

FACT SHEET

L-948

FINANCIAL RATIO ANALYSIS

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As credit becomes harder to obtain, agribusinesses increase their concern over financial management. One aspect of financial analysis is ratio analysis. This publication discusses three sets of ratio tests: liquidity, solvency, profitability. For these tests to have meaning, a firm must be practicing modern accounting procedures.

WORDS OF CAUTION

- A ratio is a percentage figure representing the comparison of one dollar amount with some other dollar amount.
- Ratios reflect only symptoms, not specific management problems. They serve as the basis for detailed examination of all agribusiness functions by management.
- To be meaningful ratios must not only be compared over time in the firm, but with the same ratios of other firms in the industry. Consider industry ratios only as guideposts. Standard ratios for a well-managed, established firm will usually not be meaningful in measuring a comparatively new or rapidly growing firm in the same industry.

LIQUIDITY TESTS. Liquidity tests deal with a firm's ability to meet current obligations — working capital.

$$\text{Test 1: } \frac{\text{Current assets}}{\text{Current liabilities}} = \text{Current ratio}$$

$$\text{Example: } \frac{\$24,300}{\$7,600} = 3.2 \text{ or } 3.2:1 \text{ (ratio)}$$

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- Current assets are 3.2 times larger than current liabilities in this example.
- These assets are expected to become cash before the end of 1 year from the date of the balance sheet.
- A ratio of 2 to 1 usually indicates a reasonable margin of safety. The 2 to 1 ratio may be an unrealistic standard, however, in times of declining prices, or in periods of rapid improvement in the quality and nature of competing products.

$$\text{Test 2: } \frac{\text{Liquid assets}}{\text{Current liabilities}} = \text{Liquid ratio}$$

$$\text{Example: } \frac{\$9,300}{\$7,600} = 1.2 \text{ or } 1.2:1 \text{ (ratio)}$$

- Liquid assets are cash, accounts receivable and marketable securities. Inventories are not included.
- A common rule of thumb is that the liquid ratio be 1 to 1.

$$\text{Test 3: } \frac{\text{Inventory}}{\text{Net working capital}} = \frac{\text{Inventory to net working capital ratio}}$$

$$\text{Example: } \frac{\$15,000}{\$16,700} = .90 \text{ or } 90 \text{ percent}$$

- Average inventory figure is used; here it is 90 percent of net working capital.
- Net working capital is the difference between current assets and current liabilities (See figures in Test 1).
- This ratio signals to management excessive inventories. Such a condition may cause difficulty in meeting other current obligations.

$$\text{Test 4: } \frac{\text{Net sales}}{\text{Net working capital}} = \frac{\text{Net working capital turnover rate}}{\text{rate}}$$

$$\text{Example: } \frac{\$94,100}{\$16,700} = 5.6 \text{ times}$$

- Net working capital turned over 5.6 times in the example.
- Net working capital turnover usually occurs from 4 to 8 times during the year in most agricultural marketing firms.

SOLVENCY TESTS. Solvency tests deal with a firm's ability to meet the interest costs and repayment schedules associated with its long-term obligations.

$$\text{Test 1: } \frac{\text{Total liabilities}}{\text{Net worth}} = \frac{\text{Total liabilities to net worth ratio}}{\text{ratio}}$$

$$\text{Example: } \frac{\$19,700}{\$42,800} = .46 \text{ or } 46 \text{ percent}$$

- The difference between total assets and total liabilities equals the owner's net worth (equity). Therefore, the smaller the net worth in proportion to total liabilities, the less security creditors possess. In the above example total liabilities equal 46 percent of net worth.
- Rarely should total liabilities exceed net worth. When this happens the handicap of interest charges, especially where competitors have no such heavy expenses, may become a critical burden. Also, credit terms become more restricted and expensive.
- In analyzing this test ratio, particularly when the percent is high, it is advisable to determine what proportion of total liabilities is classed as current liabilities (those payable within 1 year). When a major portion of a firm's total liabilities are deferred (non-current), the ratio can usually be higher. This, of course, is because management has a longer period in which to make plans to meet financial obligations.

$$\text{Test 2: } \frac{\text{Fixed assets}}{\text{Net worth}} = \frac{\text{Fixed assets to net worth ratio}}{\text{ratio}}$$

$$\text{Example: } \frac{\$37,800}{\$42,800} = .88 \text{ or } 88 \text{ percent}$$

- Fixed assets include land and depreciable property. Book value of depreciable property will usually decrease annually as depreciation is taken, because depreciation charges normally exceed capitalized improvements.

- Generally firms that are financially healthy will show a moderate increase in net worth from year to year. This is because some portion of net profit is usually retained in the business.
- Normally, a ratio of 65 to 75 percent is considered safe. Smaller percents may be desirable in low-investment type businesses.

PROFITABILITY TESTS: Profitability of a firm is usually measured in terms of profits as related to investment, and in terms of profits as related to sales (operating ratios).

$$\text{Test 1: } \frac{\text{Net profit}}{\text{Net worth}} = \frac{\text{Return on investment ratio}}{\text{ratio}}$$

$$\text{Example: } \frac{\$2,200}{\$42,800} = .051 \text{ or } 5.1 \text{ percent}$$

- It would be difficult to defend any rule of thumb figure on this ratio. What constitutes a good rate of return on investment depends on the risk assumed by the investor. Comparison with returns for similar enterprises operating under like conditions will give some indication of what is a reasonable return.

$$\text{Test 2: } \frac{\text{Net profit}}{\text{Total assets}} = \frac{\text{Return on assets ratio}}{\text{ratio}}$$

$$\text{Example: } \frac{\$2,200}{\$62,500} = .035 \text{ or } 3.5 \text{ percent}$$

- This ratio is of particular interest to a stockholder who is interested in the earnings belonging to him relative to the company's total assets.

$$\text{Test 3a: } \frac{\text{Net profit}}{\text{Net sales}} = \frac{\text{Selling profitability ratio}}{\text{ratio}}$$

$$\text{Example: } \frac{\$2,200}{\$94,100} = .023 \text{ or } 2.3 \text{ percent}$$

$$\text{Test 3b: } \frac{\text{Gross profit}}{\text{Net sales}} = \frac{\text{Selling profitability ratio}}{\text{ratio}}$$

$$\text{Example: } \frac{\$25,800}{\$94,100} = .274 \text{ or } 27.4 \text{ percent}$$

- There are any number of operating ratios which can be computed, based on relationships between sales and specific expense items, such as labor, advertising, office supplies, taxes, etc.
- Operating ratios are valuable when they are computed over a period of years and compared. They will reflect the business' performance trends. Comparing these ratios with similar firms in the industry is a valuable exercise in

isolating business aspects which may need special attention by management.

Test 4: $\frac{\text{Cost of goods sold}}{\text{Average inventory}} = \text{Average inventory turnover period}$

Example: $\frac{\$68,300}{\$15,000} = 4.6 \text{ times per year}$

- This ratio indicates the inventory's salability. It also shows how well the firm's funds are working.
- Generally, the higher the turnover rate, the better. Total capital needs of the firm are thereby reduced.

- Caution! Some firms measure inventory turnover by dividing net sales by average inventory. This ratio will be misleading if the figures are taken from normal financial statements, since net sales are quoted at selling price while inventory figures are kept at cost. When such a rate is computed, sales should be reduced to a cost basis before the computation is made.

Reference

Richard W. Schermerhorn, *Financial Statement Analysis for Agricultural Marketing Firms*, University of Maryland, College Park, Maryland, 1964.

...some firms measure inventory over a period of time, not at a single moment. This ratio will be misleading if the figures are taken from normal financial statements since net sales are quoted at selling price while inventory figures are kept at cost. When such a ratio is computed, the computation is made on a cost basis before the computation is made on a selling price basis.

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Test 1: $\frac{\text{Total liabilities}}{\text{Net worth}} = \text{Total liabilities to net worth ratio}$

Example: $\frac{\$9,700}{\$12,300} = .79$ or 79 percent

The difference between total assets and total liabilities equals the owner's net worth (equity). Therefore, the smaller the net worth in proportion to total liabilities, the less security the owner possesses. In the above example total liabilities equal 79 percent of net worth.

Rarely should total liabilities exceed net worth. When this happens the business is over-indebted, especially where operating losses are expected to continue. Also, liabilities exceeding net worth are a bad sign for the business.

In analyzing this test ratio, particularly when the percent is high, it is advisable to determine what proportion of total liabilities is current. Current liabilities (those payable within 1 year). When a major portion of a firm's total liabilities are current, the ratio can usually be higher. This is because management has a longer period in which to make plans to meet financial obligations.

Test 2: $\frac{\text{Fixed assets}}{\text{Net worth}} = \text{Fixed assets to net worth ratio}$

Example: $\frac{\$37,500}{\$42,300} = .89$ or 89 percent

Fixed assets include land and depreciable prop-

erty. This ratio indicates the proportion of the firm's net worth that is represented by fixed assets. A ratio of 1.0 or more indicates that the firm has more fixed assets than net worth.

Normally, a ratio of .55 or more is considered good. A ratio of .50 or less indicates that the firm has less fixed assets than net worth. This ratio indicates the inventory's solvency. It also shows how well the firm's funds are being used. A ratio of 1.0 or more indicates that the firm has more fixed assets than net worth.

Test 3: $\frac{\text{Net profit}}{\text{Net worth}} = \text{Return on investment ratio}$

Example: $\frac{\$2,200}{\$12,300} = .18$ or 18 percent

It would be difficult to defend any rule of thumb figure on this ratio. What constitutes a good rate of return on investment depends on the risk assumed by the investor. Comparisons with ratios for similar enterprises operating under the same conditions will give some indication of what is a reasonable return.

Test 4: $\frac{\text{Net profit}}{\text{Total assets}} = \text{Return on assets ratio}$

Example: $\frac{\$2,200}{\$22,000} = .10$ or 10 percent

This ratio is of particular interest to a stockholder who is interested in the earnings belonging to him relative to the company's total assets.

Test 5a: $\frac{\text{Net profit}}{\text{Net sales}} = \text{Selling profitability ratio}$

Example: $\frac{\$2,200}{\$19,100} = .115$ or 11.5 percent

Test 5b: $\frac{\text{Gross profit}}{\text{Net sales}} = \text{Selling profitability ratio}$

Example: $\frac{\$57,200}{\$19,100} = .299$ or 29.9 percent

There are any number of operating ratios which can be computed, based on relationships between sales and specific expense items, such as taxes, advertising, office supplies, taxes, etc.

Operating ratios are valuable when they are