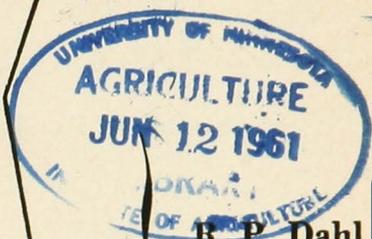


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# Agricultural Production Loans of... Minnesota Country Banks

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## Agricultural Experiment Station

**UNIVERSITY OF MINNESOTA**

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# Agricultural Production Loans OF MINNESOTA COUNTRY BANKS

R. P. Dahl and O. B. Jesness<sup>1</sup>

**M**ODERN TECHNOLOGY and mechanization in agriculture have increased decidedly the amount of capital employed by farmers. The farmers' use of credit to meet these needs likewise has increased. While farmers obtain production loans from a variety of sources, commercial banks are the leading suppliers.

The short-term borrowings of Minnesota farmers from the principal lending institutions in the state totalled \$178 million on January 1, 1953. Commercial banks provided \$147 million, or over 80 per cent of this total, while the proportion held by banks on January 1, 1946 was only 68 per cent. Apparently farmers are relying on banks more and more.

The study on which this report is based was made to obtain information on the services, lending practices, and policies of country banks in meeting the capital needs of Minnesota farmers.

## SCOPE OF THE STUDY AND SOURCES OF DATA

A detailed study of the loan records of 16 Minnesota country banks was made, one-half in each of the two years from July 1, 1950 to June 30, 1952. Banks considered to be representative of the respective areas in which they are located were selected. The locations

of these banks and the agricultural regions used for this study are shown in figure 1.

Region I is primarily one of dairying and diversified farming. Region II relies heavily on cattle and hogs, with crop sales an important secondary source of income. Cash crops are important in Region III.

Included in the study was a special examination of machinery credit. A random sample of 10 per cent of the commercial banks, or a total of 57 banks, was used for this phase. None of the banks was located in the Twin City area or in northeastern Minnesota.

A sample of 30 active farm production borrowers was selected at random from each of the 16 banks, making a total of 480 borrowers. Information was obtained on each case regarding the type of loan, amount, terms, security, interest rate, and other points, and the endeavor was to follow each loan through to its payment or renewal.

<sup>1</sup>The authors acknowledge with appreciation the assistance of Dr. E. Fred Koller of the Department of Agricultural Economics. Appreciation is also expressed to the country bankers, the State of Minnesota Banking Division, and the Federal Deposit Insurance Corporation for supplying the data used in this analysis.

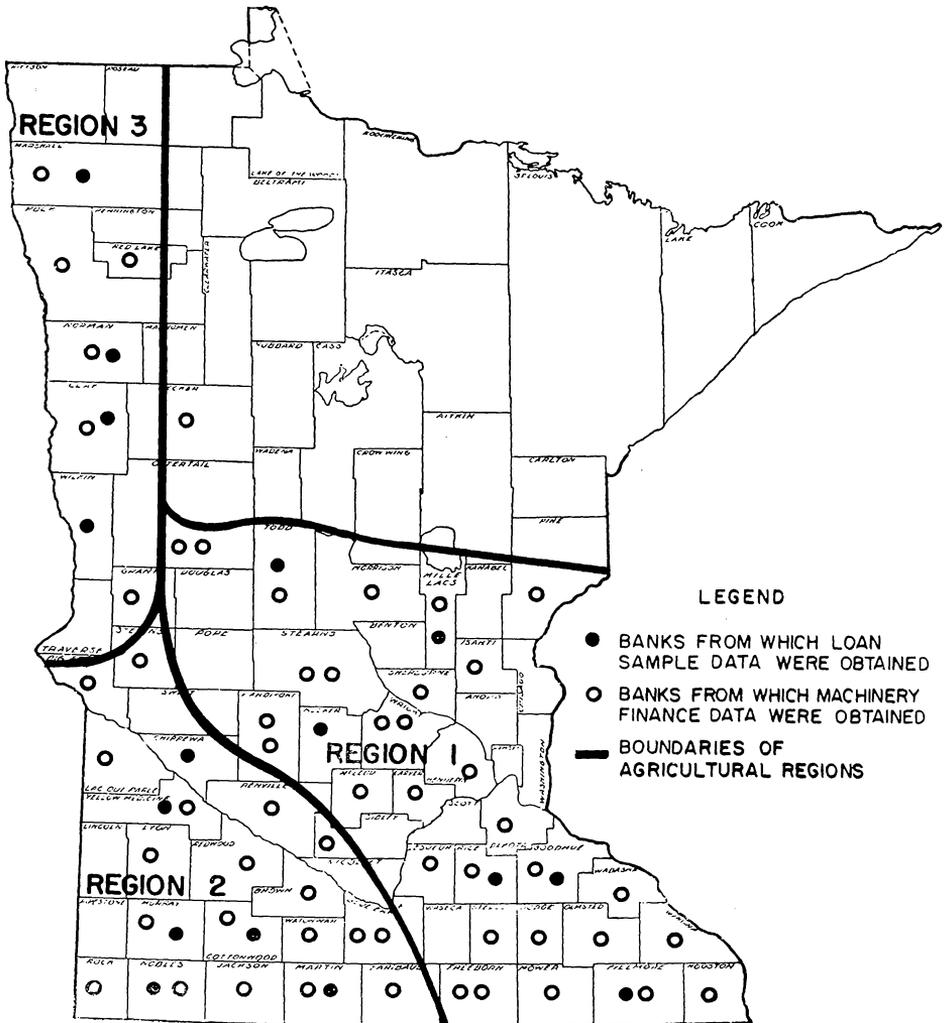


Fig. 1. The agricultural regions and county location of the banks participating in this study are shown.

When available, financial statements of the borrowers were transcribed. Interviews with the participating bankers provided additional information.

Data for the analysis of aggregate financial relationships of all country banks were obtained from the Federal Deposit Insurance Corporation and the Banking Division of the State of Minnesota. Information on machinery

loans was obtained by interviews with officers of the 57 banks included in that phase of the study.

A comparison of the selected banks with the average for all 608 insured commercial banks in rural Minnesota indicates that the banks used in the study were somewhat larger than the average. The total assets of the 16 banks averaged \$3,179,061 (table 1),

Table 1. Average Balance Sheet of the 16 Minnesota Country Banks—June 30, 1951

		per cent
<b>Assets</b>		
<b>Loans and discounts</b>		
Farm production loans .....	\$ 361,181	11.3
Farm real estate loans .....	111,818	3.5
Other loans .....	475,707	15.0
Total loans and discounts .....	\$ 948,706	29.8
U.S. Government bonds .....	1,394,817	43.9
Other assets .....	835,538	26.3
Total assets .....	\$3,179,061	100.0
<b>Liabilities</b>		
Deposits .....	2,957,455	93.0
Other liabilities .....	2,743	0.1
Total liabilities .....	\$2,960,198	93.1
<b>Net worth</b>		
Total capital accounts .....	218,863	6.9
Total liabilities and net worth .....	\$3,179,061	100.0

while those of all country banks in the state were \$2,096,791. The banks studied also were above average in the amount of farm production loans, such loans representing 38 per cent of all loans compared with the average 29 per cent.

## FINANCIAL CONDITION OF BORROWERS

Banks often obtain from an applicant for a loan a financial statement showing his assets, liabilities, net worth, and other pertinent information. Such a statement indicates the nature and extent of other claims on the farmer's income and helps determine his capacity to carry added debt. Such information is useful to borrower and lender in avoiding overextension of credit.

A file of financial statements kept by the bank for a period of years supplies information regarding changes in net worth and financial progress of the borrower. Most of the banks surveyed sought to obtain a new financial statement from each borrower yearly and to maintain files of these statements.

Financial statements were available for 327 of the 480 borrowers in the loan sample. Most banks indicated that financial statements were required for loans of \$500 or more, but some banks had more complete files of financial statements than others.

Table 2. Regional Averages for Financial Condition of 327 Farmer-Borrowers in 16 Minnesota Country Banks—1950-52

Item	Region I	Region II	Region III	All regions	per cent
Current assets .....	\$ 6,964	\$ 9,452	\$ 5,180	\$ 7,532	25.1
Working assets .....	4,348	6,822	8,519	6,367	21.2
Fixed assets .....	13,291	21,198	11,883	16,138	53.7
Total assets .....	\$24,603	\$37,472	\$25,582	\$30,037	100.0
Bank debt .....	1,488	2,459	1,158	1,799	6.0
Other debt .....	167	508	645	422	1.4
Current liabilities .....	\$ 1,655	2,968	1,803	2,221	7.4
Fixed liabilities .....	2,421	4,684	1,742	3,169	10.5
Total liabilities .....	\$ 4,076	\$ 7,652	\$ 3,545	\$ 5,390	17.9
Net worth .....	20,527	29,820	22,037	24,647	82.1
Total liabilities and net worth .....	\$24,603	\$37,472	\$25,582	\$30,037	100.0
Per cent net worth of total assets .....	83.4	79.6	86.1	82.1	.....
Number of borrowers .....	115	132	80	327	.....

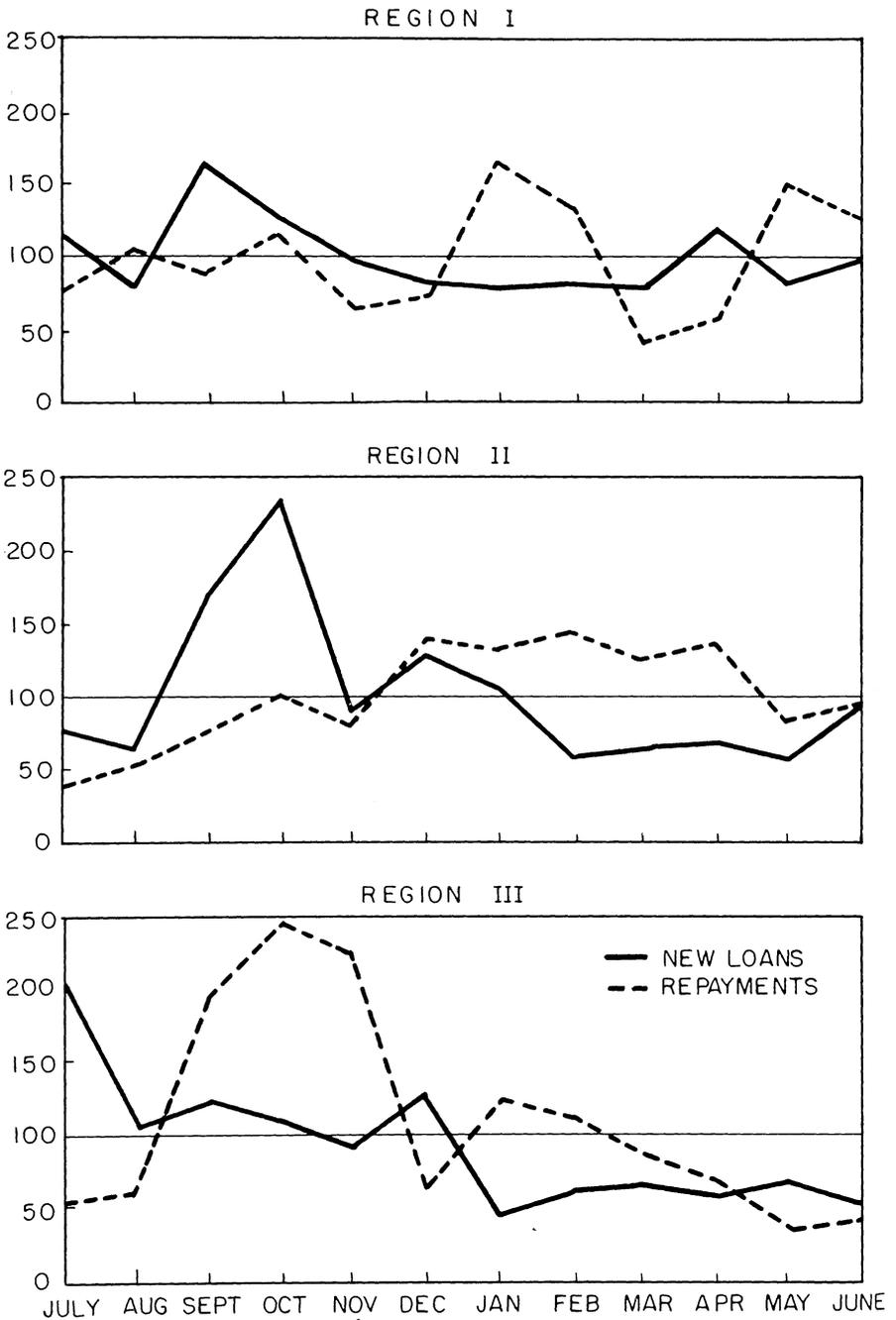


Fig. 2. Index of volume of new loans and loan repayments in 16 Minnesota country banks from June 30, 1950 to June 30, 1952. (Index 100 = average of 12 monthly totals.)

The average farmer-borrower had total assets of \$30,037, of which \$24,647 represented owner equity and \$5,390 was debt (table 2). The range in the average total assets was from \$37,472 in Region II to \$24,603 in Region I.

The importance of nonreal-estate assets in present-day farming is shown by the fact that 46 per cent of all farm assets consisted of nonreal-estate items. Farm machinery (working assets in table 2) made up 21 per cent and current assets such as livestock, feed, and cash, 25 per cent of total assets of the average borrower.

The borrowers showed a strong financial position in that their equity averaged about 80 per cent. However, 11 per cent of them had an equity of less than 60 per cent.

## SEASONALITY OF NEW LOANS AND REPAYMENTS

The seasonal pattern of agricultural production influences the timing and volume of new loans and repayments. In Region I, the southeast dairy region, the peaks in advances come in the spring and fall of the year (figure 2). Credit extensions during these periods are made to cover planting and harvesting expenses.

The large volume of repayments during the month of May in this region is undoubtedly a reflection of the seasonal peak in the income of dairy farmers. Repayments are also large during January and February in this region—probably a result of the sale of hogs.

The peak period of borrowing in Region II, the southwest livestock region, comes in October, reflecting the loans made for the purchase of feeder cattle. Heavy repayments during December and the early months of the year in this region probably follow the sale of hogs and fat cattle.

The seasonal distribution of loans and repayments in Region III, the Red River Valley, is characteristic of the fi-

ancing of cash crop production. The largest volume of repayments is made during the three months of September, October, and November—the time most of the crops in this region are marketed. The peak in the volume of new loans comes in July, when advances are made to cover machinery purchases and harvesting expenses.

## NUMBER AND TYPE OF LOANS

The 480 borrowers in this study signed 2,212 individual promissory notes in obtaining loan funds during the year under study, an average of 4.6 notes per borrower.

The notes were classified in four groups for purposes of this study: *original notes*, *additional notes*, *renewal notes*, and *renewal plus additional notes*. An *original note* is the initial note in any given loan. An *additional note* covers an increase in the loan without renewal of the balance or principal of an old note. A *renewal note* provides for an extension of a loan. A *renewal plus additional note* renews an old loan, increasing it by at least 10 per cent over the amount or balance of the old loan.

Additional notes were the most numerous, representing 53 per cent of all notes (table 3). Instead of providing a schedule of advances to be made throughout the season to meet the borrower's needs, the banks surveyed increased the loans on the basis of additional notes. Actually, formal budgeting of loans permits better planning of the credit and gives the borrower somewhat greater assurance of its availability as needed.

A total of 27 per cent of the notes were renewals while 7 per cent were renewal plus additional advances. The need for renewal in case of one-third of the loans raises some question over whether terms are as well adjusted to the farmers' needs as they might be.

**Table 3. Regional Classification of Type of Notes Used by 480 Farmer-Borrowers in 16 Minnesota Country Banks—1950-52**

Agricultural region	Type of note				Total
	Original	Additional	Renewal	Renewal plus additional	
			number		
Region I .....	102	369	250	67	788
Region II .....	103	545	267	60	975
Region III .....	77	263	87	22	449
All regions .....	282	1,177	604	149	2,212
			per cent		
Region I .....	13.0	46.8	31.7	8.5	100.0
Region II .....	10.6	55.9	27.4	6.1	100.0
Region III .....	17.1	58.6	19.4	4.9	100.0
All regions .....	12.8	53.2	27.3	6.7	100.0

## SIZE OF LOANS

A large proportion of the individual notes were for small and medium amounts (table 4). The median size note was \$410, meaning that 1,106 notes were larger than this and 1,106 notes were smaller. It is a common occurrence, however, for several notes to make up each borrower's loan account at his bank. The size of loan accounts is indicated by the maximum loan balance that each borrower had during the year under study.

The average maximum loan balance for all 480 farmers was \$2,759. The me-

**Table 4. Size of Notes Used by 480 Farmer-Borrowers in 16 Minnesota Country Banks—1950-52**

Size of note	Notes		
	Number	Per cent	Per cent cumulated
Less than \$25 .....	8	0.4	0.4
\$ 25- 74 .....	197	8.9	9.3
75- 124 .....	257	11.6	20.9
125- 374 .....	592	26.8	47.7
375- 624 .....	372	16.8	64.5
625- 874 .....	167	7.6	72.1
875- 1,124 .....	158	7.1	79.2
1,125- 1,624 .....	148	6.7	85.9
1,625- 2,374 .....	144	6.5	92.4
2,375- 3,874 .....	87	3.9	96.3
3,875- 5,374 .....	37	1.7	98.0
5,375 and over .....	45	2.0	100.0
Total .....	2,212	100.0	.....

dian size was \$1,661. Approximately 23 per cent of the accounts were for sums less than \$750; 28 per cent were for amounts greater than \$3,000 (table 5).

**Table 5. Size of Maximum Loan Balances for 480 Farmer-Borrowers in 16 Minnesota Country Banks—1950-52**

Size of maximum loan balance	Borrowers		
	Number	Per cent	Per cent cumulated
Less than \$250 .....	26	5.4	5.4
\$ 250- 499 .....	37	7.7	13.1
500- 749 .....	45	9.4	22.5
750- 1,499 .....	107	22.3	44.8
1,500- 2,999 .....	130	27.1	71.9
3,000- 4,999 .....	64	13.3	85.2
5,000 and over .....	71	14.8	100.0
Total .....	480	100.0	.....

The median maximum loan balance ranged from \$1,200 for dairy farmers to \$5,500 for livestock farmers. The median for small-grain farmers was \$1,800, while the medians of general and poultry farmers were \$1,550 and \$1,515, respectively.

The loans of cattle feeders in 1951 probably averaged larger than usual because of the relatively high price of feeder cattle and the heavy demand for feeders because of an abundance of soft corn that year.



Fig. 3. Loans to livestock farmers were larger than loans to any other type of farmer.

The loans of farmers producing small grain may have averaged larger at that time because it was a period of heavy purchases of farm machinery.

Maximum loan balances in the case of dairy farmers may have tended to be somewhat smaller because dairy farms are somewhat smaller in size and the income is distributed more uniformly throughout the year.

## TERM OF LOANS

Comparatively few of the notes in this study were for a period longer than six months. As shown in table 6, 85 per cent of all notes were on a demand basis or for a term of six months or less. Of the notes studied, about 67 per cent were for one, two, three, or six months. In addition, bank examiners usually consider the term of a demand note to be six months.

Large loans tended to carry longer terms than small loans (table 7). A total

of 68 per cent of the loans under \$125 were for a term of three months or less while only 16 per cent of the loans over \$5,375 were for these terms. The average term increased steadily from about three months for loans of less than \$125

Table 6. Terms of 2,170 Short-Term Farm Loans Made by 16 Minnesota Country Banks—1950-52

Term of note in months	Number	Per cent	Per cent cumulated
Less than 1 .....	65	3.0	3.0
1 .....	265	12.2	15.2
2 .....	298	13.7	28.9
3 .....	290	13.4	42.3
4 .....	182	8.4	50.7
5 .....	132	6.1	56.8
6 .....	414	19.1	75.9
Demand .....	195	9.0	84.9
7-9 .....	136	6.2	91.1
10-12 .....	167	7.7	98.8
13-18 .....	19	0.9	99.7
19-24 .....	7	0.3	100.0
Total .....	2,170*	100.0	.....

\* Terms of 42 notes were unknown.

Table 7. Term of Notes by Size, 2,170 Short-Term Farm Loans Made by 16 Minnesota Country Banks—1950-52

Term of note in months	Size of note in dollars										Total
	Less than 125	125- 374	375- 624	625- 874	875- 1,124	1,125- 1,624	1,625- 2,374	2,375- 3,874	3,875- 5,374	5,375 and over	
	per cent cumulated										
Less than 2 .....	31.7	17.4	11.4	8.8	7.1	3.5	5.0	.....	5.6	6.6	15.2
2- 3 .....	67.7	52.8	34.0	31.9	29.5	19.0	17.9	17.5	16.7	15.5	42.3
4- 5 .....	83.4	68.9	50.8	41.9	39.8	33.1	30.8	25.6	25.0	31.1	56.8
Demand and 6 .....	95.6	93.3	87.5	79.4	77.6	63.4	66.5	62.8	58.3	77.8	84.9
7- 9 .....	98.4	96.9	93.2	90.6	81.4	76.1	80.8	74.4	66.6	91.1	91.1
10-12 .....	99.3	99.8	99.2	97.5	98.1	95.8	97.9	96.5	100.0	100.0	98.8
13-18 .....	100.0	100.0	99.7	99.4	99.4	98.6	98.6	100.0	.....	.....	99.7
19-24 .....	.....	.....	100.0	100.0	100.0	100.0	100.0	.....	.....	.....	100.0
Number of notes .....	458	579	368	160	156	142	140	86	36	45	2,170
Average term in months .....	3.05	4.12	4.88	5.45	5.83	6.76	6.50	6.9	7.04	5.82	4.69

to about seven months for loans of \$3,875 to \$5,374.

The average term of loans in excess of \$5,374, however, dropped to slightly under six months. Many of these loans were for feeder cattle for which a longer term was not needed. It also may be true that bankers may be reluctant to make the larger loans for longer terms.

## REPAYMENT OF LOANS

An asset readily convertible into cash may be described as "liquid." A short-term note tends to be viewed as relatively liquid. This, however, may be more apparent than real in instances where one or more renewals are made before payment. The term of the note hence is not a very satisfactory measure of liquidity. The endeavor consequently was made to determine the liquidity of the notes studied by examining their disposition, that is, their repayment, reduction, or renewal.

Information was available on the disposition of 1,512 of the 2,212 notes; the remaining 700 were still outstanding at the time of the study. As table 8 shows, 56 per cent of the notes were paid in

full at maturity, while 44 per cent were renewed in whole or in part.

A striking variation is shown in the disposition of the various types of notes. About 66 per cent of the additional notes and 57 per cent of the original notes were paid off in full; whereas only 40 per cent of the renewals and 33 per cent of the renewals plus additional were paid off in full. Thus the chances were more than six out of ten that a renewal note would be renewed in some form at maturity.

The individual loan accounts also were analyzed from the standpoint of the time outstanding. The accounts were classified as nonliquid in instances where they remained outstanding for the entire 12 months under study. On this basis, 47 per cent of the loan accounts were nonliquid. Differences among regions were not significant.

The purposes for which some farm loans are made cause them to fall naturally into the nonliquid category. Loans of an intermediate type—such as for farm machinery or breeding stock—fall in this class. They often require more than a year for full repayment.

However, a chattel loan which requires repeated renewal may turn into

Table 8. Note Disposition by Type of Note for 1,512 Short-Term Farm Loans Made by 16 Minnesota Country Banks—1950-52

Type of note	Note disposition				Total
	Paid off in full	Renewal of balance	Renewal of principal	Renewal of balance or principal plus additional	
			number		
Original .....	103	21	34	23	181
Additional .....	540	51	161	69	821
Renewal plus additional .....	28	11	26	21	86
Renewal .....	169	81	137	37	424
All notes .....	840	164	358	150	1,512
			per cent		
Original .....	56.9	11.6	18.8	12.7	100.0
Additional .....	65.8	6.2	19.6	8.4	100.0
Renewal plus additional .....	32.6	12.8	30.2	24.4	100.0
Renewal .....	39.9	19.1	32.3	8.7	100.0
All notes .....	55.6	10.8	23.7	9.9	100.0

**Table 9. Security Requirement by Size of Note for 2,211 Short-Term Farm Loans Made by 16 Minnesota Country Banks—1950-52**

Size of note	Number of notes	Type of security				Total secured	Unsecured	Total
		Chattel mortgage	Conditional sales contract	Other	per cent of notes			
Less than \$25 .....	8	0	0	0	0	100.0	100.0	
\$ 25- 74 .....	197	9.2	1.5	0	10.7	89.3	100.0	
75- 124 .....	257	17.5	3.5	0	21.0	79.0	100.0	
125- 374 .....	592	24.1	3.9	0	28.0	72.0	100.0	
375- 624 .....	372	38.4	4.3	0.8	43.5	56.5	100.0	
625- 874 .....	166	56.6	4.2	0.6	61.4	38.6	100.0	
875- 1,124 .....	158	46.8	3.8	4.4	55.0	45.0	100.0	
1,125- 1,624 .....	148	65.5	7.5	0	73.0	27.0	100.0	
1,625- 2,374 .....	144	66.0	3.5	2.0	71.5	28.5	100.0	
2,375- 3,874 .....	87	69.0	3.4	0	72.4	27.6	100.0	
3,875- 5,374 .....	37	78.4	0	2.7	81.1	18.9	100.0	
5,375 and over .....	45	77.8	0	2.2	80.0	20.0	100.0	
All notes .....	2,211	37.7	3.8	0.7	42.2	57.8	100.0	

a loan for fixed capital needs rather than for current production. It may be advantageous to both borrower and lender to convert such a loan into one of longer term with real estate as security when such an alternative is available.

## SECURITY FOR LOANS

A total of 58 per cent of the notes analyzed were secured only by the signature of the borrower. Some type of security was provided for the other 42 per cent. The most common security was a chattel mortgage. Other forms were conditional sales contracts, certificates of deposit, and cream and milk assignments (table 9).

The proportion of secured loans increased as the amount of the loan increased. Farmers with a good credit standing often can obtain small loans of the convenience type on only their own signatures, but as the size of the loan increases bankers tend to want more security.

Bankers tend to make more unsecured loans to borrowers of greater net worth (table 10). Of the loans to tenants, 51 per cent were secured, compared with 35 per cent of those to owners. The latter usually have greater net

worth and their ownership of real estate provides some added protection.

The farm borrower's credit standing—as indicated by his ability in farming, his past record in debt payment, and his standing in the community—also enters into the decision as to security requirements. As one banker phrased it, "No two loans are the same; each loan is an entity in itself because no two borrowers are precisely alike."

## STRUCTURE OF INTEREST RATES

Interest rate information was obtained for 2,116 of the 2,212 loans in the study. A total of 41 per cent of the

**Table 10. Security for Notes by Net Worth of Borrower for 1,784 Short-Term Farm Loans Made by 16 Minnesota Country Banks—1950-52**

Net worth	Number of notes		Per cent of secured notes
	Secured	Unsecured	
Less than \$10,000 .....	255	208	55.0
\$10,000- 19,999 .....	245	283	46.4
20,000- 29,999 .....	105	182	36.6
30,000- 39,999 .....	66	128	34.0
40,000- 49,999 .....	25	69	26.6
50,000 and over .....	52	166	23.9
All notes .....	748	1,036	41.9

PER CENT  
OF LOANS  
100

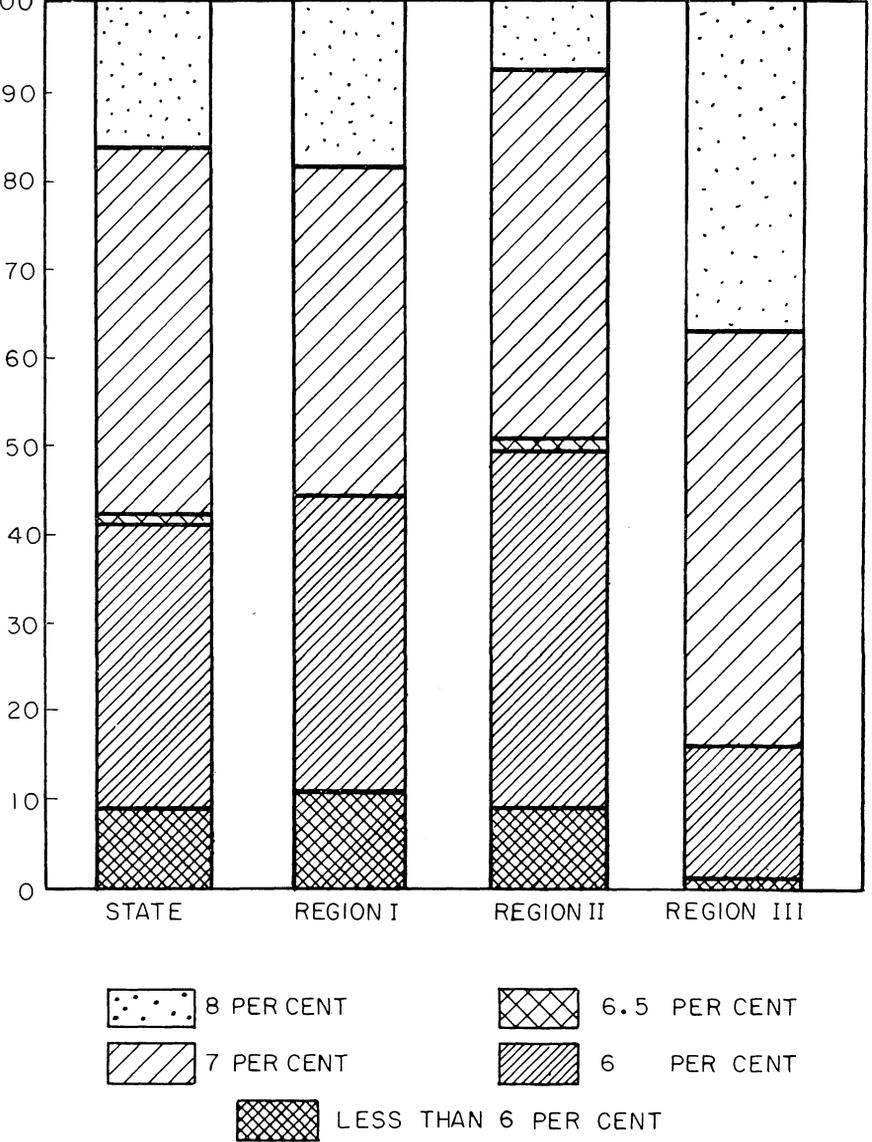


Fig. 4. Interest rates on 2,116 short-term farm loans made by 15 Minnesota country banks from 1950 through 1952.

loans were at 7 per cent, 33 per cent were at 6 per cent, and 17 per cent were at 8 per cent. A few were made at below 6 per cent (figure 4).

### Interest Rate Variations by Region

Interest rates varied by agricultural regions. The lowest rates were found

in Region II, the southwest livestock region. Of the loans in this region, 40 per cent were made at 6 per cent interest and 42 per cent at 7 per cent. Nearly 10 per cent of the loans in this region were at 5 per cent. Most of these were feeder cattle loans, which are regarded as self-liquidating. Rates in this region may average lower than in the other two regions because of the purpose of the loans, their comparatively large size, and lower risks.

In Region I, the southeast dairy region, 38 per cent of the loans were at 7 per cent, 34 per cent were at 6 per cent, and 19 per cent were at 8 per cent. Interest rates in this region tended to be higher in the northern part where loans averaged somewhat smaller and the risks perhaps were somewhat greater.

Banks located in Region III, the Red River Valley, made more loans at 7 and 8 per cent than banks in the other two regions. A total of 47 per cent of the loans was made at 7 per cent and 37 per cent at 8 per cent. The fact that the Red River Valley, as a predominately cash crop region, faces more production hazards than the more diversified farm-

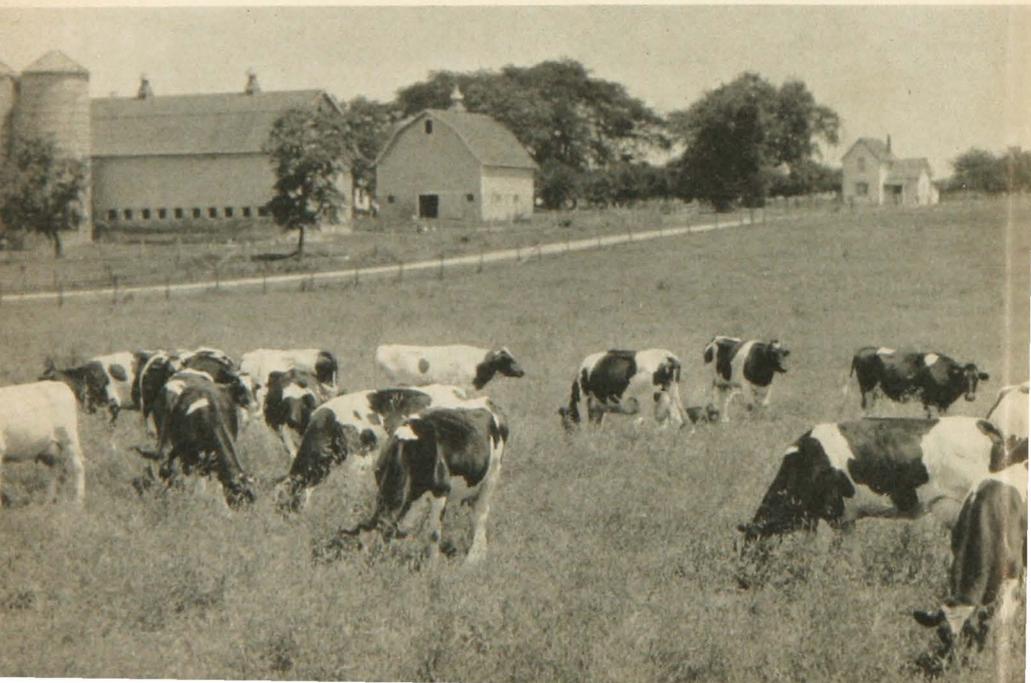
ing systems in southern Minnesota accounts in part for higher rates there.

### Interest Rate Variations Among Banks and Loans

Table 11 shows that considerable variation in rates exists among banks in a region. For example, Bank N made 56 per cent of its loans at 8 per cent, while Bank O (located in an adjacent county) made only 7 per cent of its loans at this rate. Variations are also apparent in other regions. Such differences may result in part from differences in conditions within a district, but apparently they also arise from differences in the attitudes and decisions of individual bankers.

Banks vary their rates for different loans. Table 12 shows the distribution of the loans of all 15 banks by size and interest rate. The average interest rate decreases as size of loan increases. Only 23 per cent of the loans of less than \$125 carried interest rates of 6 per cent or less, while 80 per cent of the loans of \$3,875 to \$5,374 were made at 6 per cent or less.

Fig. 5. Dairy loans are important to Minnesota country banks.



**Table 11. Interest Rates by Individual Bank for 2,116 Short-Term Farm Loans Made by 15 Minnesota Country Banks—1950-52**

Bank	Interest rate							Total
	4 per cent	5 per cent	5.5 per cent	6 per cent	6.5 per cent	7 per cent	8 per cent	
	per cent of loans							
<b>Region I</b>								
Bank A .....		4.7	2.3	90.6		1.2	1.2	100.0
Bank B .....				36.3		47.9	15.8	100.0
Bank C .....		1.0		23.8		61.5	13.7	100.0
Bank D .....	0.4	2.6	25.8	24.0		21.0	26.2	100.0
Bank E .....				17.5		58.8	23.7	100.0
<b>Region II</b>								
Bank F .....		13.7		15.1	1.5	63.4	6.3	100.0
Bank G .....		0.5		91.6		7.9		100.0
Bank H .....				2.8		72.0	25.2	100.0
Bank I .....		1.3	0.7	30.7	4.7	55.3	7.3	100.0
Bank J .....			20.6	67.2		8.9	3.3	100.0
Bank K .....	0.8	19.3		22.8		52.9	4.2	100.0
<b>Region III</b>								
Bank L .....	1.9			2.9		80.8	14.4	100.0
Bank M .....	0.8			22.8		15.0	61.4	100.0
Bank N .....	0.8			24.8		18.8	55.6	100.0
Bank O .....				6.3		86.3	7.4	100.0
Number of loans .....	6	102	63	693	10	876	366	2,116

An important reason for varying rates by size of loan is that the cost of services involved in making a loan are about the same for a small loan as a large one. Some lenders, such as production credit associations, charge service fees to bring about this adjustment. While banks have minimum interest charges, these are commonly so small (for example, 50 cents) that they are not significant.

Interest rates also appear to decrease as borrower net worth increases (table 13). Only 33.5 per cent of the loans to borrowers with net worth of less than \$10,000 were at 6 per cent or less, while 63 per cent of loans to borrowers worth over \$40,000 were at or below 6 per cent. The latter normally have larger loans and obtain lower rates for that reason, but net worth also affects the rates as a factor in repayment ability.

**Table 12. Interest Rate by Size of Loan for 2,116 Short-Term Farm Loans Made by 15 Minnesota Country Banks—1950-52**

Interest rate	Size of loan									
	Less than \$125	\$125-374	\$375-624	\$625-874	\$875-1,124	\$1,125-1,624	\$1,625-2,374	\$2,375-3,874	\$3,875-5,374	\$5,375 and over
	per cent of loans cumulated									
4 .....		0.3		0.6			0.7	1.2	2.8	
5 .....	0.5	1.0	1.7	5.1	7.1	7.0	8.6	17.5	36.1	55.6
5.5 .....	6.4	5.6	2.5	7.7	7.8	7.0	10.0	18.7	36.1	55.6
6 .....	23.3	28.4	43.4	46.4	55.5	47.2	61.2	79.1	80.6	88.9
6.5 .....	23.3	28.6	44.5	46.4	56.2	47.9	62.6	80.3	80.6	88.9
7 .....	56.4	78.9	91.8	94.2	96.7	93.7	98.6	97.7	100.0	100.0
8 .....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Average interest rate .....	7.17	6.89	6.62	6.52	6.40	6.52	6.29	6.03	5.81	5.56
Number of loans .....	438	565	357	155	153	142	139	86	36	45

Table 13. Interest Rate by Net Worth of Borrower for 1,709 Short-Term Farm Loans Made by 15 Minnesota Country Banks—1950-52

Interest rate	Net worth			
	Less than \$10,000	\$10,000-19,999	\$20,000-39,999	\$40,000 and over
per cent		per cent of loans cumulated		
4 .....	0.0	0.2	0.2	0.3
5 .....	1.1	1.6	5.1	17.3
5.5 .....	3.8	6.9	10.0	17.3
6 .....	33.5	33.8	45.0	62.5
6.5 .....	33.5	34.2	46.3	62.8
7 .....	77.3	81.7	81.8	95.8
8 .....	100.0	100.0	100.0	100.0
Average interest rate .....	6.87	6.80	6.64	6.24
Number of loans .....	441	448	468	312

Thus, variations in rates among banks are explained in part by differences in size of loans, purposes, risks, and costs. The attitudes of bankers and competition among lenders also influence rates. This competition is affected by the fact that country banks usually are not well equipped to make production loans to farmers outside their immediate territory. This situation arises from a lack of acquaintance with borrowers at a distance and from difficulties in supervising such loans. Many farmers hence may be limited in the sources of short-term credit available to them.

## FARM MACHINERY LOANS

Information on farm machinery loans was obtained from interviews with 57 participating bankers in the summer of 1953 and from call reports and other records. The objectives were (1) to determine the volume and characteristics of both direct and indirect farm machinery loans, (2) to compare the two types with respect to such points as down payment requirements, interest rates, and repayment provisions, and (3) to consider the advantages and disadvantages of each type of machinery credit from the farmer's viewpoint.

Direct machinery loans are made by the bank to the farmer in the same way as are other loans. Indirect loans are

made initially by the dealer in the form of a conditional sales contract, and the dealer retains title. This obligation may be sold to a bank, if acceptable, and thereby become in effect a loan from the bank to the farmer. Formerly, dealers turned farmers' notes over to the manufacturer, but since World War II the practice of turning them over to banks has become common.

All of the 57 banks surveyed made direct loans to farmers for buying machinery. Of these, 46 reported purchasing conditional sales contracts. Nine of the others reported that they had a policy against such purchases.

The average total assets of the 57 banks were \$2,422,052 on June 30, 1953. The average for total loans and discounts was \$959,081, of which \$286,927 represented nonreal-estate loans to farmers. The bankers estimated that \$106,126, or 37 per cent of this amount, was in farm equipment loans. Bankers also estimated that \$32,931, or 31 per cent of the total machinery loans, represented contracts purchased from dealers. The remaining \$73,195 was in direct loans.

## Direct and Indirect Loans Compared

**Loan terms and repayment provisions**—Most banks required a down payment of at least one-third of the

purchase price in the case of direct machinery loans where the equipment purchased was the only collateral. The amount varied among banks and borrowers. A considerable number indicated a preference for additional collateral such as livestock, and if this was supplied, these banks might lend all or a larger part of the purchase price. Some loans are made without collateral to customers with good credit ratings.

Farmers acquiring machinery from dealers under conditional sales contracts usually are expected to make a down payment. Banks generally require this before they will purchase such obligations. While the amount varies, it usually is from one-fourth to one-third of the purchase price.

A total of 19 of the 57 banks indicated that they made direct machinery loans for a term of six months. Included in this group were several banks which made most of their loans mature in the fall marketing season. Some such loans may have terms of eight or nine months. There were 22 banks reporting that they would make direct machinery loans with terms up to one year, and 13 reported that they made such loans with terms of one to two years.

Single payment provisions were the most common on direct machinery loans. It was a common practice for banks to make the entire amount of the loan fall due in one payment even though they anticipated only a partial payment and a renewal of the balance.

The repayment period for contracts was somewhat longer than for direct machinery loans. In fact, 31 banks reported that contracts involving major farm equipment frequently were made for terms of one to two years or over two crop years. In such cases, common terms were a down payment of one-third of the purchase price, with an installment of one-third coming due the first fall and the remaining one-third due in the spring or fall of the second year.

Farm equipment financing frequently becomes intermediate credit. This is particularly true in the case of large loans for the purchase of major equipment where the amounts involved require more than one year for repayment.

**Loan charges**—The most common rates of interest reported on direct machinery loans were 6 and 7 per cent, 20 banks indicating 6 per cent and 16 giving 7 per cent. As in the case of other loans, banks charge different borrowers different rates—depending on the amount of the loan, the risk, the borrower, and other considerations.

The rates on direct loans are indicative of the effective rates because service charges, if any, are only nominal. In addition, direct loans are usually made on a simple interest basis; that is, after a payment has been made on the principal, interest is charged only on the balance.

About one-third of the banks purchasing dealer contracts reported that interest was calculated in advance and applied to the entire principal of the loan. Rates varied from 4½ to 7 per cent, with 6 per cent being the most common. The remaining banks collected simple interest at 6 to 8 per cent.

Interest calculated in advance often results in a considerably larger total interest payment than if simple interest is charged. Thus a loan of \$1,200 to be repaid in 12 monthly installments with interest at 6 per cent on the unpaid balance represents an interest total of \$39. However, when interest is charged in advance the total is \$72.

Most machinery contracts are paid in two or more installments at irregular intervals. And here too, the total interest is higher when calculated in advance.

### Direct vs. Indirect Financing

The direct and indirect methods of financing have advantages and disad-

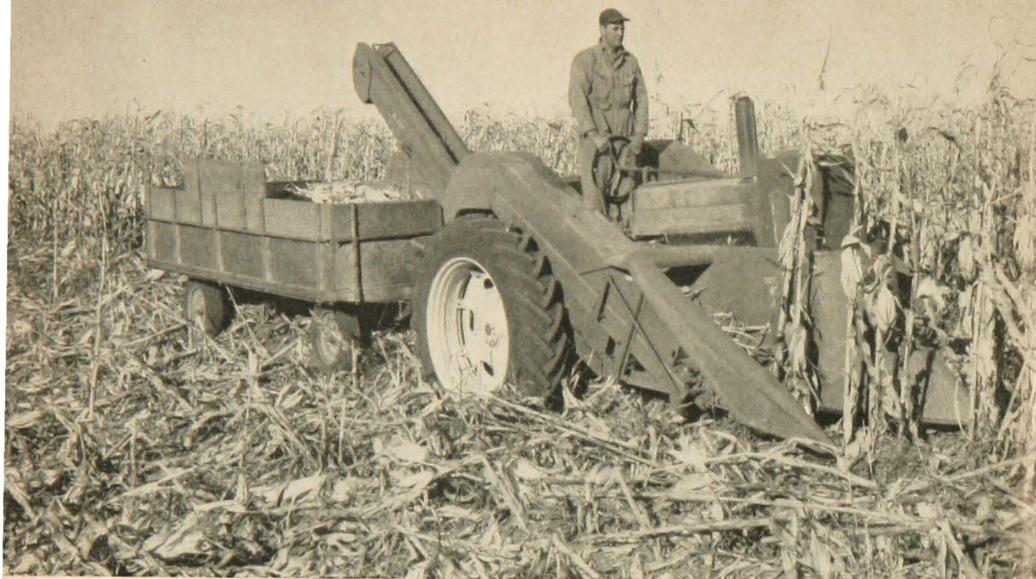


Fig. 6. Over one-third of the farm production loans were for machinery purchases.

vantages and which is preferable depends upon each individual case. As suggested above, the interest payment is often less on direct loans, where simple interest on unpaid balances is collected, than on contracts, where interest on the entire amount is sometimes calculated in advance.

In some instances the farmer may be in a stronger position as a buyer if he comes to the dealer with prearranged financing. Doing so permits him to obtain all of his production credit from the same source. In the case of direct financing, the farmer acquires title to the machinery. In the case of a contract, title remains with the dealer or holder of the contract so that repossession is possible without foreclosure proceedings.

The sales contract may give the farmer definite assurance of a longer period of payment. Direct loans often are for shorter periods and while they may be renewed, the obligation to do so is not firm. Purchases sometimes may be made with a lower down payment under a contract. This may enable the farmer to buy more machinery but,

of course, it increases the debt that he carries.

When contracts are sold to banks other than the one patronized by the purchaser, the result may be split lines of credit and the lenders are in greater danger of over-extension. This suggests that it is important for a bank which purchases such contracts to analyze the transaction in the same manner as when making a direct loan.

## PRODUCTION LOANS OF LONGER TERMS

The terms of farm production loans provided by country banks often are too short to cover the needs, resulting in many extensions and renewals when the loans mature. Bankers stress liquidity as an important reason for holding loans to relatively short terms. Banks must stand ready to pay deposit claims on demand and considerable liquidity is essential for this reason.

Table 14 presents an average balance sheet of 613 insured, commercial banks in rural Minnesota. It is seen that 55 per cent of the total assets consisted of

Table 14. Average Balance Sheet of 613 Operating, Insured, Commercial Banks in Rural Minnesota—June 30, 1953\*

Assets	Amount	Per cent of total
Cash .....	\$ 392,227	16.83
U.S. Government obligations .....	889,690	38.18
Obligations of states and political subdivisions .....	133,593	5.73
Other bonds, notes, and debentures .....	67,710	2.91
Other assets .....	19,049	.82
Loans and discounts		
Farm real estate loans .....	59,728	2.56
Farm production loans .....	232,407	9.97
Other loans .....	541,170	23.22
Total loans and discounts .....	\$ 833,305	35.75
Less valuation reserve .....	5,081	.22
Net loans and discounts .....	\$ 828,224	35.53
<b>TOTAL ASSETS</b> .....	<b>\$2,330,493</b>	<b>100.00</b>
Liabilities		
Deposits .....	\$2,149,894	92.25
Other liabilities .....	8,215	.35
Total liabilities .....	\$2,158,109	92.60
Net worth		
Total capital accounts .....	172,384	7.40
<b>TOTAL LIABILITIES AND NET WORTH</b> .....	<b>\$2,330,493</b>	<b>100.00</b>

\* Source: Federal Deposit Insurance Corporation. Banks in Duluth, Minneapolis, St. Paul, and suburbs are excluded.

cash and United States Government obligations. The largest share of the latter had maturities of five years or less. In fact, 19 per cent were treasury bills and certificates of indebtedness which had terms of less than one year. In addition,

20 per cent were treasury notes with maturities of one to five years, and 33 per cent were other bonds maturing in five years or less (table 15).

This situation indicates enough strength and liquidity to enable many

Table 15. Distribution of Types of U.S. Government Obligations Held by 613 Operating, Insured, Commercial Banks in Rural Minnesota—June 30, 1953\*

Type of U.S. Government obligation	Average amount	Per cent of total
Treasury bills .....	\$ 46,076	5.18
Treasury certificates of indebtedness .....	119,240	13.40
Treasury notes .....	178,158	20.02
United States non-marketable bonds† .....	174,200	19.58
Other bonds maturing in 5 years or less .....	289,903	32.58
Other bonds maturing in 5 to 10 years .....	54,002	6.07
Other bonds maturing in 10 to 20 years .....	26,703	3.00
Other bonds maturing after 20 years .....	1,292	.15
Guaranteed obligations (FHA) .....	116	.02
Total U.S. Government obligations .....	\$889,690	100.00

\* Source: Federal Deposit Insurance Corporation. Banks in Duluth, Minneapolis, St. Paul, and suburbs are excluded.

† This classification includes United States savings bonds, treasury bonds (investment series A-1965 and B-1975-80) and depository bonds.

country banks to make at least a moderate number of longer term production loans and thus fit the needs of farmer borrowers better. The fact that 37 per cent of total loans of the average Minnesota rural bank are real estate loans indicates that banks are in a position to make longer term loans. A total of 28 per cent of total loans represent non-real-estate loans to farmers (table 16).

Bankers, in addition to stressing the advantages of liquidity in short-term loans, tend to emphasize the importance of appraising the borrowers' progress from time to time. Maturity dates are convenient times for such attention. Bankers also point to the fact that the frequent renewal of loans meets long-run credit needs. The borrower, in turn, may observe that such would be the case if renewals were automatic but that these loans become in effect long-term loans.

While hard and fast rules can not be laid down, it is in the interest of both borrower and lender to adapt each loan insofar as possible to the needs of each situation. A careful pre-examination of loans might enable banks to provide longer term loans in selected cases.

## CHANGES IN COMPOSITION OF BANK ASSETS

There have been times of serious depression in the past when country banks have had difficulty in converting assets into cash in order to meet the demands of their depositors. When confronted by such conditions some banks have had no alternative to seeking repayment of loans as they became due. They may have found themselves unable to meet requests for new loans at the very time when the need for such credit was at a peak.

**Table 16. Distribution of Types of Loans and Discounts Held by 613 Operating, Insured, Commercial Banks in Rural Minnesota—June 30, 1953\***

Type of loan	Average amount	Per cent of total
Commercial and industrial loans .....	\$ 86,937	10.43
CCC loans to farmers .....	31,515	3.78
Other loans to farmers .....	232,406	27.89
Loans to brokers .....	188	.02
Other loans for purchasing securities .....	2,806	.34
<b>Real estate loans</b>		
On farm land .....	59,728	7.17
On residential properties		
Federal Housing Administration .....	56,802	6.82
Veterans Administration .....	56,314	6.76
Non-FHA or non-VA .....	104,636	12.56
On other properties .....	35,926	4.31
<b>Total real estate loans .....</b>	<b>\$313,406</b>	<b>37.60</b>
<b>Other loans to individuals</b>		
Retail automobile installment paper .....	\$ 57,588	6.92
Other retail installment paper .....	24,423	2.94
Repair and modernization installment loans .....	15,199	1.83
Installment cash loans .....	15,000	1.80
Single payment loans .....	44,953	5.39
Loans to banks .....	21	...
All other loans .....	8,863	1.06
<b>TOTAL LOANS AND DISCOUNTS .....</b>	<b>\$833,305</b>	<b>100.00</b>

\* Source: Federal Deposit Insurance Corporation. Banks in Duluth, Minneapolis, St. Paul, and suburbs are excluded.

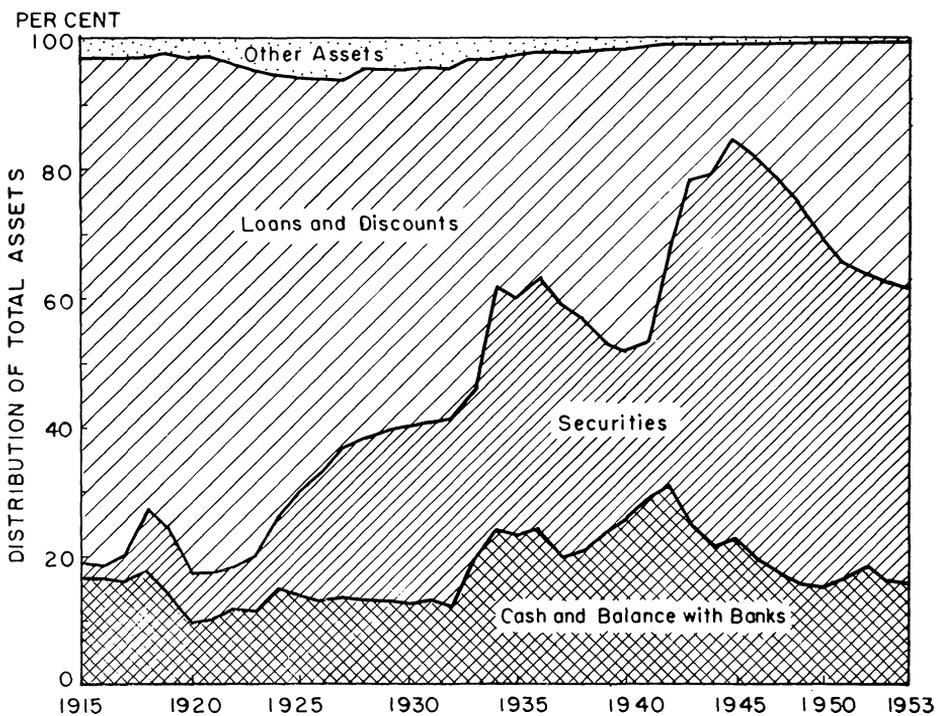


Fig. 7. Percentage distribution of the total assets of Minnesota state banks from January 1, 1915 to December 31, 1953. (Based on data from State of Minnesota Banking Division.)

Changes in the composition of bank assets indicate that these banks are in a better position to weather unfavorable periods than formerly. Figure 7 reveals an interesting picture of the changes that have occurred in the assets of Minnesota state banks since 1915. In 1920, 80 per cent of the total assets of Minnesota state banks consisted of loans and discounts, as compared with only 38 per cent in 1953. In 1920, 7.5 per cent of the total assets of Minnesota state banks consisted of bonds and securities, while such assets made up 45 per cent of the total in 1953.

Figure 8 shows that the expansion in bank security holdings that began in 1941 was primarily in U.S. Government obligations. As of December 31, 1945, U.S. Government obligations comprised 58 per cent of total assets of insured, nonmember, Minnesota state banks.

Loans and discounts and other securities were 15 and 4 per cent, respectively. This was the lowest proportion of loans to total assets ever reached by Minnesota state banks and also represented the highest proportion of United States Government obligations.

The ending of World War II changed this trend. Bank lending activity was resumed and the proportion of loans to total assets began to increase. Since 1945 the increase in loans has been relatively constant percentage-wise. As of December 31, 1953, loans had increased to 38.3 per cent of total assets of all Minnesota state banks.

Country banks made loans quite freely during the time of World War I, when farm incomes and bank deposits were high. As shown in figure 7, 80 per cent of the assets of Minnesota state

banks consisted of loans in 1920, while only 9.5 per cent were in cash and 7.5 per cent were securities. The sharp drop in prices in 1920 to 1921 made repayment difficult, and a substantial decline in deposits forced banks to press collections and to curtail lending.

During the 1920's, an increase in country bank deposits was accompanied by an increase in the banks' holdings of securities other than government issues. Thus between 1920 and 1929, the proportion of assets represented by loans decreased from 80 to 56.5 per cent, while securities increased from 7.5 to 25.5 per cent.

The severe depression in the early 1930's created another period of difficulty for banks. Too many of the securities held were long term obligations

that were not always of top grade quality, and a ready market was not available for them except at heavy discounts.

The experiences of these two periods suggest the advisability of caution against having too large a proportion of assets in loans which may become nonliquid. They also suggest that a substantial share of the assets should be invested in truly liquid securities such as government bonds.

The financial structure of Minnesota country banks is one of a high degree of liquidity. In addition, deposit insurance provides a safeguard against "runs" by depositors. These changes indicate that country banks have become a more stable source of agricultural credit.

PER CENT

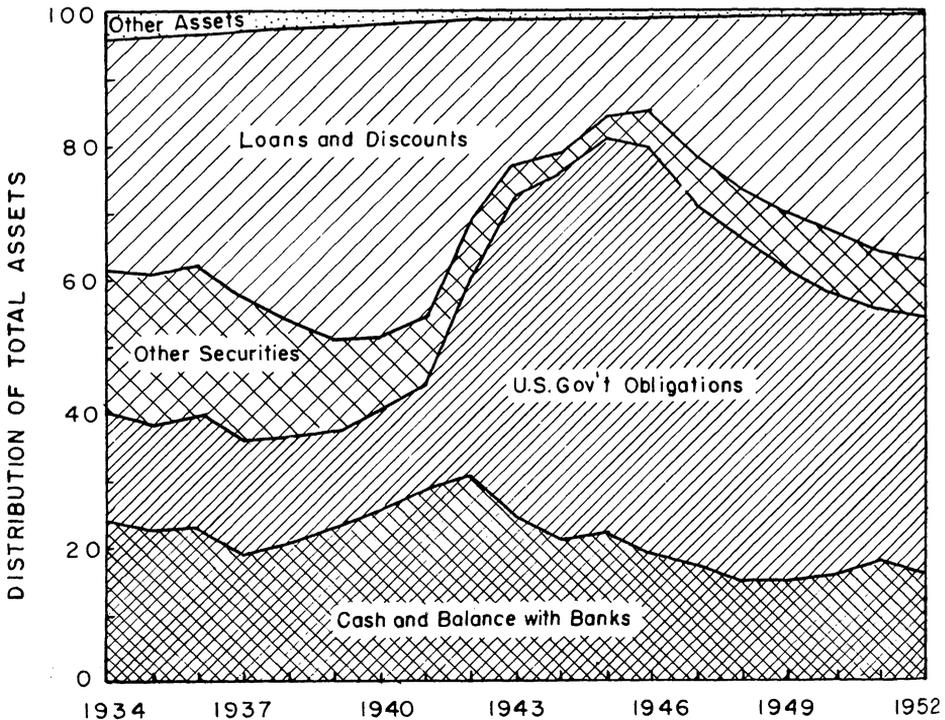


Fig. 8. Percentage distribution of the total assets of insured nonmember Minnesota state banks from January 1, 1934 to December 31, 1952. (Based on data from the Federal Deposit Insurance Corporation.)

## SUMMARY AND CONCLUSIONS

Loan sample data were obtained from 16 Minnesota country banks, while information on machinery loans was obtained by interviews with 57 bankers. The average borrower signed 4.6 promissory notes during the year studied. The most numerous were additional notes to cover new cash advances after the initial loan had been made.

A total of 85 per cent of the notes was for terms of six months or less. The fact that 44 per cent were renewed in some form at maturity suggests that their terms were not well adapted to the borrowers' needs.

The individual notes were mostly for small and medium amounts, as shown by the median of \$410. Several notes typically made up each borrower's loan account. The median maximum loan balance was \$1,661.

Approximately 60 per cent of all notes were made on the borrower's signature only. The remainder were secured by pledged collateral. Chattel mortgages were the most common security. The proportion of secured loans increased as the amount of loan increased.

The most common rates of interest were 6 and 7 per cent. Interest rates were lowest in the southwest livestock region and highest in the Red River Valley.

Interest rates also varied among banks in each region and among loans in each bank. The average interest rate decreased as the size of loan increased. The principal reason for this is that it takes about the same service to make a small loan as a large one.

Interest rates also tended to decrease as borrower net worth increased. Other factors that influence rates are loan purpose, the individual, competition among lenders, and attitudes and decisions of individual bankers.

Approximately two-thirds of the farm machinery loans of the 57 banks surveyed were direct loans. The remainder were conditional sales contracts purchased from dealers. The direct and indirect methods of financing have advantages and disadvantages and the preference depends on the individual case.

Interest payment is usually less on a direct loan since interest is invariably calculated on unpaid balances, while on contracts interest is sometimes calculated on the entire amount. The farmer also is usually in a stronger position as a buyer if he comes to the dealer with prearranged financing. Doing so permits him to obtain all of his production credit from the same source. In the case of direct financing the farmer acquires title to the machinery, while title remains with the dealer or holder of the contract in the indirect method. An advantage of the sales contract is that it gives the farmer more definite assurance of a longer repayment period. Purchases may also be made with a lower down payment under contract, but this increases the debt the farmer carries.

Some 55 per cent of the total assets of the average Minnesota rural bank consist of cash and United States Government obligations. The largest share of the latter have maturities of five years or less, indicating strength and liquidity which should enable many banks to make production loans to fit the needs of farmers better.

Advantages could accrue to both borrower and lender if loan maturity dates were geared more closely to the receipt of farm income. The borrower would not have to rely on a renewal before he received income to repay the loan. The cost of renewals would be reduced, and the bank would also have a truer picture of the real liquidity of its loans.

There have been times of serious depression in the past when country banks have been unable to meet the

credit requirements of farmers. However, the present financial structure of country banks is one of a high degree of liquidity. This, together with lessons

learned from past experiences and the availability of deposit insurance, indicates that they have become a more stable source of credit to agriculture.

## Your Agricultural Experiment Station

The Minnesota Agricultural Experiment Station functions as part of the University of Minnesota Institute of Agriculture in serving the people of Minnesota.

The Institute itself has three jobs:

- **Research** to develop new and better farm practices, crops, and animals and to learn basic facts about nature.

- **Teaching** to prepare young men and women for careers in agriculture, forestry, home economics, and veterinary medicine.

- **Extension** to bring the results of research to the farmer, his wife, and his children through demonstrations, meetings, home visits, newspaper articles, radio programs, and the like. Much of this work is done through your local county agricultural, home, and 4-H agents.

The Experiment Station conducts research in many widely varied fields. Research projects may range from improved diets for the family to better use of the products of our forests, and from the development of better varieties of farm crops to the discovery of new markets for agricultural products.

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