

Financial Measures for South Dakota Farms

Jack B. Davis | SDSU Extension Crops Business Management Field Specialist

Farm and ranch businesses have a sizeable investment in equipment, buildings, land, and livestock. They require their owners and managers to remain knowledgeable about the financial condition of their business. The information to calculate measures of financial performance can be found in their farm record books or accounting system.

The Farm Financial Standards Council (www.ffsc.org) provides guidelines to help farmers evaluate the profitability, debt capacity, and financial risk of their business. The measures offered in this publication are based on those guidelines. Benchmarks used are from the **South Dakota Center for Farm Ranch Management** at Mitchell Technical Institute. The areas of financial guidelines that are commonly measured are liquidity, solvency, repayment capacity, profitability, and financial efficiency.

Liquidity ratios

Liquidity ratios measure the capacity of the business to meet its short-term liabilities, either by using cash or by converting current assets into cash. The current ratio is current assets divided by current liabilities and has long been a primary test for creditworthiness. A larger current ratio indicates greater protection for short-term creditors. A declining trend can signal problems in liquidity.

Solvency ratios

Solvency ratios measure the extent to which a business is financed by debt. Lenders of long-term funds and equity investors have an interest in solvency ratios. The **debt to asset** ratio is a way of evaluating the degree of asset financing creditors provide. A higher ratio

indicates greater financial risk and lower borrowing capacity. A ratio of less than 30% is considered strong.

Repayment Capacity

Coverage ratios predict ability to meet recurring obligations. The **term debt coverage ratio** suggests how solidly the business can cover its contractual fixed debt obligations. If this ratio has declined for multiple years, it is a signal of financial problems. Wide swings in farm income or net margins from year to year should also serve as warning signs that problems may exist. If the farm is expanding or making major capital adjustments it would be prudent to maintain this ratio at 150% or greater.

Profitability ratios

Profitability ratios measure the ability of the business to generate a satisfactory profit. **Return on assets (ROA)**, **return on equity (ROE)**, **operating profit margin (OPM)**, and **net farm income (NFI)** are the **most commonly used profitability measures**. These ratios are typically a good indicator of the management's overall effectiveness. The annual rates of return on total assets and equity capital can be compared to interest rates for loans or rates of return on other investments. The **return on assets (ROA) ratio** measures the profit-generating capacity of total assets of the business. It measures the farm's effectiveness in using the available total capital—both debt and equity. The ratio keys in on operations—the effectiveness of resources used in generating a profit. The focus is on how well the assets are being used.

Efficiency ratios

The four efficiency ratios show what percentage of

gross revenue went to operating expense, depreciation expense, interest expense, and what percentage was left for net farm income. These four ratios add to 100%. The asset turnover ratio measures how much gross revenue was generated for each dollar invested in the farm's assets. Low efficiency can be a result of low prices, high operating expenses, production problems, or a combination of the three. The best major enterprises have consistently high efficiency over time.

Using Financial Measures

It is important to calculate financial measures for several years to detect trends and to stay away from making decisions based on an extraordinary year. Historical values for most of the measures are in Tables 1 and 2. The benchmarks are based on data obtained from the **South Dakota Center for Farm and Ranch Management (SDCFRM)** at Mitchell Technical Institute.

The current ratio 7-year average for the high-profit group is over 3.0. A strong liquidity position is especially important to help weather the uncertainty of production agriculture. In 2014 the current ratio continued to slide from 1.96 to 1.94 for the average of all farms. This is a trend that needs to be monitored closely and corrective action taken if warranted for individual farms.

Working capital (current assets – current liabilities) is dependent on the size of the business. A good measure of working capital is to compare it to the amount of the farm's annual gross revenue. The average working capital of all farms over the past 7 years is 43% of gross revenue, down from 45% in 2013. The ratio has a range of 30% for low return farms and a high of 50% for high return farms.

Having a strong liquidity position provides farm and ranch businesses the opportunity to take advantage of unique situations as they arise or to make it through unforeseen downturns in profitability. Owners and managers will want to take action to ensure they keep the strong liquidity position they have built over the past few years.

Total **debt to asset** ratio is one of the measures for solvency and has a 7-year average range of 31% to 37% for farms and ranches enrolled in the SDCFRM Program. A higher ratio indicates greater financial risk and

lower borrowing capacity. A ratio of less than 30% is considered strong. It requires high efficiency to service safely higher debt loads. Many farms have reduced their debt loads over the past few years and some operate with very little or no debt.

The **rate of return** on assets for the program has averaged 9.6% over the past 7 years. The average for all farms has a range of 5.1% to 15.3% over those years. High profit farms average over 14% (down from 16%) while low profit farms have an average of 1.7% (down from 2.7%).

The average **rate of return on equity** measures how much net income was earned as a percentage of net worth. The return on equity helps measure how efficient the farm is at generating profits for the owner's investment.

A drawback to return on equity is that it does not tell whether or not the business has an excessive amount of debt. A high debt level may result in a higher return on equity

To offer a clearer picture of management's effectiveness it is best to look at **ROA** and **ROE** together. If the farm has a strong ROA trend and is carrying a reasonable amount of debt, a strong ROE is an indication that management is doing a good job at creating returns from net worth. When ROA is low and the farm is overloaded with debt, a high ROE can mislead owners into thinking things are better than they actually are.

A useful way to use ROA is to break it into separate components of profit margin and asset turnover. The Du Pont Company used this method to evaluate its divisions in the early 1900s. The Du Pont analysis breaks ROA into **profit margin** multiplied by **asset turnover**.

$$\text{ROA} = (\text{Net Income} + \text{Interest Expense} / \text{Sales}) * (\text{Sales} / \text{Total Assets})$$

Where:

$$\begin{aligned} \text{Profit margin} &= \\ &= [(\text{Net Income} + \text{Interest Expense}) / \text{Sales}] \\ \text{Asset Turnover} &= \text{Sales} / \text{Assets} \end{aligned}$$

The operating profit margin is a measure of the operating efficiency of the business. It measures how effec-

tively the business is controlling expenses relative to its value of output. A high profit margin indicates good cost control. South Dakota farms taking part in the SD-CFRM program have averaged for the past seven years 25.5% for all farms. High profit farms have averaged 35%, while low profit farms have averaged less than 5.5%. The 2014 operating profit margin compared to 2013 is up for all classes. Average of all farms is up to 20% from 17% in 2013, and high return farms are up to 37% from 30%. Low return farms remain negative at minus 8% for 2014 up from minus 17% in 2013. This is a reflection that producers were able to adjust the revenue and costs relationship and make improvements in profit margin. With low crop margins this continues to be critical and will need to be closely monitored.

The profit margin is an income statement ratio and the asset turnover ratio uses information from the balance sheet and income statement.

A high asset turnover ratio demonstrates efficient use of the assets on the balance sheet. Asset turnover ratio has ranged in the 35 to 40% level, with high and low profit farms averaging 42% and under 30%, respectively.

It is important to examine the productivity of assets. Improving efficiency and/or asset turnover increases return on assets.

Consider selling low return assets or improve their productivity.

Different industries have distinctive operating and financial structures. In the heavy capital goods industry the emphasis is on a high profit margin with a low asset turnover. In food processing however, the profit margin is low and the key to satisfactory returns on total assets is a rapid turnover of assets. In production agriculture, a grain or rangeland livestock operation tends to have low asset turnover, especially if the land is owned and valued at current market value. On the other hand, livestock feedlots or dairies may have considerably higher asset turnover and lower profit margin on sales.

Net farm income varies from year to year and is strongly tied to efficiency and size of the business. The

net farm income dollar amount is best used as an internal comparison over time.

Operating expense ratios (which exclude interest and depreciation expense) have been in the 60 to 85% range. High profit farms have averaged 69% the past seven years while low profit farms have averaged 85%. Rented farms tend to have higher ratios than farms with more owned assets as rent and lease payments are included in operating expenses. To improve the operating expense ratio, increase prices through more effective marketing and/or better control of expenses. It is important to closely monitor major expenses, concentrating on the top four or five.

The **depreciation expense ratio** has been in the 3.5% to 6% range since 2008. The interest expense ratio has been in the 3% to 6% range since 2008. The average net **farm income ratio** has been in the range of 13% (low in 2013) to 24% for all farms. The high profit farms have averaged over 23 % while low profit farms have been less than 5%.

When working with ratios, these rules are important:

- a. Ratio trends must be calculated consistently over time to provide the best information.
- b. The definition of ratio components may differ from analyst to analyst, thus yielding inconsistent results.
- c. Differing accounting policies, overall business size, and maturity of the business impact ratios.
- d. Ratios supplement but do not replace sound business judgment. Individual business ratios are more meaningful when compared to industry statistics and trends. Trade associations are good sources of comparative financial data for specific industry groups.

Table 1. Financial Measures by Year

	2008	2009	2010	2011	2012	2013	2014	2008 to 2014 Average
Liquidity Measures (Dec 31)								
Current Ratio	2.32	2.13	2.65	2.94	2.64	1.96	1.94	2.37
Working Capital	\$272,921	\$284,677	\$424,292	\$432,329	\$504,207	\$400,977	\$417,964	\$391,052
Working Capital per \$ of Gross Revenue	39.8%	43.9%	51.9%	48.0%	43.7%	36.0%	36.9%	42.9%
Solvency Measures (Dec 31)								
Total Debt to Asset Ratio	37.8%	38.6%	35.2%	32.0%	32.0%	32.0%	29.0%	33.8%
Farm Debt to Equity Ratio	61.0%	63.0%	54.0%	48.0%	47.0%	47.0%	42.0%	51.7%
Profitability Measures								
Rate of Return on Assets	10.7%	9.9%	15.3%	10.4%	10.2%	5.1%	5.9%	9.6%
Rate of Return on Equity	13.5%	12.5%	20.7%	13.5%	13.2%	5.7%	6.8%	12.3%
Operating Profit Margin	22.7%	24.1%	35.8%	29.8%	29.0%	16.9%	19.9%	25.5%
Net Farm Income	\$112,390	\$119,570	\$260,891	\$228,907	\$236,434	\$141,973	\$168,631	\$181,257
EBITDA					\$317,025	\$231,391	\$261,435	\$269,950
Efficiency Measures								
Operating Expense Ratio	63.2%	74.1%	68.9%	68.1%	72.8%	78.8%	76.9%	71.8%
Depreciation Expense Ratio	4.7%	4.9%	4.6%	4.3%	3.8%	4.8%	5.3%	4.6%
Interest Expense Ratio	4.6%	5.3%	4.7%	3.7%	2.9%	3.4%	3.0%	4.0%
Net Farm Income Ratio	27.5%	15.7%	21.8%	23.9%	20.5%	13.0%	14.8%	19.6%
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Asset Turnover Ratio	47.0%	41.0%	43.0%	34.8%	35.2%	30.0%	29.6%	37.2%
Sources: South Dakota Center for Farm/Ranch Management Annual Report, Mitchell Technical Institute Farm Business Management Program, SDSU Extension								

	Profitability		
	Average of All Farms	High Profit 20%	Low Profit 20%
Liquidity Measures (Dec 31)			
Current Ratio	2.37	3.04	1.71
Working Capital	\$391,052	\$800,495	\$209,774
Working Capital per \$ of Gross Revenue	42.9%	49.6%	30.8%
Solvency Measures (Dec 31)			
Total Debt to Asset Ratio	33.8%	31.5%	36.7%
Profitability Measures			
Rate of Return on Assets	9.6%	14.9%	1.7%
Rate of Return on Equity	12.3%	19.7%	0.2%
Operating Profit Margin	25.5%	35.0%	5.1%
Net Farm Income	\$181,257	\$446,124	\$(73)
EBITDA*	\$269,950	\$629,905	\$63,737
Efficiency Measures			
Operating Expense Ratio	71.8%	69.0%	84.7%
Depreciation Expense Ratio	4.6%	4.2%	4.9%
Interest Expense Ratio	4.0%	3.6%	5.5%
Net Farm Income Ratio	19.6%	23.2%	4.9%
	100.0%	100.0%	100.0%
Asset Turnover Ratio	37.2%	42.9%	27.7%
*EBITDA is three year average 2012 to 2014			
Sources: South Dakota Center for Farm/Ranch Management Annual Report, Mitchell Technical Institute Farm Business Management Program, SDSU Extension			

The authors would like to acknowledge that data used in this study comes from the members of the South Dakota Center for Farm/Ranch Management Program across the State of South Dakota. Without their cooperation, information as comprehensive and accurate as this would not be available for educational purposes. SDCFRM is dedicated to assist agriculture producers in South Dakota to become better business managers and is available to all farm operators in the state. SDCFRM staff provides individual instruction in methods of farm accounting, farm enterprise recordkeeping, compliance, marketing, decision making, and goal setting. For more information, please contact the South Dakota Center for Farm/Ranch sdcfm@mitchelltech.edu or visit the SDCFRM website at: <https://www.mitchelltech.edu/programs/sdcfrm>.