

# ANALYZING THE EFFICIENCY OF YOUR OPERATION

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## Abstract

Understanding the efficiency of any business is vital for management decision-making and monitoring. This article explores the suggested measures of efficiency for a farm or ranch as recommended by the Farm Financial Standards Council (FFSC) and provides sample computations and interpretations of these financial measures.

## Introduction

Financial efficiency is a term used to describe a set of ratios that help understand why your business is making or losing money. While financial efficiency is related to profitability, it is quite different. When looking at the profitability of an operation, we are concerned with whether a profit or loss resulted for a given year. In contact, financial efficiency seeks to understand the components of sales and determine if an operation is spending excessive amounts on operating expenses, interest, depreciation, etc. Therefore, it is not only important to understand the components that come together to determine profitability, but also to understand why your business is or is not profitable.

## Efficiency Measures

The FFSC defines financial efficiency as a way to measure the intensity with which a business uses its assets to generate gross revenues and the effectiveness of production, purchasing, pricing, financing, and marketing decisions (April 2011, page III-3).

This article will focus on the five specific measures of financial efficiency suggested by the FFSC.

- Asset turnover ratio
- Operating expense ratio
- Depreciation/amortization expense ratio
- Interest expense ratio
- Net farm income from operations ratio

Some basic financial information is presented for the sample operation. This information is used in the calculations of five financial efficiency measures.

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

The income statement shows that this operation is profitable. Let's use financial analysis specifically related to efficiency to determine why this sample operation is profitable.

## Asset Turnover Ratio

Asset turnover (sometimes referred to as capital turnover) is a measure of how efficiently the assets of a business are being used to generate revenue, and is calculated as:

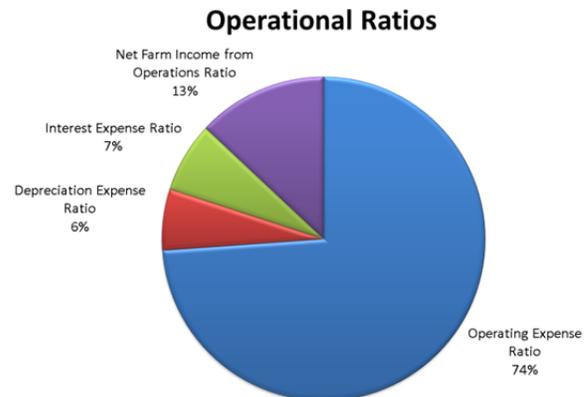
$$\frac{\text{Gross revenues}}{\text{Average farm assets}} = \frac{2,021,000}{(6,705,000 + 7,190,000) \div 2} = \frac{2,021,000}{6,947,500} = 0.29$$

The higher the asset turnover ratio the more rapidly the business is converting assets into revenue. A higher asset turnover most often implies a more efficient use of the operations asset base.

Another way to interpret the asset turnover ratio is that how many years does it take for gross revenue to equal assets. Most commercial businesses have an asset turnover of close to 1.0 or greater, implying that more than once a year they are producing enough revenue to equal their asset base. Because agriculture is so heavily capitalized, asset turnover ratios typically vary between 0.20 and 0.80, depending on the type and size of the operation—with grain operations being on the lower end and livestock operations being on the upper end.

## Operational Ratios

The next four ratios are considered operational ratios. The denominator in all of these ratios is gross revenue, and they are simply measuring the relative size of operating related activities. In other words, they help us understand what happened to gross revenue.



## Operating Expense Ratio

The operating expense ratio measures how efficiently the business controls its operating expenses:

$$\frac{\text{Operating expenses}}{\text{Gross revenues}} = \frac{1,493,000}{2,021,000} = 73.9\%$$

A benchmark for the operating expense ratio is between 55-80%. The range of values is so wide due to the differences in sizes and types of operations, as well as the capital structure and individual efficiencies of farm or ranch businesses. A ratio over 80% may indicate profitability problems, while a ratio under 55% may indicate great efficiency.

If you think about what this measure is telling you it begins to make sense. For every dollar of sales, the operation has to spend 73.9¢ to cover its operating expenses, leaving 26.1¢ to cover depreciation, interest, and profit.

### Depreciation/Amortization Expense Ratio

The depreciation expense ratio measures the amount of depreciation relative to the level of sales:

$$\frac{\text{Depreciation expense}}{\text{Gross revenues}} = \frac{123,000}{2,021,000} = 6.1\%$$

A benchmark for the depreciation expense ratio is between 10-15%. It is important to watch upward or downward trends in this ratio. A downward trend indicates that capital asset replacement might be lagging use, while an upward trend might indicate a very aggressive capital asset replacement policy.

### Interest Expense Ratio

The interest expense ratio measures the amount of interest expense relative to the level of sales:

$$\frac{\text{Interest expense}}{\text{Gross revenues}} = \frac{142,000}{2,021,000} = 7.0\%$$

The interest expense ratio can range from 0% (for those operations with no debt) to over 25% (to those operations that are highly leveraged). This ratio is a good indicator of potential problems. As this ratio exceeds 15%, the chances that a farm or ranch business generates profit are very low. In the case where this ratio is 15%, then of every dollar of sales, 15¢ goes just to pay the interest on borrowed fund, thereby squeezing profit.

### Net Farm Income from Operations Ratio

At this point, all that is left of gross revenues is net farm income from operations. The net farm income from operations ratio measures the amount of income relative to the level of sales:

$$\frac{\text{Net farm income from operations}}{\text{Gross revenues}} = \frac{263,000}{2,021,000} = 13.0\%$$

This ratio can also vary widely, including being less than zero. Obviously the higher this ratio, the better, but realistically 35% would be on the upper end.

How does all of this apply to your operation? Well, you make these decisions every day in some way or another. For example, deciding whether or not to purchase a new tractor or repair an existing one is a decision between depreciation (purchase new tractor) and operating expense (repairs the existing tractor).

As you look at your own farm or ranch you might see that depreciation is relatively high (e.g., more than 10%)—this might lead you to consider slowing down on capital asset replacement, but before you make any decisions consider the alternatives. If you continue to replace your machinery and equipment at your current level then your depreciation expense ratio will likely remain at 10%. If, however, you slow down those purchases, you might be able to lower your depreciation expense ratio to say, 8%. But, in doing so your operating expenses will most likely increase—you will probably need to spend more on maintenance and repairs on your aging machinery and equipment. Therefore, you must balance repair expense with the cost and potential efficiencies of a new piece of equipment.

No two operations are alike and the efficiency ratios from your business may be quite different than any presented in this article. That is fine because this is just a sample operation and the ratios shown here should not be construed as target ratios. The key to efficiency analysis is to look at and understand the components of gross revenues and how rapidly your farm business turns over its assets. Also, it's important to look at these financial ratios for more than the current year. Changes in these ratios over time (or trends) can provide information about the direction of your business and can help to identify problems before they become disasters.

All of the financial measures discussed are only part of the tools necessary to analyze your operation. It is most important to understand where your particular operation stands up against other operations that are similar in size and type of production. You may want to consider becoming part of a producer group or farm management group that compares operations to each other in order to provide you with comparative financial ratios.

### A Word of Caution about Financial Analysis!

Finally one last thought about financial measures. It is important to understand that while financial measures help to analyze your business and compare to benchmarks of other businesses, it should not be confused with a thorough analysis of all financial statements. Financial measures can be very useful in identifying areas of strengths and weakness, but because they are so summary-level in nature, many facts can be buried if the analysis is taken no further.

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](http://www.centrec.com) for contact information.

