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Financial Characteristics of Refrigerated Food Products Trucking Firms in the U.S.

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This study provides an overview of the financial characteristics of U.S. refrigerated food products trucking firms as a group and by regions. The analytical tools used for evaluating the financial assessment of the industry were several commonly used liquidity, profitability, and solvency ratios. One of the results reveals that the pre-tax income-to-gross revenue ratio, a measure of profitability, for the firms as a group averaged 0.01. This value means that one-cent of every dollar earned in services ("sales") was available to pay taxes and distribute profits.

The financial records of an agribusiness firm can provide valuable information regarding a firm's strengths and weaknesses and the direction in which it is going. With that information management can provide more effective guidance for the firm's operations (Devino).

Ratio analysis is one of the methods routinely used by shareholders, creditors, and the financial manager to assess a firm's financial condition. Ratios provide a relative measure of a company's performance and condition. The basic inputs to ratio analysis are the firm's income statement and balance sheet for the periods to be examined. The data provided by those statements can be used to calculate various ratios that permit an evaluation of certain aspects of financial performance and condition. Because ratios are routinely used by present and prospective stockholders to assess risk and return, the information they contain can significantly affect a firm's value (Gitman).

Objective, Data, and Methods

The general objective of this study is to provide an overview of the financial characteristics of for-hire refrigerated solid product haulers, with food stuffs as their business mainstay, as a group and by region¹. Table 1 provides a summary list

of the various refrigerated solid food products this group of carriers generally haul. To accomplish the objective of this study, data were obtained from the *TTS Blue Book of Trucking Companies, 1993-1994*, published by Transportation Technical Services, Inc.

The analytical tools used for the segment's financial assessment were the following liquidity, profitability and solvency ratios respectively: working capital, current ratio, expense ratio, gross-revenue-to-equity ratio, pre-tax income-to-gross revenue ratio, after-tax income-to-equity ratio, after tax income-to-total capital ratio, and net debt-to-equity ratio. For each of those analytical tools the following statistics were calculated: number of observations or number of firms reporting, minimums, maximums, means, and standard deviations. To make regional comparisons, the United States was divided into four geographical regions similar to those used by the U.S. Bureau of Census. These regions comprised the West, Midwest, Northeast, and South (Table 2). The financial ratios for this study are divided into three basic groups: liquidity ratios, profitability ratios, and a solvency ratio. The analytical tools, procedures, and a brief interpretation are presented below.

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¹ For-hire carriers transport freight which belongs to others for compensation. They may be classified by jurisdiction served such as interstate, intrastate, and local, the last two

classes being regulated by local or state authorities or exempt from regulation. They may also be classified by kind such as common carriers, contract carriers and exempt carriers (Gregg).

Table 1. Commodity/Products Commonly Transported by Refrigerated Solid Product Haulers

Baked Goods	Frozen Products
Bakery Products	Frozen Vegetables
Baking Powder	Grapes
Bananas	Groceries
Beef	Grocery Products
Beer	Ice
Boxed Meat	Ice Cream
Butter	Juice Concentrates
Candy	Lard
Canned Goods	Margarine
Canned Vegetables	Meat
Cereal	Meat Products
Citrus Products	Milk Products
Coffee Creamer	Mustard
Confectionery Goods	Pasta
Cookies	Peanut Butter
Corn Products	Pet Foods
Dairy Products	Pickles
Dry Fruit	Pizza
Edible Products	Pork
Farm Products	Powdered Milk
Fish	Preserves
Flour	Refrigerated Foods
Flour Products	Refrigerated Products
Food	Refrigerated Solids
Food Ingredients	Salt
Food Ingredients	Seafood
Foodstuffs	Shortening
Fresh Vegetables	Soft Drinks
Frozen Seafood	Sugar
Frozen Foods	Tallow
Frozen Meat	Watermelons
Frozen Poultry	Wine Products
Frozen Produce	Yeast

Source: Carolee Hariin, Sales Manager, Transportation Technical Services, Fax Transmission, Fredericksburg, VA, August 31, 1994.

Measures of Liquidity

Liquidity refers to the firm's ability to meet short-term obligations. Among outsiders, trade creditors are especially concerned with these types of measures. The measures used to estimate liquidity were Working Capital and Current Ratio. Working Capital refers to the dollar difference between current assets and current liabilities. Current Ratio is the ratio of the current assets to current liabilities. High values of this ratio signify a greater ability of the firm to pay its bills.

Current Assets refer mainly to cash, accounts receivable, prepaid expenses and inventories. Current liabilities are primarily composed of notes and accounts payable, taxes payable, and the current portion of funded debt (due in less than one year).

Measures of Profitability

Profitability refers to the determination of income levels of the firm. Ratios of this nature indicate the efficiency of the firm's operations. Common stockholders are generally more concerned about this type of ratio.

Expense Ratio

This is the ratio of Total Operating Expenses plus Interest Expenses to Gross Freight Revenue. This ratio, unlike the Operating Ratio², contemplates the cost of debt. Thus, it presents a more fair picture of a leveraged company in terms of its capacity of generating profits.

Gross Revenue-to-Equity

Ratio of Gross Freight Revenues to Total Stockholders' Equity. This ratio is one of the measures of the degree of efficiency in the employment of capital.

Pre-Tax Income-to-Gross Revenue

Ratio of Net Income Before Taxes to Gross Freight Revenues. This ratio provides an idea of the money available for paying taxes and the distribution of profits. This is considered an important ratio in evaluating the financial status of others in the trucking industry because it is typical for common carriers to show low margins on high volumes. Slight changes in this ratio may suggest important trends.

After-Tax Income-to-Equity

Ratio of Net Income after Taxes to Total Stockholders' Equity. This ratio is a measure of

² The operating ratio is defined as the operating expenses as a percentage of gross revenues. This is an important index of operating efficiency. Since it excludes extraordinary expenses, income taxes and interest, individual peculiarities are eliminated so that the ratio may be used as a measure of performance industry-wide (Gregg).

Table 2. Geographic Regions Used in Study

<u>West Region</u>		<u>Midwest Region</u>		<u>Northeast Region</u>		<u>South Region</u>	
AK	Alaska	IL	Illinois	CT	Connecticut	AL	Alabama
AZ	Arizona	IN	Indiana	ME	Maine	AR	Arkansas
CA	California	IA	Iowa	MA	Massachusetts	DE	Delaware
CO	Colorado	KS	Kansas	NH	New Hampshire	DC	District of Columbia
HI	Hawaii	MI	Michigan	NJ	New Jersey	FL	Florida
ID	Idaho	MN	Minnesota	NY	New York	GA	Georgia
MT	Montana	MO	Missouri	PA	Pennsylvania	KY	Kentucky
NV	Nevada	NE	Nebraska	RI	Rhode Island	LA	Louisiana
NM	New Mexico	ND	North Dakota	VT	Vermont	MD	Maryland
UT	Utah	OH	Ohio			MS	Mississippi
WA	Washington	SD	South Dakota			NC	North Carolina
WY	Wyoming	WI	Wisconsin			OK	Oklahoma
						SC	South Carolina
						TN	Tennessee
						TX	Texas
						VA	Virginia
						WV	West Virginia

Source: Quesada, Alina M., "Analysis of the Structure and Operating Characteristics of the Agricultural Trucking Industry in Mississippi," MABM Thesis, Department of Agricultural Economics, Mississippi State University, Mississippi State, MS 1995.

return on equity that indicates how well the owner's money is used.

After-Tax Income-to-Total Capital

Ratio of Net Income After Taxes to Funded Debt due within a year plus Total Stockholders' Equity. The value of this ratio reflects investment as a consequence of debt and equity.

Measure of Solvency

Solvency pertains to the ability of the firm to meet long-term obligations. This is the liquidity of the firm in the long-run. Lenders are especially concerned about solvency measures. Ratios dealing with solvency are also called Leverage Ratios or Debt Service Ratios. For this analysis, the Net-Debt-to-Equity ratio was used.

Net-Debt-to-Equity

Ratio of the Funded Debt due after a year minus Working Capital (defined above) to Total Stockholders' Equity. This ratio represents a more strict measure of the degree of protection offered to long-term lenders if compared to the widely used Funded Debt-to-Equity ratio. The numerator

excludes working capital which ought to be enough to finance current operations.

Results

Refrigerated Solid Food Product carriers referred to in this section comprise 96 firms distributed as follows: West, 20 firms, Midwest, 27 firms, Northeast, 16 firms, and South, 33 firms. The purpose of this section is to provide information on the three categories of financial ratios which are: liquidity, profitability and solvency.

Before discussing the details of the financial analysis it is important to point out that almost 21 percent of the firms in the segment were operating at a loss. This is evidenced by negative values of income before taxes. Furthermore, 9.40 percent of the firms had a negative stockholders equity (Quesada).

Liquidity

The mean Working Capital ratio for the overall segment was approximately 1.1 million dollars (Table 3). Values within the segment deviated from the mean by approximately 4.7 mil-

lion dollars. The minimum Working Capital reported for the segment was -13.2 million dollars. It should be noted that the firm may be in risk of bankruptcy.

The West region had a very low value for working capital (approximately \$272,000) compared to the overall mean. The standard deviation was higher than the figure for the overall segment (approximately 5.2 million dollars). Note that the minimum value for this region corresponded to that of the entire segment. This low value for the minimum partly explains the low value for the mean in this region.

The Midwest, the Northeast, and the South regions' Working Capital was higher than the overall mean. The mean values for Working Capital in the Midwest, the Northeast, and the South regions were approximately 1.2, 1.8, and 1.2 million dollars, respectively. The lowest standard deviation was found in the Midwest.

The overall figures for the Current Ratio indicated a mean value of 2.11 with an associated standard deviation of 1.97 (Table 4). This average value indicates that the Current Assets are almost twice as much as Current Liabilities for the firms in this segment. Overall figures ranged from approximately 0.13 to 13.46. These values indicate that while a firm (the extreme is only represented by one firm) is not able to meet its current obligations, another is paralyzing resources as Current Assets. Using more sound financial practices, excess funds should be invested in the latter case. Sound financial practices advocate the most effective utilization of the resources. Thus, excess amounts of resources should not be kept immobilized in current assets but rather invested in a more profitable area. The West and Midwest regions Current Ratios' were below the overall average with values of 1.59 and 2.08, respectively. The regions' corresponding standard deviations were also below the segment average. The standard deviations for the West and the Midwest regions were 1.16 and 1.42, respectively.

The Northeast and the South regions' mean values were above the segment average. The mean values were 2.58 and 2.22, respectively. However, note that the South region comprises the extreme values for the segment (minimum and maximum of 0.13 and 13.46). Therefore, the

standard deviation in this region is higher than that of the overall segment (2.67).

Profitability

The mean values of the Expense Ratios for the overall segment and the individual regions were approximately 1.00 (Table 5). This ratio provides similar information as the Operating Ratio. However, the Expense Ratio better describes a leveraged company's ability to generate profits than the Operating Ratio. The reason is that this ratio includes interest expenses in addition to total expenses in its numerator. The fact that both ratios were similar tends to support the conclusion that the service of debt does not represent an important cash outflow for the overall refrigerated product segment.

The overall segment had an Expense Ratio standard deviation of 0.12. The Midwest and West regions had lower standard deviations than the overall segment. The Northeast and the South regions' expense ratios were larger than the segment mean. These regions also had higher standard deviations of 0.14 and 0.18, respectively.

Gross Revenue-to-Equity Ratio for the segment was 2.91 with an associated standard deviation of 45.80 (Table 6). The extreme values for this indicator ranged from a minimum of -360.50 to a maximum of 158.61 resulting in a value of 519.11. Negative values for this ratio were possible because as mentioned at the beginning, some 9.40 percent of the firms had negative values for Total Stockholders' Equity.

Results of the Gross Revenue-to-Equity Ratio reveal that firms in the West region as a group could be considered more efficient than the overall segment. This region had a mean value Gross Revenue-to-Equity Ratio estimate of 9.81 and a standard deviation of 8.43. The Midwest region also showed improvement over the segment mean with values of mean and standard deviation of 3.42 and 21.85, respectively. The Northeast region also had a higher mean value than the overall segment indicator. However, the standard deviation in the region was higher (55.88). The mean efficiency as measured by this particular ratio was negative in the South region (-2.20) and ranged from -360.50 to 35.87. In ad-

dition, the standard deviation was higher in this region than the overall figure (65.39).

The Pre-Tax Income-to-Gross Revenue Ratio for the segment averaged 0.01 with a standard deviation of 0.11 (Table 7). This means that one cent of every dollar earned in services ("sales") was available to pay taxes and distribute profits.

The West region mean value for the Pre-Tax Income-to-Gross Revenue Ratio was 0.02 with a standard deviation well below the overall figure. The Midwest had a mean value of 0.03 and a similarly small standard deviation of 0.03. These values indicate that income before taxes relative to Gross Revenue was higher for this region than that obtained for the overall segment. Likewise, the Northeast had a mean value of 0.03 and its standard deviation was lower than the segment figure (0.07). The South had a negative Pre-Tax Income-to-Gross Revenue of -0.01 and a standard deviation which was higher than the overall figure (0.18). This negative value means that the average company in the South region is operating at a loss.

The After Tax Income-to-Equity Ratio in the overall segment averaged 0.17 with a standard deviation of 0.72 (Table 8). This ratio is a measure of how well the stockholders' funds are being used and in this case, for each dollar invested, the company is generating 17 cents for the owners.

The mean value (0.15) in the West region was lower than the overall mean value and also the region had a lower standard deviation (0.20). The results in the Midwest were very similar to those in the West region. The mean in the former region was 0.10 and the standard deviation was 0.23. The Northeast showed a substantial improvement over the segment mean with a ratio of 0.56. However, the individual values deviate more from the mean than the overall values. The South had a mean After Tax Income-to-Equity ratio of 0.07. That value was well below the segment average. The standard deviation was 0.73 which was similar to the segment figure. As evidenced by the extreme values (minimum of -3.75 and maximum of 1.00) the stockholders return on their investment is not very promising in this region.

The After-Tax Income-to-Total Capital Ratio for the overall segment was 0.11 (Table 9). This

value indicates a return to capital of 11 percent of its value. The standard deviation was 0.38.

The After-Tax Income-to-Total Capital Ratio in the West and Midwest regions was lower than the segment average with values of 0.05 and 0.09, respectively. The standard deviations was 0.11 for both regions. The South was also lower than the segment average with a mean of 0.08 and a standard deviation of 0.10. The ratio for the Northeast seemed to have experienced a substantial improvement. However, note that standard deviation for this particular region was more than twice as much as the segment value. This means that the mean value of After-tax Income-to-Total Capital ratio may not be very representative for this region.

Solvency

The Solvency measure (Net-Debt-to-Equity Ratio) for the overall segment was negative (-.14) but had a very high standard deviation of 5.19 (Table 10). A negative value for the Net-Debt-to-Equity ratio means that the average firm in the segment offers no protection to long-term lenders. Low protection got to the extreme of -41.50 for at least one firm in the segment. The West region showed a significant improvement over the segment average with a value of 0.63 for its mean and 1.69 for its standard deviation. The Midwest with a mean of -0.01 exhibited substantial improvement compared to the overall mean; however, it remained negative. Its standard deviation was 1.46. The Northeast and the South showed a very negative picture to lenders with mean values of -0.60 and -0.48, respectively. The standard deviations in the regions were 4.69 and 9.11, respectively.

Summary and Conclusions

The general objective of this study was to provide an overview of the U.S. Refrigerated Food Products Trucking Firms as a group and region in terms of their financial characteristics. To accomplish the objective of this study data were obtained from the *TTS Blue Book of Trucking Companies, 1993-1994*, published by Transportation Technical Services, Inc. The analytical tools used for the segment's financial assessment

were grouped in the following categories: liquidity, profitability and solvency ratios.

Approximately one fifth of the firms comprised by the Refrigerated Products segment were operating at a loss as evidenced by negative Income Before Taxes values. In addition, over nine percent of the firms also had negative amounts of Stockholders' Equity.

In general overall liquidity, profitability, and solvency indicators, represented by simple averages, were not very conclusive for this segment. The reason for this was the high standard deviation values obtained, which indicated a broad mix in the financial state of the individual companies.

Liquidity in the short-term appeared reasonable for the Refrigerated Food Products segment. Working Capital figures were positive throughout the segment and for the average firm. Current Assets were twice as much as the Current Liabilities. However, this last statement was not considered conclusive due to the high standard deviation obtained for the Current Ratio. This was especially true for the South region that accounted for the overall extreme values.

Profitability ratios for the Refrigerated Product segment were not conclusive due to relatively high standard deviation values. The average firm among the Refrigerated Food Product Carriers is

breaking even. This is evidenced by the fairly generalized Expense Ratios. This supports the conclusion that service of debt does not represent an important cash outflow for the overall Refrigerated Food Products segment.

The overall average Gross Revenue-to-Equity figures were not as high as they might be expected. They even became negative for the South region. However, the spread of the values was very high for both the South region and the overall segment. Results from the After-Tax Income-to-Equity ratio were neither as high nor very representative because of the high standard deviation.

Income Before Taxes was low for the average firm in the Refrigerated Food Products segment. The South region accounted for most of the variation. The After-Tax Income-to-Total Capital was not conclusive for the segment due to a relatively high standard deviation. The Northeast region accounted for most of the variation.

The solvency measure for the overall segment was also not conclusive because of the high standard deviation associated with it. However, it is important to emphasize that the individual means for the Midwest, Northeast, and South regions were all negative.

Table 3. Working Capital Ratios: Indicators for liquidity for the refrigerated food products haulers in the U.S. and by region, 1993-1994

	U.S.	West	Midwest	Northeast	South
No. of Firms	96	20	27	16	33
Minimum ^a	-131.4	-131.9	-28.05	-65.06	-96.76
Maximum ^a	288.47	137.37	83.72	132.73	288.47
Mean ^a	1123.82	271.85	1227	1791.31	1232.12
Standard Deviation ^a	4736.02	5196.55	2383.75	4677.23	5914.9

^aThousand of dollars.

Table 4. Current Ratios: Indicators for liquidity for the refrigerated food products haulers in the U.S. and by region, 1993-1994

	U.S.	West	Midwest	Northeast	South
No. of firms	94	19	27	16	32
Minimum	0.13	0.34	0.43	0.78	0.13
Maximum	13.46	4.79	5.78	7.05	13.46
Mean	2.11	1.59	2.08	2.58	2.22
Standard Deviation	1.97	1.16	1.42	1.88	2.67

Table 5. Expense Ratios: Indicators for profitability for the refrigerated food products haulers in the U.S. and by region, 1993-1994

	U.S.	West	Midwest	Northeast	South
No. of firms	96	20	27	16	33
Minimum	0.82	0.94	0.9	0.85	0.82
Maximum	1.94	1.17	1.02	1.53	1.94
Mean	1	1	0.98	1.01	1.01
Standard Deviation	0.12	0.05	0.03	0.14	0.18

Table 6. Gross Revenue-to-Equity Ratios: Indicators for profitability for refrigerated food products haulers in the U.S. and by region, 1993-1994

	U.S.	West	Midwest	Northeast	South
No. of firms	96	20	27	16	33
Minimum	-360.5	-6.41	-82.19	-99.38	-360.5
Maximum	158.61	30.42	33.12	158.61	35.87
Mean	2.91	9.81	3.42	3.96	-2.2
Standard Deviation	45.8	8.43	21.85	55.88	65.39

Table 7. Pre-Tax Income-to-Gross Revenue Ratios: Indicators for profitability for refrigerated food products haulers in the U.S. and by region, 1993-1994

	U.S.	West	Midwest	Northeast	South
No. of firms	96	20	27	16	33
Minimum	-0.94	-0.03	-0.01	-0.06	-0.94
Maximum	0.19	0.06	0.13	0.19	0.18
Mean	0.01	0.02	0.03	0.03	-0.18
Standard Deviation	0.11	0.03	0.03	0.07	0.18

Table 8. After-Tax Income-to-Equity Ratios: Indicators for profitability for refrigerated food products haulers in the U.S. and by region, 1993-1994

	U.S.	West	Midwest	Northeast	South
No. of firms	96	20	27	16	33
Minimum	-3.75	-0.12	-0.78	-0.76	-3.75
Maximum	4.28	0.57	0.58	4.28	1
Mean	0.17	0.13	0.1	0.056	0.07
Standard Deviation	0.72	0.2	0.23	1.34	0.73

Table 9. After-Tax Income-to-Total Capital Ratios: Indicators for profitability for refrigerated food products haulers in the U.S. and by region, 1993-1994

	U.S.	West	Midwest	Northeast	South
No. of firms	96	20	27	16	33
Minimum	-0.7	-0.27	-0.03	-0.7	-0.25
Maximum	3.46	0.17	0.46	3.46	0.27
Mean	0.11	0.05	0.09	0.28	0.08
Standard Deviation	0.38	0.11	0.11	0.9	0.1

Table 10. Net-Debt-to-Equity Ratios: Indicators for solvency for refrigerated food products haulers in the U.S. and by region, 1993-1994

	U.S.	West	Midwest	Northeast	South
No. of firms	96	20	27	16	33
Minimum	-41.5	-2.56	-4.46	-16.44	-41.5
Maximum	17.94	4.18	2.39	7.37	17.94
Mean	-0.14	0.63	-0.01	-0.6	-0.48
Standard Deviation	5.19	1.69	1.46	4.69	8.11

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