$5 million and averaged \$1.6 million in farm loans while 17 banks had over \$5 million in farm loan volume and averaged \$15.3 million in farm loans.

The presence of a few large banks among the respondents skews the average asset results so median asset values are reported. The median total assets for all banks was \$59.1 million. The 36 respondents with less than \$150 million in total assets had a median of \$37.4 million while the 16 largest banks had median total assets of \$670.1 million.

The farm loan to total loan ratio (farm loan ratio) of respondents ranged from 0.1 percent to 40.2 percent with an average of 9.4 percent. Thirty-five percent of the respondents (18 banks) had separate farm loan departments. These banks had average farm loan volume of \$13.9 million, median total assets of \$138.4 million and an average farm loan ratio of 12.0 percent. In contrast, the banks without farm loan departments had an average farm loan volume of only \$1.9 million, median total assets of \$38.4 million and an average farm loan ratio of 7.8 percent.

#### Definitions Used in this Publication

**Variable-Rate:** Interest rate on a loan where the rate charged can be changed at least annually.

**Renegotiable-Rate:** Interest rate on a loan where the rate can be changed but changes can be made less frequently than once per year.

**Fixed-Rate:** Interest rate on a loan where the rate can not be changed throughout the duration of the loan.

**Short-Term Loans:** Loans with a maturity of less than one year.

**Intermediate-Term Loans:** Loans with a maturity of one to 10 years.

**Long-Term Loans:** Loans with a maturity of 10 years or more.

#### Level of Use of Variable Rates

The level of use of variable rates as of early 1983 reflects both the results of bank decisions on whether to switch to variable rates and the speed with which such decisions are implemented. Banks that adopt variable interest rates frequently do not completely abandon fixed rates altogether. Loan officers frequently can offer either a fixed or variable rate (possibly at a different initial rate), or they may have the flexibility to offer a fixed rate when it appears appropriate even though most loans are made on a variable rate basis. Thus, adoption of variable rates may imply that a bank has completely shifted to use of variable rates or that the variable rate has become an alternative which the bank may use.

Seventy-five percent of survey respondents reported using variable rates on at least some loans on at least one type of loan (table 1). The percentage of banks using variable rates increased as the total farm loan volume increased and as bank size increased. Just over 50 percent of the respondents with total farm loan portfolios of \$500,000 to \$1 million used variable rates while all banks with portfolios of more than \$5 million did so. Only one-third of banks with assets of less than \$25 million used variable rates compared to all of those with assets greater than \$150 million. All banks with farm loan departments reported using variable rates compared to only 62 percent of other banks.

The percentage of banks using variable rates on at least some short-term and intermediate-term loans was nearly identical at 67 and 71 percent, respectively. Long-term variable-rate loans were, in contrast, used by only 48 percent of respondents. One reason for the lower usage of variable rates on long-term loans was that 17 percent of

respondents did not make long-term farm loans. This tactic was particularly prevalent among small banks in that 42 percent of banks with less than \$25 million in assets did not make long-term loans. Of the banks that make long-term farm loans, 58 percent used variable rates.

Table 1. Commercial Bank Use of Variable Rate Loans  
52 New York Banks, 1983

Bank Description	Number of respondents	Use on at least one type	Loan Term		
			Short term	Intermediate term	Long term
--Percent of Banks Using Variable Rates--					
All Banks	52	75	67	71	48
Banks with total farm loans of:					
\$500,000 to \$1 million	17	53	47	47	24
\$1 million to \$5 million	18	72	61	67	44
more than \$5 million	17	100	94	100	77
Banks with farm loan to total loan ratios of:					
0.1 to 4.9 percent	20	90	90	85	60
5.0 to 14.9 percent	20	65	50	60	50
15.0 to 41.0 percent	12	67	58	67	25

#### Alternatives to Variable Rates

In developing methods of reducing their interest rate risk, some banks adopted renegotiable rates as well as, or instead of, variable rates. A renegotiable rate, which allows the bank to charge the interest rate less frequently than variable rates, in essence allows the bank to share the interest rate risk with the farmer. The range of alternatives that a bank uses indicates the level of interest rate risk that the bank is willing to assume. Many banks were using more than one type of interest rate.

Use of variable rates on short-term loans is likely less critical in terms of risk exposure to banks. The exposure period is short, and thus, interest rates are less likely to move up strongly, or if they do, the magnitude of loss is limited. Because of this, it is not surprising that fixed rates (only) were used most frequently (30 percent of banks) on short-term loans.

Approximately one-half (49 percent) of bank respondents used both variable rate and fixed rate alternatives on their short-term farm loans (table 2). This percentage increased as total farm loan volume increased and was higher for banks with a farm loan department than for those without a separate department. Less than 10 percent of the banks with more than \$5 million of farm loans or with farm loan departments offer only fixed-rate loans. This is considerably less than the respective percentages for other banks.

Table 2. Interest Rate Plans Offered on Farm Loans  
52 New York Banks, 1983

Interest Rate Plan	Loan Term		
	Short	Intermediate	Long
	--Percent of Banks--		
Variable Only	21	19	26
Fixed Only	30	22	13
Variable and Fixed	49	38	6
Renegotiable Only	NA	0	15
Variable and Renegotiable	NA	6	17
Fixed and Renegotiable	NA	4	2
All three types	NA	11	2
Do Not Offer	0	0	19

NA = Not applicable, renegotiable rates cannot, by definition, be used on short-term loans.

Except for the addition of renegotiable rates by some banks, the type of interest rates available for intermediate-term loans is very similar to that for short-term loans. Three out of four banks use fixed rates on their intermediate-term farm loans. However, only 22 percent use only fixed-rate loans. Similarly three quarters of the banks use variable rates, but only 19 percent use only variable rates. The greatest percentage of banks use a combination of fixed- and variable-rate loans. Twenty-one percent of the banks offer renegotiable-rate loans, but none of them use only renegotiable rates.

The use of renegotiable rates was much higher on long- than on intermediate-term loans. Thirty-six percent of the respondents use renegotiable rates on all loans or use renegotiable rates as well as other rates; 51 percent use variable rates on some or all long-term loans. Only 13 percent use fixed rates only. The use of variable rates only or of renegotiable rates only increased as farm loan volume increased and was greater for banks with farm loan departments than for other banks. This increased use of renegotiable rates explains the lower level of use of variable rates on long-term relative to short-term loans.

One alternative frequently suggested for reducing interest rate risk is to shorten the maturities on loans. The maximum maturity on fixed-rate loans at respondent banks averaged 8.9 months for short-term loans, 6.4 years for intermediate-term loans and 19 years for long-term loans. This was about the same as or only modestly shorter than the maximum terms on variable rate loans which were 9.2 months, 7.4 years and 18.7 years respectively. Although lenders may have increased the frequency with which shorter term loan periods were used, New York banks do not appear to be reducing their interest rate risk by reducing the maximum loan terms allowed.

Those respondents who did not use variable rate loans and who had no plans to do so were asked how they were able to offer competitive, yet profitable, interest rates on their farm loans. Their responses basically fell into three groups. The first group indicated that they were able to do so only with great difficulty. They relied on providing fast and personal service. A second category of respondents used maturity adjustment to stay profitable. This included matching the maturities of loans and borrowed funds; or keeping all of their loans relatively short-term. Matching maturities on loans and fund sources can reduce risk. However, if loans are paid off early or refinanced when interest rates are low, lenders can end up with a commitment on a high cost source of funds with no offsetting high interest rate farm loan.

A third group stated that they were able to compete by giving low fixed-rate loans. These three banks did not indicate how profitable their rates were, but in order to consistently maintain relatively low rates they would need stable, low-cost sources of funds. The move towards more complete deregulation of the financial industry may make the continued maintenance of these sources very difficult. One respondent stated that in the present interest rate climate the bank is not having too much difficulty maintaining competitive and profitable fixed rates, but added that if certificate of deposit rates again exceed 15 percent, they will have to look at other alternatives.

#### Time of Variable Rate Adoption

Although the surge in variable interest rate use occurred during 1978-81 volatile interest rate period, a number of banks had adopted variable rates on some loans prior to that time. Nearly one-quarter were using variable rates on short and intermediate term loans prior to 1973 (table 3). Nearly 50 percent of the banks that currently use variable rates began using them between 1978 and 1981 and over 60 percent started in 1978 or later. Use of variable rates began earlier on short- and intermediate-term loans than on long-term loans. More than 35 percent of current variable rate users were using them on short- and intermediate-term loans before 1978, while less than 20 percent were doing so on long-term loans (table 3). Only two banks reported plans to introduce variable rates during 1983; these banks already used variable rates on at least one other loan term.



Table 3. Time Period for Initiation of  
Variable Rate Loan Usage  
52 New York Banks, 1983

Bank Description	Loan Period					
	Short-term loans		Intermediate- term loans		Long-term loans	
	Before 1973	Before 1978	Before 1973	Before 1978	Before 1973	Before 1978
--Percent of Banks <sup>a</sup> --						
All Banks	23	37	26	39	14	19
<u>Banks with Total farm loans of:</u>						
\$500,000 to \$1 million	14	14	17	17	0	33
\$1 million to \$5 million	25	63	33	67	20	20
more than \$5 million	27	33	25	31	15	15
<u>Banks with farm loan ratios of:</u>						
0.1 to 4.9 %	31	50	33	53	22	33
5.0 to 14.9 %	11	22	9	18	11	11
15.0 to 41.0 %	25	25	40	40	0	0
<u>Farm Loan Department Status:</u>						
With department	20	33	19	31	8	8
Without department	27	40	33	47	22	33

<sup>a</sup>These percentages are based only on those banks that currently use or are planning to begin use of variable rate loans by the end of 1983.

The primary reason for the low use of variable rates on long-term loans is the use of other risk limiting options which decrease the need for variable rates. Use of renegotiable rates or just not making long-term loans were the most prevalent options. Since only 13 percent of survey respondents currently offer only fixed rates on long-term loans, most banks offering long-term farm loans do so on either a renegotiable or variable rate basis.

### Level of Variable Rate Use on Farm Loans

Banks using more than one type of interest rate frequently use one rate type for most of their loans. Thus, the real level of use of variable rates is likely indicated by the proportion of new loans made on that basis.

More than 60 percent of the respondents who use variable rates use them on a majority (over 80 percent) of their new farm loans. This percentage increased as the loan term increased, rising from 61 to 73 to 77 percent for short-term, intermediate-term and long-term loans, respectively. The average percentage of new farm loans that carry variable rates follows a similar pattern; this average is 71 percent of new short-term loans and 81 percent of new intermediate- and long-term loans (table 4).

Thus, even though most New York banks use various alternatives to variable rate loans, the level of use of these alternatives on new farm loans is very limited. This is especially true among the banks that are most heavily involved in farm lending, those with more than \$5 million of farm loans and those with separate farm loan departments. This situation could result either because banks restrict the use of other alternatives or because farmers choose variable rate loans rather than one of the other alternatives.

The percentage of a bank's current farm loan portfolio with a variable rate is essentially determined by the interaction between the date it began using variable rates and the percentage of its new farm loans made with variable rates. Comparing across loan terms revealed that the percentage of respondents with more than 80 percent of their current loan portfolio with variable rates was greatest for intermediate-term loans. This is the expected relationship because variable rates are used more extensively on intermediate- than on short-term loans, and because most banks have not used variable rates long enough on long-term loans for a substantial portion of that portfolio to carry variable rates. The slower turnover of long-term loans combined with their later starting date for variable rate use resulted in a substantial percentage of banks with variable rates on less than 40 percent of their current long-term portfolio.

The proportions of farm loan portfolios with a variable rate are 68 percent for both short- and intermediate-term loans, but only 46 percent for long-term loans (table 5). Since 81 percent of new long-term farm loans are made with a variable rate, the proportion of the long-term portfolio with a variable rate will increase substantially in the coming years as the old, fixed-rate loans are retired from the portfolio and replaced by variable rate loans.

### Variable Rate Loan Indices

The index used as a basis for adjusting the interest rate paid under a variable rate scheme influences the frequency with which rate adjustments can be made, the magnitude of rate change experienced and timing of rate changes relative to general movements in interest rates. Some indices, such as the New York City prime, are much more volatile than others, such as the Federal Reserve discount rate. Also indices like the New York City prime or the Federal Reserve discount rate, are more easily accessible and independently verifiable (because they are published regularly) than is a rate like a small banks own prime. Some banks used different indices for loans of different term and, thus, used more than one index.

Table 4. Proportion of New Farm Loans  
Made on Variable Rate Basis  
52 New York Banks, 1983

Bank description	Loan Term		
	Short	Intermediate	Long
	--Percent of Loans <sup>a</sup> --		
All Banks	71	81	81
<u>Banks with total farm loans of:</u>			
\$500,000 to \$1 million	48	78	70
\$1 million \$5 million	63	78	72
more than \$5 million	84	84	88
<u>Banks without farm loan ratios of:</u>			
0.1 to 4.9 %	74	79	90
5.0 to 14.9 %	60	79	65
15.0 to 41.0 %	84	88	93
<u>Farm Loan Department Status:</u>			
With department	84	86	90
Without department	57	75	69

<sup>a</sup>Assumes that the actual use by banks falls at the midpoint of the ranges specified in the survey questionnaire.

The indices used most often by respondents to set and to change their variable rates were their own bank prime rate and the New York City prime rate. These indices were used by 46 percent and 37 percent of the banks respectively (table 6). The percentage using their own bank prime rate includes those respondents who indicated that they base their index on their cost of funds plus a spread, because these are the components of an internal prime rate.

Table 5. Proportion of Current Farm Loan Portfolio  
on Variable Rate Basis  
52 New York Banks, 1983

Bank description	Loan Term		
	Short	Intermediate	Long
--Percent of Loan Portfolio <sup>a</sup> --			
All Banks	68	68	46
<u>Banks with total farm loans of:</u>			
\$500,000 to \$1 million	43	50	50
\$1 million \$5 million	61	70	37
more than \$5 million	81	72	48
<u>Banks without farm loan ratios of:</u>			
0.1 to 4.9 %	69	71	57
5.0 to 14.9 %	60	68	34
15.0 to 41.0 %	80	63	37
<u>Farm Loan Department Status:</u>			
With department	81	74	50
Without department	53	63	43

<sup>a</sup>Assumes that the actual use by banks falls at the midpoint of the ranges specified in the survey questionnaire.

The third most prevalent index was the Federal Reserve's discount rate which is used by 11 percent of respondents. This is somewhat surprising since the discount rate is used as an instrument of monetary policy and may not move with more general market rates. However, it has apparently been selected because it is less volatile than other rates but keeps variable rates reasonably close to market rates.

Table 6.

Variable Rate Loan Indices  
52 New York Banks, 1983

Index	Bank Description			
	All banks	Farm to Total Loan Ratio		
		0.1 to 4.9	5.0 to 14.9	15.0 to 41.0
	--Percent of Banks--			
Own bank prime <sup>a</sup>	46	47	33	66
New York City prime	37	59	25	0
Federal Reserve discount rate	11	6	17	17
Competition <sup>b</sup>	6	6	8	0
Others <sup>c</sup>	17	12	25	17
Number of Respondents	35	17	12	6

<sup>a</sup>Includes those banks that use their cost of funds plus a spread.

<sup>b</sup>These banks base their rate on what other local lenders are charging.

<sup>c</sup>Each of the following is used by one bank: Federal Home Loan Mortgage Corporation index, Federal Home Loan Bank Board index, Six-month money market rate, Monthly average Treasury Security yield, Demand notes, and no index.

NOTE: Totals do not equal 100 percent because some banks use more than one index.

Six percent of the banks base their rate on what other local lenders are charging. Seventeen percent of the respondents use other indices, such as the Federal Home Loan Bank Board index, the Federal Home Loan Mortgage Corporation index, the six-month money market rate, and the monthly average Treasury Security yield. One bank uses demand notes and another does not use an index.

Variable rate indices can be employed in varying ways. Interest rates can be changed whenever and in the amount the index changes or the index can be used as an indicator of the amount of change that could be made with both the timing and exact amount of change determined by bank management. Nearly half (48 percent) of the respondents indicated that they change loan rates automatically with changes in their index, although one bank that uses the New York City prime rate as their index said they do not usually go to the highest point possible. The senior management and farm lending personnel decide on the timing and amount of rate changes for 20 percent of the banks, while the loan committee makes the decisions on rate changes for an additional eight percent. For 17 percent of the banks, the loan officer who granted the loan makes the final decision on rate changes. These respondents said that the rate usually changes with

the index but, especially during high rate periods, loan officers can selectively freeze or lower interest rates if the borrower's financial position would otherwise be seriously impaired. Most of the time the rate changes at the time and in the amount of the index change but the loan officer can intercede if it is in the bank's best long run interest to do so.

### Differential Loan Pricing

Banks frequently charge different rates to different borrowers to reflect the variability in the characteristics of loans. Nearly two-thirds (63 percent) of the respondents who offer variable rates indicated that they charge different farm borrowers different rates on all loan terms. Banks with less than \$1 million in farm loans use differential pricing less frequently (29 percent) than do banks with more farm loans (70 percent). Banks with farm loan departments use differential pricing more than banks without these departments.

The reason given most often for charging different rates was credit quality. This included specifics such as the borrower's financial standing, the riskiness of the loan and the amount of collateral. The next most important reason was the borrower's deposit relationship with the bank, followed by his or her previous experience with the bank and size of the loan.

The use of differential pricing does not extend to differential rate changes. Only 21 percent of the banks apply different rate changes to different borrowers. There were two general approaches to differential rate changes. At some banks the lending officer could modify the amount of any rate change indicated by the index according to the borrowers loan and bank relationship characteristics. At other banks loans were divided into groups and rate changes could be different for different groups. The rates charged each group may be decided by top management or the loan committee.

### Frequency of Rate Adjustments

The speed with which market rate changes are transmitted to farmers is determined by the frequency that interest rate changes can be made. For example, a maximum frequency of once per year protects a farmer from the uncertainty involved with more frequent changes. If the amount of each change is limited, the frequency of change can also limit the total amount of interest rate change that can occur. Without limits on frequency the rate can be moved in concert with any index.

Approximately 50 percent of respondents stated that they can change the interest rates whenever the index necessitates a change, daily if necessary (table 7). The other 50 percent of the banks generally used monthly, quarterly or annual adjustments.

Making changes no more frequently than once per month or quarter was often used on short- or intermediate-term loans but infrequently used on long-term loans. Annual changes were much more frequently used with long- than intermediate-term loans.

### Limits on Interest Rate Changes

An important determinant of the degree to which interest rate risk is shared between the lender and the borrower is the existence of limits on the size of rate changes that can occur. The limit may be placed on either the size of each individual

change or the maximum change allowed over the life of the loan. None of the survey respondents had any limits on individual rate changes for short- or intermediate-term loans. Only three banks had limits on long-term farm loans and for these banks the maximum increase specified for an individual rate adjusted was two to five percent. A maximum rate change of this magnitude would provide short term relief only if interest rates were increasing sharply.

Table 7. Permitted Frequency of Interest Rate Changes  
On Farm Loans  
52 New York Banks, 1983

Frequency	Loan Term		
	Short	Intermediate	Long
	--Percent of Banks--		
Daily	51	51	52
Monthly	20	22	8
Quarterly	29	19	8
Annually	NA	3	16
Other <sup>a</sup>	12	11	20

<sup>a</sup>Weekly, bi-monthly and bi-annual adjustments are each specified by one bank as their maximum adjustment frequency. In addition, one bank usually requires a one percent change in the index.

NOTE: Totals may not equal 100 percent because some banks offer two options.

Very few banks have any limits on interest rate changes over the life of the loan. None of the banks specify a maximum limit on short-term loans, only nine percent do so on intermediate-term loans and 13 percent on long-term loans. Two banks specify a maximum five percent change in either direction on their long-term loans while another specifies a ceiling of 18 percent and a floor of 10 percent. One bank specifies an overall limit of the Federal Reserve's discount rate plus five percent, but this is really a floating ceiling and does not provide much protection from a substantial increase in interest rates.

#### Method of Implementing Rate Changes

Since most commercial banks do not have any limits on the amount of interest rate changes, a factor crucial in determining the short-run impact of an interest rate change on the borrower's financial position is the method used to implement that change. Three basic methods exist. The first is to change the monthly (or annual) payment to a level

which, at the new interest rate, will amortize the remaining balance over the remaining maturity of the loan. The second method is to leave the monthly (or annual) payment constant, and either shorten or lengthen the loan's remaining maturity. The third is to leave the monthly (or annual) payment constant and vary the final payment. If interest rates are rising, the final payment is a balloon payment. If rates decline, this method is equal to changing the maturity.

The method of implementing rate changes was quite consistent across loan terms, except that maturity changes were used by a somewhat lower percentage of respondents on short-term than other loans. Nearly half of the respondents allowed only a change in the payment amount while one-third allowed some change in loan maturity (table 8). Nearly 60 percent of the banks with \$5 million or less in farm loans allow only a change in payment amount compared to only one-fourth of the banks with a larger farm loan volume. About 15 percent of the banks allow the borrower to select between a payment or maturity change.

Table 8. Methods of Implementing Interest Rate Changes  
on Farm Loans  
52 New York Banks, 1983

Implementation Method	Loan Term		
	Short	Intermediate	Long
	--Percent of Banks--		
Change in Payment amount only	45	41	48
Borrower option between change in maturity or payment amount	13	18	17
Automatic maturity change, if possible, then change in payment amount	23	27	26
Negotiable with borrower	13	12	9
Other method	6	6	4

NOTE: Totals may not equal 100 percent because more than one response is possible.

Only two banks keep the monthly (or annual) payment constant and change the final payment. One bank uses this method on short-term loans, the other on intermediate term loans. Two other banks indicate that they, rather than the borrower, have the option to



select changes in either the payment amount or maturity when a new interest rate is set; one does this on short- and intermediate-term loans, and the other on long-term loans.

### Limits on Maturity Adjustments

Banks that permitted maturity adjustments were asked to specify the limits they impose on this option. Most exhibited a great deal of flexibility, indicating that they take into account the individual borrower's financial position when implementing rate changes. One bank said the maturity cannot be extended beyond the original term, and three others specified a limit of seven years for intermediate-term loans. One bank would extend real estate loans for an additional five years, and one bank would allow a total maturity of 40 years for real estate loans if it became necessary. Three banks stated they have no limits.

Bankers were almost unanimous in not permitting negative amortization to occur. Thus, nearly all respondents require payments to be sufficient to at least cover the amount of interest due.

Two of the banks that permit maturity adjustments base the original loan payments on a higher interest rate than the borrower is actually paying. For instance, if the current interest rate is 12 percent, they quote the original payments on the amortization schedule of 15 or 16 percent. This allows some fluctuation of interest rates without affecting the borrower's payment, but it also requires the borrower to have a higher amount of repayment capacity in the beginning than would otherwise be needed. This practice reintroduces the financing gap experienced with fixed-rate loans under inflation. Variable rates were expected to decrease this gap because the rates charged were to reflect current inflation rates, not expected future inflation rates.

### Historical Interest Rates Charged

In the long run average fixed interest rates should exceed variable rates by the cost of handling the interest rate risk. In the short run variable rates should be below fixed rates when interest rates are expected to rise and above fixed rates when rates are expected to fall.

The relationship between the initial interest rates charged on fixed-rate and initial variable rate farm loans for the 1977-82 period was similar for all three loan terms (table 9). In 1977 interest rates were higher on new fixed-rate loans than on variable rate loans. The fixed-rate premium dropped from approximately one and one-half percentage points in 1977 to one percent in 1978. Fixed and variable rates were the same on January 1, 1979, but during 1980 and 1981 the rate on new fixed-rate loans rose less rapidly than the initial rate on variable rate loans. The resulting higher variable rate differential increased from three-quarters of one percent in 1980 to one and one-half percent in 1981. During 1981 variable rates dropped sharply and by January 1, 1982 the rate on new fixed-rate loans was one-quarter of one percent greater than the initial variable rate. This advantage of variable rates had increased to one and one-half percent by January 1983.

All respondents using variable rate loans reported charging the same rate on existing variable rate loans as on new ones. Thus, the rate the farmer pays on variable rate loans at any one point in time is not dependent on when he borrowed the money, as it is with fixed-rate loans.

Table 9. Average Initial Farm Loan Interest Rates  
46 New York Banks, 1977-1982

Date	Loan Period					
	Short-term loans		Intermediate-term loans		Long-term loans	
	Fixed-rate	Variable rate	Fixed-rate	Variable rate	Fixed-rate	Variable rate
--Average Initial Interest Rate--						
January 1, 1977	9.4	7.5	9.4	8.0	8.5	7.7
January 1, 1978	9.6	8.5	9.8	9.1	9.4	8.5
January 1, 1979	10.9	11.0	11.1	11.2	10.7	10.8
January 1, 1980	13.2	13.7	13.5	14.0	12.8	13.9
January 1, 1981	16.0	17.8	16.4	17.6	15.5	17.3
January 1, 1982	16.6	16.3	16.8	16.6	16.1	16.3
January 1, 1983	14.5	13.1	15.0	13.4	14.9	13.5

#### Summary

The characteristics of variable rate loans to farmers were investigated using a mail survey of all New York Commercial banks with more than \$500,000 in agricultural loans. The 52 responding banks accounted for 86 percent of the commercial bank farm loan volume. These banks had median total assets of \$59 million and average farm loan volume of \$6.1 million. Thirty-five percent had separate farm loan departments.

Seventy-five percent of the respondents used variable rates on at least some of their farm loans. Large banks and banks with farm loan departments were more likely to use variable rates than other banks. Depending on the term of the loan, 20 to 25 percent of the banks used only variable rates on farm loans. Another 13 percent of the banks offered only fixed rates on long term loans while 22 and 30 percent offered only fixed-rates on intermediate- and short-term loans. Renegotiable rates, where rates cannot be changed more frequently than once per year, were offered by about 35 percent of the banks for long-term loans and by a few banks for intermediate-term loans.

Although many banks offer alternatives to variable rates, 71 percent of new short-term loans and 81 percent of new intermediate- and long-term loans are variable rate loans. In addition, a considerable volume of long-term loans and some intermediate-term loans are at renegotiable rates. Thus, a relatively small proportion of loans to farmers are currently made on a fixed-rate basis.

In general, banks charge different rates to farmers with different risk, loan size and deposit characteristics. However, when changes in rates are made they are uniform for all borrowers except for about 21 percent, who vary rates by groups of farms or allow loan officers to vary the adjustment depending on a borrower rate sensitivity, competition and other factors.

The index most frequently used as a basis for rate changes is the banks own prime. The published New York City prime was also widely used. The Federal Reserve discount rate was used about one in 10 banks. A few based their rate on what other local lenders were charging.

About half of the banks could adjust rates as frequently as desired. Others made only monthly, quarterly or annual adjustments. In general, the magnitude of the change in rate that could be made either at one time or over the life of the loan was unlimited.

Nearly half of the banks required a change in the amount of each payment at the time of an interest rate change. The others generally allowed a change in maturity or accumulation of a balloon payment, often at the borrowers option. However, nearly all banks required that payments always be sufficient to cover interest due.