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Post Merger Financial Performance of Oklahoma Cooperatives
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Abstract
Audited financial statements of 22 Oklahoma cooperatives were used to investigate the success of mergers in improving financial performance. Five categories of annual financial ratios were calculated for each firm. Paired difference tests were used to analyze the success of the merger in improving financial performance. The results indicated that low profitability, efficiency and sales growth were the apparent driving forces behind cooperative mergers. On average, the mergers were effective in improving profitability, efficiency and sales growth.

Introduction
Agricultural cooperatives, like other agribusiness firms have been aggressively pursuing mergers and other forms of consolidation. Frequently mentioned motivations for merger include the potential operational efficiencies from eliminating redundant services, increased labor efficiency, enhanced market power and other economies of scale and scope. Another common perception is that cooperatives in a weak financial situation pursue mergers as an alternative to bankruptcy. The purpose of this study is to examine the financial profile of cooperatives entering mergers and to determine the success of cooperative mergers in improving financial performance.

Objectives
Specific objectives include:

(1) Identify financial characteristics that lead to mergers by comparing the pre-merger financial performance of both merger partners ("surviving" and "non-surviving" cooperatives).

(2) Determine the success of the merger from the standpoint of the "surviving cooperative" by comparing the pre-merger and post-merger performance of the surviving cooperative

(3) Determine the overall success of the merger by comparing the combined pre-merger performance of both pre-merger participants with the performance of the merged firm.

(4) Analyze the differences between the cooperatives used in the data set with peer group performance, both prior and after the merger.

Background
Since the early 1990's there has been a rapid pace of mergers and consolidations between agricultural cooperatives. For example, a USDA study identified 367 mergers and consolidations among grain cooperatives during the 1993-1997 time period. The majority of this merger activity involved mergers between two cooperatives. Despite the frequency of cooperative mergers, the topic remains controversial among cooperative managers and members. Members of the proposed "surviving" cooperative often view the merger as a potential drain on the future performance of their firm. Members of the

proposed “non-surviving” cooperative often object to the loss of a main office in their community and the loss of the community name. Cooperative members of both firms are often skeptical of the financial advantages projected from the merger.

Previous studies of cooperative mergers suggest that below average financial performance may be a driving force behind mergers. Garoyan and Cramer conducted a case study examination of ten cooperative mergers. Post merger profitability decreased for the majority of the cooperatives in the study group. A study by Haskell produced similar conclusions. Parliament and Taitt’s 1989 study of 53 Minnesota cooperatives also failed to find improved financial performance among the post-merger firms. The results also indicated that the reorganization had a negative impact on at least one performance ratio. This led the authors to conclude that the anticipated financial benefits did not materialize. A study of financial performance of grain cooperatives that merged during the 1993-97 period concluded that “non-surviving” partners in mergers tended to have below average profitability (return on assets) and below average efficiency (as measured by expense to sales ratios). The evidence of whether cooperative mergers are successful in improving financial performance is more ambiguous. The results of the previously discussed studies suggest cooperative mergers lead to growth but may not increase profitability.

Data and Methods

Data for this study came from audited financial statements of 22 Oklahoma grain, farm supply and cotton ginning cooperatives that merged during the 1990-2001 time period. All of the cooperatives selected for the study had at least 4 years of pre-merger data and 3 years of data subsequent to the merger dates. Annual ratios measuring liquidity, leverage, efficiency, profitability and sales growth were calculated for each firm. Three sets of paired difference tests were calculated to address the previously stated research objectives. The first set of tests compared the differences between the subsequently surviving and non-surviving cooperative organizations for each of the financial ratios during the pre-merger time periods. The second set of tests compared the ratios of the surviving cooperative during the pre-merger and post merger period. The third set of difference tests compared the combined pre-merger performance of all of the merger participants with the subsequent performance of the merged firm

Specific Financial Ratios Used in the Analysis

Liquidity

Liquidity refers to the degree to which current liabilities are covered by current assets. The current ratio (current assets divided by current liabilities) was used as a measure of liquidity.

Leverage

Leverage ratios measure the portion of the firm’s assets financed by creditors. The debt to total asset ratio was used to measure leverage.

Efficiency
Efficiency ratios measure how effectively the firm is using its assets or human resources. Two expense ratios were used to measure the cooperative's success in controlling costs: ratio of total expense to gross margin and ratio of personnel expenses to gross margin. The ratio of sales to total assets, often referred to as total asset turnover was used as an overall measure of the cooperative's efficiency in generating sales revenues from their property, plant equipment and other assets. Also included in this set of ratios was the average number of days sales in accounts receivable which measures the effectiveness of the cooperative in managing and collecting credit sales.

Profitability
Profitability ratios measure the operating performance of the firm. The return on total local assets (net savings divided by total assets less stock in regional cooperatives), and the return on equity (net savings divided by member equity) were used as measures of profitability. As the name implies, the ratio of gross margin to sales measures the cooperative's initial return over the cost of goods sold for each dollar's worth of product or service.

Sales
Sales performance was measured by the amount of total sales (in dollars) and sales growth.

Results and Discussion

Differences Prior to Merger
The financial performance of the study group prior to the merger is provided in Table 1. The surviving cooperative (cooperative which would be the surviving firm in the subsequent merger) was larger than the non-surviving partner. Surprisingly, there was little difference between the balance sheet ratios (leverage and liquidity) between the surviving and non-surviving firms prior to the merger. Prior to the merger the efficiency ratios (personnel expense, total expense and sales turnover) were significantly better than the non-surviving partners. The profitability and sales growth performance of the surviving firms were also superior to their non-surviving partners. However the differences were not statistically significant.

Table 1: Performance of Surviving and Non-surviving Cooperatives Prior to Merger

	Non-Survivors	Survivors	After	Standard	p-value of test for difference in means
Current Ratio	2.14	2.38	1.97	1.50	0.3894
Debt/Assets	38.57%	34.86%	38.33%	38.00%	0.3747
Personnel Expense	52.15%	43.15%	40.17%	45.00%	0.0008**
Total Expense	115.07%	86.67%	73.38%	90.00%	0.0001**
Sales To Total Assets	1.89	2.80	2.31	2.00	0.0035**
ROA	-2.26%	4.51%	6.83%	7.00%	0.0828
ROE	-2.03%	6.35%	9.20%	10.00%	0.2515
Sales Growth	-0.34%	6.13%	12.22%	6.00%	0.0888
Accounts Receivable	19.50	10.94	19.34		0.0001**
Sales	6.22	7.80	10.84		0.0142**

Impact of Merger on Surviving Firms

The impact of the merger on the surviving cooperative is summarized in Table 2. As would be expected the sales volume of the surviving cooperatives increased subsequent to the unification. The results also indicated that the merger tended to decrease expense ratios (increase efficiency), increase profitability and increase the rate of sales growth. There was no statistically significant impact on the debt ratio or liquidity.

Table 2: Impact of Merger on Surviving Cooperative

	Survivors	After	P-value of test for difference in means
Current Ratio	2.38	1.97	.0929
Debt/Assets	34.86%	38.33%	.526
Personnel Expense	43.15%	40.17%	.0723
Total Expense	86.67%	73.38%	.007
Sales To Total Assets	2.80	2.31	.197
ROA	4.51%	6.83%	.0095**
ROE	6.35%	9.20%	.0258*
Sales Growth	6.13%	12.22%	.1506
Accounts Receivable	10.94	19.34	.0001**
Sales	7.80	10.84	.0008**

Comparison of Combined Pre-merger Financial Statements with Merged Firm

The true measure of success of the merger is whether the unification produced results in excess of the composite performance of the merger partners. Table 3 compares the performance of the "synthetically combined" firms prior to the merger with the performance of the merged cooperatives. The pre-merger ratios were calculated by

combining the income statements and balance sheets for each merger partners for the study time period prior to the merger. As would be expected there was no significant difference in sales between the combined per-merger firms and the surviving partners. The results did indicate that the merger improved efficiency (personnel expense and total expense ratios), and member's return on equity.

Table 3: Comparison of Combined Pre-merger Financials with Merged Firm

	Before	After	P-value of Test for difference in means
Current Ratio	2.13	2.59	0.4500
Debt/Assets	32.30%	36.77%	0.0803
Personnel Expense	43.76%	39.51%	0.0244*
Total Expense	95.12%	86.75%	0.0039*
Sales To Total Assets	234.20%	221.80%	0.2766
ROA	8.09%	11.14%	0.1690
ROE	5.04%	8.94%	0.0060*
Sales Growth	3.69%	16.81%	0.0720
Accounts Receivable	14.06	16.22	0.0510*
Sales	14.69	14.96	0.8003

Peer Group Comparison

The business environment during the study period influences any study involving historical financial performance. As a means of separating the effects of the merger from differences in the market and business environment during the pre-merger and post merger periods, the combined financial performance described above was compared with peer group averages during the pre-merge and post merger periods. Annual financial ratios for similar types of cooperatives (grain marketing and farm supply) were provided by CoBank. The ratios represented the composite performance of all of the cooperatives in CoBank's Region 3 database. Annual ratios were provided for three size categories (0 to $5M, $5 to $15M and >$15M annual sales volume).

The results of the peer group comparison are provided in Table 4. In general, there was little difference between the "synthetically merged" cooperatives and the peer group during the pre-merger period. The current ratio, expense ratios, and return on assets of the study group were slightly higher than the peer group while the leverage, sales turnover, sales growth and return on equity were slightly below the peer group. The accounts receivable levels for the study group was striking below that of the CoBank peer groups. This is likely because the peer group data was based on year-end financial statements while the CoBank accounts receivable data represents yearlong averages.

The peer group comparison tended to confirm the previous results. Measured against the peer group averages the mergers significantly improved (reduced) expense ratios and improved the return on equity. Sales growth also appeared to improve relative to the peer group although the results were only marginally significant.

Table 4: Differences Between Synthesized and Peer

	Before	After	P-value of Test for difference in means
Current Ratio	0.427	0.987	0.3318
Debt/Assets	-0.0279	0.0024	0.1694
Personnel Expense	0.0176	-0.0223	0.0349*
Total Expense	0.1072	0.0217	0.0042**
Sales To Total Assets	-4.88	-0.72	0.1778
ROA	0.0151	0.0464	0.1584
ROE	-0.0512	-0.0127	0.0074**
Sales Growth	-0.012	0.1082	0.0991
Accounts Receivable	-23.67	-22.14	0.2159

Conclusions

In contrast to previous studies the data from Oklahoma cooperatives indicated that mergers have been generally successful in increasing profitability and efficiency. On average, the financial performance of surviving cooperatives improved after the merger. The comparison of ratios from the combined pre-merger financial data with the post-merger ratios indicated that the merger were "win-win" games, improving overall performance. The fact that the conclusions of increased profitability and efficiency held, even when measured against peer group averages suggests that the effects were related to unification efficiencies and not to changes in the cooperative's business environment.

The relatively small sample size obviously makes it difficult to generalize the results of this study. Even though the firms in the study group represented a significant part (> 25%) of Oklahoma cooperative industry, only 22 individual firms were represented. It is also difficult to assess whether the apparent merger benefits would be expected to occur with cooperatives in different geographic regions and/or business structures. This study did not attempt to identify the specific operational changes, which occurred subsequent to mergers. It also did not attempt to measure cooperative member's perception of merger results. Follow-up case-study work is underway addressing those issues.

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