Selected Aspects of Farm Sector Financial Experience and Outlook

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Emanuel Melichar
Senior Economist
Division of Research and Statistics
Board of Governors of the Federal Reserve System
Washington, D.C. 20551

These remarks cover three areas: (1) farm sector profitability and its implications for the sector's financial condition, which continues to be widely misunderstood; (2) liquidity conditions and farm lending experience at agricultural banks; and (3) farm loan interest rates. 1/

I. Farm sector profitability

One often hears that farm real estate is selling at prices not justified by its income, implying that farm asset values have shaky, speculative underpinnnings; or, that the ratio of farm debt to net farm income has risen greatly, implying that the ability to service and repay debt may be increasingly in jeopardy. If true, these considerations would dominate the farm financial outlook; thus, it is relevant to assess their validity in this session.

In each of these statements, the same serious analytical error has been committed: the farm income stream being compared with assets, debt, or marketings is the USDA's net farm income series, which represents income to farm operators' labor and management as well as income to farm capital. When such income is used is these comparisons, the financial condition of the farm sector appears to have deteriorated severely over the past 25 years. This is a false result, for the following reason.

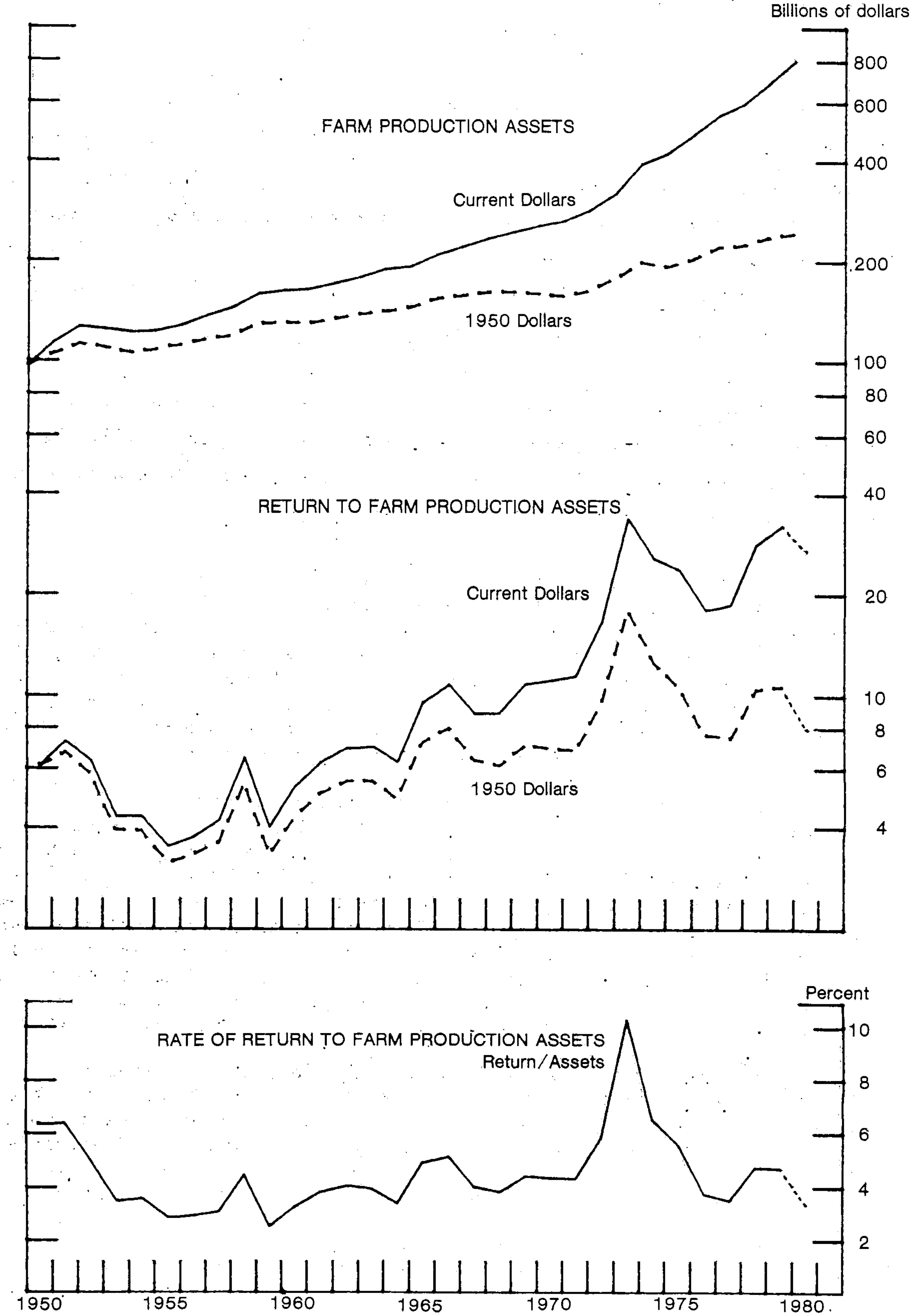
Over time, there has been substantial substitution of capital for labor in farm production. Thus, with each passing year more of the USDA's net farm income represented a return to capital and less of it represented a return to labor. The change has been striking: USDA estimates indicate that whereas only about 30 percent of total returns to farming could be considered a return to capital in the mid-1950's, by the late 1970's that proportion has risen to over 70 percent. Consequently, the return to farm production assets has risen rapidly--in constant dollars, by an annual average of 4.2 percent over 1954-79 (upper panel of Chart 1). This series --which is akin to corporate business profits in that it is what remains after labor and management are paid going wage rates and management fees--represents the relevant data for comparisons with asset and debt levels.

In Chart 1, this return-to-assets series is compared with asset values. Other things equal, asset values should rise at about the same pace as the

1/ The analyses and conclusions are those of the author and do not necessarily reflect the views of the Board of Governors or of other members of its staff.

Chart 1

Return to Farm Assets Compared with Value of Assets



Returns shown for 1980 are based on USDA forecasts of farm income and expenses published in March 1980.

growth in the return they are producing. This has been true of farm assets. For some years, farm assets have on average remained priced at about 25 times their growing return, with that annual return thus averaging about 4 percent of asset values (lower panel of Chart 1).

Financial theory indicates that this price/earnings multiple was appropriate for farm assets if the return to these assets was expected to keep growing at an annual rate of about 4 percent and if owners of these assets were seeking a total real annual yield of about 8 percent (this being the actual average total yield). If these are reasonable assumptions about the expectations and goals of owners and buyers of farm assets, then farm assets have not been overpriced. 2/

In similar fashion, Chart 2 shows that the return to assets has, over the past 25 years, kept pace with rising farm debt. Since 1954, the ratio of outstanding debt to the annual return to assets has fluctuated around a value of 4 (lower panel of Chart 2). 3/

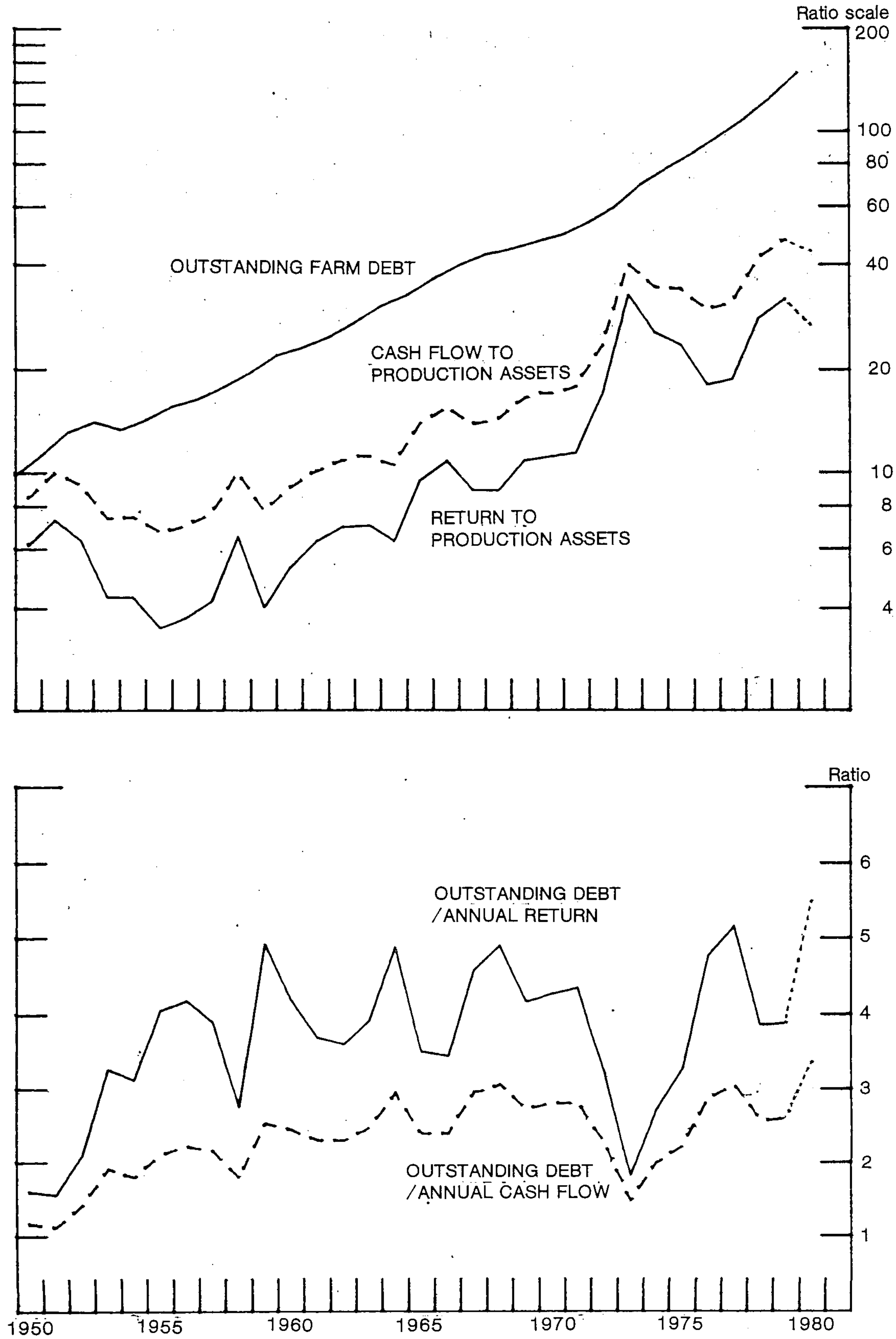
2/ Owners of farm assets have thus been receiving about half of their total real return in the form of current income and half in the form of real capital gains. This puts farmland buyers who need high current income, such as beginning farmers, at a disadvantage vis-a-vis buyers who prefer or are contented with accumulating capital gains. The many persons and groups who are currently seeking to increase the "profitability" of farm assets--meaning the rate of return in the form of current income--must first understand that this can only be accomplished by increasing the proportion of current income in the total return mix. That, in turn, can only be accomplished by reducing the growth rate of the current return!

This analysis thus has paradoxical policy implications, in that the policies that such persons and groups should advocate are often not the ones they now tend to put forth. But the essence of the analysis is very simple: the "profitability" of farming in terms of the rate of current income to assets can only increase if those assets are priced at a lower multiple of that income. The key to understanding and appropriate policy formulation lies in next realizing that the present high multiple is a logical consequence of the growth record of the current income; hence the importance of the common analytical error that has obscured that record.

3/ Analysts have also expressed concern that a marked decline in the ratio of net income to gross income--the "profit" margin--indicates that the financial vulnerability of the farm sector has increased. Again, however, that "profit" margin includes operators' labor and management earnings. The return to assets alone has not shown a secular decline relative to farm cash receipts or gross income. Thus for farm groups for which most labor inputs are fixed cash outlays (such as very large or corporate farms), profit margins and financial vulnerability may have not changed significantly. They have probably moved adversely on farms (such as tenant-operated farms) on which labor earnings comprise a large proportion of operators' net income.

Chart 2

Farm Debt Compared with Income Flows to Farm Production Assets



Farm debt excludes CCC loans and debt on operators' dwellings.

Income flows shown for 1980 are based on USDA forecasts of farm income and expenses published in March 1980.

II. Bank liquidity and farm lending

Time and savings deposits at agricultural banks continued to rise in late 1979 and in each of the first three quarters of 1980, even when money-market interest rates were soaring. Steady gains were experienced by banks in each of the major farming areas (Table 1).

By late April, however, it became evident that loans at agricultural banks were not increasing as they normally do in the spring. Significantly, this experience occurred not only in states in which the liquidity positions of agricultural banks had deteriorated since the spring of 1979, but also in the many regions in which agricultural banks were as liquid as, or more liquid than, they had been a year earlier (Table 2). Thus factors dampening loan demand generally--high interest rates and business recession--appear to have been primarily responsible for lack of growth in bank loans.

Consequently, the average loan/deposit ratio at agricultural banks fell sharply during the second and third quarters, when it normally exhibits a strong seasonal increase (Chart 3). Improvements in average rural-bank liquidity were especially marked in the Lake States, Corn Belt, and Northern Plains (Table 3). By mid-October, the national average loan/deposit ratio at agricultural banks had dropped to 60 percent; however, this was still significantly above the level of 55 percent that had prevailed for seven years prior to 1976 (Table 4).

Agricultural banks in states at the western end of the corn belt--Iowa, Nebraska, Minnesota, and the Dakotas--had entered 1980 with relatively high loan/deposit ratios. The average liquidity position of agricultural banks has improved considerably in each of these states (Table 4).

The volume of non-real-estate farm loans outstanding at commercial banks did not increase during the first half of 1980; the last time this happened was in 1942. In the third quarter, however, these loans rose by about $500 million, or 1.7 percent, to a total of $31.6 billion. When compared with the experience of earlier years, the most striking reductions in farm loans at banks occurred in the Midwest and Plains states--Federal Reserve Districts 7, 9, and 10 (Table 5). In many other states, farm loan growth at banks was maintained within the range of recent experience.

Table 1

ESTIMATES FROM LOAN-DEPOSIT PROJECTION PROJECT, E. MELICHAR, 11-17-80

AGRICULTURAL INSURED COMMERCIAL BANKS*

TIME AND SAVINGS DEPOSITS

FARM PRODUCTION AREAS

DATE	NORTHEAST STATES (10)	LAKE STATES (20)	CORN BELT (25)	NORTHERN PLAINS (25)	APPALACHN STATES (15)	SOUTHEAST STATES (15)	DELTA STATES (15)	SOUTHERN PLAINS (25)	MOUNTAIN STATES (15)	PACIFIC STATES (15)
	PERCENTAGE CHANGE FROM 1-02-80 TO DATE SHOWN									
1- 9-80	0	1	1	1	1	1	2	1	1	0
1-16-80	1	1	1	2	1	1	2	2	1	0
1-23-80	1	1	1	2	2	2	3	2	1	0
1-30-80	1	1	2	3	2	2	3	3	2	1
2- 6-80	2	2	2	3	2	2	3	4	2	1
2-13-80	2	2	2	3	2	2	4	4	2	1
2-20-80	2	2	2	3	2	3	4	4	2	2
2-27-80	2	2	2	4	3	3	4	5	3	2
3- 5-80	2	3	3	4	3	4	5	6	3	3
3-12-80	3	3	3	4	3	4	5	6	3	3
3-19-80	2	3	4	5	4	5	6	7	3	3
3-26-80	2	3	4	5	4	5	6	7	3	3
4- 2-80	3	4	5	5	4	6	7	8	4	4
4- 9-80	3	4	6	6	5	6	7	9	4	4
4-16-80	3	4	6	6	5	6	7	9	3	4
4-23-80	3	4	6	6	5	7	7	9	4	4
4-30-80	4	4	6	6	5	7	7	9	4	4
5- 7-80	4	5	6	7	5	7	7	9	4	4
5-14-80	4	5	6	7	5	7	7	9	4	4
5-21-80	5	5	7	7	6	7	7	9	4	5
5-28-80	5	5	7	8	6	7	7	10	5	5
6- 4-80	6	6	7	8	6	7	8	10	5	5
6-11-80	6	6	7	8	6	8	8	10	5	5
6-18-80	6	6	7	8	5	8	8	10	5	4
6-25-80	6	6	7	8	5	8	8	10	5	4
7- 2-80	6	6	7	9	6	9	9	10	5	5
7- 9-80	7	6	8	9	6	9	9	11	5	5
7-16-80	7	7	8	9	6	9	9	11	5	5
7-23-80	7	8	8	9	6	9	10	11	6	6
7-30-80	7	8	8	9	6	8	10	11	6	6
8- 6-80	7	8	9	10	6	8	10	11	6	6
8-13-80	7	8	9	10	7	8	11	12	6	6
8-20-80	8	9	9	10	7	8	11	12	7	6
8-27-80	8	9	9	10	7	8	11	12	7	6
9- 3-80	8	9	9	10	7	9	11	13	7	7
9-10-80	8	9	10	11	7	9	12	13	7	7
9-17-80	8	9	10	11	8	9	11	13	7	7
9-24-80	8	9	11	11	8	9	12	14	8	8
10- 1-80	9	9	11	11	8	9	11	13	7	8
10- 8-80	10	11	12	11	8	9	12	15	8	9
10-15-80	10	10	13	11	9	10	13	15	8	9
10-22-80	10	11	13	12	9	10	13	15	9	10

* BANKS AT WHICH FARM LOANS REPRESENT AT LEAST THE PERCENTAGE OF TOTAL LOANS SHOWN IN THE COLUMN HEADINGS.

Table 2

ESTIMATES FROM LOAN-DEPOSIT PROJECTION PROJECT, E. MELICHAR, 11-17-80

AGRICULTURAL INSURED COMMERCIAL BANKS*

TOTAL LOANS

FARM PRODUCTION AREAS

DATE	NORTHEAST STATES (10)	LAKE STATES (20)	CORN BELT (25)	NORTHERN PLAINS (25)	APPALACHN STATES (15)	SOUTHEAST STATES (15)	DELTA STATES (15)	SOUTHERN PLAINS (25)	MOUNTAIN STATES (15)	PACIFIC STATES (15)
				PERCENTAGE CHANGE FROM 1-02-80 TO DATE SHOWN						
1- 9-80	0	0	0	0	0	0	-1	-1	0	0
1-16-80	0	0	0	0	0	0	-1	-1	0	0
1-23-80	0	0	-1	0	0	0	-1	-1	0	0
1-30-80	0	0	-1	-1	0	0	0	-1	0	1
2- 6-80	0	0	-1	-1	0	0	0	-1	0	1
2-13-80	0	0	-1	-1	0	0	0	-1	0	1
2-20-80	0	0	-1	-1	0	0	0	-1	0	1
2-27-80	0	0	-1	-1	0	0	0	0	0	1
3- 5-80	0	0	0	0	0	1	0	0	0	1
3-12-80	0	1	0	0	0	1	1	0	0	2
3-19-80	0	0	0	0	0	1	1	0	0	2
3-26-80	0	0	0	0	0	0	1	1	0	2
4- 2-80	0	0	0	0	0	1	1	1	0	2
4- 9-80	0	0	-1	-1	-1	0	1	1	0	2
4-16-80	0	0	-1	-1	0	0	2	1	0	2
4-23-80	0	0	-1	-1	-1	0	2	1	0	2
4-30-80	0	0	-1	-1	-1	0	2	1	0	2
5- 7-80	0	0	-2	-1	-1	-1	2	1	0	2
5-14-80	0	0	-2	-1	-1	-1	2	1	0	2
5-21-80	0	-1	-2	-2	-1	-1	1	1	0	2
5-28-80	0	0	-2	-2	-1	-1	1	1	0	2
6- 4-80	-1	0	-2	-2	-1	-1	1	1	0	2
6-11-80	-1	0	-2	-2	-1	-1	1	1	0	2
6-18-80	-1	0	-2	-2	-1	-1	1	1	1	2
6-25-80	-1	-1	-2	-2	-1	-1	1	2	1	3
7- 2-80	-1	0	-2	-1	-1	-1	1	2	1	2
7- 9-80	-1	0	-2	-1	-1	-1	1	2	1	2
7-16-80	-1	-1	-3	-2	-2	0	1	2	1	2
7-23-80	-1	-1	-3	-2	-2	0	0	2	1	2
7-30-80	-1	-1	-3	-2	-1	0	1	2	1	2
8- 6-80	-1	-1	-3	-2	-2	0	1	2	1	2
8-13-80	-1	-1	-3	-2	-1	0	2	3	1	2
8-20-80	0	-1	-3	-2	-1	0	2	3	1	2
8-27-80	0	-1	-3	-2	-1	1	2	3	2	3
9- 3-80	0	-1	-3	-2	-1	1	3	3	2	3
9-10-80	0	-1	-3	-2	-1	1	2	3	2	3
9-17-80	0	-1	-3	-2	-1	1	3	4	2	3
9-24-80	0	-1	-3	-2	-1	1	3	4	2	3
10- 1-80	0	-1	-2	-2	-1	1	3	4	2	4
10- 8-80	1	-1	-2	-2	0	1	4	5	2	3
10-15-80	1	-1	-2	-2	0	2	4	5	2	3
10-22-80	1	-1	-3	-2	0	2	4	5	2	3

* BANKS AT WHICH FARM LOANS REPRESENT AT LEAST THE PERCENTAGE OF TOTAL LOANS SHOWN IN THE COLUMN HEADINGS.

Chart 3

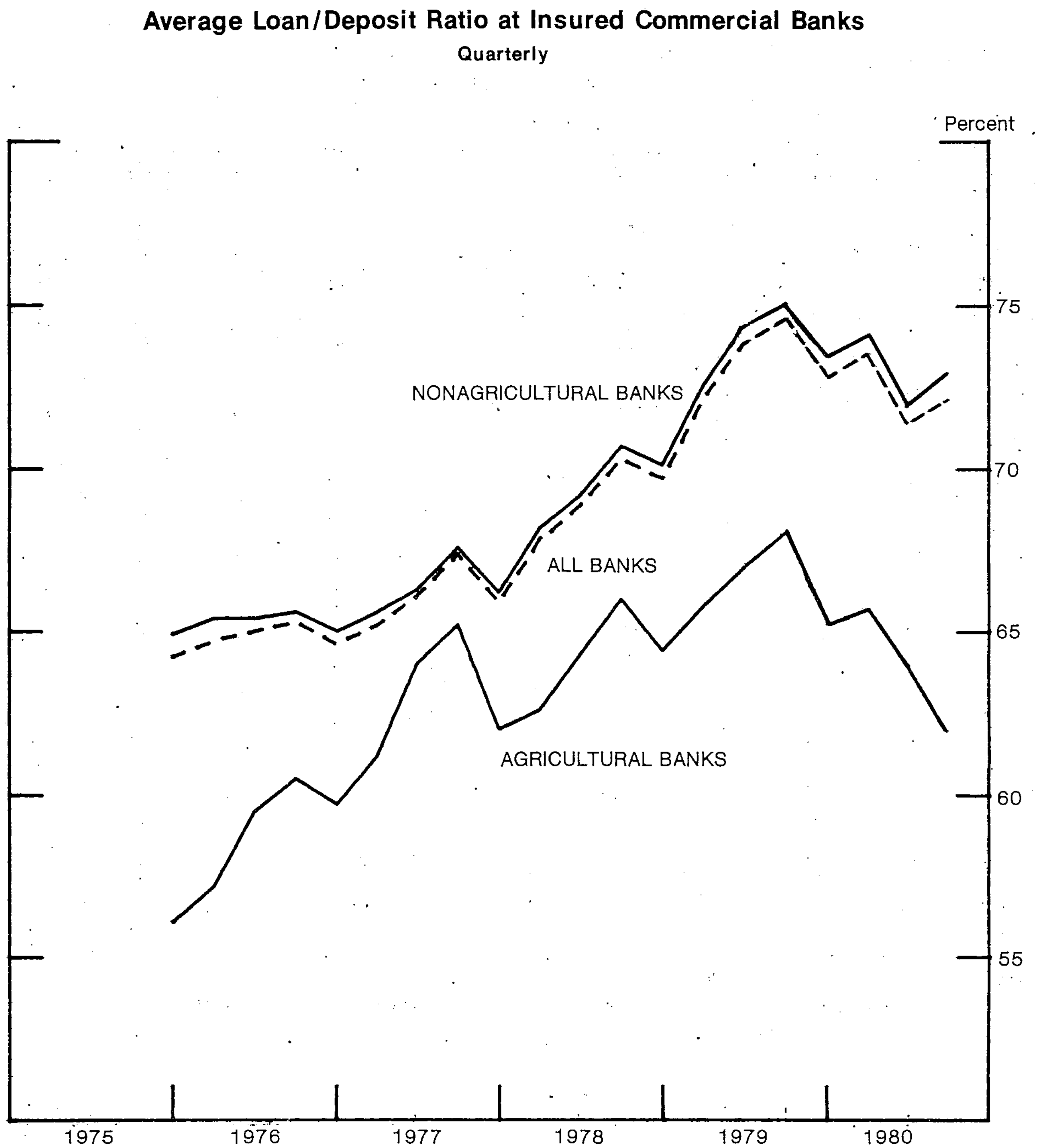

Average Loan/Deposit Ratio at Insured Commercial Banks
Quarterly
Percent
75
70
65
60
55
NONAGRICULTURAL BANKS
ALL BANKS
AGRICULTURAL BANKS
1975
1976
1977
1978
1979
1980

Table 3

ESTIMATES FROM LOAN-DEPOSIT PROJECTION PROJECT, E. MELICHAR, 11-17-80

AGRICULTURAL INSURED COMMERCIAL BANKS*

LOAN/DEPOSIT RATIO (PERCENT)

FARM PRODUCTION AREAS

DATE	NORTHEAST STATES (10)	LAKE STATES (20)	CORN BELT (25)	NORTHERN PLAINS (25)	APPALACHN STATES (15)	SOUTHEAST STATES (15)	DELTA STATES (15)	SOUTHERN PLAINS (25)	MOUNTAIN STATES (15)	PACIFIC STATES (15)
1- 2-80	73	69	65	66	65	64	60	55	67	70
1- 9-80	73	70	65	67	65	63	59	55	67	70
1-16-80	73	71	66	67	66	64	59	55	68	71
1-23-80	74	71	66	68	66	65	60	55	69	72
1-30-80	74	72	66	68	67	66	61	55	69	73
2- 6-80	73	71	66	67	66	64	60	54	69	71
2-13-80	73	71	66	67	66	64	60	55	69	72
2-20-80	73	70	65	66	66	64	60	54	68	72
2-27-80	74	70	66	67	67	65	61	55	69	73
3- 5-80	73	70	65	66	65	63	59	54	68	71
3-12-80	73	71	66	67	66	63	60	55	68	71
3-19-80	74	71	66	68	66	63	61	56	69	72
3-26-80	74	71	66	68	66	64	61	56	70	73
4- 2-80	73	70	65	67	66	62	60	55	69	71
4- 9-80	72	70	65	67	65	62	60	55	68	70
4-16-80	72	70	64	67	65	62	60	55	68	71
4-23-80	73	70	65	67	66	63	61	56	69	72
4-30-80	72	71	65	67	66	63	61	56	69	72
5- 7-80	72	70	64	66	65	62	60	55	68	72
5-14-80	72	70	64	66	65	62	61	56	69	72
5-21-80	72	70	64	66	66	63	61	56	69	72
5-28-80	71	69	64	65	65	62	61	56	69	73
6- 4-80	71	69	63	65	65	62	60	55	68	71
6-11-80	71	69	63	65	65	61	60	55	68	71
6-18-80	71	69	64	65	65	62	60	56	69	72
6-25-80	71	69	64	65	66	63	60	56	70	73
7- 2-80	70	69	63	65	65	62	59	55	68	71
7- 9-80	69	68	62	64	64	61	58	55	68	70
7-16-80	70	67	62	64	64	62	59	55	68	71
7-23-80	70	68	63	65	65	62	59	56	69	71
7-30-80	70	68	62	65	65	63	59	55	69	71
8- 6-80	69	67	61	64	64	62	59	55	68	70
8-13-80	69	66	62	63	64	62	59	55	68	70
8-20-80	70	66	62	64	64	63	60	55	68	70
8-27-80	70	66	62	64	65	63	60	55	68	71
9- 3-80	68	66	60	62	63	61	59	54	67	69
9-10-80	69	66	61	63	64	62	59	54	67	68
9-17-80	69	66	61	63	64	62	60	55	67	69
9-24-80	70	66	61	64	64	63	61	56	68	70
10- 1-80	68	66	60	63	64	62	60	55	67	69
10- 8-80	68	65	60	63	63	61	59	54	66	68
10-15-80	68	64	59	62	63	61	59	54	65	67
10-22-80	69	65	59	63	64	62	59	55	66	68

* BANKS AT WHICH FARM LOANS REPRESENT AT LEAST THE PERCENTAGE OF TOTAL LOANS SHOWN IN THE COLUMN HEADINGS.

Table 4

ESTIMATES FROM LOAN-DEPOSIT PROJECTION PROJECT, E. MELICHAR, 11-17-80

AGRICULTURAL INSURED COMMERCIAL BANKS*

LOAN/DEPOSIT RATIO (PERCENT)

DATE	U.S.	CORN BELT					LAKE STATES			PLAINS						MOUNTAIN STATES			
		OH	IN	IL	IO	MO	MI	WI	MN	ND	SD	NB	KS	OK	TX	NM	CO	WY	MT
12-31-69	53	54	50	48	56	50	63	54	54	52	56	55	52	51	52	57	62	53	53
6-30-70	57	58	53	49	59	56	64	55	59	59	62	61	55	52	56	62	66	61	60
12-31-70	54	55	51	48	58	51	62	54	54	54	58	57	53	51	50	56	62	58	53
6-30-71	55	57	53	48	59	54	63	55	57	56	60	61	53	50	53	61	63	63	60
12-31-71	53	55	50	47	58	48	63	55	54	49	56	59	52	51	51	58	60	57	51
6-30-72	56	57	50	48	59	53	65	58	57	55	60	62	54	51	54	64	65	62	58
12-31-72	53	54	50	45	56	50	64	57	52	48	56	59	52	53	53	62	60	56	50
6-30-73	56	56	51	45	57	54	66	59	55	52	59	65	55	53	56	66	64	64	56
12-31-73	54	56	50	46	57	52	66	58	53	49	59	60	52	54	51	65	59	59	55
6-30-74	57	60	52	48	57	57	68	60	54	50	62	60	54	54	54	69	65	66	60
12-31-74	55	58	53	49	55	53	66	62	55	54	59	57	53	54	53	65	60	60	59
6-30-75	56	60	55	49	56	55	66	60	57	54	59	58	55	52	52	65	62	63	61
12-31-75	56	58	54	50	57	52	66	60	58	57	60	59	56	54	52	61	63	59	58
6-30-76	59	62	56	52	60	56	67	62	61	60	60	64	60	56	57	64	68	66	62
12-31-76	60	60	56	54	62	56	68	62	60	62	62	66	62	57	54	64	69	63	63
6-30-77	64	66	61	57	66	61	71	67	64	65	67	72	64	58	59	64	71	66	65
12-31-77	62	65	61	59	66	58	68	66	62	60	65	66	62	59	56	62	68	61	61
6-30-78	64	68	64	61	66	62	70	70	65	61	67	66	64	59	60	63	72	63	65
12-31-78	64	67	65	64	67	62	71	70	65	61	68	65	64	61	60	64	71	62	62
6-30-79	67	69	67	64	70	66	71	72	70	68	73	69	65	60	59	63	76	71	70
1- 2-80	64	66	65	61	68	63	70	69	69	64	69	69	62	57	53	61	71	62	64
1- 9-80	65	66	65	61	69	65	69	70	71	65	70	70	62	57	53	60	72	63	64
1-16-80	65	67	65	61	69	65	70	70	72	65	71	71	63	58	53	60	74	63	65
1-23-80	66	68	66	61	70	66	71	70	72	67	72	71	64	59	53	60	75	65	66
1-30-80	66	68	66	62	70	66	71	71	73	67	72	71	64	59	53	61	74	66	66
2- 6-80	65	67	65	61	69	65	70	70	71	66	71	70	62	58	52	60	73	65	65
2-13-80	65	67	65	61	69	65	69	70	71	66	71	70	63	58	53	60	74	65	66
2-20-80	64	66	65	60	68	64	69	69	71	66	70	69	62	58	52	60	73	65	66
2-27-80	65	67	66	61	70	66	69	69	71	66	71	70	63	59	53	61	74	66	66
3- 5-80	64	66	65	60	68	64	69	68	70	65	70	69	62	58	52	60	72	65	65
3-12-80	65	67	65	61	70	66	69	69	72	65	70	70	63	59	53	60	73	66	66
3-19-80	65	67	65	61	70	66	69	70	71	66	70	71	64	59	54	61	74	65	66
3-26-80	66	67	65	61	70	66	70	71	72	66	71	71	64	59	54	61	75	66	67
4- 2-80	65	66	64	60	68	65	69	70	71	66	70	70	63	58	53	59	73	66	66
4- 9-80	64	66	64	60	68	64	68	69	71	65	70	70	63	58	53	59	73	66	65
4-16-80	64	66	64	60	67	64	68	70	71	66	70	69	63	58	53	59	73	66	66
4-23-80	65	66	64	60	68	65	69	70	71	66	70	70	63	59	55	60	74	66	66
4-30-80	65	66	64	60	68	65	68	70	71	65	69	69	63	58	54	60	74	66	66
5- 7-80	64	66	64	60	67	64	67	70	70	65	69	69	63	58	54	60	74	65	65
5-14-80	64	66	64	60	67	64	68	70	70	65	68	68	63	58	55	60	74	65	65
5-21-80	64	66	64	60	67	64	68	69	70	65	68	69	63	58	56	60	75	64	65
5-28-80	64	65	64	59	66	64	68	69	69	64	67	68	62	57	55	60	74	65	65
6- 4-80	63	65	63	59	66	63	66	68	69	64	67	68	62	57	54	59	74	64	64
6-11-80	63	65	63	59	66	63	67	69	69	63	66	68	62	57	54	60	74	64	64
6-18-80	64	65	63	59	66	63	67	69	69	64	67	69	62	57	55	60	75	64	65
6-25-80	64	66	64	59	67	64	68	69	69	64	67	69	62	58	56	61	76	65	65
7- 2-80	63	66	62	59	66	63	67	69	69	64	67	68	61	56	55	60	74	64	65
7- 9-80	63	65	62	58	65	62	67	68	68	63	66	68	60	56	54	59	74	64	64
7-16-80	63	65	63	58	65	62	67	68	67	63	66	68	60	55	55	59	74	64	64
7-23-80	63	65	63	58	65	62	67	68	67	64	67	68	60	56	55	60	75	64	65
7-30-80	63	65	63	58	65	62	68	69	67	64	67	68	60	56	55	59	74	65	65
8- 6-80	62	64	63	57	64	61	66	68	66	63	66	67	59	55	55	59	73	65	64
8-13-80	62	64	63	57	64	61	66	68	65	63	65	67	59	55	55	59	73	65	64
8-20-80	62	64	63	58	64	61	67	67	66	63	66	68	59	55	56	59	74	64	65
8-27-80	62	65	63	57	64	61	67	67	65	63	65	68	59	55	56	59	74	65	65
9- 3-80	61	63	62	56	63	60	66	67	65	62	65	66	58	54	54	58	72	63	64
9-10-80	61	63	63	57	63	60	66	67	64	62	65	67	59	54	55	59	73	63	63
9-17-80	62	64	63	57	63	60	66	67	65	61	64	67	59	54	55	59	74	62	64
9-24-80	62	64	63	57	63	60	67	67	65	62	65	68	60	55	56	60	74	62	64
10- 1-80	61	63	63	57	62	60	66	67	65	62	64	67	59	54	55	59	73	62	63
10- 8-80	61	62	61	56	61	59	65	66	64	61	64	67	58	54	55	58	72	61	63
10-15-80	60	61	60	55	61	58	65	66	63	60	63	65	58	53	54	56	70	60	62
10-22-80	61	61	61	55	61	59	66	67	64	60	64	67	59	55	56	57	72	61	62

*BANKS AT WHICH FARM LOANS REPRESENT 25 PERCENT OR MORE OF TOTAL LOANS (15 PERCENT IN MICHIGAN).

Table 5

Farm non-real-estate loans outstanding at insured commercial banks

Federal Reserve District and state	Estimated amount Sept. 30, 1980 ($ millions)	Percentage change in-- First three quarters					Year ending Sept. 30			
		1976	1977	1978	1979	1980	1977	1978	1979	1980
United States......	31,598	14	13	9	9	2	15	7	10	3
1--Boston..........	97	-11	-2	12	-3	-26	12	33	40	-8
2--New York........	673	-3	14	0	20	29	29	2	33	40
New York.........	668	-4	14	0	20	29	29	2	34	40
3--Philadelphia....	306	-4	8	9	-1	-9	14	14	4	-2
Pennsylvania*....	294	-6	6	10	0	-6	12	16	6	0
4--Cleveland.......	726	8	21	12	10	6	19	7	9	2
Kentucky*........	202	9	16	13	12	9	11	11	10	4
Ohio.............	506	10	23	12	10	6	23	7	9	2
Pennsylvania*....	16	-25	21	-2	3	-11	11	-16	-4	-11
5--Richmond........	689	24	28	13	14	15	14	2	-1	4
Maryland.........	64	11	12	1	-5	14	15	-2	-7	16
North Carolina...	308	47	34	20	19	22	13	5	-6	8
South Carolina...	87	26	35	5	15	15	28	-10	8	4
Virginia.........	198	7	25	14	16	9	11	4	7	-4
West Virginia*...	33	-3	18	1	5	2	14	2	-3	-1
6--Atlanta.........	1,299	15	25	5	12	9	21	-3	8	-1
Alabama..........	288	26	33	2	21	12	23	-8	9	-5
Florida..........	160	-2	1	-12	-3	-6	8	-5	14	-5
Georgia..........	337	21	26	3	11	2	24	-11	12	-3
Louisiana*.......	156	9	45	33	8	35	27	20	-3	10
Mississippi*.....	155	20	30	11	32	27	20	-1	12	6
Tennessee*.......	203	7	20	8	6	4	20	8	6	-1
7--Chicago.........	6,759	10	14	7	7	-3	22	7	11	1
Illinois*........	1,585	8	14	9	2	-3	23	9	8	-2
Indiana*.........	808	16	23	15	10	4	24	11	10	2
Iowa.............	3,318	9	12	2	8	-6	23	4	16	1
Michigan*........	407	20	20	9	8	2	18	3	3	-2
Wisconsin*.......	641	9	14	13	9	5	17	13	7	4

Farm non-real-estate loans outstanding at insured commercial banks (continued)

Federal Reserve District and state	Estimated amount Sept. 30, 1980 ($ millions)	Percentage change in-- First three quarters					Year ending Sept. 30			
		1976	1977	1978	1979	1980	1977	1978	1979	1980
8--St. Louis.......	2,401	20	24	17	13	10	19	9	5	1
Arkansas.........	450	32	45	28	12	24	20	8	-5	-1
Illinois*........	543	14	20	15	8	0	26	11	7	-3
Indiana*.........	172	13	19	14	12	5	21	11	8	1
Kentucky*........	302	16	15	14	10	14	13	11	3	7
Mississippi*.....	219	18	36	20	33	30	16	3	5	3
Missouri*........	572	16	10	10	12	4	16	9	12	3
Tennessee*.......	144	31	44	19	26	19	17	1	5	-3
9--Minneapolis.....	4,382	9	9	11	17	-2	12	10	18	0
Michigan*........	8	12	1	11	10	-18	2	8	15	-20
Minnesota........	1,868	8	14	16	17	-2	18	13	19	1
Montana..........	537	18	4	8	18	6	2	7	11	-4
North Dakota.....	746	11	4	9	23	-2	6	5	23	-3
South Dakota.....	1,027	5	8	8	15	-6	13	11	20	0
Wisconsin*.......	195	11	16	9	13	3	20	10	11	7
10--Kansas City....	6,973	16	8	5	6	-1	12	4	9	3
Colorado.........	783	20	9	7	5	6	12	3	4	2
Kansas...........	1,886	13	4	3	3	-5	10	6	8	2
Missouri*........	701	16	12	11	10	-2	14	12	12	4
Nebraska.........	2,326	19	12	7	11	0	17	2	10	5
New Mexico*......	43	5	12	17	14	-5	7	7	4	-13
Oklahoma*........	1,009	8	4	-2	1	-2	6	6	11	0
Wyoming..........	225	23	2	0	12	6	-2	-4	5	-2
11--Dallas.........	2,658	18	14	14	0	8	12	6	-1	5
Louisiana*.......	171	46	54	33	22	42	22	2	-3	8
New Mexico*......	141	18	9	9	1	5	4	0	-2	1
Oklahoma*........	53	22	18	10	-16	4	12	12	-17	3
Texas............	2,293	16	12	13	-2	6	12	7	0	5
12--San Francisco..	4,635	17	11	13	13	5	8	10	11	4
Arizona..........	410	-9	23	14	12	0	5	16	21	1
California.......	2,792	14	10	14	12	5	11	12	12	8
Hawaii...........	15	-4	-12	-11	-22	24	32	10	-6	15
Idaho............	382	28	5	6	12	5	-5	-3	-1	-5
Nevada...........	19	21	27	1	17	-2	13	24	-2	-19
Oregon...........	329	33	9	13	10	18	5	11	5	14
Utah.............	98	17	2	-1	-3	7	10	2	-3	-5
Washington.......	590	38	19	17	23	1	11	11	12	-6

* Portion of state in specified Federal Reserve District.

III. Farm loan interest rates at banks

For the first time, farm loan interest rates at rural banks rose sharply during a cyclical upswing in money-market rates and in the prime rate at large banks (Chart 4).

It is not likely that the higher opportunity cost of making farm loans during this period was a major factor in the rural rate increases, because, as Chart 4 indicates, rural banks had not raised farm loan rates much when similar opportunity cost increases occurred in earlier cycles.

Rural banks raised loan rates sharply in this cycle because, for the first time, their cost of loanable funds increased greatly as money-market rates soared. But this did not happen because they were raising more funds through money-market instruments such as Federal funds or large certificates of deposit; they were not doing so (first two panels of Table 6). Rather, their cost rose because their local depositors rapidly shifted a large proportion of their deposits into the "money-market" certificates (deposits of $10,000 or more with minimum maturity of 6 months and rate ceilings tied to recent U.S. Treasury bill yields) that had been introduced in 1978 (last panel of Table 6).

During future periods of monetary restraint, farm loan rates at rural banks are thus likely to move with money-market rates, as they have done since mid-1979 (Chart 5). It remains to be seen, however, how the depositors, and thus the loan rates, of rural banks will behave during periods of more normal monetary conditions, when short-term money-market rates represent the low end of the interest rate spectrum.

Timely information on average farm loan rates typically being charged by rural banks is provided by the quarterly Federal Reserve Bank surveys of farm credit conditions. More detail on terms of farm loans at all banks is provided by a quarterly Federal Reserve survey of terms of a sample of individual loans made during the first week of February, May, August, and November (Chart 5, Tables 7 and 8). Results are published about seven weeks later in Statistical Release E.2, available from Publications Services, Federal Reserve Board, Washington, D.C. 20551. A mailing list is maintained.

Chart 4

Average Farm Loan Interest Rates at Rural Banks Compared With Prime Rate

Quarterly
First Day of Quarter

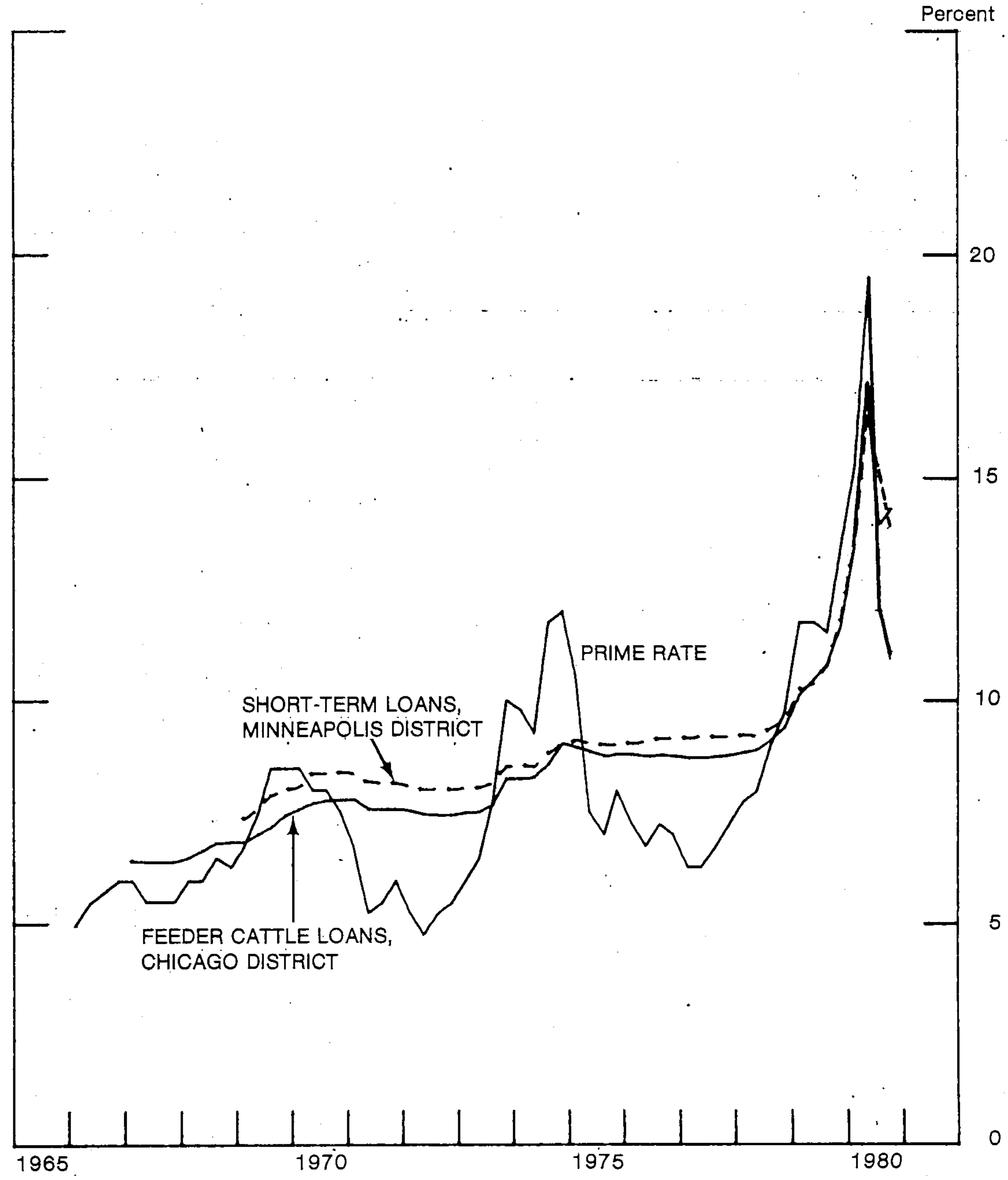


Table 6

Selected sources of funds as a percentage of total banking resources

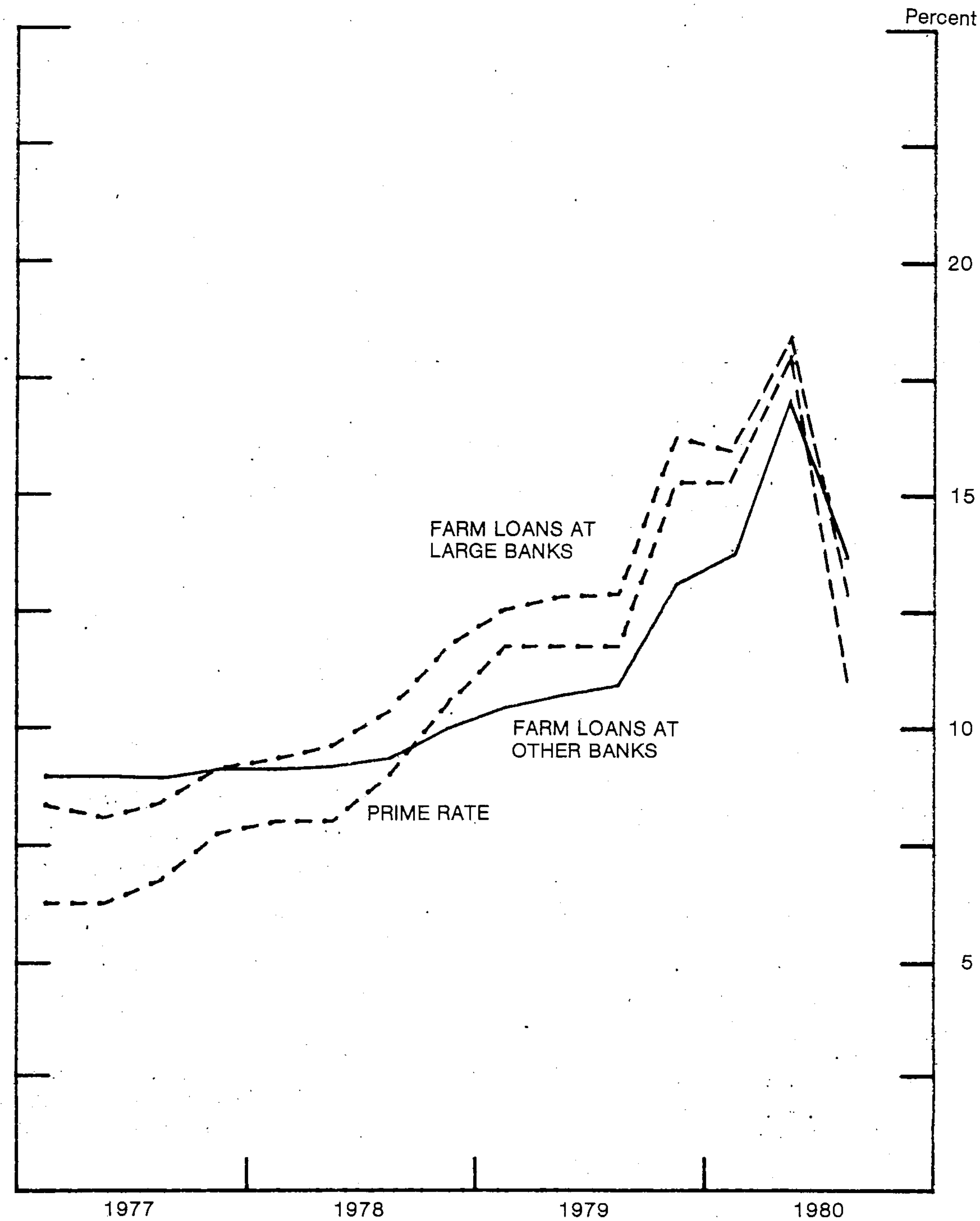
End of month	All banks	Agricultural banks	Nonagricultural banks with total assets-- Under $500 million	$500 million and over
	Net purchases of federal funds*			
1978--March.......	3.9	-4.3	-1.4	8.5
June........	3.9	-2.8	-.7	7.7
September...	4.2	-2.0	-.8	8.3
December....	3.4	-2.8	-1.1	6.8
1979--March.......	4.7	-2.5	-.5	8.9
June........	4.6	-2.3	-.9	8.8
September...	4.1	-2.6	-2.0	8.5
December....	3.7	-3.6	-2.4	8.0
1980--March.......	3.7	-4.0	-2.1	7.9
June........	4.1	-5.2	-2.7	9.2
	Time certificates of deposit of $100,000 or more			
1978--March.......	12.8	4.7	9.5	16.1
June........	13.0	4.8	9.4	16.3
September...	13.4	5.0	9.8	16.7
December....	14.0	5.1	10.1	17.3
1979--March.......	14.1	5.3	11.1	17.0
June........	12.8	5.3	11.0	14.7
September...	13.2	5.5	10.9	15.4
December....	13.3	5.6	11.0	15.4
1980--March.......	13.7	6.0	11.5	15.8
June........	13.1	6.1	11.0	15.0
	Money-market certificates of deposit**			
1979--March.......	3.3	5.7	4.7	2.1
June........	4.5	8.5	6.5	2.8
September...	5.7	11.4	8.4	3.5
December....	7.6	14.9	11.2	4.7
1980--March.......	10.2	21.7	15.1	6.2
June........	10.7	22.6	15.6	6.6

* Includes net securities sold under agreements to repurchase.

** Does not include "small-saver" certificates with a minimum maturity of 30 months, which were introduced in 1979.

Chart 5

Interest Rates Charged By Commercial Banks
First Week of Second Month of Quarter



Source: Federal Reserve Quarterly Survey of Terms of Bank Lending to Farmers.

"Large banks" are banks in survey strata 1-3, corresponding approximately to banks which now have over $400 million in total assets.

Table 7

Percentage distribution of non-real-estate farm loans made by banks, by effective interest rate[1,2]

Effective interest rate (percent)	Aug. 1977	Feb. 1978	Aug. 1978	Feb. 1979	Aug. 1979	Nov. 1979	Feb. 1980	May 1980	Aug. 1980
				All banks					
All loans..........	100	100	100	100	100	100	100	100	100
Under 7.0........	2	-	-	-	-	-	-	-	-
7.0 to 7.9.......	11	1	-	-	-	-	-	-	-
8.0 to 8.9.......	48	38	20	4	2	-	1	-	-
9.0 to 9.9.......	34	50	50	17	11	1	1	-	-
10.0 to 10.9.....	4	9	22	35	29	7	2	-	1
11.0 to 11.9.....	-	1	6	19	33	10	2	-	10
12.0 to 12.9.....	-	-	1	12	14	15	7	1	17
13.0 to 13.9.....	-	-	-	6	7	35	29	4	43
14.0 to 14.9.....	-	-	-	6	5	13	31	9	19
15.0 to 15.9.....	-	-	-	-	1	4	10	7	9
16.0 to 16.9.....	-	-	-	-	-	6	10	12	1
17.0 to 17.9.....	-	-	-	-	-	5	4	34	1
18.0 to 18.9.....	-	-	-	-	-	3	2	18	-
19.0 to 19.9.....	-	-	-	-	-	-	-	9	-
20.0 and over....	-	-	-	-	-	-	-	6	-
Addendum: Average effective interest rate (percent)[2] at--									
All banks.......	8.73	9.16	9.62	11.01	11.28	13.63	14.13	17.38	13.51
Large banks[3]....	8.40	9.32	10.37	12.53	12.88	16.24	15.94	18.47	12.84
Other banks......	8.91	9.11	9.34	10.45	10.93	13.10	13.73	17.06	13.66

Source: Federal Reserve Quarterly Survey of Terms of Bank Lending to Farmers.

1/ Percentage distribution of the total dollar amount of non-real-estate farm loans of $1,000 or more made by insured commercial banks during the week covered by the survey.

2/ The approximate compounded annual interest rate on each loan is calculated from survey data on the stated rate and other terms of the loan. In computing the average of these estimated effective rates, each loan is weighted by its dollar amount.

3/ "Large banks" are banks in survey strata 1-3, corresponding approximately to banks with over $400 million in total assets as of September 1978.

Table 8

Percentage distribution of non-real-estate farm loans made by large and other banks, by effective interest rate[1,2]

Effective interest rate (percent)	Aug. 1977	Feb. 1978	Aug. 1978	Feb. 1979	Aug. 1979	Nov. 1979	Feb. 1980	May 1980	Aug. 1980
				Large banks[3]					
All loans..........	100	100	100	100	100	100	100	100	100
Under 7.0........	3	-	1	-	-	-	-	-	-
7.0 to 7.9.......	30	1	-	-	-	-	-	-	-
8.0 to 8.9.......	43	34	1	-	-	-	-	-	-
9.0 to 9.9.......	17	41	30	2	1	-	-	-	-
10.0 to 10.9.....	7	20	44	19	11	-	-	-	-
11.0 to 11.9.....	-	4	20	12	10	1	-	-	16
12.0 to 12.9.....	-	-	3	28	33	6	4	-	43
13.0 to 13.9.....	-	-	-	17	22	13	8	1	31
14.0 to 14.9.....	-	-	-	20	20	4	14	2	6
15.0 to 15.9.....	-	-	-	2	3	8	18	5	2
16.0 to 16.9.....	-	-	-	-	-	24	32	4	1
17.0 to 17.9.....	-	-	-	-	-	23	15	32	-
18.0 to 18.9.....	-	-	-	-	-	17	8	27	-
19.0 to 19.9.....	-	-	-	-	-	1	1	12	-
20.0 and over....	-	-	-	-	-	-	-	17	-
				Other banks					
All loans..........	100	100	100	100	100	100	100	100	100
Under 7.0........	1	-	-	-	-	-	-	-	-
7.0 to 7.9.......	1	-	-	-	-	-	-	-	-
8.0 to 8.9.......	51	38	27	5	2	-	2	-	-
9.0 to 9.9.......	43	56	58	23	13	1	1	-	-
10.0 to 10.9.....	3	5	13	41	33	9	3	-	1
11.0 to 11.9.....	-	-	1	22	38	12	3	-	8
12.0 to 12.9.....	-	-	1	6	10	16	8	1	11
13.0 to 13.9.....	-	-	-	2	3	39	33	4	45
14.0 to 14.9.....	-	-	-	1	1	15	35	11	23
15.0 to 15.9.....	-	-	-	2	3	3	8	7	10
16.0 to 16.9.....	-	-	-	-	-	2	5	14	1
17.0 to 17.9.....	-	-	-	-	-	2	2	35	1
18.0 to 18.9.....	-	-	-	-	-	1	-	15	-
19.0 to 19.9.....	-	-	-	-	-	-	-	8	-
20.0 and over....	-	-	-	-	-	-	-	3	-

See notes to Table 7.

Appendix

Estimation procedure for weekly changes in deposits and loans

Tables 1 through 4 present results of an ongoing project to secure reliable current estimates of deposits and loans at agricultural insured commercial banks, using weekly member-bank reports of total loans, demand deposits, and time deposits in conjunction with quarterly reports of these and other items received from all insured banks.

Using all of these data sources, the new weekly estimates are made as follows for each of the three data items. First, for each member bank for which the latest weekly report is available, the percentage change from the weekly report made nearest to the last available call report is calculated. Second, a cross-section regression equation is estimated from these member-bank data, with the percentage change at each bank being specified as a function of selected characteristics of the bank derived from its call data, including its geographical location, asset size, and the relative proportion of farm loans in its loan portfolio. The equation estimated from the member-bank data is then solved individually for each nonmember bank as well as for each member bank for which weekly data are either not yet available or, because of merger, not comparable with the call data. The percentage change thus estimated for each bank is multiplied by that bank's call data to obtain the current estimate.

The individual bank estimates are then tabulated to obtain ratios and percentage changes such as those presented in Tables 1-4. Tests on data for previous years indicate that the estimates shown are probably within one percentage point of the actual values. Future estimates covering the same time period may differ from those presented here as more complete member-bank data are received, the regression equation is improved, or a more recent call base is used (September 1979 data are used herein). Currently, work is under way to change the state and regional variables in the equation to a type-of-farming-area basis within states, which should lead to improved and more useful estimates.

Estimation procedure for farm loans outstanding at commercial banks

Table 5 presents estimates of farm non-real-estate loans outstanding at all insured commercial banks on September 30, 1980, using a procedure recently developed to produce highly accurate projections of these data when reports are available from some, but not all, banks, and while some of these reports are still being edited. The farm loan reports available are first checked for obvious and probable errors. Then, loans at banks for which reports are unavailable or unusable are estimated to have changed by the same percentage as loans at other banks in the same state (or portion of state within a Federal Reserve District). For large weekly reporting banks, however, the weekly report of loans outstanding nearest the call date is used if the call data are not yet available.

The estimates shown in Table 5 were calculated on the basis of data available on November 13, at which time usable September call reports were available for 125 of the 171 weekly reporting banks and for 93 percent of the remaining banks.