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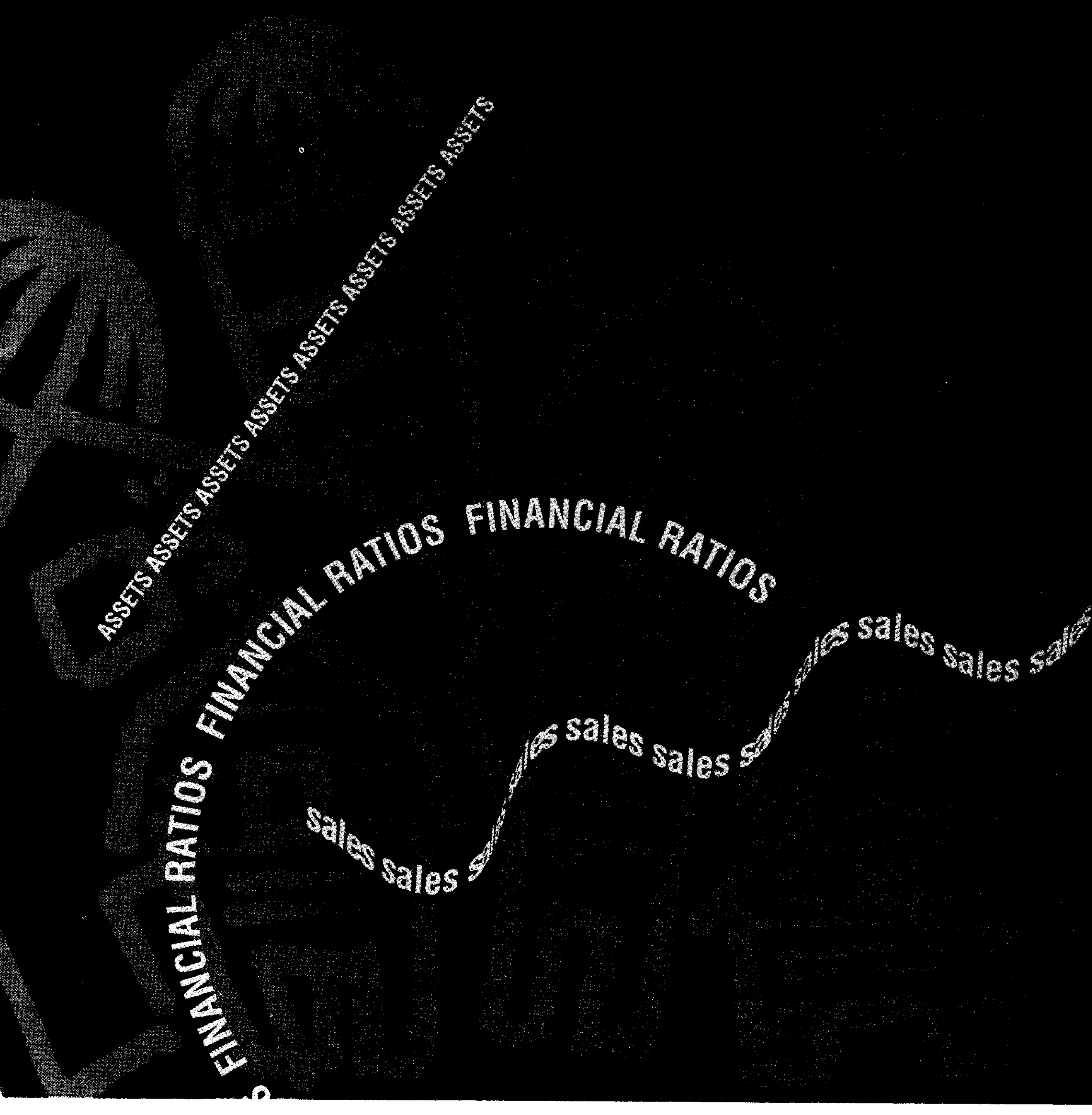
Analysis of Balance Sheets of Local Farm Supply and Marketing Cooperatives



Abstract

Analysis of Balance Sheets of Local Farm Supply and Marketing Cooperatives

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This report analyzes the balance sheets of local farm supply and marketing cooperatives for 1983-90. The data in this report represent tour cooperative types and four cooperative sizes. Trends for this time period for major balance sheet classifications were made by cooperative types and sizes. Ratio analysis was used to compare and contrast trends by size, type, and profitability.

Key words: Balance sheet, cooperatives, farm supply, marketing, sales, and financial ratios.

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Preface

This report studied the balance sheets of 1,337 cooperatives from 1983 through 1990. Trends of the major balance sheet classifications and financial ratios are presented for four cooperative sizes and types. The information in this report should provide cooperative managers and boards of directors a basis to compare their cooperatives' historical performance with representative cooperative data.

The authors wish to thank the cooperatives that provided their financial statements to Rural Business and Cooperative Development Service and thereby made this report possible. Special thanks are given to David E. Cummins and Jim J. Staiert, Rural Business and Cooperative Development Service, for reviewing the initial draft of this report.

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Highlights

Balance sheets of 1,337 local farm supply and marketing cooperatives, from 1983 to 1990, were analyzed in this report. At least 390 cooperatives in each of the years were studied. The highest number of cooperatives studied in one year was 872 in 1987.

Cooperatives were divided into four groups based on their mix of net sales between supplies sold and farm products marketed. They were also divided into four size categories, based on their total sales volume. An analysis was also made of whether the cooperative was profitable or unprofitable based on income from own operations.

Net sales for all respondent cooperatives decreased throughout the early 1980s, but subsequently rebounded. In 1990, the average net sales for all cooperatives studied was $6.7 million. More than 50 percent were small cooperatives, with sales of less than $5 million during the 8 years studied.

These cooperatives not only were important to their member/patrons, but also were an important asset to their rural communities. They were usually one of the community's larger employers, with an average payroll of $400,000.

A balance sheet states the financial position of the cooperative at the end of its operating year. The balance sheet represents the cooperative's assets, liabilities, and member equity, and their relationship to each other. These items varied by cooperative size and type, but there was little change in total assets of all cooperatives during the study period. Current assets of all respondents averaged 48 percent of total assets, investments in other cooperatives, 20 percent; property, plant, and equipment, 30 percent; and other assets, 2 percent.

Member equities averaged 58 percent of total liabilities and member equity. Total liabilities made up the remainder. Of it, 32 percent was current liabilities and 10 percent, long-term debt.

Long-term debt as a percent of total assets declined during the study period for all cooperative sizes and types. Long-term debt peaked in 1984 at 15.9

percent. As a percent of total assets, long-term debt generally declined and was 9 percent in 1990.

Financial ratio analysis was used in this study to compare between years and different sizes and types of cooperatives. The ratios contrasted profitable and unprofitable cooperatives. The financial ratio analysis revealed these findings:

- Return on total assets (net income/total assets) was generally the highest over the last 3 years of this study.
- Return on allocated equity before taxes (net income before taxes/allocated equity) rose from 8.6 percent in the early 1980s to an average of over 13.5 percent for all cooperatives in 1990.
- The current ratio (current assets/current liabilities) was fairly steady around 1.5 during the study period while the quick ratio (current assets-inventory/current liabilities) ranged from 1 to 0.6.
- Total debt-to-asset ratio (short- and long-term debt/total assets) was 0.3 in 1983 and fell to 0.2 by 1990.
- The fixed asset turnover ratio (net sales/property, plant, and equipment) was lowest in 1987. Over the last 3 years, the ratio increased and averaged at least 9.1 percent.

Analysis of Balance Sheets of Local Farm Supply and Marketing Cooperatives

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U.S. Department of Agriculture

Local agricultural cooperatives play a vital role in providing goods and services to their patrons and the rural community. This report analyzes their balance sheets and will be useful for comparative purposes by cooperative managers, directors, and members. Ratio analysis and trends will be discussed, and to make the information more useful, the presentation is subdivided into four cooperative sizes and types.

The 1,337 local cooperatives surveyed had farm supply sales (feed, petroleum, fertilizer . ..) that averaged $3.1 million per year and marketing sales (corn, wheat, soybeans . ..) that averaged $4 million per year from 1983 through 1990. Additionally, they provided services (product delivery, fertilizer application, grain hauling and storage . . .) that averaged $0.4 million per year.

These cooperatives were not only important to their member / patrons, but also an important asset to their rural communities. The cooperatives paid an average of $26,000 in annual property taxes. They were also a large employer in their communities, with an average annual payroll of $400,000.

In a companion report [Chesnick and Eversull], the income statements of local cooperatives were discussed. This report will focus on the balance sheet and operational performance of cooperatives. The balance sheet represents a financial position at a point in time. It is usually presented in an annual report with the income statement, statement of changes in patrons' equity, and since 1987, a statement of cash-flows. The annual report should also contain notes to the financial statements and, although not frequently for small cooperatives, contain a verbal statement from the manager and president of the board of directors on the cooperative's operating results from the last year and its future plans.

The typical cooperative balance sheet contains six main sections: current assets, investments, fixed assets, current liabilities, long-term liabilities, and member equities. As implied by its name, a balance sheet must balance-total assets must equal total liabilities plus member equities. A balance sheet that summarizes the data from all cooperative respondents will be presented later in this report.

PROFILE OF RESPONDENT COOPERATIVES

Rural Business and Cooperative Development Service conducted annual surveys of farmer cooperatives which were the basis for the Farm Supply and Services (FSS) database used for this study. To be included, a cooperative had to sell some farm supplies. No cooperative that exclusively markets members' products was included. In addition to selling farm supplies, the cooperative also had to provide an annual report that had a detailed income statement. The annual reports used were for the years 1983 through 1990 and contain information from 1,337 farm supply and marketing cooperatives. Not all cooperatives responded in every year; there was an average of 596 per year that provided sufficient data for inclusion in this report.

More than 67 percent of the respondents used in this report operated in the Corn Belt, Lake States, and Northern Plains (figure 1 and appendix table Al). The Corn Belt and Northern Plains regions were somewhat overrepresented in this study compared with all U.S. farm supply and grain marketing cooperatives, while those in the Northeast and Appalachia were underrepresented. To obtain a more complete understanding of the local cooperatives' business, information in this report will be divided into a cross section of four sizes and four types.

Cooperative Size

Cooperatives were grouped into four sizes by sales volume. Sales volume figures were actual. No attempt was made to deflate these values. Groupings used were: 1) small, less than $5 million; 2) medium, from $5 million to $10 million; 3) large, more than $10 million to $20 million; and 4) super, more than $20 million.

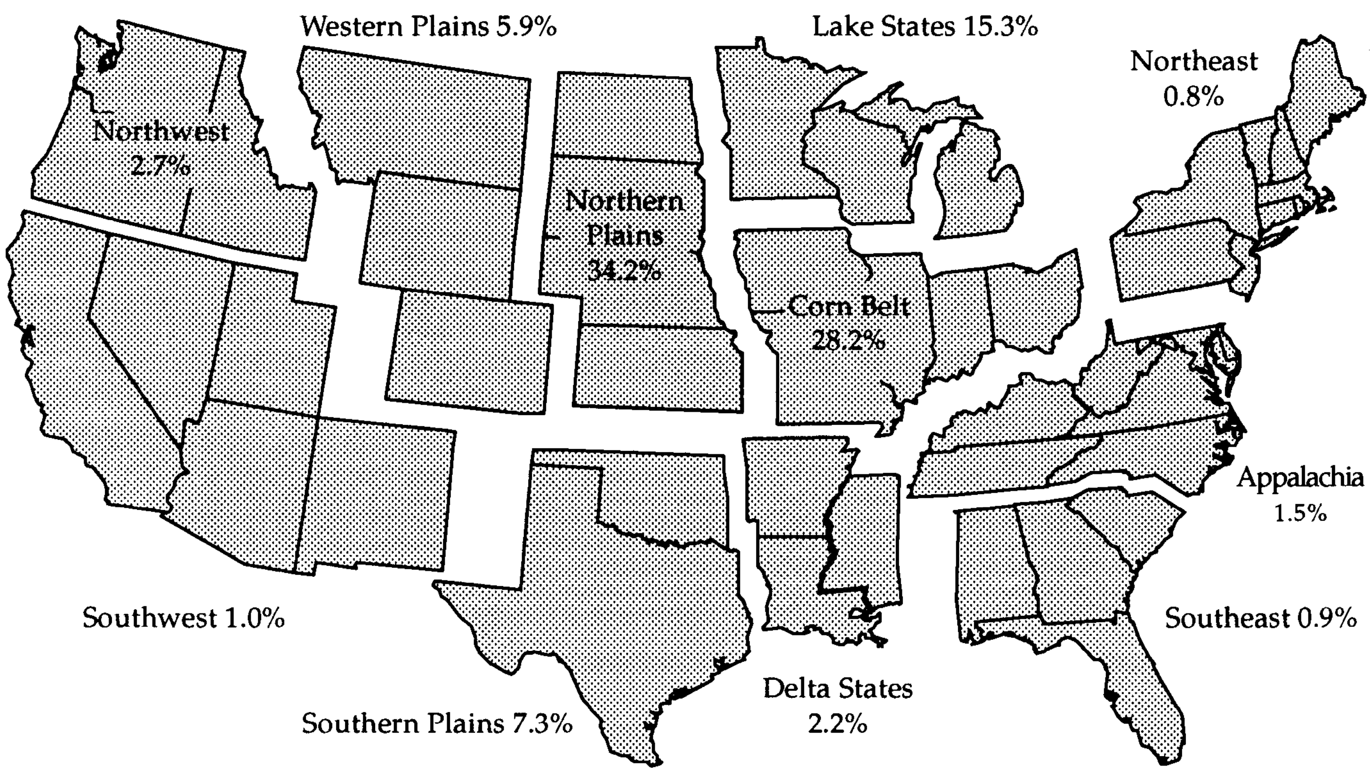
A $9 million cooperative that exclusively marketed grain, for instance, was small relative to most grain marketing organizations. A strictly farm supply cooperative with sales of $9 million, however, was quite substantial. In classifying by total sales alone, product mix was ignored.

Cooperative Type

To account for differences in operations and orientation based on product mix, cooperatives were grouped into one of four descriptive categories: 1) specialized marketing cooperative; 2) mixed marketing cooperative; 3) mixed farm supply cooperative; and 4) specialized farm supply cooperative. These descriptions were chosen to represent business operations of these cooperatives as closely as possible.

In this study, a specialized marketing cooperative derived more than 75 percent of its sales volume from marketing member and nonmember farm products. This meant that as much as 24 percent of the sales volume of these cooperatives could be from selling farm supplies. The products marketed were grains (and oilseeds), milk, and other.

Figure 1-Respondent cooperatives location, by region



Between 50 and 75 percent of its total sales were derived from product marketings for a mixed marketing cooperative. The remaining 24 to 49 percent of revenues came from sales of farm supplies and other sources.

A mixed farm supply cooperative derived between 50 and 90 percent of its sales volume from selling farm supplies to members and nonmembers. This meant that between 11 and 49 percent of these cooperatives' sales volume was from marketing farm products. Farm supplies sold included feed, seed, fertilizer, crop protectants, petroleum, and other.

The final type of cooperative was a specialized farm supply cooperative that derived more than 90 percent of its sales volume from selling farm supplies to members and nonmembers. By design for this study, most of the cooperatives of this type marketed few farm products. More than 99 percent of their sales were derived from farm production supplies.

While this report focuses on farm supply cooperatives, 25 percent of the average number of 596 cooperatives per year were specialized marketing cooperatives; 27 percent, mixed marketing cooperatives; 10 percent, mixed farm supply cooperatives; and 38 percent, specialized farm supply cooperatives (table 1). Of the respondents, 55 percent were small, 25 percent, medium; 13 percent, large; and 7 percent, super. Both types of marketing cooperatives tended to be larger cooperatives while the specialized farm supply cooperatives were most often small. Most respondents were small and tended to be farm supply cooperatives.

Clearly, the bulk of respondents are in the Northern Plains, Corn Belt, and Lake States (appendix table A2). The number of respondents for each year varied considerably. The most respondents were in 1987, with 872 (appendix table A3), while the fewest (393) were in 1984. Few cooperatives had responses for all years, so the data between years may not be completely comparable. The data in the FSS database were also not randomly selected and may not be statistically valid to draw industry-wide conclusions. However, the samples are large and represent a cross section of cooperatives throughout the United States. Therefore, the data provide a unique look at cooperative operations.

Table i-Profile of respondent cooperatives by size and type, average of 1983-90

Size	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply	Total
			Number		
Small	50	61	31	184	326
Medium	41	54	18	37	150
Large	35	28	9	5	77
Super	20	19	3	1	43
Total	146	162	61	227	596
			Percent		
Small	34.25	37.45	49.80	81.05	54.70
Medium	28.08	33.51	29.76	16.14	25.17
Large	23.97	17.14	15.18	2.26	12.92
Super	13.70	11.89	5.26	.55	7.21
Average	24.50	27.18	10.23	38.09	100.00

Cooperative Profitability

Income from own operations was used in this study to determine profitable and unprofitable cooperatives. A profitable cooperative, in this study, had to have income for at least 50 percent of the years for which data were available. This method neutralized the magnitude of profits and losses and concentrated on whether the operations of the cooperative were sufficient to cover expenses in a majority of the years. There were 298 cooperatives or 22.3 percent classified as unprofitable in this study. On average, 82.5 percent of the cooperatives in each year were profitable.

Sales Mix

The respondent cooperatives had five major farm supply categories and two marketing (table 2). Petroleum was the dominant production supply item sold by small and medium cooperatives. Sales of small cooperatives, the most numerous respondent group, averaged $2.2 million over the study period. Farm production supplies represented the bulk (68.8 percent) of their sales. As cooperatives grew in size, the importance of farm supplies declined (48.8 percent for medium-sized cooperatives, 36.3 percent for large, and 28.9 percent for super).

Average sales of specialized and mixed marketing cooperatives were $11 million and larger than both categories of farm supply cooperatives. As defined, marketing made up the majority of their sales. Feed and fertilizer were the most important farm supplies sold for both types of marketing cooperatives.

Sales of mixed farm supply cooperatives averaged $7.1 million and $3.2 million for specialized farm supply cooperatives. Petroleum was the most important farm supply item sold, especially for specialized farm supply cooperatives (40.3 percent of sales).

BALANCE SHEET DEFINITIONS

The assets in a balance sheet are what the cooperative owns and are usually listed in decreasing order of their liquidity-time it would take to sell them for cash. The liabilities are what the cooperative owes to others and are usually presented in a similar decreasing order. The equity section represents members' investment in their cooperative.

Current assets--are the most liquid assets on the cooperative balance sheet. Cash and cash *equivalents* represent monies either in the bank, in short term investments, or on hand at the cooperative. *Accounts receivable* is money that is due the cooperative (i.e., a credit sale where the full purchase price was due from the customer in *90* days). *Inventories* are products the cooperative has purchased from patrons to market and supplies the cooperative hopes to sell to patrons. *Prepaid expenses* are those paid up-front and then expensed as period costs throughout the fiscal year (taxes or insurance).

Investments in other **cooperatjves-represent** stock held in regional cooperatives that it markets products through or purchases supplies from, plus stock in the Banks for Cooperatives or **CoBank,** their lending source. These investments are purchased stock as well as stock (patronage) paid back to the cooperative based on use. The more sales through or purchases from the regional cooperative or borrowing from the bank, the larger the investment. Other *assets* are usually past due accounts receivable not yet considered as bad debt losses.

Property, plant, and equipment--are the fixed assets of the cooperative (i.e., grain bins, office equipment, warehouse, gas station). Accumulated depreciation is the sum of all the year's depreciation expenses taken on the assets. Net property, plant, and equipment **(PP&E)** is the book value of the fixed assets-their cost minus accumulated depreciation.

Total assets--are what the cooperative **owns—** current assets, plus investments, plus fixed assets equal total assets.

Current liabilities-are obligations the cooperative must pay within the next year. *Accounts payable* is money owed, usually to suppliers (sometimes classified as accounts payable-trade accounts). *Accrued expenses* and *accrued taxes* are unpaid expenses. Accrued expenses often include unpaid salaries and benefits earned by employees. Accrued taxes often include property and sales taxes that have been incurred but not yet paid. Other *liabilities* in this study are most often accounts **payable—**

Table Z-Percentage breakdown of total sales, by size and type, average of 1983-90

Item	Small	Medium	Large	Super
		Percent		
Farm supplies sold:				
Feed	9.34	10.02	8.45	7.09
Seed	1.28	1.69	1.08	1.22
Fertilizer	11.10	9.39	8.33	6.85
Crop protectants	6.23	5.66	4.79	4.04
Petroleum products	25.86	14.57	7.42	6.65
Other	15.02	7.45	6.25	3.06
Total	68.82	48.79	36.31	28.92
Farm products marketed:				
Grain	26.40	47.23	61.73	70.35
Milk	2.47	2.29	1.63	.31
Other	2.31	1.69	.32	.42
Total	31.18	51.21	63.69	71.08
Total products sold and marketed	100.00	100.00	100.00	100.00
Based on sales of:	$2,231,323	$6,759,790	$12,984,414	$31,465,135

Item	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply
		Percent		
Farm supplies sold:				
Feed	4.53	9.54	16.62	10.92
Seed	.90	1.33	1.88	1.85
Fertilizer	4.73	8.32	11.90	15.74
Crop protectants	2.91	5.11	6.11	8.75
Petroleum products	1.75	7.94	19.07	40.28
Other	.99	4.47	12.63	21.61
Total	15.82	36.71	68.21	99.15
Farm products marketed:				
Grain	79.75	60.37	30.89	.72
Milk	2.70	1.99	.05	
Other	1.72	.92	.85	.13
Total	84.18	63.29	31.79	.85
Total products sold and marketed	100.00	100.00	100.00	100.00
Based on sales of:	$11,712,030	$11,018,508	$7,120,911	$3,199,379

grain trade. This represents grain delivered and sold to the cooperative by its patrons but the patrons have not yet been paid. *Retired equity* represents allocated equity that the cooperative is revolving to its members but not yet paid as of the closing date of the books. This equity accumulated from past sales to or purchases from patrons—usually revolved to members on a set schedule (often 7 or more years later). *Patronage refunds and dividends* are monies declared but not yet paid to members for current use of the cooperative and for investing in preferred stock. Cooperatives are required to pay at least 20 percent in cash, with the rest becoming allocated equity to be revolved to the members at a later date. The refunds are based on cents per product (weight or bushel) sold through the cooperative or on cents per dollars purchased of farm supplies from the cooperative. The refunds are determined by the board of directors. Dividends paid on preferred stock ownership are based on a set percent return on the investment. Current *portion of debt* (short and long term) is the final current liability. It is the money owed (principle) for borrowing money. Long-term debt typically is used to finance long-term assets, while short-term debt is usually used for operating or seasonal loans.

Long-term ***debt***—includes notes, bonds, and mortgages not due within the current year.

Member ***equities***—are member and patron investments in the cooperative. The two main types are allocated and unallocated. *Allocated equity* is assigned to members in one of two forms. Each member has one share and one vote. The other form includes noncash allocated certificates which are member investments in the cooperative based on use. Allocated equity could be classified as stock if the cooperative was incorporated or certificates of ownership if the cooperative was not incorporated. In most cases, cooperative stock or ownership certificates are not generally traded between members and, if sold, require board approval. *Unallocated equity* is the retained earnings of the cooperative. Unallocated equity is often thought of as nonmember-nonpatronage business but can also be based on member business.

ANALYSIS OF THE BALANCE SHEET

The balance sheet of a local cooperative states its financial position at the end of an operating period-a 12-month fiscal year. The balance sheet represents the cooperative's assets, liabilities, and member equity, and their relationship to each other. This report analyzes the balance sheets of 1,337 local cooperatives. Comparing a large number of cooperative sizes and types over an 8-year period provides examples of typical levels for assets, liabilities, and member equities. Balance sheets for respondents are presented by cooperative size and type in tables 3 and 4. Appendix tables A4 and A5 show an abbreviated balance sheet by year.

Each balance sheet category is listed as a percentage of total assets. The dollar amount of total assets the balance sheets represent is listed at the bottom of both tables. By cooperative size, total assets increased from $1.2 million for small cooperatives to $11.2 million for super-size cooperatives. Comparing total assets to sales (table 2), sales were about double the asset levels for small, medium, and large cooperatives, and about triple for super size. By cooperative type, total assets were $3.8 million for specialized marketing cooperatives, $3.5 million for mixed marketing, $2.9 million for mixed farm supply, and $1.7 million for specialized farm supply. For both types of marketing cooperatives, sales were about triple their asset levels while sales for farm supply cooperatives were about twice their asset levels.

Current Assets

Looking first at current assets, cash and cash equivalents as a percent of total assets decreased as cooperative size increased. For small cooperatives, cash was 10 percent of total assets. But this dropped to 5 percent for super cooperatives. Specialized marketing cooperatives held the most cash by type (8.1 percent), and mixed marketing cooperatives held the second largest percentage (6.3).

Over the whole study period, current assets increased by 1.5 percent per year for all cooperatives. Most of this growth occurred in 1988 when

Table 3—**Balance sheet by cooperative size, as a percent of total assets, average of 1983-90**

Item	Small	Medium	Large	super
		Percent		
Assets:				
Current assets				
Cash and cash equivalents	10.01	7.09	5.25	4.97
Accounts receivable	10.12	12.42	12.61	13.13
Inventories-grain	5.43	5.48	5.88	9.99
-farm supplies	12.89	18.29	17.54	14.54
Prepaid expenses	1.13	1.22	.90	1.19
Other current assets	5.57	4.87	5.51	6.61
Total current assets	45.14	47.37	47.70	50.43
Investments and other assets				
Investments-ther cooperatives	23.83	19.85	16.27	12.69
-Bank for Cooperatives	3.00	2.45	2.57	3.75
Total	26.83	22.30	18.85	16.44
Other assets	1.71	1.82	1.51	.98
Property, plant, and equipment				
Net PP&E	26.31	28.51	31.94	32.15
Total assets	100.00	100.00	100.00	100.00
Liabilities and member equities:				
Current liabilities				
Accounts payable	3.94	4.56	5.42	5.66
Accrued expenses	1.12	1.24	1.57	1.88
Accrued taxes	1.50	1.66	1.64	1.60
Other liabilities	8.46	7.94	7.70	10.33
Retired equity	1.26	.67	.32	.22
Patronage refunds and dividends	1.99	1.41	1.37	1.05
Current portion of debt	8.31	9.53	13.05	13.03
Total current liabilities	26.58	27.01	31.07	33.77
Long-term debt	7.48	7.80	9.63	12.98
Total liabilities	34.06	34.82	40.70	46.74
Member equities:				
Preferred stock	13.42	18.05	10.83	10.70
Common stock	9.30	9.94	9.88	9.09
Other equities	31.89	25.37	27.54	24.42
Unallocated equity	11.33	11.82	11.04	9.05
Total member equities	65.94	65.18	59.30	53.26
Total liabilities & member equities	100.00	100.00	100.00	100.00
Based on total assets of:	$1,177,573	$2,701,511	$5,027,459	$11,219,478

Table 4—**Balance sheet by cooperative type, as a percent of total assets, average of 1983-90**

	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply
		Percent		
Assets:				
Current assets				
Cash and cash equivalents	8.09	6.29	4.23	4.24
Accounts receivable	6.59	10.44	14.08	19.27
Inventories-grain	16.79	10.22	2.49	3.14
-farm supplies	6.23	13.41	18.50	23.07
Prepaid expenses	.65	.92	1.81	1.05
Other current assets	9.85	8.79	3.34	2.43
Total current assets	48.20	50.07	44.45	53.20
Investments and other assets				
Investments-ther cooperatives	12.00	14.50	19.35	15.23
-Bank for Cooperatives	2.89	2.97	3.70	3.29
Total	14.88	17.46	23.04	18.52
Other assets	1.57	.90	.83	1.83
Property, plant, and equipment				
Net PP&E	35.35	31.56	31.68	26.45
Total assets	100.00	100.00	100.00	100.00
Liabilities and member equities				
Current liabilities				
Accounts payable	4.03	4.95	5.49	6.81
Accrued expenses	1.18	1.78	1.75	1.90
Accrued taxes	2.26	1.54	1.64	1 .00
Other liabilities	16.12	12.75	5.26	2.49
Retired equity	.64	.88	.18	.37
Patronage refunds and dividends	1.16	1.51	1.06	1.30
Current portion of debt	10.40	11.48	12.15	14.76
Total current liabilities	35.78	34.89	27.52	28.64
Long-term debt	11.59	9.56	11.53	11.13
Total liabilities	47.37	44.45	39.05	39.77
Member equities:				
Preferred stock	13.25	12.23	11.70	10.84
Common stock	3.24	3.90	21.27	8.62
Other equities	25.90	28.31	17.55	32.01
Unallocated equity	10.24	11.11	10.43	8.75
Total member equities	52.63	55.55	60.95	60.23
Total liabilities & member equities	100.00	100.00	100.00	100.00
Based on total assets of:	$3,817,650	$3,484,816	$2,875,063	$1,722,222

inventories, especially for marketing cooperatives, increased dramatically.

Accounts receivable in this study are farm supply trade accounts, not grain trade receivables. Farm supply and grain trade receivables were separated (grain trade receivables were classified as "other" current assets) to allow ratio analysis in a future section of this study. Accounts receivable for farm supply sales by size was between 10.1 and 13.1 percent of total assets across cooperative sizes. By type, both farm supply cooperatives seem to have a much higher receivable balance, 14.1 to 19.3 percent versus 6.6 to 10.4 for marketing cooperatives. But, marketing cooperatives' accounts receivable balances were lowered because the grain trade receivables were classified as "other." So, if "other" current assets were added to accounts receivable, marketing cooperatives receivable balances increased to 16.6 to 19.1 percent of total assets and farm supply cooperatives went to 17.4 to 21.7 percent of total assets.

Inventories as a percent of total assets increased as size increased (18.3 percent for small and 24.5 percent for super cooperatives). The total inventory level was about the same for marketing and farm supply cooperatives. Prepaid expenses averaged less than 2 percent of total assets for all cooperative sizes and types.

Investments and Other Assets

All cooperative sizes and types had about 3 percent of their total assets invested in the Banks for Cooperatives or CoBank. Investments in other cooperatives dropped from a high of 23.8 percent for small cooperatives to 12.7 percent for super cooperatives. Across cooperative types, marketing cooperatives had less invested than farm supply cooperatives. Other assets often included overdue accounts receivable and were less than 2 percent of total assets for all cooperative sizes and types.

Property, Plant, and Equipment

Property, plant, and equipment (PP&E) as a percent of total assets tended to increase with cooperative size. Small cooperatives had 26.3 percent of their assets in PP&E while super cooperatives had 32.2. Specialized marketing cooperatives, which probably had extensive grain storage and handling facilities, had, at 35.4, the highest percent of their assets tied to PP&E. For all cooperatives, PP&E declined on average 3.4 percent per year over the study period.

Current Liabilities

Accounts payable were only those payables due on trade accounts. Those due to grain trading and other related marketing activities were included in other liabilities to allow ratio analysis in a future section of this study. Over the 8-year period, current liabilities grew an average 2 percent per year.

Small cooperatives had the least amount of accounts payable as a percent of total assets. When other liabilities were included with accounts payable, small, medium, and large cooperatives had between 12.4 and 13.1 percent of these liabilities relative to total assets. Super cooperatives had 16 percent.

Both types of marketing cooperatives had more accounts payable and other liabilities than both types of farm supply cooperatives. Specialized marketing cooperatives had the highest accounts payable and other liabilities balance (20.2 percent) but were closely followed by mixed marketing cooperatives (17.7 percent). Both types of farm supply cooperatives, with less marketing sales, ranged 7 to 10 percentage points lower in the accounts payable and other liabilities categories.

Accrued expenses and accrued taxes averaged less than 2.5 percent of total assets for all sizes and types of cooperatives. Retired equity averaged less than 1.5 percent of total assets for all cooperative sizes and types.

Cash patronage refunds and dividends as a percent of total assets decreased as cooperative size increased, 2 percent for small cooperatives to 1 .1 percent for super cooperatives. For all cooperative sizes and types, cash patronage refunds and dividends never exceeded 2 percent during the study period. As a percent of net income before taxes, cash patronage refunds and dividends ranged from

14.9 percent for medium cooperatives to 32 percent for specialized farm supply cooperatives. The average cash patronage refund and dividend paid in cash was 19.1 percent of net income before taxes.

The last current liability on tables 3 and 4 is the current portion of both short- and long-term debt. The current portion is combined because many annual reports analyzed did not differentiate between the two. As a percent of total assets, current debt grew as cooperative size increased and grew across cooperative types. Current debt was 8.3 percent for small cooperatives and at least 13 percent for large and super cooperatives. By type, current debt increased from 10.4 percent for specialized marketing cooperatives to 14.8 percent for specialized farm supply cooperatives. Because the majority are small farm supply cooperatives and the current portion of debt is lower for small cooperatives, large and super size farm supply cooperatives have significantly more current debt. In fact, large specialized farm supply cooperatives averaged 15.8 percent and super ones averaged 15.1 percent, thus pushing up the average for all specialized farm supply cooperatives.

Long-term Debt

Long-term debt as a percent of total assets has declined during 1983-90 for all cooperative sizes and types. On average, long-term debt declined 12.6 percent per year. Long-term debt peaked in 1984 at 15.9 percent and generally declined to 9 percent in 1990. As cooperative size increases, long-term debt grew from 7.5 percent for small cooperatives to 13 percent for super cooperatives. Long-term debt was highest for specialized marketing cooperatives (11.6 percent) and lowest for mixed marketing (9.6 percent). The farm supply cooperatives averaged around 11 percent.

About 35 percent (206) of the cooperatives provided information that broke out their sources of debt (short and long term combined). Four categories were identified: 1) Banks for Cooperatives and CoBank; 2) commercial banks; 3) debentures or notes; and 4) other.

A regional cooperative was most often the source in the “other” category. The local cooperative often purchases its farm supplies and markets its grain through a regional cooperative, which becomes a source of debt capital. The debt may be short-term operating capital or long-term investment capital.

Banks for Cooperatives and CoBank were the most frequent source of debt capital (appendix tables A6 and A7) for all cooperative sizes and types. Others were regional cooperatives (15.1 percent), commercial banks (8.2), and debentures or notes (5.6). Over the study period, funding by Banks for Cooperatives and CoBank declined slightly while others increased slightly.

By cooperative size, super-size cooperatives most often used Banks for Cooperatives and CoBank as sources of debt capital (79 percent) compared with small cooperatives (57.2 percent, table 5). This importance was even more apparent in dollar terms, debt doubled between each size-$0.21 million for small, $0.45 million for medium, $1 million for large, and $2.4 million for super-size cooperatives. Small cooperatives received almost a third of their debt capital from regional cooperatives.

Mixed farm supply cooperatives received the highest percentage of funding from Banks for Cooperatives and CoBank (82.4 percent). Specialized farm supply cooperatives borrowed the least overall and only 55.5 percent from the cooperative banks. Mixed farm supply cooperatives had the largest amount of debt financing of these selected cooperatives, averaging $0.85 million. Mixed marketing had $0.76 million, specialized marketing $0.56 million, and specialized farm supply $0.27 million. At 36 percent of their debt capital, specialized farm supply cooperatives used regional cooperative funding almost 3 times as often as any other type of cooperative.

Member Equities

Member equities to total assets represent the percent of the cooperative’s assets owned by the members, with creditors claiming the rest. Over all sizes and types of cooperatives, members averaged 57.5 percent ownership of the cooperative. Member equities declined 1.1 percent per year.

Members of small cooperatives had the highest percentage of ownership (65.9 percent) while members of super-size cooperatives had the lowest (53.3 percent). By cooperative type, members of farm supply cooperatives owned at least 60.2 percent of their cooperatives' assets. Both types of marketing cooperatives had lower member ownership-52.6 percent for specialized marketing and 55.6 percent for mixed marketing cooperatives.

Member equities consisted of both allocated (preferred, common, and other kinds of ownership certificates) and unallocated equity. For all sizes and types of cooperatives, allocated equity declined relative to unallocated equity. Allocated equity fell from 81 percent of all equity in 1984 to 74 percent in 1990 (figure 2). Member equity (in nominal dollars) declined an average of 0.2 percent per year. Allocated equity declined 1.5 percent per year while unallocated equity grew by 3.6 percent per year.

Allocated equity as a percentage of total assets was highest for small cooperatives at 54.6 percent and lowest at 44.2 percent for super cooperatives.

Figure 2—**Allocated and Unallocated Equity as a Percentage of Total Equity**

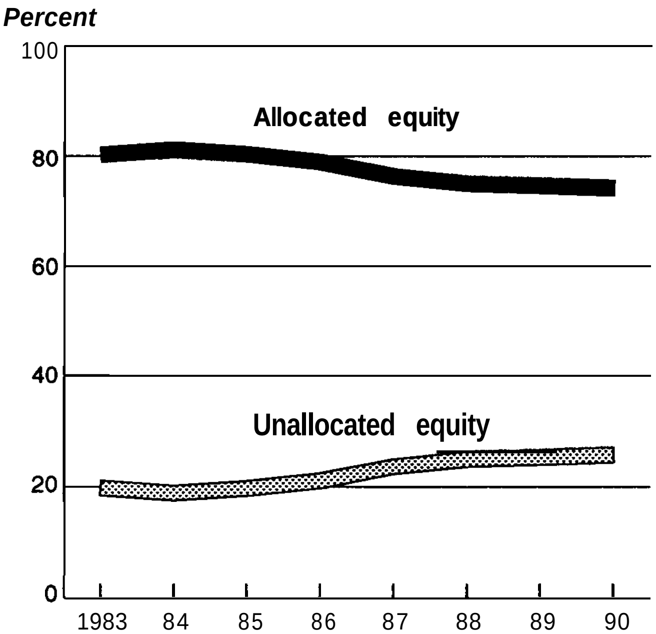


Table &**Source of cooperative debt for selected cooperatives by size and type, average of 1983-90**

Item	Small	Medium	Large	Super
		Percent		
Banks for Cooperatives and CoBank	57.20	68.86	72.50	78.97
Commercial banks	8.96	11.95	10.15	4.91
Debentures or notes	2.75	5.73	5.79	7.71
Other (usually regional cooperatives)	31.09	13.46	11.56	8.41
Based on average debt of:	$205,327	$454,971	$997,577	$2,385,852
	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply
		Percent		
Banks for Cooperatives and CoBank	65.80	77.72	82.36	55.49
Commercial banks	11.39	9.67	4.16	4.91
Debentures or notes	8.91	5.39	2.57	3.59
Other (usually regional cooperatives)	13.90	7.22	10.91	36.01
Based on average debt of:	$561,295	$756,850	$853,899	$265,180

Allocated equity was more than 50.5 percent for both farm supply cooperatives and lower for marketing cooperatives- specialized marketing (42.4 percent) and mixed marketing cooperatives (44.4 percent).

Unallocated equity averaged 10.1 percent of total assets for all sizes and types. Both types of marketing cooperatives increased unallocated equities as a percentage of total assets, from 8 to 9 percent in the earlier years studied in this report to an average 10 and 11 percent overall. Mixed farm supply cooperatives' unallocated equity continued around 10 percent. Specialized farm supply cooperatives' unallocated equity topped 12 percent in 1985 and then fell to 8.3 percent in 1990.

FINANCIAL RATIO ANALYSIS

Beyond just looking at levels of assets, liabilities, and member equities, cooperative managers and boards of directors need comparative measures to evaluate their cooperatives' financial performance.

Financial ratio analysis allows comparisons between years and different cooperatives. While not an exact science, present-day ratios can be compared with both historical ratios within the firm and throughout the industry to determine current financial health. Ratios used in this study were often chosen because of their comparability with prior CS studies. Four categories were used-liquidity, leverage, activity, and profitability. Many factors underlie each ratio and examining one ratio may not help pinpoint problems. Therefore, when studying ratios, care must be taken in interpreting any single ratio. A summary of all financial ratios by cooperative size and type is presented in appendix tables Bl-B4.

Liquidity Ratios

Liquidity ratios measure the cooperative's ability to meet short-term obligations. They focus on the cooperative's ability to remain solvent.

Current *ratio* is found by dividing current assets by current liabilities. The higher the ratio, the more likely the cooperative will be able to meet its short-term obligations. If the ratio is less than 1, current liabilities exceed current assets and the cooperatives liquidity is threatened. However, this ratio does not consider the degree of liquidity of each of the components of current assets. In other words, if the current assets of a cooperative were mainly cash, they would be much more liquid than if comprised of mainly inventory.

The current ratio fell as cooperative size increased. The ratio was highest for small cooperatives (2) and fell to 1.3 for super cooperatives (table 6). By cooperative type, the ratio increased from 1.3 for specialized marketing cooperatives to 2.1 for specialized farm supply cooperatives. Profitable cooperatives had a current ratio from 0.2 to 0.8 percentage points higher than unprofitable cooperatives.

For each cooperative size and type, the ratio was fairly steady throughout the study period (figure 3). The current ratio's high of 1.7 was in 1986 and was 1.6 in 1990.

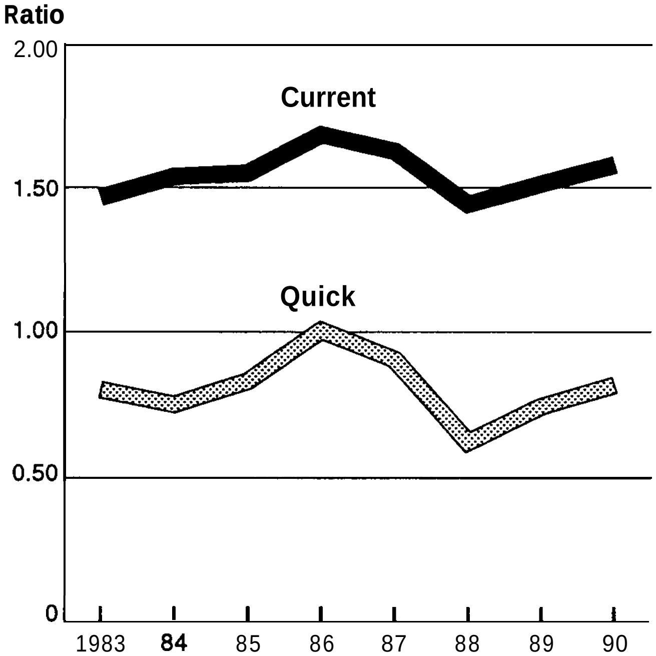
Quick ratio is current assets minus inventories, divided by current liabilities. Inventories are excluded-the least liquid of all current assets. As was the case for the current ratio, small cooperatives (1.2) had the highest ratio and it decreased as size increased to 0.6 for super-size cooperatives (table 7). The quick ratio increased from 0.7 for specialized marketing cooperatives to 1 for specialized farm supply cooperatives. The quick ratio for profitable cooperatives was always higher than unprofitable ones. The largest difference in the quick ratio between profitable and unprofitable cooperatives was in small and specialized farm supply cooperatives.

The quick ratio was highest in 1986 and lowest in 1988 (figure 3). In 1988, the quick ratio was lowered by an increase in current liabilities caused by a general buildup of inventories by both types of marketing cooperatives.

Leverage Ratios

Leverage ratios look at the long-term solvency of the cooperative. They analyze use of debt and ability to meet obligations in times of crisis.

Figure &Current and Quick Ratios



Debt-to-asset ratio is defined as total debt divided by total assets. Lenders would rather see a low ratio indicating the cooperative's ability to repay the loan. Larger cooperatives were financing more of their assets with debt, but the highest ratio for any size or type of cooperative was still only 0.3 (table 8). Small cooperatives had the lowest use of debt at 0.2 and debt use increased to 0.3 for super-size cooperatives. Debt usage was very uniform by cooperative type, varying only 0.06 between the highest and lowest ratio. Debt usage surprisingly was highest for mixed farm supply cooperatives at 0.3 and lowest for specialized farm supply cooperatives (0.24).

There was a large difference between profitable and unprofitable cooperatives use of debt. Except for super-size and specialized marketing cooperatives, the difference in the debt ratio between profitable and unprofitable cooperatives was at least 0.1. This means that unprofitable cooperatives were either carrying at least 10 percent more debt or had 10 percent less member equity. Whether these unprofitable cooperatives were ini-

Table 6—**Current ratio by size and type, profitable and unprofitable, average of 1983-90**

Item	Small	Medium	Large	Super
		Ratio		
All cooperatives	2.03	1.69	1.43	1.29
Profitable	2.19	1.77	1.49	1.30
Unprofitable	1.50	1.26	1.12	1.10
Difference between profitable and unprofitable	**.69**	**.51**	**.37**	**.20**
	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply
		Ratio		
All cooperatives	1.32	1.46	1.59	2.09
Profitable	1.35	1.50	1.66	2.27
Unprofitable	1.13	1.16	1.27	1.52
Difference between profitable and unprofitable	**.22**	**.34**	**.39**	**.75**

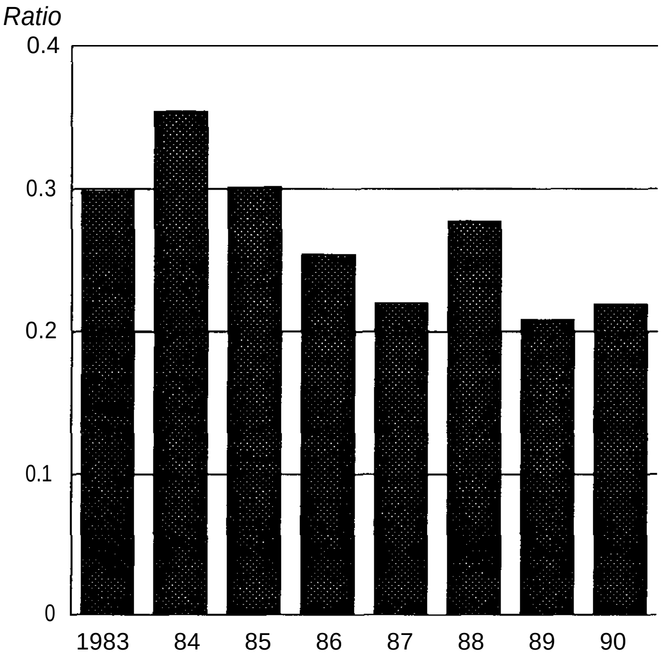
Table 7—**Quick ratio by size and type, profitable and unprofitable, average of 1983-90**

Item	Small	Medium	Large	Super
		Ratio		
All cooperatives	1.16	0.88	0.73	0.64
Profitable	1.28	.94	.76	.64
Unprofitable	.75	.59	.54	.63
Difference between profitable and unprofitable	.53	.35	.22	.01
	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply
		Ratio		
All cooperatives	0.68	0.77	0.83	1.04
Profitable	.70	.78	.86	1.15
Unprofitable	.54	.61	.74	.68
Difference between profitable and unprofitable	.16	.17	.12	.47

Table **s-Debt-to-asset ratio by size and type, profitable and unprofitable, average of 1983-90**

Item	Small	Medium	Large	Super
		Ratio		
All cooperatives	0.20	0.21	0.24	0.28
Profitable	.18	.20	.22	.28
Unprofiiable	.28	.30	.37	.35
Difference between profitable and unprofitable	(.10)	(.10)	(.15)	(.07)
	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply
		Ratio		
All cooperatives	0.28	0.26	0.30	0.24
Profitable	.27	.25	.28	.21
Unprofitable	.31	.39	.40	.34
Difference between profitable and unprofitable	(.04)	(.14)	(.12)	(.13)

Figure 4—Total Debt-To-Asset Ratio



tially undercapitalized or their equity had eroded due to losses was beyond the scope of this study.

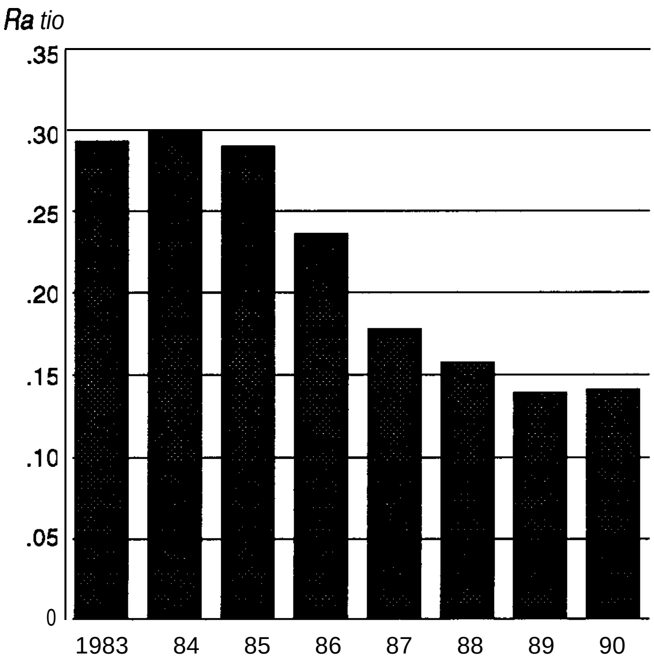
More debt financing was used in 1983-85 than in 1986-90 (figure 4). This might suggest that a number of the respondent cooperatives had no debt and because of this, their debt ratio was lowered. However, at least 96 percent of the respondents used some debt financing in all the years studied.

Debt-to-equity ratio is calculated by dividing long-term debt by member equity. This ratio tells the importance of term debt to the cooperative. As cooperatives size grew, so did their use of long-term debt. The ratio for small cooperatives was 0.24 and 0.39 for super-size cooperatives (table 9). Specialized marketing cooperatives had, at 0.36, the highest ratio by type, while specialized farm supply cooperatives were the lowest at 0.24. When looking at the 8-year trend, use of long-term debt was considerably higher from 1983 to 1986 than in the later years (figure 5). In all cases the debt-to-equity ratio was higher for unprofitable cooperatives than profitable ones.

Table Q-Debt-to-equity ratio by size and type, profitable and unprofitable, average of 1983-90

Item	Small	Medium	Large	Super
		Ratio		
All cooperatives	0.24	0.28	0.33	0.39
Profitable	.23	.27	.32	.39
Unprofitable	.30	.37	.37	.40
Difference between profitable and unprofitable	(.07)	(.10)	(.05)	(.01)
	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply
		Ratio		
All cooperatives	0.36	0.33	0.29	0.24
Profitable	.36	.33	.28	.22
Unprofitable	.38	.37	.36	.31
Difference between profitable and unprofitable	(.02)	(.04)	(.08)	(.09)

Figure 5—**Debt-to-Equity Ratio**



Times-interest-earned ratio is the number of times interest expense is covered by earnings. It is calculated by dividing earnings before interest and taxes by interest expense. The ratio should be 1 or more to enable the cooperative to pay interest expenses from current earnings. Interest coverage was the greatest for smaller cooperatives and generally falls as cooperative size increases to super-size cooperatives (2.4) (table 10). By cooperative type, the ratio ranged from 2.3 for mixed farm supply to 2.7 for specialized farm supply.

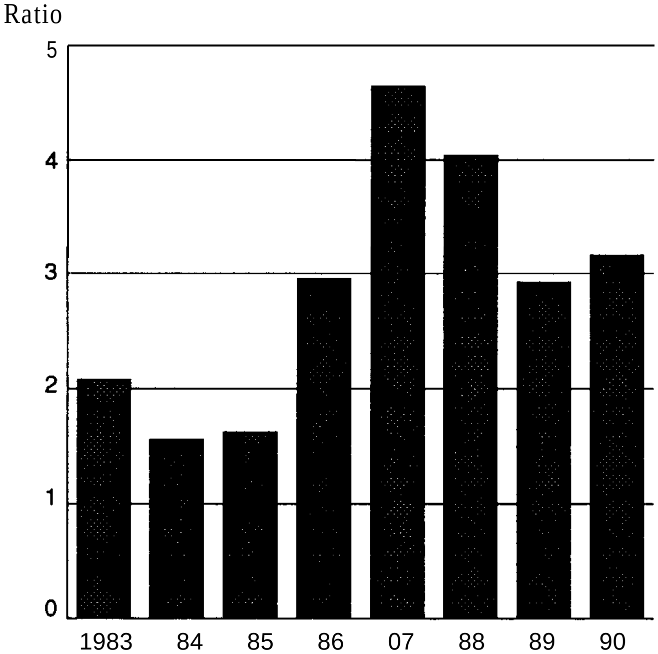
By both size and type, there was a marked difference between profitable and unprofitable cooperatives' times-interest-earned ratio. For unprofitable cooperatives, the times-interest-earned ratio was always less than 1 (not covering interest expenses by current earnings). Small profitable cooperatives, who generally had less debt and thus lower interest expense, had the highest times interest earned ratio (4.1).

The ratio was higher for respondent cooperatives in 1986 through 1990 when compared with 1983 through 1985 (figure 6). Times-interest-earned

Table 10—**Times-interest-earned ratio by size and type, profitable and unprofitable, average of 1983-90**

Item	Small	Medium	Large	Super
		Ratio		
All cooperatives	2.92	3.10	2.64	2.38
Profitable	4.09	3.68	3.26	2.51
Unprofitable	(.15)	.49	.35	.81
Difference between profitable and unprofitable	4.24	3.19	2.91	1.70
	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply
		Ratio		
All cooperatives	2.46	2.69	2.32	2.74
Profitable	2.81	3.05	2.87	3.63
Unprofitable	.32	.36	.05	.31
Difference between profitable and unprofitable	2.49	2.68	2.81	3.31

Figure 6—**Times-Interest-Earned** Ratio



ratio was at its highest in 1987 at 4.6, and by 1990 had declined to 3.2.

Activity Ratios

Activity ratios measure how well cooperatives use assets. A low ratio could mean that the cooperative was overcapitalized or carrying too much inventory. A high ratio could be deceptive. A cooperative with fully depreciated older assets could have an artificially high ratio even though those assets are no longer operating efficiently.

Total asset turnover *ratio* was found by dividing net sales by total cooperative assets. The ratio was higher for larger cooperatives (table 11). Super-size cooperatives had the highest ratio at 3.4, indicating the most efficient use of assets. By cooperative type, the total asset turnover ratio was higher for marketing than farm supply. The total asset turnover ratio was its lowest in 1985 at 2.2, and highest in 1990 (5.8, see figure 7).

Interestingly, by both size and type, all unprofitable cooperatives except mixed farm supply had

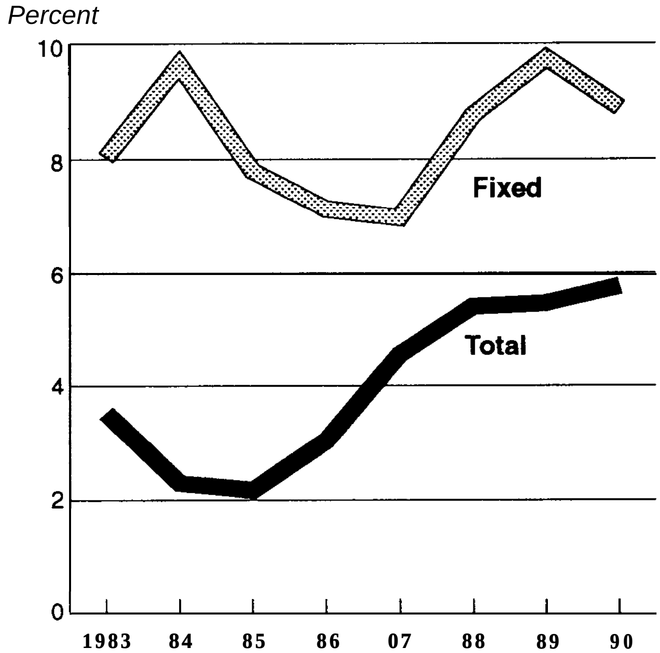
Table 1 **r-Total asset turnover ratios by size and type, profitable and unprofitable, average of 1983-90**

Item	Small	Medium	Large	Super
		Ratio		
All cooperatives	2.69	3.22	3.23	3.36
Profitable	2.67	3.22	3.18	3.35
Unprofiiable	2.76	3.26	3.58	3.91
Difference between profitable and unprofitable	(.09)	(.04)	(.40)	(.56)
	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply
		Ratio		
All cooperatives	3.40	3.37	2.97	2.65
Profitable	3.45	3.35	2.98	2.63
Unprofitable	3.65	3.55	2.93	2.78
Difference between profitable and unprofitable	(.20)	(.20)	.05	(.15)

greater asset turnover ratios than profitable cooperatives. As mentioned earlier, some ratios by themselves can be misleading and this is a good example of that. By only examining this ratio, one would incorrectly infer that unprofitable cooperatives were using assets more efficiently than the more profitable ones. This demonstrates the danger in placing too much emphasis on a single ratio in isolation.

Fixed asset *turnover ratio* represents net sales divided by net property, plant, and equipment (PP&E). This ratio shows how well the cooperative is using its fixed assets. As discussed in the total asset turnover ratio section, the fixed asset turnover ratio by itself might not give a complete picture of the cooperative's financial health. A cooperative with fully depreciated assets would have an artificially high ratio. A cooperative that invested heavily in PP&E for future expansion will have a temporarily low ratio. By size, a fixed asset turnover ratio of 13 was greatest for large cooperatives (table 12). By type, the ratio was the highest for mixed farm supply cooperatives (13.4). The fixed asset turnover ratio was at its low in 1987 (figure 7). During the last 3 years of the study, the ratio has increased and averaged at least 9.1 percent.

Figure 7—Total and Fixed Asset Turnover Ratios



Profitability Ratios

Profitability ratios indicate the efficiency of the cooperative's operations. Because a cooperative is owned by its user-members, many common industry profitability ratios have little meaning. For instance, profitability ratios measuring the return on common or preferred stock of similar investor-oriented firms are not appropriate because there is seldom an open market for cooperative stock.

Gross profit margin is found by subtracting the cost of goods sold from net sales and then dividing this amount (gross margin) by net sales. The gross profit margin is an important operating ratio. A small change in the gross margin has a tremendous impact on income from own operations. It indicates the cooperative's pricing policy and cost of goods offered for sale. [For a thorough discussion of gross profit margin, see Chesnick and Eversull, p. 8].

For all cooperatives, the gross profit margin averaged 8.2 percent. Specialized farm supply cooperatives, at 17.1 percent (table 13), had the highest gross profit margin. In general, both types of farm supply cooperatives had, on average, from 4 to 10 percentage points higher gross profit margins than both types of marketing cooperatives. At 10.8 percent, small cooperatives had the highest gross margin percent by size.

There was not a marked difference between the gross margins of profitable and unprofitable large and super-size cooperatives and specialized marketing cooperatives. For small and medium, both types of farm supply, and mixed marketing cooperatives, the difference between profitable and unprofitable cooperatives was at least 2.2 percentage points. Competition may be forcing some cooperatives to lower their gross margin, and in turn, making them unprofitable. Also, profitable cooperatives may have lower cost supply sources that allow them to have higher gross margins.

The gross profit margin was the highest for respondent cooperatives in 1986 at 10.5 percent

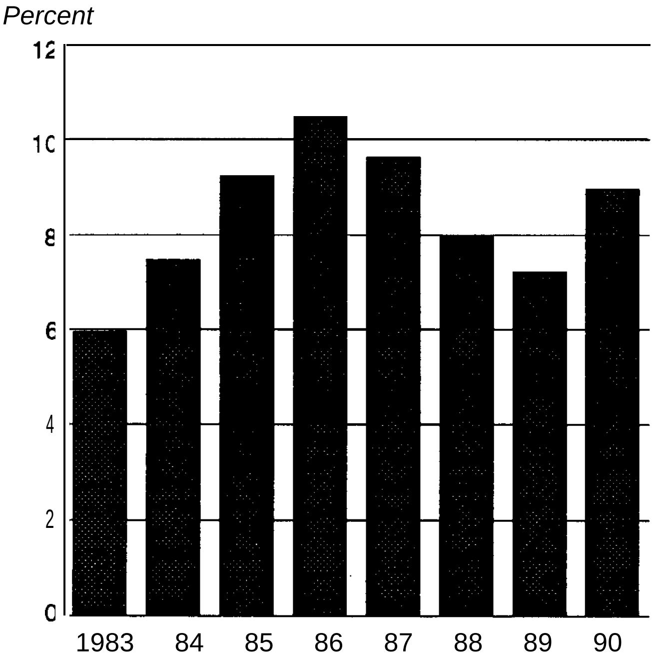
Table 12—Fixed asset turnover ratios by size and type, profitable and unprofitable, average of 1983-90

Item	Small	Medium	Large	Super
		Ratio		
All cooperatives	12.37	11.89	12.98	11.64
Profitable	12.27	11.92	13.02	11.70
Unprofitable	12.80	11.70	12.61	11.33
Difference between profitable and unprofitable	(.53)	.22	.41	.37
	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply
		Ratio		
All cooperatives	12.10	11.63	13.43	11.09
Profitable	12.11	11.58	13.51	11.13
Unprofiiable	12.28	12.19	13.18	10.90
Difference between profitable and unprofitable	(.13)	(.61)	.33	.23

Table 13—Gross profit margin by size and type, average of 1983-90

Item	Small	Medium	Large	Super
		Percent		
All cooperatives	10.82	10.14	8.15	7.44
Profitable	11.32	10.38	8.18	7.38
Unprofitable	8.55	8.21	7.97	6.44
Difference between profitable and unprofitable	2.77	2.17	.21	.94
	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply
		Percent		
All cooperatives	3.90	6.63	10.51	17.12
Profitable	3.94	7.01	10.91	17.67
Unprofitable	3.24	3.72	8.69	14.59
Difference between profitable and unprofitable	.70	3.29	2.22	3.08

Figure 8—**Gross Profit Margin**



(figure 8). It fell from 1986 to 1989, and then rebounded to 9 percent in 1990.

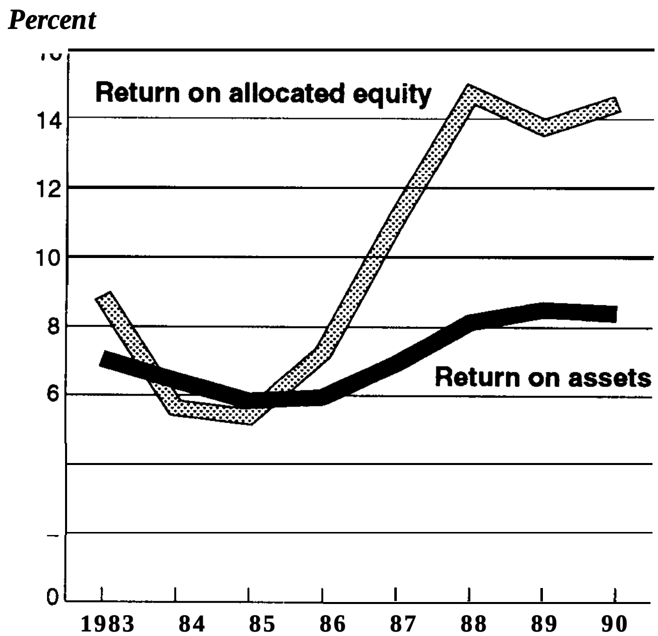
Return on total assets measures the rate of return on total investment. It is calculated by dividing net income by total assets. Because some assets were financed through debt, this ratio measures return to both members and lenders. Usually it is calculated after taxes. Small and medium cooperatives had a higher return on total assets (table **14**), with medium-sized cooperatives the highest at 4.6 percent. Most unprofitable cooperatives had a negative return on total assets, but because profitability was determined by income from own operations and not net income, unprofitable cooperatives could have a positive return to total assets as did super-size cooperatives (0.5).

By cooperative type, return on total assets was highest for mixed marketing cooperatives at 4.2 percent. With assets relative to sales higher for both types of farm supply cooperatives, the return to total assets was very similar to that of the marketing cooperatives, even though the farm supply cooperatives had higher net incomes relative to net

Table 14—**Return on total assets by size and type, profitable and unprofitable, average of 1983-90**

Item	Small	Medium	Large	Super
		Percent		
All cooperatives, after taxes	4.12	4.59	3.79	3.85
Profitable	5.58	5.43	4.79	4.09
Unprofitable	(2.20)	(1.38)	(3.07)	.52
Difference between profitable and unprofitable	7.78	6.81	7.86	3.57
	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply
		Percent		
All cooperatives, after taxes	3.76	4.18	3.81	3.96
Profitable	4.54	4.81	4.93	5.21
Unprofitable	(2.27)	(2.18)	(2.47)	(1.65)
Difference between profitable and unprofitable	6.81	6.99	7.40	6.86

Figure 9—**Return on Total Assets and Allocated Equity**



sales. Profitable cooperatives had a return to total assets of at least 4.5 percent while unprofitable cooperatives' return was negative for all types.

During the last 3 years of this study, cooperatives generally experienced their highest return on total assets, continuing a trend since 1985 (figure 9).

Return on ***allocated equity*** is net income divided by allocated equity. Allocated equity was determined by subtracting unallocated equity from total member equities. It represents member investment in their cooperative. This return after taxes rose from an average of 6.6 percent in the early 1980s to an average of over 14.4 percent for all cooperatives in 1990.

There was a higher return on allocated equity for both types of marketing cooperatives (9.3 to 9.7 percent) than farm supply cooperatives (6.8 to 8.2 percent, table 15). Even though both types of farm supply cooperatives had higher gross profit margins, they tended to have more allocated equity than marketing cooperatives, averaging between 80 and 83 percent of total member equities. But, by size, super cooperatives had the highest return on allocated equity (10.3 percent) and at 80.2 percent, the highest percent of allocated equity to total equity. Return on allocated equity increased in the past 6 years of the study period with the exception of a slight decline in 1989 (figure 9).

The difference between the return on allocated equity between profitable and unprofitable cooperatives was quite large. For all sizes and types, the return on allocated equity was at least 9 percentage points higher for profitable cooperatives.

CONCLUSIONS

Local cooperatives that weathered the agricultural recession in the early to mid-1980s were forced to evaluate their operations. Debt financing was becoming increasingly expensive with interest rates in double digits. Outstanding accounts receivable balances were building. Farmers were also having problems-with many being forced out of agriculture. Those local farm supply and marketing cooperatives that remained in business through the last decade emerged leaner, stronger, and prepared for the 1990s.

Many cooperatives studied in this report maintained strong balance sheets. The asset base changed little during the study period. Member equities averaged 58 percent of total assets. Long-term debt fell by 12 percent per year.

Local cooperative debt was most often acquired from the Banks for Cooperatives and CoBank. The respondents maintained strong ties with regional cooperatives, especially the small and specialized farm supply cooperatives that acquired about one-third of their debt capital from regionals.

The composition of member equities shifted slightly during the study. Losses drew down unallocated equity, mainly in 1985-87. From 1987 to 1990, allocated equity fell relative to total equity as cooperatives subsequently rebuilt unallocated equity.

The financial ratios developed in this study found that there are differences in cooperatives based on their size and type. The current ratio was strongest at 2 for small and specialized farm supply cooperatives. As size increased, the current ratio fell. The debt-to-asset ratio has been falling. Larger cooperatives use more debt-but the ratio for all

Table 15—**Return on allocated equity by size and type, profitable and unprofitable, average of 1983-90**

Item	Small	Medium	Large	Super
		Percent		
All cooperatives, after taxes	7.21	9.40	8.55	10.28
Profitable	9.67	10.95	10.65	10.82
Unprofitable	(4.00)	(3.18)	(7.63)	1.84
Difference between profitable and unprofitable	13.67	14.13	18.28	8.98

	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply
		Percent		
All cooperatives, after taxes	9.31	9.70	8.16	6.82
Profitable	11.40	11.07	10.33	8.70
Unprofitable	(5.04)	(5.40)	(6.17)	(3.28)
Difference between profitable and unprofitable	16.44	16.47	16.40	9.98

respondents averaged only 0.3. Total asset turnover was greatest for super-size and both types of marketing cooperatives. Average sales were 3.4 times their total assets. Small and medium cooperatives and both types of farm supply cooperatives had higher gross profit margins, averaging at least 10 percent.

Mergers will continue as cooperatives are pressured to expand their marketing area to remain competitive. About 100 of the respondents merged with or were acquired by other cooperatives, or went out of business during the study. Financial ratios developed in this study should help local cooperatives compare themselves with a representative group of cooperatives. The ratios will also help them study possible mergers with other sizes or types of cooperatives.

Information in this report does not suggest that any size or type of local cooperative has a more superior balance sheet. Rather, by combining the information from many similar, yet diverse cooperatives, management and the board of directors will be able to compare their operations with those of similar cooperatives. The balance sheets in this study showed the cooperative's financial position at a point in time. They represent a summation of past transactions, events, and expected future benefits. A strong balance sheet is a good indication of sound management practices.

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Appendix table A1-All U.S. farm supply and grain marketing cooperatives compared with respondent cooperatives

	All farm supply and grain marketing cooperatives	All respondent cooperatives
	Percent	
Northeast	4.30	0.82
Appalachia	5.24	1.50
Southeast	2.20	.90
Delta States	4.43	2.17
Corn Bett	23.64	28.20
Lake States	17.58	15.26
Northern Plains	27.85	34.18
Western Plains	3.83	5.91
Southern Plains	5.93	7.33
Southwest	1.26	1.05
Northwest	3.74	2.69
Total	100.00	100.00

Appendix table 9a-Number of respondent cooperatives, by size, type, and region

Region	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply	Total
Northeast					
small			3	6	9
medium				2	2
Total			3	8	11
Appalachia					
small			1	11	13
medium			1	3	4
large				2	2
super				1	1
Total			2	17	20
Southeast					
small		2	3	7	12
total		2	3	7	12
Delta States					
small		1	6	15	22
medium			1	5	6
large	1				1
Total	1	1	7	20	29
Corn Belt					
small	21	30	15	39	105
medium	30	57	26	14	127
large	37	35	14	2	88
super	26	24	4	1	57
Total	116	146	59	56	377
Lake States					
small	8	16	9	75	108
medium	9	10	6	33	58
large	11	8	2	1	22
super	7	6	3		16
Total	35	40	20	109	204
Northern Plains					
small	56	56	18	163	293
medium	47	39	7	13	106
large	19	13	2	2	36
super	13	9			22
Total	135	117	27	178	457

continued

Appendix table A2—**Number of respondent cooperatives, by size, type, and region** (Continued)

Region	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply	Total
Western Plains					
small	5	4	2	46	57
medium	4	4	1	5	14
large	2	2		1	5
super	1	1		1	3
Total	12	11	3	53	79
Southern Plains					
small	23	24	17	21	85
medium	2	3	1	1	7
large	2		1		3
super	2	1			3
Total	29	28	19	22	98
Southwest					
small	1	1	1	7	10
medium			1	1	2
large				1	1
super				1	1
Total	1	2	1	10	14
Northwest					
small	2	1	1	13	17
medium	2	1	2	4	9
large	4		2	1	7
super	1	2			3
Total	9	4	5	18	36
Total					
small	117	135	76	403	731
medium	94	115	45	81	335
large	76	58	21	10	165
super	52	43	7	4	106
Total	339	351	149	498	1,337

Appendix table As-Number of respondent cooperatives, by size, type, and year

Size	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply	Total
1990					
small	39	52	27	145	263
medium	49	58	17	40	164
large	35	32	10	4	81
super	12	10	2	2	26
Total	135	152	56	191	534
1989					
small	52	56	34	221	363
medium	56	75	24	47	202
large	46	38	14	9	107
super	36	30	5	2	73
Total	190	199	77	279	745
1988					
small	40	65	27	202	334
medium	39	41	16	33	129
large	36	31	12	6	85
super	29	29	6		65
Total	144	166	61	242	613
1987					
small	80	111	61	301	553
medium	62	72	26	45	205
large	39	27	7		73
super	17	21	2	1	41
Total	198	231	96	347	872
1986					
small	58	82	40	264	444
medium	50	61	27	42	180
large	35	33	8	6	82
super	19	23	3	2	47
Total	162	199	78	314	753
1985					
small	44	41	28	152	265
medium	16	37	13	36	102
large	34	18	9	5	66
super	17	12	3		33
Total	111	108	53	194	466

continued

Appendix table A3—**Number of respondent cooperatives, by size, type, and year (Continued)**

Size	Specialized marketing	Mixed marketing	Mixed farm supply	Specialized farm supply	Total
1984					
small	21	24	18	133	196
medium	20	34	14	39	107
large	22	18	7	7	54
super	17	15	3	1	36
Total	80	91	42	180	393
1983					
small	88	54	11	53	186
medium	38	56	10	11	113
large	35	25	8	4	72
super	15	14	2		31
Total	154	149	31	68	402
Average of 1983-90					
small	50	61	31	184	326
medium	41	54	18	37	150
large	35	28	9	5	77
super	20	19	3	1	43
Total	148	162	61	227	596

Appendix table A4—Abbreviated balance sheet, by size and year

Item	Current assets	Net PP&E	Total assets	Current liabilities	Long-term debt	Total liabilities	Net worth	Total liabilities & net worth
				Dollars in thousands				
Small cooperatives								
1983	595	328	1,233	369	101	470	763	1,233
1984	521	235	1,078	254	80	334	744	1,078
1985	545	266	1,131	277	77	354	777	1,131
1986	542	303	1,183	238	66	304	879	1,183
1987	554	297	1,161	251	59	310	851	1,161
1988	620	287	1,239	282	43	324	915	1,239
1989	601	286	1,191	287	45	332	859	1,191
1990	607	302	1,204	302	42	344	860	1,204
Medium cooperatives								
1983	1,223	791	2,569	773	257	1,031	1,538	2,569
1984	1,214	692	2,557	690	245	935	1,622	2,557
1985	1,243	767	2,752	680	253	933	1,819	2,752
1986	1,213	956	2,824	689	297	986	1,838	2,824
1987	1,321	936	2,859	785	206	992	1,867	2,859
1988	1,463	812	2,806	919	157	1,075	1,731	2,806
1989	1,293	747	2,557	753	110	863	1,694	2,557
1990	1,327	784	2,687	796	136	932	1,755	2,687
Large cooperatives								
1983	2,244	1,695	5,000	1,578	689	2,266	2,734	5,000
1984	2,236	1,452	4,626	1,522	594	2,116	2,510	4,626
1985	2,313	1,817	5,280	1,611	613	2,224	3,056	5,280
1986	2,213	2,176	5,557	1,465	723	2,189	3,368	5,557
1987	2,658	2,104	5,727	1,840	515	2,356	3,371	5,727
1988	2,697	1,649	5,135	1,959	323	2,281	2,854	5,135
1989	2,110	1,433	4,302	1,491	270	1,761	2,541	4,302
1990	2,339	1,425	4,593	1,651	286	1,937	2,656	4,593
Super cooperatives								
1983	4,906	4,032	11,092	3,681	1,989	5,670	5,422	11,092
1984	5,097	3,746	10,829	3,963	2,000	5,963	4,866	10,829
1985	5,513	4,507	12,298	4,304	2,394	6,698	5,600	12,298
1986	5,021	3,585	10,795	3,799	1,864	5,663	5,132	10,795
1987	5,094	3,702	10,525	4,093	1,177	5,270	5,255	10,525
1988	7,435	3,509	12,645	6,090	924	7,014	5,631	12,645
1989	5,650	3,262	10,645	4,458	768	5,226	5,419	10,645
1990	6,166	3,082	10,927	4,538	833	5,371	5,556	10,927

Appendix table As--Abbreviated balance sheet, by type and year

Item	Current assets	Net PP&E	Total assets	Current liabilities	Long-term debt	Total liabilities	Net worth	Total liabilities & net worth
				Dollars in thousands				
Specialized marketing cooperatives								
1983	1,406	1,117	3,151	1,063	421	1,483	1,668	3,151
1984	2,031	1,573	4,390	1,577	681	2,258	2,132	4,390
1985	1,795	1,569	4,167	1,344	670	2,014	2,153	4,167
1986	1,537	1,457	3,779	1,095	597	1,692	2,087	3,779
1987	1,522	1,293	3,342	1,100	294	1,394	1,948	3,342
1988	2,633	1,494	4,743	2,113	290	2,403	2,340	4,743
1989	1,915	1,298	3,828	1,480	233	1,713	2,115	3,828
1990	1,665	965	3,141	1,211	207	1,418	1,723	3,141
Mixed marketing cooperatives								
1983	1,548	1,080	3,306	1,003	443	1,445	1,861	3,306
1984	1,667	1,144	3,544	1,133	507	1,640	1,904	3,544
1985	1,643	1,232	3,666	1,131	458	1,589	2,077	3,666
1986	1,394	1,090	3,175	921	356	1,277	1,898	3,175
1987	1,505	1,086	3,187	1,027	278	1,304	1,883	3,187
1988	2,390	1,220	4,282	1,738	271	2,009	2,273	4,282
1989	1,898	1,113	3,662	1,315	203	1,518	2,144	3,662
1990	1,563	908	3,057	1,026	125	1,151	1,906	3,057
Mixedfarm supply cooperatives								
1983	1,544	1,183	3,538	1,015	551	1,566	1,972	3,538
1984	1,334	960	2,985	848	448	1,296	1,689	2,985
1985	1,283	816	2,808	851	343	1,194	1,614	2,808
1986	1,062	862	2,519	610	294	905	1,614	2,519
1987	1,098	751	2,368	624	195	819	1,549	2,368
1988	1,700	972	3,289	1,109	232	1,341	1,948	3,289
1989	1,422	836	2,810	884	229	1,113	1,697	2,810
1990	1,267	828	2,684	792	219	1,012	1,672	2,684
Specialized farm supply cooperatives								
1983	994	421	1,999	578	166	744	1,255	1,999
1984	940	375	1,847	480	155	635	1,212	1,847
1985	828	344	1,683	383	123	506	1,177	1,683
1986	724	311	1,492	284	87	371	1,121	1,492
1987	698	284	1,412	284	66	350	1,062	1,412
1988	835	342	1,650	375	73	448	1,202	1,650
1989	917	388	1,775	436	69	505	1,270	1,775
1990	992	455	1,921	495	95	590	1,331	1,921
All cooperatives								
1983	1,399	990	3,043	955	396	1,351	1,692	3,043
1984	1,369	854	2,871	890	373	1,264	1,607	2,871
1985	1,298	895	2,859	838	355	1,193	1,666	2,859
1986	1,110	818	2,534	659	289	949	1,585	2,534
1987	1,142	776	2,423	703	188	890	1,533	2,423
1988	1,763	912	3,250	1,224	193	1,417	1,833	3,250
1989	1,485	860	2,908	982	163	1,146	1,762	2,908
1990	1,352	751	2,630	857	145	1,002	1,628	2,830

Appendix table m-source of cooperative debt for selected cooperatives by size and year

Item	Banks for cooperatives and CoBank	Commercial Banks	Debentures or notes	Other (usually regional cooperatives)
			Percent	
Small				
1983	57.89	9.78	3.50	28.83
1984	56.32	4.46	.77	38.45
1985	64.28	5.95	2.09	27.68
1986	59.61	6.16	3.48	30.75
1987	58.18	11.14	3.88	26.80
1988	55.77	6.88	2.99	34.36
1989	51.71	13.97	2.53	31.79
1990	53.81	13.36	2.77	30.06
Medium				
1983	81.79	9.74	2.96	5.51
1984	70.97	10.66	4.29	14.07
1985	71.94	3.81	16.16	8.09
1986	66.47	9.34	4.06	20.13
1987	69.90	5.83	8.12	16.16
1988	75.93	12.26	4.81	7.00
1989	74.80	14.27	3.24	7.68
1990	39.09	29.67	2.19	29.05
Large				
1983	82.89	9.62	2.70	4.80
1984	67.85	12.64	10.61	8.90
1985	65.73	16.79	8.23	9.26
1986	79.71	7.24	4.19	8.85
1987	76.11	10.04	4.24	9.61
1988	84.95	4.29	5.05	5.71
1989	54.83	12.87	5.00	27.31
1990	67.91	7.71	6.30	18.08
Super				
1983	84.15	6.71	4.93	4.21
1984	88.50	5.32	5.07	1.11
1985	82.10	1.90	3.65	12.34
1986	75.74	3.23	10.95	10.08
1987	78.06	4.08	12.38	5.47
1988	80.11	4.35	7.00	8.55
1989	72.19	10.35	8.31	9.14
1990	70.92	3.33	9.35	16.40

Appendix table A7—Source of cooperative debt for selected cooperatives by type and year

Item	Banks for Cooperatives and CoBank	Commercial Banks	Debentures or notes	Other (usually regional cooperatives)
		Percent		
Specialized marketing				
1983	82.71	9.96	3.12	4.21
1984	66.55	18.23	7.03	8.20
1985	60.63	10.19	20.26	8.93
1986	64.79	8.43	8.13	18.65
1987	68.28	11.70	5.80	14.22
1988	79.67	7.09	3.50	9.73
1989	57.67	13.26	9.70	19.37
1990	46.14	12.27	13.72	27.87
Mixed marketing				
1983	79.91	10.46	4.37	5.26
1984	86.52	6.07	4.93	2.49
1985	73.84	11.45	4.24	10.47
1986	73.48	7.50	7.49	11.53
1987	75.70	8.26	9.68	6.36
1988	80.95	7.21	6.66	5.18
1989	75.31	14.40	3.88	6.41
1990	76.09	11.99	1.89	10.03
Mixed farm supply				
1983	85.56	8.04	2.60	3.80
1984	92.39	5.75	1.05	.82
1985	91.25	5.00	.81	2.94
1986	88.02	3.09	1.68	7.22
1987	82.55	1.77	4.41	11.27
1988	88.52	1.83	3.90	5.75
1989	65.35	5.42	3.18	26.05
1990	65.28	2.36	2.96	29.39
Specialized farm supply				
1983	50.46	1.77	1.97	45.81
1984	58.08	2.94	3.40	35.58
1985	65.75	2.11	2.77	29.37
1986	61.20	2.90	4.39	31.51
1987	55.22	3.63	5.92	35.22
1988	46.83	5.99	4.59	42.60
1989	52.00	8.99	3.35	35.66
1990	54.40	10.97	2.33	32.30
All cooperatives				
1983	77.60	8.95	3.48	9.97
1984	72.98	7.40	4.40	15.22
1985	70.36	7.39	7.22	15.04
1986	71.01	6.18	6.25	16.55
1987	71.12	7.64	7.41	13.83
1988	75.45	6.44	5.14	12.98
1989	65.16	12.29	5.56	16.98
1990	61.32	10.87	6.26	21.54
Average	71.05	8.23	5.62	15.11

Appendix table B1—**Financial ratios for specialized marketing cooperatives, average of 1983-90**

Item	Small	Medium	Large	Super
Current ratio	1.81	1.45	1.39	1.21
Quick ratio	1.28	.77	.71	.61
Debt-to-asset ratio	.22	.21	.24	.30
Debt-to-equity ratio	.24	.28	.30	.46
Times-interest-earned ratio	3.18	2.38	2.50	2.26
Total asset turnover ratio	2.99	3.50	3.51	3.40
Fixed asset turnover ratio	11.19	12.51	12.57	12.62
		Percent		
Gross profit margin	5.71	5.60	5.25	5.72
Return on total assets after tax	5.03	4.49	4.24	3.61
Return on allocated equity after tax	10.01	9.92	10.02	10.52
Based on sales of:	$2,541,415	$6,942,109	$12,950,953	$35,205,055

Appendix table B2—**Financial ratios for mixed marketing cooperatives, average of 1983-90**

Item	Small	Medium	Large	Super
Current ratio	1.81	1.66	1.46	1.34
Quick ratio	1.09	.90	.76	.70
Debt-to-asset ratio	.25	.22	.24	.27
Debt-to-equity ratio	.26	.24	.28	.35
Times-interest-earned ratio	2.91	3.55	3.10	2.61
Total asset turnover ratio	3.06	3.31	3.26	3.47
Fixed asset turnover ratio	10.37	10.43	9.85	11.33
		Percent		
Gross profit margin	6.83	7.78	8.45	8.26
Return on total assets after tax	3.52	4.95	4.58	4.00
Return on allocated equity after tax	7.07	10.90	10.30	10.70
Based on sales of:	$2,638,544	$6,977,821	$13,566,753	$31,632,525

Appendix table w-Financial ratios for mixed farm supply cooperatives, average of 1983-90

Item	Small	Medium	Large	Super
Current ratio	2.10	1.74	1.39	1.61
Quick ratio	1.17	1 .00	.70	.85
Debt-to-asset ratio	.24	.24	.31	.29
Debt-to-equity ratio	.22	.22	.29	.31
Times-interest-earned ratio	2.32	2.11	2.02	2.31
Total asset turnover ratio	2.72	3.13	2.93	2.75
Fixed asset turnover ratio	12.45	13.78	12.14	11.34
		Percent		
Gross profii margin	14.24	12.00	12.93	13.74
Return on total assets after tax	2.64	3.72	4.08	4.98
Return on allocated equity after tax	4.53	8.41	10.46	9.96
Based on sales of:	$2,126,529	$6,921,608	$13,840,341	$22,935,382

Appendix table B4—Financial ratios for specialized farm supply cooperatives, average of 1983-90

Item	Small	Medium	Large	Super
Current ratio	2.38	1.97	1.70	2.05
Quick ratio	1.20	1.00	.81	.96
Debt-to-asset ratio	.22	.22	.31	.27
Debt-to-equity ratio	.11	.13	.19	.27
Times-interest-earned ratio	2.52	2.91	1.50	3.59
Total asset turnover ratio	2.32	2.48	2.64	2.74
Fixed asset turnover ratio	11.70	10.77	10.10	10.11
		Percent		
Gross profit margin	17.26	18.12	16.46	18.63
Return on total assets after tax	4.00	4.60	2.34	4.52
Return on allocated equity after tax	6.55	8.23	5.82	6.80
Based on sales of:	$2,135,206	$6,423,556	$12,771,525	$25,425,499

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The cooperative segment of RBCDS (1) helps farmers and other rural residents develop cooperatives to obtain supplies and services at lower cost and to get better prices for products they sell; (2) advises rural residents on developing existing resources through cooperative action to enhance rural living; (3) helps cooperatives improve services and operating efficiency; (4) informs members, directors, employees, and the public on how cooperatives work and benefit their members and their communities; and (5) encourages international cooperative programs.

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