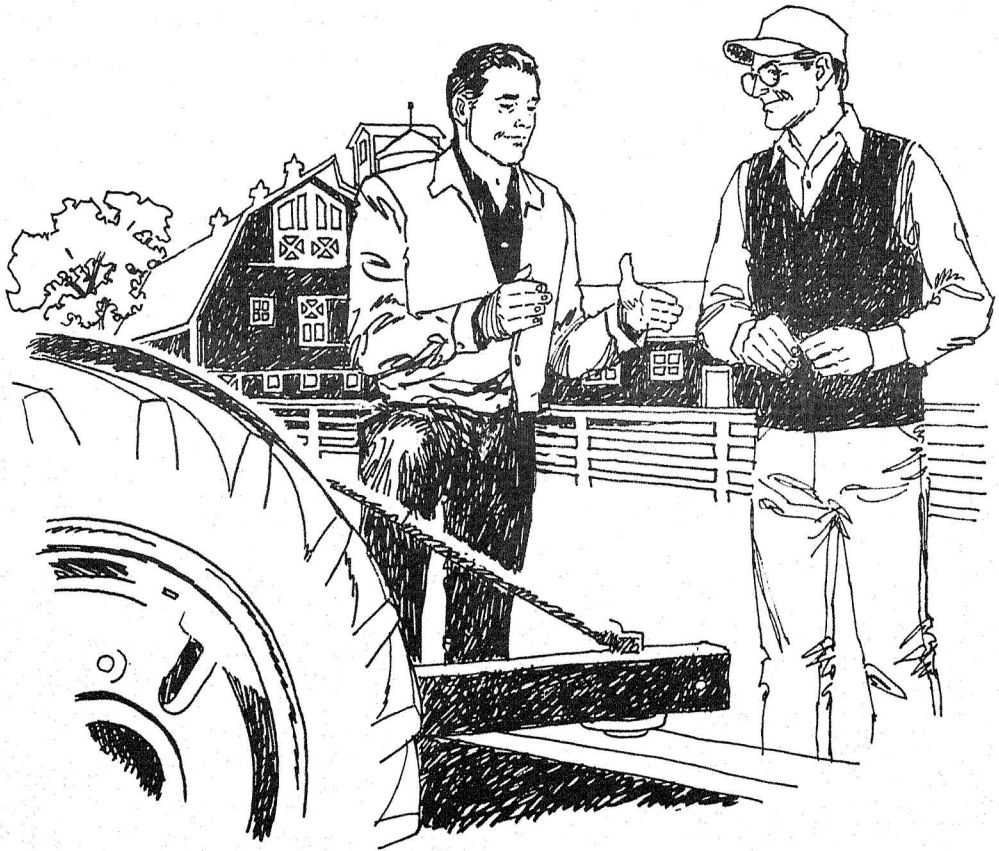


Financial Structure of

Local Missouri Farm Supply Cooperatives



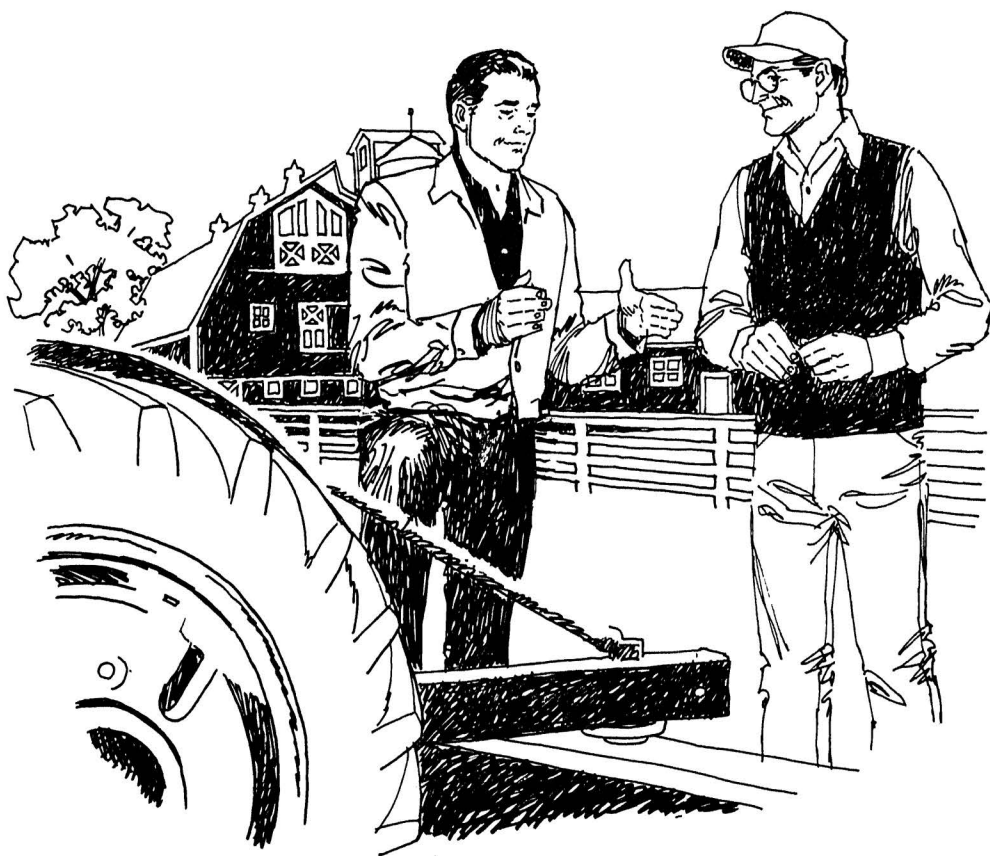
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Financial Structure of

Local Missouri Farm Supply Cooperatives

Gary E. Gries & Randall E. Torgerson*
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INTRODUCTION

How well is your cooperative performing? How does the financial performance of your cooperative compare with that of other farm supply cooperatives in the state? What size category is experiencing the best operating results and growth? These are questions that every cooperative board of directors and manager ask, or should ask, from time to time. A study of the financial structure of locally owned farm supply cooperatives in the State of Missouri, based on 1970 audits, was conducted with the hope of answering some of these basic operational questions.

What follows is a summary of the findings of this study of 126 local cooperatives and some suggested guidelines for future operations. These findings suggest areas for major improvements in the operations of local cooperatives. Findings also indicate differences in operation based upon cooperative philosophy, type of organization (stock vs. non-stock), and the nature of competition unique to certain areas.

No attempt is made to separate grain handling or other marketing operations in the study from farm supply and service activities.

*Gary E. Gries received his Master of Science Degree in Agricultural Economics for his contribution to this study. Randall E. Torgerson, Assoc. Prof. of Agri Economics is Advisor & Project Leader.

Rather, these are treated as a whole in analyzing the financial structure of cooperatives. This approach allows an overview of operations of the complete population of local cooperatives operating in the state. It also enables calculation of key ratios in determining the level of financial performance of these cooperatives.

Cooperatives are very important elements in Missouri's agribusiness economy. It is estimated that cooperatives supplied 26 percent of the feed, 28 percent of the seed, 31 percent of the fertilizer and lime, and 49 percent of the petroleum purchased by farm operators in 1969-70.¹ Despite the importance of this economic tool utilized by farm operators, cooperatives have received relatively little study generally, and very little about financial structure and performance.²

At the close of fiscal year 1970, the combined gross sales of 126 locally owned farm supply cooperatives was \$131,675,000. The same 126 cooperatives had combined total assets of \$47.3 million, but only generated net income of \$2,149,000, or a 1.64 percent return on net sales (see consolidated balance sheet and operating statement in Tables 1 & 2). Comparative performance criteria for

Table 1. CONSOLIDATED BALANCE SHEET OF 126
LOCALS FOR FISCAL YEAR 1970

Current Assets

Cash	\$ 2,838,953.77
Accounts and Notes	
Receivable - Net	8,393,781.14
Merchandise Inventory	11,778,148.71
Other	771,657.93
Total Current Assets	<u>23,782,541.55</u>

¹Randall E. Torgerson, Basics of Farmer Cooperatives, Ext. Manual 81, (Columbia: Univ. of Missouri, 1972), p. 26.

²The last study at this station was by Herman Haag, Income, Expenses and Savings of Local Cooperative Associations, Research Bulletin 389, University of Missouri, 1945.

Table 1. (Continued)

Other Assets

Investments in Other Cooperatives	7,587,177.98
Other Investments	182,780.71
Other	203,172.36
Total Other Assets	<u>7,973,131.05</u>

Fixed Assets

Total Cost	30,230,927.11
Less Allowance for Depreciation	14,654,533.45
Net Fixed Assets	<u>15,576,393.66</u>

Total Assets \$47,332,066.26

Current Liabilities

Accounts Payable	\$5,338,955.12
Notes Payable	7,837,982.27
Certificates of Indebtedness	448,713.24
Debenture Bonds	121,550.00
Accrued Liabilities	934,399.62
Other	1,149,034.79
Total Current Liabilities	<u>\$15,830,635.04</u>

Term Liabilities

Notes Payable	4,449,943.25
Certificates of Indebtedness	4,049,058.18
Debenture Bonds	1,119,835.00
Other	36,884.53
Total Term Liabilities	<u>\$9,655,719.96</u>

Net Worth

Permanent Capital	
Common Stock	\$1,702,511.97
Preferred Stock	887,884.53
Membership Certificates	81,912.00
Surplus	3,252,952.94
Patrons Equity Reserve	13,994,343.45
Undistributed Savings	1,926,106.37
Total Net Worth	<u>21,845,711.26</u>

Total Liabilities and Net Worth \$47,332,066.26

Table 2. CONSOLIDATED OPERATING STATEMENT OF
126 LOCALS FOR FISCAL YEAR 1970

	Amount	Percent of Sales
Sales	\$133,675,283.30	100.05
Sales Returns, Discounts etc.	78,485.03	.05
Net Sales	131,596,798.27	100.00
Cost of Goods Sold	116,087,769.85	88.21
Gross Margin on Sales	15,509,028.42	11.79
Other Operating Income	2,482,922.07	1.89
Gross Operating Margin	17,991,950.49	13.68
Operating Expenses	17,039,787.81	12.95
Net Operating Margin	952,162.68	.73
Other Income	1,347,008.96	1.02
Other Expenses	150,240.00	.11
Net Income for Period	2,148,931.64	1.64

farm supply cooperatives throughout the United States at the close of fiscal 1970, indicates that 2,135 farm supply cooperatives had a 5.7 percent return on sales.³ These aggregate figures demonstrate one of the major findings of this study: the lack of profitability of many local supply organizations. Explanations for this phenomenon may be extreme competition among input suppliers, poor management on the part of hired management and directors, a philosophy of operating on the service at cost principle, too many cooperatives vying for the same business, old and obsolete sales outlets, a declining farm economy and/or inadequate size to generate acceptable

³Nelda Griffen, A Financial Profile of Farmer Cooperatives in the United States, FCS Research Report #23, USDA, 1972, p. 30. This figure includes both local and regional supply co-ops. As noted in Table 4 however, this percentage is not too different from the Iowa study of local cooperatives by Harling.

margins. Summary of the findings and a review of structural characteristics of local cooperatives will shed light on this finding.

SUMMARY OF FINDINGS

● Local farm supply cooperatives ranged in size from \$74,975 in sales to \$6,791,821 at the close of fiscal year 1970. Stratification of 117 locals showed that there are more small than large local cooperatives.⁴ However, there are trends that indicate that local cooperatives are becoming larger over time. Analysis of data on sample non-stock and capital stock cooperatives for fiscal years 1960, 1965, and 1970 indicates that this trend is common to both types of locals. But the data also show that the stock locals are generally larger than the non-stock local cooperatives.

Much of this increase in size can be attributed to a growing number of mergers among local cooperatives and to internal growth. This was supported by the fact that the percentage of total assets owned by each sales category in the non-stock and stock samples decreased over time for the larger sales categories. The data also showed that there is still much potential for additional mergers among local cooperatives throughout the state. This was evidenced by the fact that a large number of local cooperatives accounted for a very small portion of total assets owned at the close of fiscal year 1970.

● A primary measure of performance is the amount of net earnings generated. The large local cooperatives tended to be more profitable than the smaller ones. This statement reflects the results of the financial ratio analysis for 117 local cooperatives at the close of fiscal year 1970. However, statistical analysis showed that no statistically significant differences existed between the profitability in terms of size and type of local cooperative. The reason for this is the wide variability in net earnings (losses) that was found within size groups and cooperative types that were studied. Return on owners' equity for the total population was only 6.6 percent.

⁴While financial statements were obtained for the total population of 126 local cooperatives operating in 1970, actual audits were obtained from 117 of these organizations. The 117 cooperatives represent the population for the ratio and other analyses that constitute this study.

●The 14 local cooperatives in Sales Category V (sales greater than \$2 million) were the most profitable group in the population at the close fiscal year 1970. The stock random sample was more profitable than the non-stock sample in all categories except Sales Category IV (sales of \$1.5-2 million). However, the non-stock categories had higher returns on investments in other cooperatives with the exception of Sales Category III (sales of \$1-1.5 million).

●Trends show that borrowed debt is replacing owners' equity in the financial structure of local farm supply cooperatives. This is true for both non-stock and stock samples examined. This increase in the utilization of borrowed debt indicates that managers of local cooperatives are utilizing outside creditors to finance their growing financial needs rather than relying solely on funds from their member patrons. Owners' equity, as measured in absolute dollars, increased over time from the close of fiscal year 1960 to the close of fiscal year 1970, but the increases in borrowed debt were greater so that the percentage of the financial structure represented by owners' equity actually decreased.

●One method of equity financing traditionally used by cooperatives is the revolving fund. Few supply cooperatives in Missouri had a revolving program and only a few of those having such a method of equity financing, revolved funds on a regular basis. Only one cooperative in the total population paid interest on revolving capital.

●Other farmer cooperatives (typically, financing corporations owned and operated by the regional cooperatives) were the largest source of outstanding borrowed capital by local farm supply cooperatives, accounting for 45 percent of the total borrowed capital. Loans from individuals in the form of certificates of indebtedness, direct loans, and debenture bonds were other important sources of borrowed capital. The St. Louis Bank for Cooperatives represented only 15 percent of the borrowings outstanding for the supply cooperatives examined.

●A major objective of this study was to suggest guidelines for the ratios used in financial ratio analysis. Performance of cooperatives for fiscal 1970 was evaluated and compared to findings from other sources. The guidelines developed and shown in Table 3 can be used by cooperative managers and boards of directors to improve

Table 3

Suggested Guidelines of 22 Financial Ratios for Local Farm Supply Cooperatives in Missouri

Ratio	Suggested Guidelines * (Range)
<u>Liquidity Ratios</u>	
Current ratio	2.00-3.00
Acid test	1.00-1.75
Inventory to working capital	Less than 1.00
<u>Leverage Ratios</u>	
Total debt to total assets	.45-.50
Current debt to equity	.30-.40
Term debt to equity	.50-.60
Total debt to equity	.80-1.00
Fixed assets to equity	.50-.60
Fixed assets to term debt	1.00-1.00
Owners' Equity to total assets (in %)	.55-.50
<u>Profitability Ratios</u>	
Return on fixed assets (in %)	10.00 and over
Return on owners' equity (in %)	10.00 and over
Return on investments in other cooperatives (in %)	20.00 and over
Return on total assets (in %)	8.00 and over
Net sales to net savings	Less than 30.00
<u>Activity Ratios</u>	
Inventory turnover	10.00-13.00
Net accounts receivable to current assets	.30-.40
Net accounts receivable collection period	20.00-30.00
Net sales to net accounts receivable	20.00-23.00
Sales turnover to net fixed assets employed	8.00 and over
Sales to working capital	10.00-13.00
Sales to expense	9.00 and over

* Ratios recommended in this table were derived after study of the 117 audits of local Missouri farm supply cooperatives and comparing these results with commonly accepted ratios for cooperatives and other agribusinesses. For these results, see Table 4.

the financial performance of local farm supply cooperatives in Missouri. These guidelines were developed on the basis of the analysis of 117 Missouri local farm supply cooperatives found in Table 4, and a comparison of these results with standards established by FS Services,⁵ the ratios from the average balance sheet of 211 Iowa cooperatives (calendar year 1966)⁶, and the ratios of 60 farm and garden supply retailers.⁷

STRUCTURAL CHARACTERISTICS OF LOCAL COOPERATIVES

The locally owned farm supply cooperatives ranged in volume of sales from \$79,975 to \$6,791,821 at the close of fiscal year 1970. Stratification of the population of locals shows that there are more small than large cooperatives (see Table 5), and that they tend to be clustered in the two lower sales categories. The second category (\$500,000 to \$999,999) is the largest, representing 37 locals or 31.6 percent of the 117 local cooperatives.⁸ The fourth sales category (\$1.5 to \$2 million) comprised 11.1 percent of the population.

In describing and comparing the financial structure of the population and its five sales subgroupings, ratio analysis, equity capital analysis, borrowed capital analysis, and balance sheet analysis were used.⁹ The results of the ratio analysis for the population of locals and its five sales categories are presented in Table 6.

⁵FS Services is the highly successful regional farm supply cooperative headquartered in Bloomington, Illinois, and with operations in Illinois, Iowa, and Wisconsin.

⁶John A. Harling, "Balance Sheet Analysis", Analyzing a Cooperative Business, Omaha Bank for Cooperatives, pp. 16-17

⁷Robert Morris Associates, Annual Statement Studies (Philadelphia: Robert Morris Associates, 1970), p. 104

⁸Financial performance of the population is based on 78 non-stock and 39 capital stock cooperatives for a total of 117 that cooperated with this study.

⁹For a description of the ratios used, see Appendix A.

Table 4

Financial Ratios of Missouri Locals of Population, Non-Stock Random Sample, Stock Random Sample;
FS Service Standards; 211 Iowa Cooperatives; 60 Retailers of Farm and Garden Supplies

Ratio	Population	Non-Stock Random Sample	Stock Random Sample	FS Services Standards ^a	Iowa Cooperatives ^b	Farm Supply Retailers ^c
Liquidity Ratios						
Current Ratio	4.207	3.047	2.814	—	1.890	2.000
Acid test	2.344	1.727	1.526	—	.930	1.000
Inventory to working capital	.806	.339	1.391	—	1.081	—
Leverage Ratios						
Total debt to total assets	.450	.371	.472	—	.364	.475
Current debt to equity	.609	1.053	.354	—	.374	—
Term debt to equity	.460	.204	1.491	—	.199	—
Total debt to equity	1.069	1.257	1.845	—	.573	.800
Fixed assets to equity	.633	.546	1.041	—	.652	.600
Fixed assets to term debt	18.860	74.097	3.314	—	3.280	—
Owners' equity to total assets (in %)	55.244	62.856	52.781	—	63.582	52.500
Profitability Ratios						
Return on fixed assets (in %)	(.154)	3.921	17.142	—	12.053	—
Return on owners' equity (in %)	6.599	5.878	7.946	22.000	13.010	12.600
Return on investment in other cooperatives (in %)	21.396	25.953	15.828	—	24.220	—
Net Sales to net savings (in %)	106.741	122.841	38.778	13.333	33.242	35.714
Return on Total assets (in %)	4.324	4.556	5.679	13.000	8.272	5.300
Activity Ratios						
Inventory turnover	13.012	17.271	10.148	7.000	11.050	6.600
Net accounts receivable to current assets	.362	.398	.315	—	.260	.397
Net accounts receivable collection period	23.947	20.454	29.009	—	15.262	—
Net sales to net accounts receivables	22.068	18.424	21.315	—	23.589	10.300
Sales turnover to net fixed assets employed	17.851	26.116	8.530	5.000	6.631	—
Sales to working capital	9.345	6.335	11.320	—	12.938	7.000
Sales to expense	8.224	9.688	6.553	5.000	11.303	5.155

^aBased on FS Services standards for member merchandising companies.

^bBased on the average statement of operations of 211 Iowa cooperative elevators, petroleum, and lumber operations, compiled by the auditing department of Farmers Grain Dealers Association of Iowa/Cooperative, Des Moines, Iowa, cited by John A. Harling, "Balance Sheet Analysis," Analyzing a Cooperative Business, John A. Harling, Omaha Bank for Cooperatives, pp. 16-17.

^cRobert Morris Associates, (Part III), Annual Statement Studies, ed. Susan M. Kelsay (1970 ed.; Phila.: Robert Morris Associates, 1970), p. 104. The individual firms used in this study had total assets ranging from \$250,000 to \$1,000,000.

Table 5. Number and Percentage of Total Associations, Classified by Volume of Sales for Fiscal Year, 1970

Sales Category	Sales Volume	Number of Associations	Percentage of Total Assoc.
I	Less than \$500,000	34	29.06
II	\$500,000-\$999,999	37	31.62
III	\$1,000,000-\$1,499,999	19	16.24
IV	\$1,500,000-\$1,999,999	13	11.11
V	Greater than \$2,000,000	14	11.97
	Total	117	100.00

⁸ Financial performance of the population is based on 78 non-stock and 39 capital stock cooperatives for a total of 117 that cooperated with this study.

Liquidity Ratios

The current and acid test ratios indicate that the five sales categories and the total sample of cooperatives possessed an average or above average level of liquidity in 1970 when compared to the generally accepted guidelines of two to one and one to one, respectively.¹⁰ However, the inventory to working capital ratio for the locals of Sales Category I indicates that these locals may have had a high amount of idle funds on hand. The inventory to working capital ratios of Sales Categories II and IV and the total, when compared to the current and acid test ratios for these categories, indicate that these groups may have had too many funds tied up in inventory. The worst example of this is the inventory to working capital ratio of 1.9 for Sales Category V. The local cooperatives in Sales Category III appear to have achieved the best balance of overall liquidity when their ratios of 2.5, 1.1, and .5 are compared to others.

Leverage ratios

The leverage ratios generally measure the contributions of the member patrons as compared to the financing provided by outside creditors. The leverage ratios for the sample of 117 locals in 1970 indicate that these locals, on the average, were average credit risks. The fixed assets to term debt ratio for the total is quite high. The probable cause is the underutilization of term debt capacity.

¹⁰ Generally accepted guidelines are those shown in Tables 3 and 4.

Table 6

Ratio Analysis of 117 Locals, Classified by Volume of Sales, Fiscal Year 1970

Ratio	I Less than \$500,000		II \$500,000- \$999,999		III \$1,000,000- \$1,499,999		IV \$1,500,000- \$2,000,000		V Greater Than \$2,000,000		Total	
	No. of Assns.	Average Ratio	No. of Assns.	Average Ratio	No. of Assns.	Average Ratio	No. of Assns.	Average Ratio	No. of Assns.	Average Ratio	No. of Assns.	Average Ratio
<u>Liquidity Ratios</u>												
Current Ratio	33	7.086	37	4.020	19	2.145	13	2.125	14	2.646	116	4.207
Acid Test	33	4.455	37	1.960	19	1.066	13	.960	14	1.404	116	2.344
Inventory to Working Capital	31	.443	37	.848	19	.513	13	.907	13	1.876	113	.806
<u>Leverage Ratios</u>												
Total Liabilities to Total Assets	33	.430	37	.393	19	.556	13	.507	14	.451	116	.450
Current Liabilities to Net Worth	30	1.144	37	.679	19	(.855)	13	.919	14	.976	113	.609
Term Liabilities to Net Worth	30	.403	37	.315	19	(.094)	13	.893	14	1.316	113	.460
Total Liabilities to Net Worth	30	1.547	37	.994	19	(.949)	13	1.812	14	2.292	113	1.069
Fixed Assets to Net Worth	30	.652	37	5.985	19	(.007)	13	.955	14	1.249	113	.633
Fixed Assets to Term Liabilities	21	30.461	24	27.762	19	13.429	12	3.412	11	3.542	87	18.860
Net Worth to Total Assets (in %)	33	56.745	37	60.695	19	44.437	13	52.103	14	54.886	116	55.244
<u>Profitability Ratios</u>												
Return on Fixed Assets (in %)	33	(11.000)	37	(4.165)	19	8.195	13	8.635	14	16.519	116	(.154)
Return on Net Worth (in %)	30	6.893	36	3.306	16	4.991	13	11.832	14	11.414	109	6.599
Return on Investment in Other Cooperatives (in %)	33	21.892	37	20.764	19	18.356	13	19.582	14	27.710	116	21.396
Return on Total Assets (in %)	33	3.304	37	3.817	19	3.723	13	5.362	14	7.918	116	4.324
Net Sales to Net Savings	22	127.594	23	101.321	15	137.364	12	77.122	12	70.238	84	106.741
<u>Activity Ratios</u>												
Inventory Turnover	33	12.069	37	13.446	19	14.396	13	10.594	14	14.458	116	13.012
Net Accounts Receivable to Current Assets	33	.335	37	.380	19	.424	13	.300	14	.356	116	.362
Net Accounts Receivable Collection Period	33	24.810	37	23.168	19	28.336	13	21.231	14	20.538	116	23.947
Net Sales to Net Accounts Receivable	33	23.558	37	21.877	19	14.975	13	24.586	14	26.349	116	22.068
Sales Turnover to Net Fixed Assets Employed	33	22.011	37	21.222	19	12.989	13	11.513	14	11.621	116	17.851
Sales to Working Capital	31	5.420	35	9.852	19	5.900	13	11.425	13	20.293	111	9.345
Sales to Expenses	33	7.033	37	8.335	19	8.419	13	9.167	14	9.600	116	8.224

There was a conflict between the ratios in Sales Category III. The figures for the current debt to net worth, term debt to net worth, total debt to net worth and fixed assets to net worth ratios were all negative while the net worth to total assets ratio was a positive 44.4 to 1. This difference was caused by the fact that in the first four ratios the negative net worth figures for several locals were great enough to negate the total figure while in the latter ratio they were not. In general, the locals of this category were plagued by an extremely low level of net worth. Because of the distorted figures no other conclusions can be made.

The leverage ratios for Sales Category IV indicate that while borrowed debt did not exceed an acceptable level there were indications of gross undercapitalization. The total debt to net worth ratio of 1.8 to 1 points out this fact. This was well above the average figure for the total.

The locals in Sales Category V, like those in Sales Category IV, were lacking adequate member patron financing. This was pointed out by the high figures for the current debt to net worth, term debt to net worth, total debt to net worth and fixed assets to net worth ratios of 1.0 to 1, 1.3 to 1, 2.3 to 1, and 1.2 to 1, respectively.

The locals of Sales Category II showed the greatest degree of eligibility for further debt financing of all the categories. This was because the leverage ratios of the locals in this category indicated that the greatest degree of protection was afforded to creditors of these locals.

Profitability Ratios

The profitability ratios were used as a measure of management's overall effectiveness as shown by the returns generated on investment and sales. The locals of Sales Category V were the most profitable of any in 1970. Their returns on fixed assets, net worth, investment in other cooperatives and on total assets of 16.5 percent, 11.4 percent, 27.7 percent, and 7.9 percent were clearly superior to the others. Only Sales Category IV, with a return of 11.8 percent on net worth, ranked higher.

It is significant that Sales Categories III, IV, and V were more profitable than Sales Categories I and II and were nearly equal to or

better than the population average. It is also significant that Sales Categories I and II had negative returns on fixed assets of 11.0 percent and 4.2 percent for 1970. This is indicative of an operating loss. The total 117 cooperatives' average indicated a loss on fixed assets in 1970 with a return of 0.2 percent.

Activity Ratios

The activity ratios were used to measure how effectively the local cooperatives were utilizing the resources at their disposal. The average activity ratios indicate that generally accepted standards were nearly being met or bettered. The credit policy, as indicated by net accounts receivable to current assets and net accounts receivable collection period ratios of .4 to 1 and 23.9 to 1, appeared to be more restrictive than the generally accepted policy guidelines.

The inventory turnover and sales turnover to net fixed assets employed ratios of 13.0 to 1 and 17.9 to 1 indicated an above average utilization of resources for the population of locals. The ratios for the locals in Sales Category II closely paralleled those for the total sample, indicating that the credit policies and resource utilizations were also quite close to the population average. Sales Category III indicated a more lenient position in credit than other categories.

The sales to working capital ratio would seem to indicate that Sales Categories IV and V had the edge over Sales Categories I, II and III. But, referring back to the liquidity ratios, Sales Categories I, II, and III apparently had much more working capital than Sales Categories IV and V. This was the explanation for the lower utilization ratio.

The last ratio to be considered was the sales to expenses ratio. It is clear that Sales Categories IV and V had the best level of efficiency with ratios of 9.2 to 1 and 9.6 to 1. These were well above the ratios for Sales Categories I, II, and III and the population. The low ratio was accounted for by the locals in Sales Category I with a figure of 7.0 to 1.

Equity Capital Analysis

The most significant finding that resulted from the equity capital analysis was that Missouri locally owned farm supply cooperatives typically did not have a regular revolving program. In fact, few

associations had a revolving program at all. Of those cooperatives revolving equity capital, only a few had established time lengths on a regular revolving basis.

Gross equity capital. Equity capital for the 117 local farm supply cooperatives in 1970 amounted to \$21,277,193.13 as shown in Table 7. The 34 locals in Sales Category I had the lowest amount of equity capital, totaling only \$2,135,162.16. The 13 locals in Sales Category IV had a combined equity capital figure of \$3,733,056.54 for 1970. Sales Category V, with 14 locals had the greatest amount of equity capital, totaling \$7,392,121.09. These are gross equity capital figures, however, since each sales category of locals had inter-cooperative investments.

The range of inter-cooperative investments was set by Sales Categories I and V. Sales Category I had the low inter-cooperative investment figure of \$793,739.70 while Sales Category V had the high of \$2,356,746.12. It is significant, however, that Sales Category III had the highest percentage of inter-cooperative investments relative to gross equity capital of 41.8 percent. Sales Category V, although having had the highest absolute amount of inter-cooperative investments, had the lowest percentage figure of 31.9 percent. In fact, this figure was considerably below the average figure for the 117 locals of 34.9 percent.

Types of equity capital. The kinds and amounts of equity capital for the 117 locals at the close of fiscal year 1970 are shown in Table 8.

Allocated book credits made up the greater part of equity capital for each of the five sales categories, ranging from \$1,900,200.30 or 50.9 percent for Sales Category IV to \$3,199,964.68 or 68.7 percent for Sales Category II. The total amount of allocated book credits was \$13,637,426.33 or 64.1 percent of the combined total equity figure of \$21,277,193.13.

Several forms of equity capital comprised an insignificant portion of the total equity capital at the close of fiscal year 1970. Table 8 shows that for the average for the 117 locals and for Sales Categories I and II, membership certificates made up the smallest parts of the individual totals with percentage figures of .4 percent, 0.0 percent and .5 percent, respectively. Non-stock cooperatives usually utilize membership certificates as a type of capital subscription. But the figures indicate that membership certificates

Table 7

Equity Capital of 117 Locals, Classified by
Volume of Sales, Fiscal Year 1970

Sales Category	Sales Volume	Number of Associations	Gross Equity Capital	Intercooperative Investments	Net Equity Capital
I	Less than \$500,000	34	\$2,135,162.16	793,739.70	1,341,422.46
			% 100.00	37.17	62.83
II	\$500,000 - \$999,999	37	\$4,659,248.76	1,536,630.65	3,122,618.11
			% 100.00	32.98	67.02
III	\$1,000,000 - \$1,499,999	19	\$3,357,604.58	1,402,338.98	1,955,265.60
			% 100.00	41.76	58.24
IV	\$1,500,000 - \$2,000,000	13	\$3,733,056.54	1,335,137.87	2,397,918.67
			% 100.00	35.76	64.24
V	Greater than \$2,000,000	14	\$7,392,121.09	2,356,746.12	5,035,374.97
			% 100.00	31.88	68.12
	Total	117	\$21,277,193.13	7,424,593.32	13,852,599.81
			% 100.00	34.90	65.10

Table 8
Types of Equity Capital Used by 117 Locals, Classified by
Volume of Sales, Fiscal Year 1970

	I Less than \$500,000	II \$500,000- \$999,999	III \$1,000,000- \$1,499,999	IV \$1,500,000 \$2,000,000	V Greater than \$2,000,000	Total
No. of Associations	34	37	19	13	14	117
Common Stock	\$ 227,344.25 % 10.65	30,994.00 .67	487,976.01 14.53	232,803.00 6.24	723,355.60 9.79	1,702,472.86 8.00
Preferred Stock	\$ 91,648.00 % 4.29	224,321.97 4.81	53,150.00 1.58	338,644.56 9.07	180,120.00 2.44	887,884.53 4.17
Allocated Book Credits	\$1,456,363.02 % 68.21	3,199,964.68 68.68	2,280,932.04 67.93	1,900,200.30 50.90	4,799,966.29 64.93	13,637,426.33 64.09
Unallocated Reserves	\$ 114,492.16 % 5.36	562,991.84 12.08	121,204.84 3.61	919,311.51 24.63	1,479,535.82 20.01	3,197,536.30 15.03
Equity Certificates w/o Maturity Date	\$ 227,314.73 % 10.65	386,938.92 8.30	240,353.00 7.16	342,097.17 9.16	184,943.38 2.50	1,381,647.20 6.49
Equity Certificates w/ Maturity Date	\$ 17,000.00 % .80	143,571.35 3.08	111,510.00 3.32	0.00 0.00	0.00 0.00	272,081.35 1.28
Other Miscellaneous Equity	\$ 1,000.00 % .05	86,816.00 1.86	4,216.56 .13	0.00 0.00	24,200.00 .33	116,232.56 .55
Membership Certificates	\$ 0.00 % 0.00	23,650.00 .51	58,262.00 1.74	0.00 0.00	0.00 0.00	81,912.00 .39
Total Equity Capital	\$2,135,162.16 % 100.00	4,659,248.76 100.00	3,357,604.58 100.00	3,733,056.54 100.00	7,392,121.09 100.00	21,277,193.13 100.00

were utilized very little by the local farm supply cooperatives in Missouri. In Sales Category IV there was no equity capital in any of the following accounts: equity certificates with maturity date, other miscellaneous equity, and membership certificates. Sales Category V showed no equity capital in either equity certificates with maturity date or membership certificates accounts.

The differences found with respect to contributions made to total equity by capital stock are significant. Contributions to total equity by common stock for the locals in Sales Category II accounted for only \$30,994.00 or 7 percent of the total of \$4,659,248.76 for the total equity of this category. The range for the other categories was from a low of 6.2 percent for Sales Category IV to a high of 14.5 percent for Sales Category III. The average for the population was 8 percent of \$1,702,427.86.

The range for preferred stock was from 1.6 percent for Sales Category III to 9.1 percent for Sales Category IV. The overall average for the population was 4.2 percent or \$887,884.53.

The figures in Table 8 indicate that the equity capital contributed by allocated book credits and the equity capital contributed by capital stock (common stock and preferred stock) may have been partial substitutes for one another. This is born out by the fact that Sales Category IV had the highest percentage of equity capital contributed by capital stock with a figure of 15.3 percent. However, this category showed the lowest percent contributed by allocated book credits which amounted to only 50.9 percent. On the other hand, Sales Category II had the lowest percentage of equity capital contributed by capital stock, 5.5 percent. But this category had the highest contribution made by allocated book credits at 68.7 percent.

Borrowed Capital Analysis

In many cooperatives, the amount of financing provided by the member patrons was not enough to supply the capital needs of the cooperatives. In most cooperatives, borrowed capital comprised a significant part of their financial structure. The borrowed capital analysis used on this data gave a clear picture of the degree to which the local farm supply cooperatives financed their operations through outside creditors. The borrowed capital analysis also gave an

indication as to whom the cooperatives patronized in their search for borrowed capital.

Term debt. The figures in Table 9 indicate the number and percentage of locals in each classification that had term debt¹¹ outstanding at the end of fiscal year 1970. The figures for the population show that 87 or 74.4 percent of the total of 117 locals had term debt outstanding from creditors at the close of the year. All locals in Sales Category III had term debt outstanding at the year end while Sales Category I represented the low end of the scale with 61.8 percent having term debt remaining. It is significant that a greater percentage of the large locals (Sales Categories III, IV, and V) than of the small locals had term debt outstanding.

Sources of borrowed capital. The sources of borrowed capital, current and term, outstanding at the close of fiscal year 1970 for 117 local farm supply cooperatives are given in Table 10.¹²

Every source of borrowed capital was represented in the population totals for 1970. Other farmer cooperatives represented the largest amount of debt capital outstanding with \$8,148,788.45 or 45.2 percent of the total \$18,047,192.26 worth of debt capital outstanding. Marketing and supply companies represented the smallest amount with \$16,656.91 or .1 percent of the total. Certificates of indebtedness and the Bank for Cooperatives in St. Louis were the second and third most significant sources of borrowed capital, representing \$4,516,543.78 or 25 percent and \$2,710,445.37 or 15 percent, respectively.

Other farmer cooperatives represented the single largest source of borrowed capital for all sales categories but Sales Category V. The largest source of borrowed capital for the fifth sales category was certificates of indebtedness which accounted for 43.7 percent.

¹¹Term debt represents all long-term obligations of a business. All debt capital which becomes due beyond a year from the date of the balance sheet is included.

¹²Totals are from audits taken at fiscal or calendar year end.

Table 9

Number and Percentage of 117 Locals with Term Debt Outstanding At
Close of Fiscal Year 1970, Classified by Volume of Sales

Sales Category	Sales Volume	Total Number of Associations		Associations with term debt outstanding at close of fiscal year	Associations with no term debt outstanding at close of fiscal year
I	Less than \$500,000	No.	34	21	13
		%	100.00	61.77	38.23
II	\$500,000 - \$999,999	No.	37	24	13
		%	100.00	64.87	35.13
III	\$1,000,000 - \$1,499,999	No.	19	19	0
		%	100.000	100.00	0.00
IV	\$1,500,000 - \$2,000,000	No.	13	12	1
		%	100.00	92.31	7.69
V	Greater than \$2,000,000	No.	14	11	3
		%	100.00	78.57	21.43
Total		No.	117	87	30
		%	100.00	74.36	25.64

Table 10

Sources of Borrowed Capital for 117 Locals, Classified By Volume of Sales, With Percentage and Dollar Amount of Borrowed Capital Outstanding At Close of Fiscal Year 1970 Obtained From Each Source

	Less than \$500,000	\$500,000- \$999,999	\$1,000,000- \$1,499,999	\$1,500,000- \$2,000,000	Greater than \$2,000,000	Total
Number of Assns. ^a	34	37	19	13	14	117
Bank for Cooperatives (St. Louis)	\$ 15,500.00 % 1.40	328,677.37 14.25	863,693.00 21.15	482,800.00 12.83	1,019,775.00 15.03	2,710,445.37 15.02
Debenture Bonds	\$ 12,500.00 % 1.13	91,900.00 3.99	146,385.00 3.59	606,650.00 16.13	357,050.00 5.26	1,214,485.00 6.73
Certificates of Indebtedness	\$ 282,894.30 % 25.50	234,562.79 10.17	635,292.50 15.56	398,593.14 10.60	2,965,201.05 43.69	4,516,543.78 25.02
Direct	\$ 9,190.00 % .83	24,300.00 1.05	105,455.98 2.58	35,340.00 .94	78,500.00 1.16	252,785.98 1.40
Commercial Banks	\$ 79,704.28 % 7.18	148,666.74 6.45	292,575.23 7.16	313,600.00 8.34	135,458.71 2.00	970,004.96 5.38
Other Farmer Cooperatives	\$ 708,875.39 % 63.89	1,409,430.82 61.11	2,029,902.33 49.71	1,896,912.89 50.43	2,103,667.02 31.00	8,148,788.45 45.15
Marketing & Supply Companies	\$ 0.00 % 0.00	16,656.91 .72	0.00 0.00	0.00 0.00	0.00 0.00	16,656.91 .09
Other Sources	\$ 800.00 % .07	45,164.85 1.96	9,572.16 .23	26,950.00 .72	43,425.66 .64	125,912.67 .70
Sources Not Reported	\$ 0.00 % 0.00	7,007.30 .30	600.19 .02	797.20 .02	83,164.45 1.23	91,569.14 .51
Total Borrowed at Close of Fiscal Year	\$1,109,463.97 100.00	2,306,366.78 100.00	4,083,476.39 100.00	3,761,643.23 100.00	6,786,241.89 100.00	18,047,192.26 100.00

^aThe number of associations refers to the total number of locals in each category and not the number of locals with borrowed capital outstanding.

The figures in Table 11 represent the number of cooperatives in each category that had borrowings outstanding from each source and the percentage of the total number of cooperatives with borrowings outstanding at the close of fiscal year 1970. The figures in Table 11, when compared with those in Table 10, gave a more accurate description of how representative each source actually was of each sales category. For instance, other farmer cooperatives represented 45.2 percent of the borrowings outstanding for the entire group of locals, as shown in Table 10. But the figures in Table 11 show that this was actually only representing a total of 46 locals or 46 percent of the total of 100 locals with borrowings outstanding from any source. The representation of the Bank for Cooperatives versus that of commercial banks was an interesting point to note. The Bank for Cooperatives borrowings represented 15 percent of the total borrowings but only 25 locals used this source, while commercial banks represented only 5.4 percent of borrowings but were patronized by 38 locals.

Table 10 indicates that there was a decreased importance of borrowing from other farmer cooperatives as the locals became larger. The figures in Table 11 show that representation was nearly equal in all size categories. For the best indication of how representative each source is, figures in Tables 10 and 11 should be evaluated together.

Balance Sheet Analysis

The final part of this first section deals with an analysis of the general categories which comprised the balance sheets and operating statements of the local farm supply cooperatives.

Net Savings. At the close of fiscal year 1970, combined net savings and losses of the 117 local farm supply cooperatives amounted to \$2,159,015.95 as shown in Table 12. This is a gross figure, however, which included inter-cooperatives business savings and other miscellaneous savings, when these were eliminated, net savings of \$885,870.62 resulted from local operations.

The figures in Table 12 indicate, generally, that the larger cooperatives were more profitable, in absolute terms, than the smaller cooperatives. The first reason is the fact that the number of associations with net savings decreased in succession from Sales

Table 11

Sources of Borrowed Capital for 117 Locals, Classified by Volume of Sales, With Number and Percentage of Locals with Borrowed Capital Outstanding at Close of Fiscal Year 1970 Borrowing From Each Source

Sales Category	Sales Volume	Total No. of Assoc.	No. of Assoc. With Borrowed Capital Outstanding at Close of Year	Number & Percentage of Locals With Borrowing From							
				Bank for Cooperatives		Debenture Bonds		Certificates of Indebtedness		Direct	
				No.	%	No.	%	No.	%	No.	%
I	Less than \$500,000	34	26	1	3.85	1	3.85	18	69.23	2	7.69
II	\$500,000-\$999,999	37	31	8	25.81	3	9.68	17	54.84	7	22.58
III	\$1,000,000-\$1,499,999	19	19	7	36.84	3	15.79	17	89.47	3	15.79
IV	\$1,500,000-\$2,000,000	13	12	3	25.00	5	41.67	7	58.33	1	8.33
V	Greater than \$2,000,000	14	12	6	50.00	3	25.00	8	66.67	2	16.67
	Total	117	100	25	25.00	15	15.00	67	67.00	15	15.00

Table 11 (continued)

Sales Category	Sales Volume	Total No. of Assoc.	No. of Assoc. With Borrowed Capital Outstanding at Close of Year	Number & Percentage of Locals With Borrowings From									
				Commer- cial Banks		Other Farmer Co-ops		Marketing & Supply Companies		Other Sources		Sources Not Reported	
				No.	%	No.	%	No.	%	No.	%	No.	%
I	Less than \$500,000	34	26	10	38.46	13	50.00	0	0.00	1	3.85	0	0.00
II	\$500,000-\$999,999	37	31	14	45.16	13	41.94	2	6.45	3	9.68	5	16.13
III	\$1,000,000-\$1,499,999	19	19	6	31.58	9	47.37	0	0.00	1	5.26	1	5.26
IV	\$1,500,000-\$2,000,000	13	12	4	33.33	6	50.00	0	0.00	1	8.33	1	8.33
V	Greater than \$2,000,000	14	12	4	33.33	5	41.67	0	0.00	2	16.67	1	8.33
	Total	117	100	38	38.00	46	46.00	2	2.00	8	8.00	8	8.00

Table 12

Net Savings From Operations of 117 Locals, Classified by
Volume of Sales, Fiscal Year 1970

	I Less than \$500,000	II \$500,000- \$999,999	III \$1,000,000- \$1,499,999	IV \$1,500,000- \$2,000,000	V Greater than \$2,000,000	Total
Number of Associations	34 % 100.00	37 100.00	19 100.00	13 100.00	14 100.00	117 100.00
Number of Associations with net savings	23 % 67.65	26 70.27	15 78.95	12 92.31	12 85.71	88 75.21
Total Net Savings	\$190,331.48	388,594.67	307,508.58	395,245.54	1,192,944.79	2,474,625.06
Number of Associations with Net Losses	11 % 32.35	11 29.73	4 21.05	1 7.69	2 14.29	29 24.79
Total Net Losses	\$(47,562.90)	(98,920.70)	(102,302.51)	(1,220.00)	(65,603.00)	(315,609.11)
Net Savings Minus Net Losses	\$142,768.58	289,673.97	205,206.07	394,025.54	1,127,341.79	2,159,015.95
Other Savings	\$135,424.28	266,016.64	205,998.70	225,827.29	469,878.42	1,303,145.33
Net	\$ 7,344.30	23,657.33	(792.63)	168,198.25	657,463.37	855,870.62

Category I to V. However, the total net savings increased. Also, the net savings, in the last line of Table 12, increased as the size of the locals increased from Sales Category I to V. The sole exception was Sales Category III. The locals in this category showed a drop in total net savings to less than the figure which represented Sales Category II. The locals in this classification also produced the only negative net savings, amounting to \$792.63.

The increase in absolute profitability was not the only significant characteristic of larger locals. Closely related was the fact that the larger locals were less dependent upon inter-cooperative patronage refunds and other savings for their income. By dividing the figure in other savings by the figure in the category called net savings minus net losses for each sales category, it was found that as the locals became larger, moving from Sales Categories I through V, this percentage became smaller as follows: 94.9, 91.8, 100.4, 57.3 and 41.7. Again an exception came in Sales Category III.

Total assets and net worth. The figures in Table 13 show the percentage of total assets and total net worth owned by each sales category in relation to the number and percentage of total locals that were in each sales category. It is significant that the number and percentage of locals in each sales category decreased from 34 locals or 29.06 percent in Sales Category I to 14 locals or 12 percent in Sales Category V. The percentage of total assets owned increased from 8.1 percent to 36.1 percent as did the percentage of total net worth owned as shown by the figures of 10 percent and 34.7 percent.

Balance sheet breakdown. Combined balance sheet data for the 117 locals, classified by volume of sales for fiscal year 1970, are shown in Table 14.

The year end figures showed that current assets typically accounted for the largest portion of total assets for the locals of each sales category and the total, while other assets comprised the smallest percentage of the total assets. It is significant that the percentage of total assets accounted for by current assets decreased from Sales Category I to Sales Category V, while the percentage of total assets accounted for by fixed assets increased.

Net worth accounted for a larger percentage of total assets for each sales category and the total than did either current liabilities

Table 13

117 Locals, Classified by Volume of Sales, With Percentage of Total Assets
and Net Worth Owned by Sales Category, Fiscal Year 1970

Sales Category	Sales Volume	Number of Associations	Number as a Percentage of Total Associations	Percentage of Total Assets Owned	Percentage of Total Net Worth
I	Less than \$500,000	34	29.06	8.14	10.04
II	\$500,000 - \$999,999	37	31.62	18.18	21.90
III	\$1,000,000 - \$1,499,999	19	16.24	19.19	15.78
IV	\$1,500,000 - \$2,000,000	13	11.11	18.40	17.54
V	Greater than \$2,000,000	14	11.97	36.09	34.74
	Total	117	100.00	100.00	100.00

Table 14

Balance Sheet Data for 117 Locals, Classified by Volume
of Sales, at Close of Fiscal Year 1970

	Less than \$500,000	\$500,000- \$999,999	\$1,000,000- \$1,499,999	\$1,500,000- \$2,000,000	Greater than \$2,000,000	Total
Number of Associations	34	37	19	13	14	117
Total Assets	\$3,775,897.95 % 100.00	8,434,790.14 100.00	8,905,998.14 100.00	8,541,330.74 100.00	16,745,397.26 100.00	46,403,414.93 100.00
Current Assets	\$1,999,298.24 % 52.95	4,494,254.40 53.28	4,717,955.55 52.98	4,210,673.49 49.30	7,799,435.47 46.58	23,221,617.15 50.04
Fixed Assets	\$ 978,362.01 % 25.91	2,356,385.01 27.94	2,764,570.87 31.04	2,974,334.84 34.82	6,297,598.66 37.61	15,371,251.39 33.13
Other Assets	\$ 798,237.70 % 21.14	1,584,151.43 18.78	1,423,471.72 15.98	1,356,322.41 15.88	2,648,363.13 15.82	7,810,546.39 16.83
Current Liabilities	\$1,232,699.36 % 32.65	2,883,273.12 34.18	4,337,434.70 48.70	2,533,430.20 29.66	4,521,150.67 27.00	15,507,988.05 33.42
Term Liabilities	\$ 408,036.43 % 10.81	892,268.96 10.58	1,210,958.86 13.60	2,274,844.00 26.63	4,832,125.50 28.86	9,618,233.75 20.73
Net Worth	\$2,135,162.16 % 56.55	4,659,248.76 55.24	3,357,604.58 37.70	3,733,056.54 43.71	7,392,121.09 44.14	21,277,193.13 45.85

or term liabilities. Current liabilities were the most predominant form of borrowed capital at the close of fiscal year 1970 for each sales category with the exception of Sales Category V. The percentages showed that term debt accounted for a greater percentage of total assets as the locals became larger, while net worth accounted for a smaller percentage of total assets.

There is one significant characteristic about the figures in Table 14. The percentages for the accounting categories of the balance sheet for Sales Categories I and II are very close. Also, the percentages for Sales Categories IV and V were about the same. The difference was that the levels of the two groups of percentages for each accounting category were not similar. For example, it appears that Sales Categories I and II characteristically had a higher percentage of total assets in current assets than did the Sales Categories IV and V. The percentages were 53 percent and 53.3 percent versus 49.3 percent and 46.6 percent. Sales Categories IV and V appeared to have placed more emphasis on fixed assets than did Sales Categories I and II. The comparative percentages were 34.8 percent and 37.6 percent versus 25.9 percent and 27.9 percent. The same differences held true for the remaining accounting categories. Sales Category III was unique to the group, possessing characteristics of both the small and large local cooperatives.

CONCLUSIONS

One of the primary objectives of this report was to suggest guidelines for the ratios used in the financial ratio analysis. The guidelines and results of the ratio analysis were reported in Tables 3 and 4. Comparison of the liquidity ratios in Table 4 suggests that the local farm supply cooperatives in Missouri maintained a higher level of liquidity than either the 211 Iowa cooperatives or the 60 farm and garden supply retailers. The only exception was the inventory to working capital ratio of the stock sample which was 1.4 to one while the 211 Iowa cooperatives had a ratio of 1.1 to one.^{12a}

^{12a}. Random samples of the non-stock and stock type cooperatives were drawn and analyzed in association with this study. Ratio analysis of the two samples was presented in Table 4. A further analysis of the random samples, based on 17 audits selected for the non-stock and capital stock local cooperatives, will be presented in a forthcoming Experiment Station Research Bulletin.

The guidelines for the liquidity ratios were arrived at by taking what was considered within reason and presenting them as a general range. The ranges do not represent optimums but rather general limits.

The comparisons between the leverage ratios of the five groups were mixed. Comparisons between the total liabilities to total assets ratios indicated that the non-stock sample locals were closely related to the Iowa cooperatives, while the stock sample locals were most closely related to those of the 60 farm and garden supply retailers.

The comparisons between the debt-equity ratios indicated the Missouri locals and the two samples had a total liabilities to equity relationship unlike that of the Iowa cooperatives, but the stock sample had a current debt to equity relationship similar to that of the Iowa cooperatives. The Missouri locals and the two samples had total liabilities to equity ratios different from those of the 60 farm and garden supply retailers. The Missouri locals had a fixed assets to equity ratio similar to that of the farm and garden supply retailers, while the stock sample had an owners' equity to total assets ratio nearly equal to that of the farm and garden supply retailers.¹³

¹³The total debt to total assets range was established by choosing a range which would encompass the greatest number of values presented in Table 4. The range for the total debt to equity ratio consists of the ratio of the farm and garden supply retailers as the lower boundary and the ratio of population of Missouri locals as the upper boundary. The current debt to equity range encompassed the two most closely related figures in Table 4. The term debt to equity range was established by subtracting the range for the current debt to equity ratio from that of the total debt to equity ratio. The range of the fixed assets to equity ratio approximated the range of the values presented for the five groups in Table 4. The fixed assets to term debt range was established by dividing the guidelines of the fixed assets to equity ratio by the guidelines of the term debt to equity ratio. The range for the owners' equity to total assets ratio was arrived at by subtracting the range for the total debt to total assets ratio from 100 percent.

The comparison of the profitability ratios indicated that the Missouri local associations were considerably less profitable than the Iowa cooperatives. The non-stock sample had lower profits than the Iowa cooperatives, with the exception of return on investments in other cooperatives. The stock sample had a greater return on fixed assets than the 211 Iowa cooperatives, but less in all other areas. The local associations, in total, the non-stock sample, and the stock sample were less profitable than the 60 farm and garden supply retailers when profitability was measured as the return on owners' equity and the net sales to net savings ratio. However, the stock sample of Missouri associations generated a higher return on total assets than did the 60 farm and garden supply retailers. The profitability levels generated by the Missouri associations and the two samples were far below the standards established by FS Services for their member merchandising companies.

Guidelines suggested in Table 3 for the return on fixed assets ratio, the return on owners' equity ratio, the return on investment in other cooperatives ratio and the return on total assets ratio represent minimum levels of acceptable profitability. The guidelines for the net sales to net savings ratio represent the upper boundary. Guidelines for the profitability ratios suggested are in the general range of the returns in Table 4 and insure adequate returns to the associations on funds invested in their individual operations.

Comparisons of the activity ratios showed that the 117 Missouri locals, the non-stock portion, and stock portion had inventory turnover ratios, sales turnover to net fixed assets employed ratios and sales to expense ratios much greater than the standards established by FS Services for the same ratios.

Figures in Table 4 generally indicate that the Missouri associations and the two samples had a less restrictive credit policy than the 211 Iowa cooperatives. This was evidenced by the fact that the three groups of Missouri local associations had higher net accounts receivable to current assets ratios, longer net accounts receivable collection periods, and lower net sales to net accounts receivable ratios than the 211 Iowa cooperatives.

Financial Structure Findings

There were several secondary objectives of this study. First, the results were used to try to determine the group of cooperatives

whose particular financial structures and performances were the most profitable. Second, areas of the financial structure that warrant immediate attention and corrective action by the cooperative managers were sought. These objectives and a discussion of the findings which relate to each are presented below.

Becoming larger: Local farm supply cooperatives were becoming larger over time. Data of the non-stock and stock samples for fiscal years 1960, 1965, and 1970 indicated that this trend was common to both types of locals. But the data also showed that the stock locals were generally larger than the non-stock locals.

Much of this increase in size can be attributed directly to a growing number of cooperative mergers, but some can also be attributed to internal growth. This was supported by the fact that the percentage of total assets owned by each sales category in the non-stock and stock samples decreased over time for the larger sales categories. The data also show that there is still much potential for additional cooperative mergers. This was evidenced by the large number of locals existing at the close of fiscal year 1970 that accounted for a very small portion of the total assets owned.

Another indication of the additional capacity for merger was the fact that the larger locals tended to be more profitable than the smaller locals. This statement reflects the results of the financial ratio analysis for the total 117 local cooperatives at the close of fiscal year 1970. No statistically significant difference was found between the profitability of locals. The reason for this was the wide variability which existed in the sample data. Thus, in spite of this lack of statistical significance, some smaller locals were less profitable than some larger locals, lending further evidence of the feasibility of additional mergers between small and large local cooperatives.

Owners' equity giving ground to borrowed capital: Combined balance sheet data at the close of fiscal year 1970 showed that owners' equity comprised a smaller portion of the financial structure than borrowed debt for the total group of cooperatives and the stock sample, while owners' equity comprised a larger portion of the financial structure than borrowed debt for the non-stock sample. Current debt comprised a larger portion of total debt than did term

debt for the entire group and the non-stock sample, while term debt was prominent in the stock sample.

Trends show that borrowed debt was replacing owners' equity in the financial structure of the local farm supply cooperative. This was true for the non-stock sample as well as for the stock sample. Current debt was larger than term debt in the financial structure of the non-stock sample for fiscal years 1960, 1965 and 1970. Term debt was larger than current debt at the close of fiscal year 1965 and 1970 for the stock sample.

This increase in the use of borrowed debt indicates that the managers of the locals are using outside creditors to finance their growing financial needs rather than relying on funds from their member patrons. This is not to say that some of the increased financing was not handled internally. Owners' equity, as measured in absolute dollars, increased over time from the close of fiscal year 1960 to the close of fiscal year 1970, but the increases in borrowed debt were greater so that the percentage of the financial structure represented by owners' equity actually decreased.

On an individual sales basis, the larger categories had a lower percentage of owners' equity comprising the financial structures of their locals and a larger percentage of term debt than did the smaller categories. This characteristic was generally present in the figures for the total Missouri study and the two samples. This same characteristic was present in the three groups of cooperatives over time. This reflects the fact that the larger locals had the need for more financing than the smaller locals. This larger need was probably due to the fact that the larger locals were expanding their operations faster than the small locals. When internal funding could not keep up with these expanding needs, outside sources of long term or facility loans were sought. As shown in Table 6, average members' equity to total assets ratios in Sales Categories III, IV, and V indicate that several larger cooperatives are experiencing a shortage of equity capital in their financial structure.

Offering of stock not being used to fullest: Part of this shortage can be rectified through the attainment of additional permanent equity capital. Stock type organizations can issue shares of common or preferred stock on a direct capital campaign or through allocation of retained earnings. But the data indicated this method of financing

is not being used to its fullest extent among the larger stock organizations. Permanent equity capital financing through the issuance of common or preferred stock is not available to the non-stock organization by law. However, non-stock organizations can issue certificates of equity. Evidence of this method of equity financing of non-stock cooperatives was not found in this analysis. It is imperative that stock associations increase the issuance of capital stock or other forms of permanent equity capital.

Besides providing additional financing, the issuance of capital stock is important for two other reasons. First, outside creditors consider it important that any association coming to them for a loan have a sufficient amount of permanent equity capital in their capital structure. Second, an important part of the capital structure of an organization is that patronage and control generally accompany investment. Farmer members are more likely to patronize a cooperative in which they have invested money--and in which they have evidence of this investment--rather than one in which they have not made an investment. In addition, by issuing capital stock to the member patrons, control of the cooperative can be kept in the hands of those who need and use its services. This assures that operational policies of the cooperatives will be in the best interest of current member patrons.

Few using revolving fund program: Another method of equity financing traditionally used by cooperative associations is the revolving fund. As was previously noted, few supply cooperatives in Missouri had a revolving program and only a few of those having such a method of equity financing, revolved funds on a regular basis. It is not clear how the net savings of these associations are distributed. Net savings accruing to the member patrons are typically classified as allocated reserves. In this form, the member patrons presumably have evidence of ownership in the cooperative. Should a portion of the net savings from member business be distributed as unallocated reserves, the member patrons would not have evidence of their ownership in the organization. Unallocated reserves typically remain in the organization's capital structure as permanent capital. The practices of not revolving allocated reserves and the distribution of net savings from member business to unallocated reserves may result in many prospective farmer members bypassing the local farm

supply cooperatives in favor of other investments that will yield higher returns on use of their money.

Local farm supply cooperative managers should investigate the advantages of a regular revolving program that maintains ownership of the organization in the hands of current users. The time length of the revolving period is an important variable to consider for any local association manager investigating the advantages of a revolving program. Fenwick states that as the revolving period reaches six years, the cost of allocated equity capital becomes lower than the cost of debt capital at 1971 interest rates.¹⁴

Only one cooperative paying interest on funds revolved to members. The findings of this study showed that only one cooperative out of 117 paid interest on the funds revolved out to the member patrons. This characteristic is due to the philosophy that interest payments to member patrons on their investments are classified as an expense to the cooperative. This added expense would lower net savings and, consequently, the patronage refunds to the members. Theoretically, if interest is not paid on the allocated retained earnings, a higher net savings should result from cooperative operations and be available as patronage refunds to members. This practice will likely be subject to change as the time value of money receives increasing attention in the management of cooperatives and farm firms.

Other farmer cooperatives the largest source of borrowed capital. At the close of fiscal year 1970 the data for the population showed that other farmer cooperatives were the largest source of outstanding borrowed capital. They accounted for 45.2 percent of the total borrowed capital. Other farmer cooperatives were also the chief source of outstanding borrowed capital for the non-stock and stock samples at the close of fiscal year 1970. These cooperatives are typically financing corporations owned and operated by the regional cooperatives.

Other farmer cooperatives were the primary source of borrowed capital for the stock sample at the close of fiscal year 1965. They provided the second largest amount for the non-stock sample at the

¹⁴Richard Fenwick, "Capital Acquisition Strategy for Missouri Farm Supply Cooperatives," (unpublished Ph.D. Thesis, University of Missouri), March 1972, chp. VII.

close of fiscal year 1965 and the second largest source for the stock sample at the close of fiscal year 1960.

The St. Louis Bank for Cooperatives, whose only purpose is to make loans to cooperatives, provided relatively little of the needs of local farm supply cooperatives. At the close of fiscal year 1970, the St. Louis Bank for Cooperatives represented only 15 percent of the borrowings outstanding. Loans from individuals, in the form of certificates of indebtedness, direct loans and debenture bonds, provided more borrowed capital in all three groups than the St. Louis Bank for Cooperatives. In fact, loans from individuals were the primary source of the outstanding debt capital for the non-stock sample at the close of fiscal year 1965 and for both samples at the close of fiscal year 1960.

Other farmer cooperatives and loans from individuals will not be able to finance the growing needs of the locals without aid from institutions such as the St. Louis Bank for Cooperatives. Capital needs will continue to grow each year. Operating and facility loans are needed by nearly all of the local cooperatives so that they can maintain efficient operations yielding the highest returns to farmer members. These needs also become more critical as the sizes of local cooperatives are redefined and they grow into the category of more than \$1 million in sales. Without increased participation by the St. Louis Bank for Cooperatives, needed efficiency cannot be attained and results will be a lower level of financial performance.

Profitability not dependent on size: According to the data generated by the financial ratio analysis, the 14 locals of Sales Category V were the most profitable group in the population at the close of fiscal year 1970. Within-sample comparisons failed to show that any one sales category was more profitable in all areas than the others. Trends were non-existent on an individual category basis, but the data showed the stock sample was more profitable than the non-stock sample at the close of fiscal years 1960, 1965, and 1970.

Testing these relationships statistically failed to support the results of the data showing one size of locals being more profitable than another or that the stock locals were more profitable than the non-stock locals. The conclusions are that profitability is independent of the size and type of local cooperative.

This finding differs from that of Haag's in 1945.¹⁵ Haag found that the size of a cooperative is an important influence affecting their financial success. The fact that the size and type of local proved to be independent of the level of profitability holds some interesting insights into the nature of profitability. It indicates that profitability is a function of the management of the existing financial structure and that growth is no substitute for sound financial management.

Other statistical tests showed a positive relationship between profitability and the percentage of total capital provided by owners' equity. However, this correlation was not a strong one. There was also an indication that the relationship generally weakened over time. This generally supports the earlier statement that the financing is moving away from equity capital to borrowed capital because contributions by member patrons are not sufficient to keep pace with increasing capital needs. This stresses the point that lending institutions, such as the St. Louis Bank for Cooperatives, are going to have to meet the increasing capital needs of these locally owned cooperatives in the near future.

Problem Areas in the Financial Structure

The results of this study point to two areas of financial structure that need corrective management and observation. The first of these is the operating expenses in relation to net sales and the sales turnover to net fixed assets employed ratio. It was found that a higher turnover ratio generally was followed by a high level of operating expenses. This was generally true for non-stock and stock samples over time, and for the sales categories within the samples. It was found that the smaller stock and non-stock locals generally had a higher turnover ratio and operating expenses level than the larger locals. This indicates that when the turnover ratio and the operating expenses level are high, the fixed assets are close to being depreciated out and are somewhat less than efficient. At this stage, replacement of the inefficient fixed assets should be underway.

Generally, the ratios indicated that the smaller locals had less efficient operations than the larger locals. This being the case, it

¹⁵Haag, Income, Expenses and Savings of Local Cooperative Associations, op. cit. pp. 9-13.

appears that the smaller locals are having trouble locating funds to keep their operations efficient and up-to-date. This parallels closely with the findings that the larger locals tend to have a larger percentage of total debt in term debt than do the smaller locals.

The other "trouble" area is the debt-equity mixture used by local cooperatives. In many instances the ratio was not balanced. At one extreme there is almost complete reliance upon financing through equity capital. At the other extreme we find too much emphasis is placed on borrowed debt as a means of financing cooperative operations.¹⁶ No single mixture can be suggested that will fit the needs and debt capacities of all locals. It is the responsibility of the cooperative management team and the creditor, the cooperative financing corporations or the St. Louis Bank for Cooperatives, to aid the cooperative managers and boards of directors in finding the correct mix for their individual associations. Likewise, it is the responsibility of the local cooperative managers to learn to recognize this type of problem and to seek help.

The guidelines suggested for the financial ratios were presented in Table 3. They will aid cooperative managers and boards of directors in assessing the financial structure and performance of their associations. It must be re-emphasized that these figures do not represent optimums, but do indicate a range of operation that will insure adequate returns on funds invested in the operations of the cooperative.

Standardization of the accounting terminology used in the financial audits of these cooperatives is another way in which the cooperative managers, boards of directors and members can be aided in their recognition of the financial problems of their organizations. In the course of this analysis it was found that the terminology of the owners' equity section of the balance sheet requires the greatest amount of standardization. In this section, numerous variations in terminology were found to represent only several basic forms of equity capital. The burden of responsibility lies with those who keep

¹⁶As an example, members, equity of one cooperative in Sales Category V was found to own only 6.25 percent of total assets.

the financial records of the cooperatives and prepare their financial audits.¹⁷

Implications for Future Operations

Managers and boards of directors of each local farm supply cooperative should annually calculate the 21 ratios listed in Table 3 and compare their results to those offered as guidelines and to previous year's operations. Improvements over performance levels found in this study of 1970 audits are necessary if local farm supply cooperatives are to remain viable economic entities and perform needed services for member patrons. There is no substitute for an acceptable level of net earnings in order to assure future lines of credit, to maintain modern facilities that are pleasing to member patrons, and to achieve flexibility in meeting new opportunities for services and expanded growth. Sound financial management is increasingly a key to business success as outside capital is used to maximum advantage in cooperative operations.

Missouri cooperative leaders have been caught up in a philosophical argument over the past few decades concerning pricing policies and form of cooperative organization. Findings in this study indicate that each should be reappraised. The future survival of locally autonomous cooperative organizations may be at stake. At the root of this philosophical argument is whether cooperatives should price at the "service at cost" level, or whether prices should reflect acceptable margins to assure adequate net earnings. Clearly, the farm supply business has changed dramatically from a high margin operation of two decades ago to a rather low margin, volume business that is highly competitive. Cooperatives have been leaders in this development. Cooperative leaders must now ask themselves whether they are price leaders in this effort to their own long run disadvantage.

Farm operators look for service, price, and quality when selecting their farm supplies.¹⁸ Careful buying of inputs is one

¹⁷The Society of Cooperative Accountants has recently suggested a glossary of accounting terminology which will standardize that which is currently in use. See "Accounting Practices Auditing Standards Terminology for Agricultural Cooperatives", National Society of Accountants for Cooperatives, 1967.

¹⁸Randall E. Torgerson, Stephen Plank & William Heffernan, Farm Operators' Attitudes Toward Cooperatives, Special Report 143, University of Missouri, 1972. p. 10.

means of reducing costs and thereby increasing net farm income. Increased use of inputs purchased by farm operators means that they will continue to be "smart" shoppers and that the farm supply industry will remain extremely competitive. Cooperative managers and directors operating in this atmosphere require finely tuned operations that allow for growth and flexibility while allowing them to be competitive. Cooperatives that do not utilize their resources fully and do not allow replacement of facilities and addition of new services may be living off of their depreciation instead of meeting competition in a manner that assures future viability of their off-farm businesses. This situation unfortunately characterizes many of the smaller local cooperatives.

Several years ago, in a somewhat different economic climate, non-stock cooperative associations were promoted as an economic form of organization. The primary reason was the ease with which a prospective member could affiliate with the organization. Membership was attained by doing a specified amount of business with the cooperative and a capital outlay, which many could not afford, was not required as evidence of ownership. The non-stock association was therefore considered a "purer" form of cooperation. Today, cooperative officials in Missouri's two major regional farm supply cooperatives are asking themselves if the capital stock cooperative would not be a better alternative form of organization. If properly engineered, members are tied closer to their organization through subscription of equity capital. Only current users are allowed to run for office and take an active part in cooperative decisions.

Each of these issues should be subjects of further research and discussion among cooperative leaders. Controversial as they may be, they are germane to continued cooperative growth and service in behalf of Missouri farmers.

APPENDIX

FINANCIAL RATIOS: DEFINITIONS AND COMPUTATIONAL PROCEDURES

I. **Liquidity Ratios:** These ratios measure the ability of an organization to meet its maturing current obligations.

A. **Current Ratios**

Method of Computation:
$$\frac{\text{Current Assets}}{\text{Current Debt}}$$

Result: This ratio is a measure of the cooperative's ability to meet its current debt.

Principle: The generally accepted ratio is about two to one. The higher the ratio becomes could mean creditors can expect faster payment but can also be an indication of excess inventory, too much idle cash or a very lenient credit policy. A ratio much below two to one endangers the cooperative's ability to meet current obligations.

B. **Acid Test**

Method of Computation:

$$\frac{\text{Current Assets}-\text{Ending Inventory}}{\text{Current Debt}}$$

Result: This ratio is an indication of the short-term liquidity with which a cooperative can meet current debt.

Principle: The generally accepted ratio is about one to one. A ratio any lower makes the cooperative dependent upon inventory. A ratio much higher could indicate mismanagement in the form of cash or receivables.

C. **Inventory to Working Capital**

Method of Computation:
$$\frac{\text{Ending Inventory}}{\text{Working Capital}}$$

Result: This ratio measures the proportion of net current assets tied up in inventory and is a

measure of the loss to the cooperative should a reduction in inventory values occur.

Principle: A low ratio is considered to be best. A very high ratio could indicate excessive inventories, too high current debt, too strict of a credit policy, or generally low working capital level.

II. Leverage Ratios: These ratios generally measure the contributions of the member patrons as compared to the financing provided by outside creditors.

A. Total Debt to Total Assets

Method of Computation:
$$\frac{\text{Current Debt \& Term Debt}}{\text{Total Assets}}$$

Result: This ratio measures the cooperative's obligation to outside creditors in relation to all funds which have been provided.

Principle: A ratio of 50 per cent is considered acceptable. Creditors generally prefer a low ratio which is indicative of a cushion against their possible losses. A ratio too low may indicate that debt financing is not being used profitably. A ratio too high may indicate an unprofitable situation. Creditors will shy away when ratio is too high.

B. Current Debt to Equity

Method of Computation:
$$\frac{\text{Current Debt}}{\text{Owners' Equity}}$$

Result: This ratio measures the amount of financing supplied by member patrons versus the amount provided by current debt.

Principle: Guideline is dependent upon a number of factors, but a low ratio can be considered best. A low ratio provides a cushion for creditors. A high ratio could indicate a position where the cooperative cannot satisfy all short term creditors.

C. Term Debt to Equity

Method of Computation:
$$\frac{\text{Term Debt}}{\text{Owners' Equity}}$$

Result: This ratio measures the amount of financing supplied by the member patrons versus the amount provided by term debt.

Principle: Guideline is dependent upon a number of factors, but a low ratio can be considered best. Creditors like a low ratio, but stay away from high ratios. A ratio too low could indicate that management is not taking advantage of debt capacity.

D. Total Debt to Equity

Method of Computation:
$$\frac{\text{Total Debt}}{\text{Owners' Equity}}$$

Result: This ratio measures the amount of financing supplied by creditors versus the amount provided by member patrons.

Principle: Guideline is dependent upon a number of factors. In general, the lower the ratio the better. Again, a ratio too low may indicate that management is not taking advantage of debt capacity.

E. Fixed Assets to Equity

Method of Computation:
$$\frac{\text{Net Fixed Assets}}{\text{Owners' Equity}}$$

Result: This ratio measures the extent to which the member patrons' equity in the cooperative is tied up in non-liquid, fixed assets.

Principle: In general, the higher the ratio, the less owners' equity there is available for working capital. The lower the ratio, the more liquid the owners' equity and the greater to protection it affords creditors.

F. Fixed Assets to Term Debt

Method of Computation:
$$\frac{\text{Net Fixed Assets}}{\text{Term Debt}}$$

Result: This ratio measures the relationship of the fixed assets owned by the cooperative to term debt.

Principle: One generally accepted ratio is about 1.5 to 1. Basically, this ratio is considered

to be some measure of the cooperative's ability to repay term debt creditors. A ratio much lower would raise serious doubts as to the eligibility of a cooperative for further term debt financing.

G. Owners' Equity to Total Assets

Method of Computation: $\frac{\text{Owners' Equity}}{\text{Total Assets}}$

Result: This ratio measures the extent to which the member patrons own all of their assets.

Principle: No guideline available. Generally, the higher the ratio, the better position a cooperative is in for getting debt financing. But, a very high ratio could indicate that management is not taking advantage of its debt financing capacity.

III. Profitability Ratios: These ratios are a measurement of management's overall effectiveness as shown by the returns generated on investment and sales.

A. Return on Fixed Assets

Method of Computation: $\frac{\text{Net Operating Margin}}{\text{Net Fixed Assets}}$

Results: This ratio measures the rate of return on the cooperative's fixed assets.

Principle: One guideline used is 20 per cent. Generally, the ratio should be considerably higher than the return should the money have been put in a guaranteed no-risk investment. A very high ratio could indicate that the fixed assets are nearly depreciated-out since the ratio is calculated on the net valuation.

B. Return on Owners' Equity

Method of Computation: $\frac{\text{Net Savings}}{\text{Owners' Equity}}$

Result: This ratio measures the rate of return on the member patrons' equity in the cooperative.

Principle: One guideline is a ratio of 125 per cent. Generally, the higher the better. Unusually high ratios may be an indication of undercapitalization.

C. Return on Investment in Other Cooperatives

Method of Computation:

$$\frac{\text{Returns from Other Cooperatives}}{\text{Investment in Other Cooperatives}}$$

Result: This ratio measures the rate of return or money the cooperative has invested in other cooperatives.

Principle: No guideline available. Returns from this source tend to be quite high and are important contributions to owners' equity. Unusually low returns should raise doubts as to whether intercooperative investments are the best outlet for the capital invested.

D. Return on Total Assets

Method of Computation: $\frac{\text{Net Savings}}{\text{Total Assets}}$

Result: This ratio measures the rate of return on the resources contributed by both the member patrons and creditors.

Principle: No guideline available. The return should exceed that of a guaranteed no-risk investment and, at the minimum, should exceed the cost of the capital involved.

E. Net Sales to Net Savings

Method of Computation: $\frac{\text{Net Sales}}{\text{Net Savings}}$

Result: This ratio measures the returns to sales.

Principle: One guideline used is a ratio of 25:1 or a net savings of 4% of net sales. Ratio will differ considerably depending on what commodities are sold. The lower the ratio the better the performance.

IV. Activity Ratios: These ratios measure how effectively the firm is utilizing the resources at its disposal.

A. Inventory Turnover

Method of Computation: $\frac{\text{Cost of Goods Sold}}{\text{Ending Inventory}}$

Result: This ratio expresses the proportion between cost of goods sold and ending inventory at the fiscal year end.

Principle: The acceptable ratio is dependent upon the commodity being analyzed. Basically this ratio measures the merchandising capacity of the cooperative. The higher the ratio the greater is this merchandising capacity. A balanced ratio must be achieved. A ratio too low may be an indication that too much capital is tied up in inventory. A ratio too high may mean that sales are being lost because of a high frequency of being out of stock.

B. Net Accounts Receivable to Current Assets

Method of Computation:
$$\frac{\text{Net Accounts Receivable}}{\text{Current Assets}}$$

Result: This ratio measures the amount of current assets "tied up" in accounts receivable.

Principle: One guideline in use says that the ratio should never exceed 40 per cent. This ratio is an indication of the credit policy being used by the cooperative. A very high ratio could mean that the credit policy should be more strict. A very low ratio could mean the policy is so strict that the cooperative may be losing sales because of it.

C. Net Accounts Receivable Collection Period

Method of Computation:
$$\frac{\text{Net Accounts Receivable}}{\text{Net Sales} - 360}$$

Result: This ratio measures the average time (in days) that sales are uncollected.

Principle: Accepted guideline is dependent upon the industry average and credit policy of the cooperative. Same general guidelines as with the Net Accounts Receivable to current asset ratio. A very high ratio can lead to an excessive number of delinquent accounts.

D. Net Sales to Net Accounts Receivables

Method of Computation:
$$\frac{\text{Net Sales}}{\text{Net Accounts Receivables}}$$

Result: This ratio measures the relationship between the volume of business and the outstanding receivables.

Principle: A general guideline in use is that the receivables should not exceed one month's sale. The higher the ratio, the faster the turnover of receivables. This indicates a more rapid collection of sales. Same principles

apply as with the other credit ratios. Basically, this ratio is another measure of the cooperatives credit policy.

E. Sales Turnover to Net Fixed Assets Employed

Method of Computation: $\frac{\text{Total Sales}}{\text{Net Fixed Assets}}$

Result: This ratio measures the efficiency with which the fixed assets are being used.

Principle: One guideline in use states the ratio should be about 16 to 1. A higher ratio indicates that the fixed assets are being used more efficiently and may result in higher net savings to the member patron. A ratio much lower may be indicative of inefficiencies in the utilization of the fixed assets. Before judging an operation by this ratio several factors including equipment capacities, per unit of price of product handled and gross margins should be considered.

F. Sales to Working Capital

Method of Computation: $\frac{\text{Total Sales}}{\text{Working Capital}}$

Result: This ratio expresses the turnover of that portion of net capital not devoted to fixed or other non-current assets.

Principle: No acceptable ratio available. Basically this ratio is an indication of the soundness of cash management. A very low ratio could be an indication of idle funds. A very high ratio could be an indication of excessive short term financing and would also indicate a low cash reserve on hand to meet unexpected emergencies.

G. Sales to Expense

Method of Computation: $\frac{\text{Total Sales}}{\text{Operating Expenses}}$

Result: This ratio expresses the relationship between total sales dollars and the operating expenses incurred in generating those sales dollars.

Principle: One guideline in use is a ratio of ten to one or operating expenses of ten per cent of sales. The higher the ratio the better. A very low ratio indicates problems in the cooperative. In analyzing such a ratio some consideration must be given to per unit prices of products or commodities handled.