Are agricultural cooperatives effective competitors?

Agricultural producers and lenders have expressed concerns about the highly publicized financial difficulties experienced by some agricultural cooperatives. This study researches the comparative financial performance of agricultural cooperatives and investor-owned firms in four sectors—fruit and vegetable, dairy, farm supply and grain. Traditional financial ratios measuring profitability, liquidity, leverage and asset efficiency were analyzed for 1991 through 2002. Overall, the financial performances of agricultural cooperatives and their investor-owned counterparts have been comparable. Cooperatives had lower rates of asset efficiency, except in the dairy sector. In all four sectors, cooperatives demonstrated financial strength with their lower levels of leverage, while the results regarding relative profitability and liquidity were mixed. In the fruit and vegetable sector, cooperatives' relatively low rates of asset utilization and cyclical profitability, combined with declining memberships and business volumes, warrant further research of their implications on cooperatives' long-term viability.

Are agricultural cooperatives effective competitors?

Cooperatives have played an important historical role in promoting the economic welfare of California's agricultural producers. In 2001, California's agricultural cooperatives ranked fourth nationwide with $8.0 billion in gross business volume (Kraenzle, et al.). However, reports regarding the financial difficulties experienced by agricultural cooperatives in the US have been much more common recently than news of cooperatives' successes. In particular, the bankruptcy of Farmland Industries, the nation's largest agricultural cooperative, has received considerable media attention. In California, news about cooperatives has centered on Tri Valley Growers' bankruptcy and the dissolutions of the Rice Growers Association of California and Blue Anchor.

Such reports have raised concerns among producers and lenders regarding the viability of the cooperative form of business. An international management consulting firm, McKinsey & Company, issued a report in 2002 alleging that agricultural cooperatives "destroy value" because few cooperatives "…have changed the way they operate…" (Dempsey, Kumar, Loyd and Merkel). Are such statements justified? What is the future for agricultural cooperatives in California? The starting point of this study was a review of the recent role of agricultural cooperatives in California.

The role of agricultural cooperatives in California

Agricultural cooperatives generate significant business activity. As indicated in Table 1, the gross business volumes attributable to California's agricultural cooperatives during 2001 exceeded $8.0 billion (Kraenzle, et al.). Nationwide, California ranked fourth as a state in

business volume, down from its number two ranking in 1995 with $9.6 billion and its first place ranking in 1989 with $7.8 billion.

Reflecting their historical development, marketing cooperatives represented the largest function during 2001 in California, with 89% of cooperatives' total business volume. However, they have lost some of their dominance; their business volumes dropped $1.5 billion between 1995 and 2001, after increasing by a comparable amount between 1989 and 1995 (Richardson, et al. 1990; Richardson, et al. 1997). Farm supply cooperatives have had relatively low but stable business volumes. Service cooperatives have been expanding; they provide specialized services such as cotton ginning, almond hulling and rice drying.

Fruit and vegetable cooperatives represented the largest sector for cooperatives in California, despite the $1.0 billion decline in gross business volume between 1995 and 2001. It should be noted, however, that the data in Table 1 are based on the state in which the cooperatives are headquartered; consequently, they do not reflect the business volumes associated with the numerous dairy producers in California who belong to cooperatives headquartered in Minnesota and Missouri. Otherwise, it is highly probable that the dairy sector would have been the largest cooperative sector.

The $1.0 billion decline in business volume between 1995 and 2001 among fruit and vegetable cooperatives is startling. Further investigation indicated that, in 1995, there were 75 cooperatives in this sector with 21,710 memberships, compared to 59 cooperatives with 16,629 memberships in 2001 (Richardson, et al., 1997; Kraenzle, et al.) Some, but not all, of the

decreases in business volume and memberships is due to Tri Valley Growers' (TVG) bankruptcy in 2000; in fiscal year 1998, TVG's sales revenues totaled $782 and it had over 500 members (Hariyoga and Sexton). The decline in the number of cooperatives could be attributable to some combination of consolidations, closures and conversions to a noncooperative form of business. Producers' involvement with fruit and vegetable cooperatives has clearly diminished in California.

The remainder of this study focuses on financial health of agricultural cooperatives. The dairy, farm supply and grain sectors were added to determine if cooperatives' potential difficulties extended beyond the fruit and vegetable sector. The financial performances of agricultural cooperatives and similar IOFs are compared using ratio analysis.

The financial ratios

The theory of the behavior of cooperatives suggests fundamental differences between the objectives of cooperatives and IOFs. Economists have applied this theory to hypothesize that agricultural cooperatives will have lower profitability, liquidity and asset efficiency and higher leverage than their IOF counterparts (Lerman and Parliament; Parliament, Lerman and Fulton; Sexton and Iskow). The specific financial ratios analyzed in this study are displayed in Table 2, along with the expected relationships for these ratios between cooperatives and IOFs. Similar studies conducted using data from the 1970s and 1980s reported mixed results (Lerman and Parliament; Parliament, Lerman and Fulton; Schrader, et al.). Agricultural cooperatives performed better than IOFs on some financial measures and worse on others; the findings also varied by sector.

The data for this research included a sample of 41 cooperatives on the West Coast:

- 11 cooperatives from the fruit and vegetable sector
- 5 cooperatives from the dairy sector
- 14 cooperatives from the farm supply sector
- 11 cooperatives from the grain sector

The analysis was expanded to include cooperatives in Oregon and Washington, as well as California, in order to protect the confidentiality of the data due to the small number of cooperatives in some sectors. Data from the financial statements of these unidentified cooperatives were provided by CoBank, the largest lender to agricultural cooperatives in the US. Annual financial ratios were calculated for each sector by aggregating these data for the period, 1991-2002. Aggregated financial data for IOFs were obtained from various issues of the Risk Management Association publication, *Annual Statement Studies*. The cooperatives and IOFs included in this study were of comparable size (as measured by total assets).

Average financial ratios

Averages for the ratios evaluated in this study are displayed for both cooperatives and IOFs by sector in Table 3. There is considerable variation between the sectors. Except for the grain sector, there are no consistent results for the three profitability measures. For example, the fruit and vegetable cooperatives had a higher average operating margin but lower average rates of return on assets and equity than their IOF counterparts. The dairy cooperatives' average liquidity was lower, but their average leverage was also lower and their asset efficiency was higher than were those for their IOF counterparts. There are similarly mixed results in the farm

supply and fruit and vegetable sectors. The grain cooperatives had higher averages than the IOFs for all three profitability measures, but the averages were mixed for their other ratios. The most consistent result is that, in all four sectors, cooperatives averaged lower levels of leverage than their IOF counterparts.

Trends in financial performance

Trends in financial performance of the two types of firms were compared to further evaluate their comparative performances. The following discussion is based solely on visual observations of the trends in the financial ratios of cooperatives and their IOF counterparts. More rigorous analysis is presented in a detailed research paper, which is available from the primary author. Trends in one of the three profitability measures--the operating margin--are reviewed, along with those for liquidity, leverage and asset utilization for each sector.

Fruit and Vegetable Sector (Figure 1)

Some of the fruit and vegetable cooperatives and IOFs included in this study market only fresh fruits and/or vegetables, while the others are involved in drying, canning and/or freezing. The four financial indicators for the fruit and vegetable sector are displayed in Figure 1. The cooperatives averaged higher, but cyclical operating margins than did the IOFs; their rates of return on equity and assets were similarly cyclical. They also had less liquidity, averaging .2 points less than the IOFs; however, the cooperatives' need for liquidity was offset by their lower leverage. The most noticeable difference was the IOFs' significantly higher asset utilization; on average, IOFs generated $6 more in sales per dollar of fixed assets than the cooperatives.

Dairy sector (Figure 2)

The dairy cooperatives and IOFs process fluid milk into cheese, butter and other dairy products. The IOFs had better margins on operations and maintained higher liquidity than the cooperatives during the entire time period. Conversely, the cooperatives were less leveraged than the IOFs and had higher rates of asset utilization until the final three years. Overall, the financial performances of dairy cooperatives and IOFs were comparable. (Figure 2).

Farm Supply Sector (Figure 3)

The farm supply cooperatives and IOFs primarily sell seed, packing materials, fertilizer and equipment. The operating margins of the two types of firms were very stable and similar throughout the twelve year span. The cooperatives had higher liquidity, but this advantage has diminished over time. Farm supply cooperatives consistently had less leverage than their IOF counterparts. However, their asset efficiency rates were also consistently lower than those of the IOFs. Again, the overall financial performances of the two types of firms in the farm supply sector were comparable.

Grain sector (Figure 4)

The grain cooperatives and IOFs are mainly engaged in storage and milling. The cooperatives had higher, but declining, operating margins than the IOFs. Initially, the IOFs had higher liquidity; however, this situation reversed itself in the late 1990s. As with the other sectors, grain cooperatives carried lower levels of leverage than their IOF counterparts. Grain IOFs' advantage with respect to asset efficiency has diminished. The overall financial performances of the two types of firms were comparable over time.

Overall performances are comparable

This study indicates that, contrary to expectations developed from the theory of cooperative behavior, the overall financial performance of cooperatives is on par with that of similar IOFs. It was expected that cooperatives would be less profitable than IOFs in the same sector. The only consistent finding regarding profitability was that all three of the profitability ratios of grain cooperatives were higher than those of their IOF counterparts; however, the grain cooperatives' relative advantage has been declining over time. Although fruit and vegetable cooperatives averaged higher profitability levels than the IOFs, their profitability was noticeably cyclical.

Liquidity levels were relatively stable and differences between the two types of firms were small during the twelve year period.

Cooperatives in all sectors had lower debt/equity ratios than their IOF counterparts. A well-known finance theory offers a possible explanation for this unexpected finding; the Modigliani-Miller theory of capital structure argues that US tax laws foster the high use of debt financing by shareholder corporations (Ross, Westerfield and Jaffe). Since cooperatives have the ability to pass through earnings on their patronage income without taxation to their members, they do not have the same incentive as shareholder corporations to maximize their use of debt financing. Another explanation for cooperatives' lower leverage levels could relate to the fact that it is more difficult for cooperatives than IOFs to spread their risks by diversifying into other business activities; thus, cooperatives' management may be more risk averse and pursue more conservative business strategies than their IOF competitors. Cooperatives' lower leverage levels warrant further research.

The fact that cooperatives had lower asset efficiency than their IOF counterparts in three of the four sectors evaluated (grain, fruit and vegetable and farm supply) appears problematic initially. However, this result is consistent with the theory of cooperative behavior; cooperatives are expected to provide a home for their members' product and need to maintain excess capacity. It is not surprising that this hypothesis did not hold for dairy cooperatives, since dairy producers tend to have consistent production volumes and market their production through only one source—reducing their cooperative's need for excess capacity.

Among the four sectors included in this analysis, cooperatives in the fruit and vegetable sector display general weakness. Cooperatives have a tendency to market a high proportion of undifferentiated, low value-added products (Sexton and Iskow). Clearly, this tendency could explain both the fruit and vegetable cooperatives' sharply lower asset utilization rates and their cyclical profitability. If the IOFs market a higher proportion of value-added products, they are more likely to maintain year-round utilization of their processing equipment and have returns that are less susceptible to the highly competitive international market for undifferentiated canned fruits and vegetables. Although Hariyoga and Sexton concluded that TVG's cooperative structure was not a major factor in its bankruptcy, this sector warrants further analysis; given the cooperatives' declining business volumes and membership levels, their long-term viability may depend on their ability to reduce their costs substantially as processors of undifferentiated products or to enhance their capabilities as marketers of more value-added products.

With the exception of the fruit and vegetable sector, the overall financial performance of agricultural cooperatives on the West Coast has been comparable to that of IOFs over the past

twelve years. These findings should alleviate the concerns expressed by producers and lenders regarding the viability of agricultural cooperatives. Claims that cooperatives are destroying value do not stand up to this analysis of their recent performance. When combined with the fact that cooperatives ensure secure markets for their members' products, these results demonstrate that cooperatives continue to promote the economic welfare of agricultural producers on the West Coast.

Table 1: California Agricultural Cooperatives, Gross Business Volumes

	1989	1995	2001
Products Marketed	$7,249,017,000	$8,705,309,000	$7,165,107,000
Dry Beans & Peas	$53,215,000	$120,504,000	$21,543,000
Cotton	$618,189,000	$635,298,000	$419,924,000
Dairy	$1,959,019,000	$2,791,553,000	$2,748,360,000
Fruits & Vegetables	$3,277,924,000	$3,846,187,000	$2,877,242,000
Nuts	$640,636,000	$618,904,000	$719,236,000
Poultry	$48,426,000	$41,882,000	$30,601,000
Rice	$233,841,000	$230,729,000	$158,104,000
Miscellaneous	$158,701,000	$247,692,000	$64,834,000
Farm Supplies	$485,631,000	$460,794,000	$443,786,000
Services	$105,382,000	$399,299,000	$408,582,000
TOTAL	$7,840,029,000	$9,565,402,000	$8,017,475,000
National ranking	**#1**	**#2**	**#4**

Source: Richardson, et al. 1990, 1997; Kraenzle, et al.

Table 2: Financial ratios analyzed

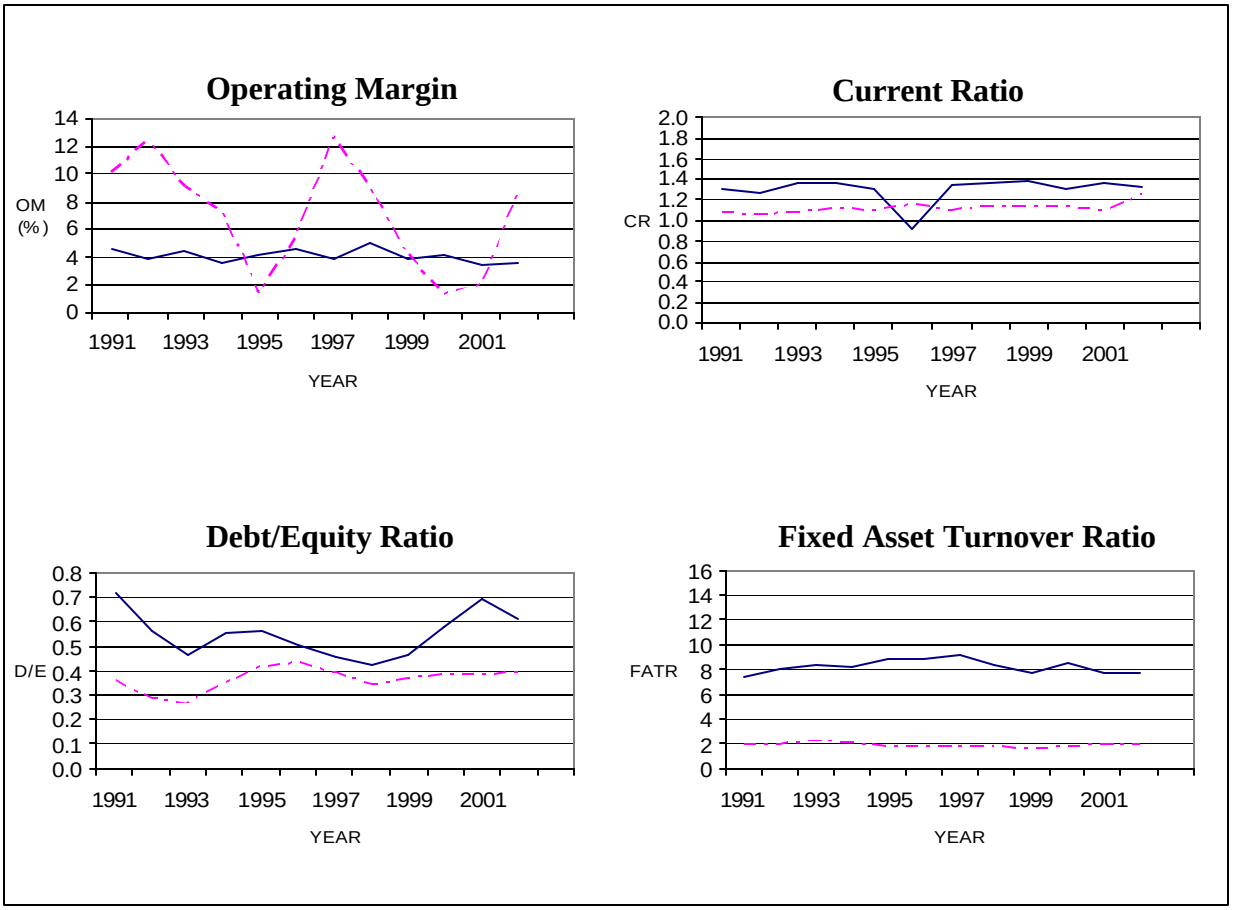
Ratio	Performance Indicator	Definition	Expected Relationship
Return on Equity (ROE)	Profitability	Income*/Equity (%)	Coop < IOF
Return on Assets (ROA)	Profitability	Income*/Total Assets (%)	Coop < IOF
Operating Margin (OM)	Profitability	Operating Profit/Net Sales (%)	Coop < IOF
Current Assets (CR)	Liquidity	Current Assets/Current Liabilities	Coop < IOF
Debt-Equity Ratio (D/E)	Leverage	Non-Current Liabilities/Equity	Coop > IOF
Fixed Asset Turnover Ratio (FATR)	Asset Efficiency	Net Sales/Fixed Assets	Coop < IOF

*Adjustment for Income: Income = Income tax + Tax payable + Net Income

Table 3: Average financial ratios by sector and firm type, 1991-2002

Ratio	Fruit & Vegetable		Dairy		Farm Supply		Grain	
	IOFs	Coops	IOFs	Coops	IOFs	Coops	IOFs	Coops
ROE (%)	16.6	14.2	20.0	26.7	13.3	11.1	14.3	18.2
ROA (%)	5.9	5.0	7.6	7.4	5.2	5.9	5.9	8.5
OM (%)	4.1	6.9	3.2	2.1	2.0	1.8	2.8	3.8
CR	1.3	1.1	1.3	1.1	1.4	1.6	1.5	1.4
D/E	0.6	0.4	0.6	0.4	0.4	0.2	0.5	0.3
FATR	8.2	1.8	8.2	10.4	11.1	8.2	9.3	6.8

Figure 1. Fruit and vegetable sector



_____ IOFs

— . — . — . Cooperatives

Figure 2. Dairy sector

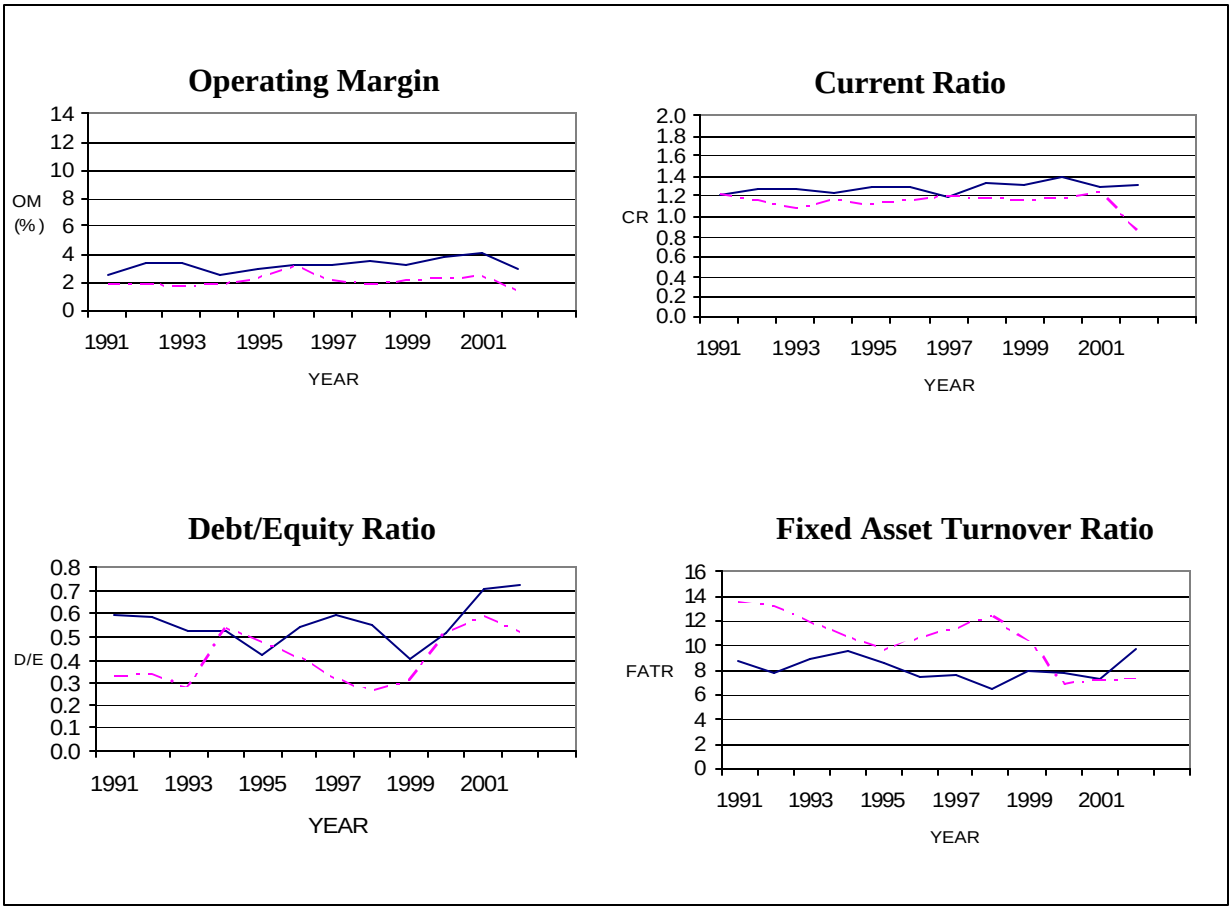


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Figure 3. Farm supply sector

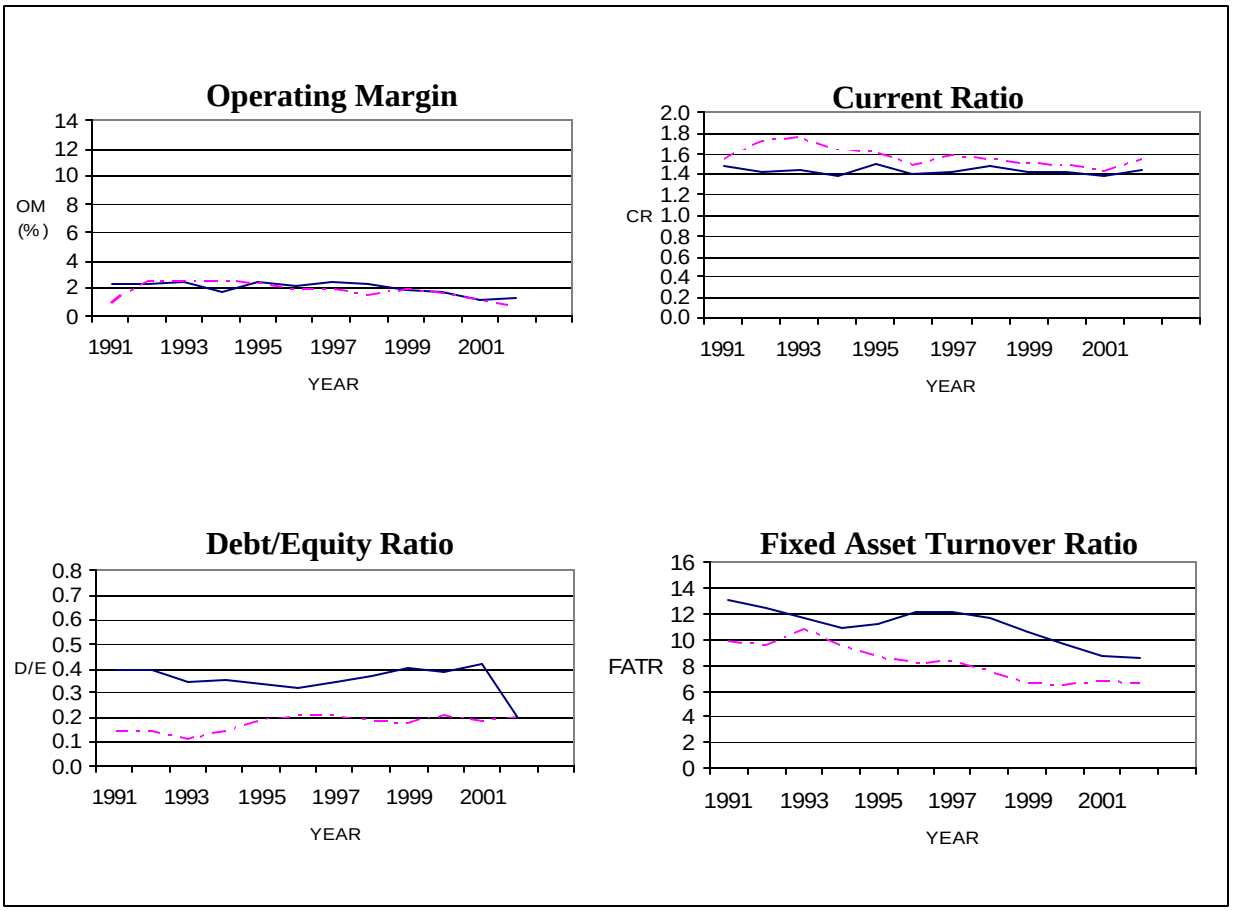

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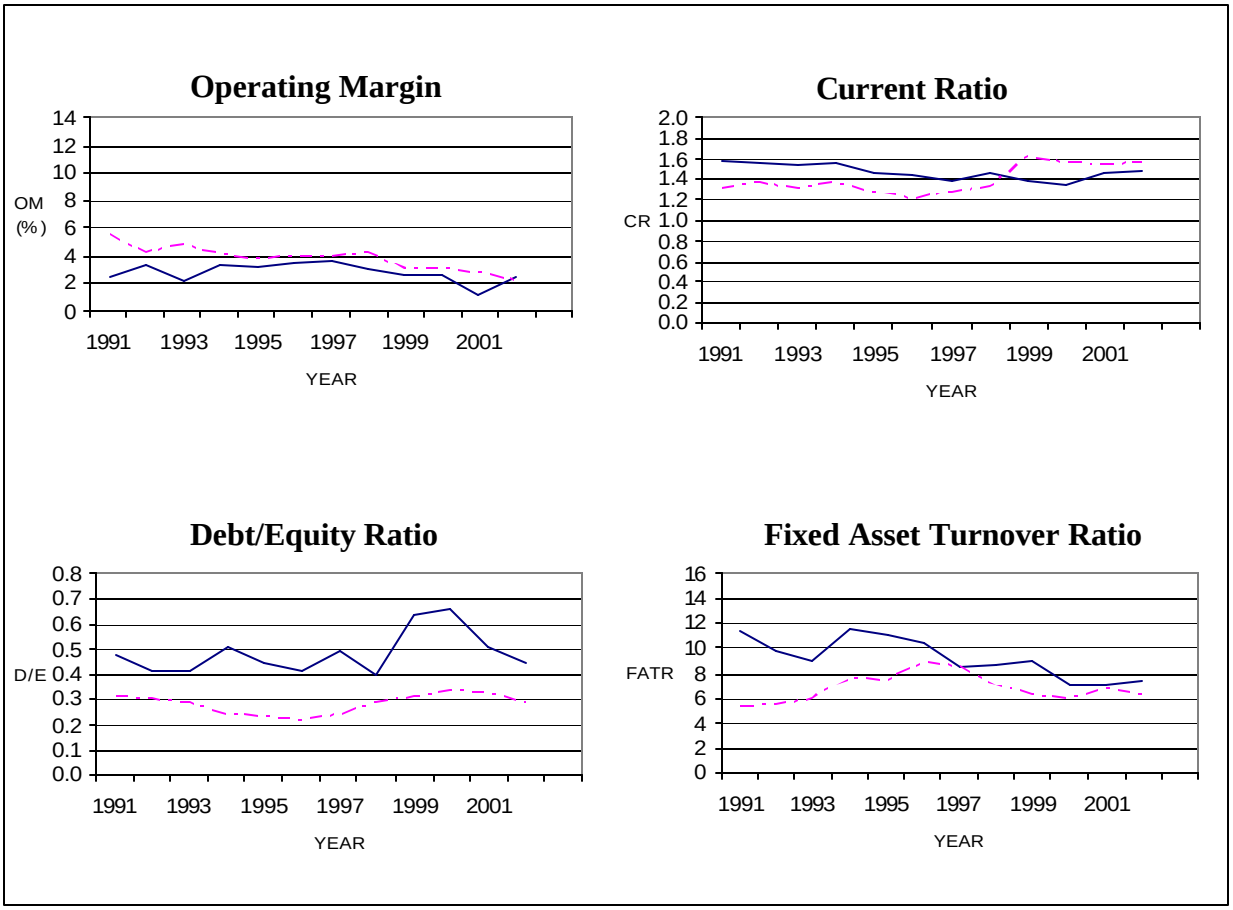
Figure 4. Grain sector



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