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# Putting it Together: Ratio Analysis of the 'Big Three' Financial Statements

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## What is Financial Ratio Analysis?

Financial ratio analysis is a valuable tool used to help farmers and ranchers evaluate the financial health of their enterprise. The information needed to calculate these measures comes from the "big three" financial statements: the balance sheet, the income statement, and the statement of cash flows . Financial ratio analysis is also used by lenders to evaluate an enterprise's financial strength and to determine credit eligibility. Looking at these ratios alongside the financial statements can help producers identify trends, strengths, and weaknesses, improving their ability to make informed on-farm decisions.

## Types of Financial Ratios

There are four types of financial ratios we will discuss in this article. The types are liquidity, solvency, profitability, and efficiency ratios. Liquidity ratios measure a farm's ability to pay its short-term obligations; higher ratios are preferred. Solvency ratios measure the ability to pay long-term liabilities; in this case, lower ratios represent a farm with less debt and more equity. Profitability ratios measure a company's ability to generate profit using their revenue, equity, and other assets; higher ratio values are preferred as they show how much profit is generated per dollar of production inputs. Efficiency ratios measure how well a farm uses its assets to generate revenues; higher ratios are preferred and show proper use of assets.

## Balance Sheet Ratios

Values from the balance sheet are used to calculate liquidity and solvency ratios. The first solvency ratio we will discuss is the debt-to-assets ratio, which is calculated by dividing total debt by total assets; it measures the amount of assets financed through debt and indicates a farm's reliance on debt. Another key solvency ratio is the equity-to-assets ratio, which is calculated by dividing total equity by total assets; it measures the amount of assets

[1]For more information, please review FSA76, FSA95, and FSA113

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financed by equity and indicates the portion of equity owners have in their farm. The leverage ratio is another solvency ratio that compares the total debt of a farm to its total equity; it provides a view into the farms' management of capital and its possible financial risks.

Multiple liquidity ratios are derived from the balance sheet. Such as the net capital ratio which is calculated by subtracting current liabilities from current assets (net capital) and dividing the result by total assets; it measures the amount of total assets remaining after paying immediate financial obligations. The current ratio, calculated as current assets divided by current liabilities, measures a farm's ability to pay short term liabilities using short term assets. The next measure we are evaluating is not a ratio but is important in analyzing financial standing. It is net working capital, which equals current assets minus current liabilities, giving us the number of short-term resources available for use after current debts have been repaid. We calculated net working capital to find the next ratio, which is net working capital -to- expense ratio; this ratio compares net working capital to all expenses incurred. It indicates if working capital is being used properly in day-to-day operations. See Table 1 for a summary of ratios and assessment of operational strength of weakness for benchmarking.

## Income Statement Ratios

The income statement has the information needed to calculate multiple profitability and operational efficiency ratios. First, net farm income is calculated by total revenue, less cash expenses, accounting for inventory changes and depreciation within the period, representing the total available income after expenses. Net income is similar but is calculated as revenue with fewer total expenses and shows profitability of the farm. The rate of return on assets (ROA) is calculated by dividing net income (excluding interest expenses) by average total assets and measures how well assets are used to generate profits irrespective of how they are financed (i.e. via debt or equity capital) as in internal measure of success. The rate of return on equity (ROE) is calculated by dividing net income (including interest expense) by equity and indicates how well capital investments generate profit. This profitability measure is considered external as it is compared to investment alternatives outside the farm. The operating profit margin ratio measures operating expenses as a portion of revenue. Depending on what expenditures are included (cash only vs. all expenses), it provides an indication of whether profitable pricing is being used. See Table 2 for a summary of ratios and assessment of operational strengths and weaknesses for benchmarking.

## Cash Flow Statement Ratios

Cash flow statements provide information that can be used to measure liquidity through cash and cash equivalents. The cash flow coverage ratio is calculated by dividing net cash from operations by total debt (including principal and interest payments). It measures whether operating cash flow is sufficient to cover scheduled debt obligations. The cash flow margin ratio is calculated by dividing net cash from operations by net cash farm sales. It measures the amount of operating cash flow generated per dollar of cash farm sales and gauges the cash efficiency of production. These ratios provide insight into a farm's ability to generate and manage cash. See Table 3 for a summary of ratios and assessment of operational strengths and weaknesses for benchmarking.

Financial ratio analysis does not replace analysis of the financial statements, but it provides context and helps producers better understand the information within them. When used regularly, financial ratios can aid in identifying problems before they worsen. By monitoring liquidity, solvency, profitability, and efficiency measures over time, farmers and ranchers can improve their knowledge of their farm's financial health and the long-term success of their business.

## Financial Ratio Quick Reference

**Table 1.** Balance Sheet Ratios

| Financial Ratio | Formula | Measure | Benchmark |
|---|---|---|---|
| Debt-to-Asset Ratio | Total Debt (Liabilities) ÷ Total Assets | Proportion of assets financed by debt | < 0.30 strong; 0.30–0.60 caution; > 0.60 vulnerable |
| Equity-to-Asset Ratio | Total Equity ÷ Total Assets | Proportion of assets financed by the owner's equity | > 0.70 strong; 0.40–0.70 caution; < 0.40 vulnerable |
| Leverage Ratio | Total Debt ÷ Total Equity | Amount of debt carried for every dollar of equity; indicates reliance on borrowed capital | < 0.43 strong; 0.43–1.5 caution; > 1.5 vulnerable |
| Net Capital Ratio | Net Capital ÷ Total Assets | Cushion of assets available to cover debt; values above 1.0 indicate positive net worth | > 2.0 strong; 1.5–2.0 caution; < 1.5 vulnerable |
| Current Ratio | Total Current Assets ÷ Total Current Liabilities | Ability to cover short-term (within 12 months) obligations with short-term assets | > 2.0 strong; 1.3–2.0 caution; < 1.3 vulnerable |
| Net Working Capital | Total Current Assets – Total Current Liabilities | Dollar amount of short-term assets remaining after covering short-term liabilities | Positive and growing is favorable; no fixed dollar threshold — scale to farm size |
| NWC-to-Expense Ratio | Net Working Capital ÷ Total Farm Operating Expenses | Working capital available relative to a year's operating expenses; gauges cushion against income shortfalls | > 0.30 strong; 0.15–0.30 caution; < 0.15 vulnerable |

**Table 2.** Income Statement Ratios

| Financial Ratio | Formula | Measure | Benchmark |
|---|---|---|---|
| Net Farm Income | Gross Farm Revenue – Total Farm Expenses (incl. depreciation) ± Accrual Adjustments | Farm-generated profit after all operating and fixed expenses; key indicator of production-level profitability | Positive and stable or growing year-over-year is favorable |
| Net Income | Net Farm Income + Off-Farm Income – Income Taxes – Owner Withdrawals | Total profit to the operator after off-farm earnings, taxes, and family living are factored in | Positive is favorable; should be sufficient to build equity over time |
| Rate of Return on Assets (ROA) | (Net Farm Income from Operations + Farm Interest Expense – Value of Operator Labor & Management) ÷ Average Total Farm Assets | Return generated on every dollar of assets invested in the farm, regardless of how those assets are financed | > 8% strong; 3–8% caution; < 3% vulnerable |
| Rate of Return on Equity (ROE) | (Net Farm Income from Operations – Value of Operator Labor & Management) ÷ Average Total Farm Equity | Return generated on the owner's invested equity in the farm | > 8% strong; 3–8% caution; < 3% vulnerable |
| Operating Profit Margin Ratio | (Net Farm Income from Operations + Farm Interest Expense – Value of Operator Labor & Management) ÷ Gross Farm Revenue | Share of gross farm revenue retained as profit after operating costs; reflects production efficiency | > 25% strong; 15–25% caution; < 15% vulnerable |
| Asset Turnover Ratio | Gross Farm Revenue ÷ Average Total Farm Assets | Efficiency of using farm assets to generate revenue; how many dollars of revenue each dollar of assets produces | > 45% strong; 30–45% caution; < 30% vulnerable |

**Table 3.** Cash Flow Statement Ratios

| Financial Ratio | Formula | Measure | Benchmark |
|---|---|---|---|
| Cash Flow Coverage Ratio | Net Cash from Operations ÷ Total Debt Service (Principal + Interest) | Sufficiency of operating cash flow to cover scheduled principal and interest payments on debt | > 1.75 strong; 1.25–1.75 caution; < 1.25 vulnerable |
| Cash Flow Margin Ratio | Net Cash from Operations ÷ Net Cash Farm Sales | Cents of operating cash flow generated per dollar of cash farm sales; gauges cash efficiency of production | > 15% strong; 5–15% caution; < 5% vulnerable |

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