Analyzing the Profitability of Your Operation

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Abstract

Understanding the profitability of any business is vital for management decision-making and monitoring. Standardization facilitates the ability to compute useful and meaningful measures that are comparable to similar businesses. This article explores the suggested measures of profitability for a farm or ranch as recommended by the Farm Financial Standards Council and provides sample computations and interpretations of these certain financial measures.

Introduction

Standardized financial statements make analyzing your business easier and more accurate. It also facilitates comparison across various years and against other similar operations. In early 1989, a group of industry experts organized for the purpose of promoting uniformity in financial reporting and analysis for agricultural producers. This group, now called the Farm Financial Standards Council (FFSC), issues periodic updates to its "Financial Guidelines for Agricultural Producers." In addition to addressing most of the detailed accounting issues often faced by agricultural producers, this report now endorses 21 financial ratios for use in analyzing an agricultural operation. The 21 financial ratios are divided into five general categories: Liquidity, Solvency, Profitability, Repayment Capacity, and Financial Efficiency.

Profitability Measures

This article will focus on the four measures of profitability suggested by the FFSC.

- Rate of return on farm assets (ROA)
- Rate of return on farm equity (ROE)
- Operating profit margin ratio (OPM)
- Net farm income, accrual-adjusted (NFI)
- Earnings before Interest Taxes, Depreciation, and Amortization (EBITDA)

The table below shows some key financial data for a farming operation. *Only financial information necessary to compute profitability measures is shown.*

Balance Sheet (Market Value) Data		
	Beginning	Ending
Total Business Assets	6,705,000	7,190,000
Equity Business Equity	3,818,000	4,188,000
Income Statement Data (Accrual Adjusted)		
Gross Revenues		2,021,000
–Operating Expenses		1,493,000
–Depreciation Expense		123,000
–Interest Expense		142,000
=Net Farm Income from Operations		263,000
+Gain on Sale of Capital Asset		10,000
=Net Farm Income		273,000
Other Information		
Withdrawals for Labor and Management		106,000

A few definitions used throughout this article are listed below:

- Net Farm Income from Operations (NIFO)
- Withdrawals for Family Living (Withdrawals)

There is an important distinction between NIFO and NFI. NIFO measures normally recurring income generated from the farming operation, while NFI includes events that do not occur as often such as the sale of machinery or a tract of land. While both are a measure of returns to the operation, NIFO is used in most of the following calculations because it more accurately represents true, normally recurring farm earnings. Finally, because taxes can vary significantly from one farm to another both of these measures ignore the impact of taxes in an operation.

For the sample farm, NIFO is $263,000 but during the year a tractor was sold for a gain of $10,000. Therefore, NFI is $273,000 ($263,000 + $10,000). The sale of a tractor is not generally an annual event for most farms, but even if it is an annual event, the farm is not in the business of selling tractors; therefore, NIFO provides a clearer measure of farm income from operating activities.

Rate of Return on Farm Assets (ROA)

ROA measures a business' pre-tax returns to the entire business, and is calculated as:

$$\frac{\text{NIFO + Interest – Withdrawals}}{\text{Average Farm Assets}}$$

$$\frac{263{,}000 + 142{,}000 - 106{,}000}{(6{,}705{,}000 + 7{,}190{,}000) \div 2} = \frac{299{,}000}{6{,}947{,}500} = 4.3\%$$

ROA compares a business' normally recurring income to the asset base of the business. The components of true earnings from the farm are first reflected in NIFO. Then interest expense is added to this number because it is a cost of borrowing money and is actually a return to the borrowed portion of capital. Finally, withdrawals are used as a proxy for salary expense, so they are subtracted from farm earnings.

The higher the ROA the more profitable is the farming operation. Taken as an industry, agriculture has a low ROA—the average ROA for farms in the US is between 4-6%. ROA in agriculture is limited by high capital requirements (land and machinery) and market values that usually exceed the original cost.

Note that operations owning a large portion of their land need higher earnings per acre than operations renting a large portion of their land in order to have identical returns on assets. This is because those businesses with a large asset base have a larger dominator in the above equation.

Rate of Return on Farm Equity (ROE)

ROE measures a business' pre-tax returns to the operator and is calculated as:

$$\frac{\text{NIFO} - \text{Withdrawals}}{\text{Average Farm Equity}}$$

$$\frac{263{,}000 - 106{,}000}{(3{,}818{,}000 + 4{,}188{,}000) \div 2} = \frac{157{,}000}{4{,}003{,}000} = 3.9\%$$

ROE compares an operations normally recurring income to its equity base. ROA and ROE are very similar measures. The primary difference is that ROA is measuring the return to the total asset base of the operation and ROE is measuring the return only to the equity of the operation. Therefore, interest is not added back when computing ROE. As an operator, ROE represents your return from the farm business.

A couple of notes on ROA and ROE:

- The relationship between ROA and ROE is a crucial one to monitor. To the extent that ROA exceeds ROE, you must be prudent when adding more debt your business because acquiring assets that don't provide a return greater than the cost of borrowing will put pressure on the existing operation. While an in-depth discussion of the relationship between ROA and ROE is beyond the scope of this article, the key point to keep in mind is that for your business, you want ROE to exceed ROA. When this relationship holds true, you are effectively using borrowed funds to increase the profitability of your operation.
- Both can be computed on either a market-basis or cost-basis. Generally, market values exceed cost values, so measuring ROA and ROE on a market-basis understates the earnings relative to the actual cost of the assets. Also, using market values fails to include the impact of unrealized gains due to an asset's appreciation.

Operating Profit Margin Ratio (OPM)

OPM measures a business' pre-tax returns relative to its level of sales, and is calculated as:

$$\frac{\text{NIFO} + \text{Interest} - \text{WD}}{\text{Gross Revenues}}$$

$$\frac{263{,}000 + 142{,}000 - 106{,}000}{2{,}021{,}000} = \frac{299{,}000}{2{,}021{,}000} = 14.8\%$$

Obviously the higher this ratio, the more profit the farm is generating. While there are no standard benchmarks by enterprise for this ratio, a rule of thumb is between 20-30%. This measure can vary widely from across farms and is dependent on ROA and the efficiency in which the assets are used. A ratio of 14.8% implies that this operation is recognizing almost $0.15 in income for every dollar of goods sold.

Net Farm Income (NFI)

NFI is computed on the income statement, and is a good measure for analysis of a farm operation because it includes operating activity before the impact of income taxes. There is no benchmark or rule-of-thumb for this measure as it varies widely from year-to-year as well as from farm-to-farm. Because this measure of profitability is not standardized (it's unique to each farm), we rely on additional measures of profitability to inter-farm comparison. However it is still a good idea to monitor the trends in net farm income for your operation over a number of years.

Earnings before Interest Taxes, Depreciation, and Amortization (EBITDA)

EBITDA is computable from the income statement by adding Depreciation and Interest to Net Farm Income from Operations. In the corporate world, this number is commonly used as a proxy for cash flow. While this is not entirely accurate, it does approximate the amount of repayment capacity an operation can use to service term debt (it ignores other revenue/expenses, nonfarm income/expenses, income tax expense, and withdrawals). The number is also used in business valuation computations, where a multiple of EBITDA estimates the value of a business.

Summary

Once you have accurately measured the profitability of your operation, it is a fairly quick and simple exercise to begin applying some standard financial ratios for your operation. The financial measures discussed in this article will provide you with a good way to analyze your operation and track its progress from year to year.

To learn more about your business' financial performance and key accounting concepts, you can obtain a copy of the latest Farm Financial Standards Council's report, "Financial Guidelines for Agricultural Producers" from the web site: http://www.ffsc.org.

This article was developed by Centrec Consulting Group as a way to share our thoughts and interpretations of financial analysis in the agricultural sector. For reprints of this or other series of articles, please visit our website at www.centrec.com for contact information.

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