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Farm Financial Efficiency

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While there is much concern in the farm sector about current ratios and working capital (with good reason), this article highlights four of the financial efficiency ratios and includes a review of the historical trends in those four ratios from 2006 to 2014.

All four of the financial efficiency ratios are sensitive to the accuracy and reliability of the accounting data used in the calculations. The farms and underlying accounting information used in this analysis use accrual adjusted accounting as the basis for calculating gross farm returns. Farm income measured with cash basis accounting can vary significantly from year-to-year depending on the timing of crop and/or livestock sales and the timing of non-crop receipts. Accrual adjusted accounting allows for the change in inventory value (crop and livestock) and the change in accounts receivable value that can occur between the beginning and the end of the year in the normal operation of a farm business. These four farm financial efficiency ratios measure the effectiveness of the farm operators' production, purchasing, pricing, financing and marketing decisions over the course of a year. As with many of the financial measures currently in use, there is need to measure over the same period or at the same point in time if comparing them from year to year. The ratios as they are expressed are median observations.

The four ratios (and their calculation) are:

1. Operating Expense Ratio – total operating expenses less depreciation and amortization expense divided by gross farm returns.
2. Depreciation/Amortization Expense Ratio – depreciation and amortization expense divided by gross farm returns.
3. Interest Expense Ratio – farm interest expense divided by gross farm returns
4. Farm Operating Income Ratio – farm operating income divided by gross farm returns. This ratio is calculated on a pre-tax basis.

The data for this article is from the Illinois Farm Business Farm Management Association for a group of farms that number approximately 2500 in each of the years. See Table 1 below.

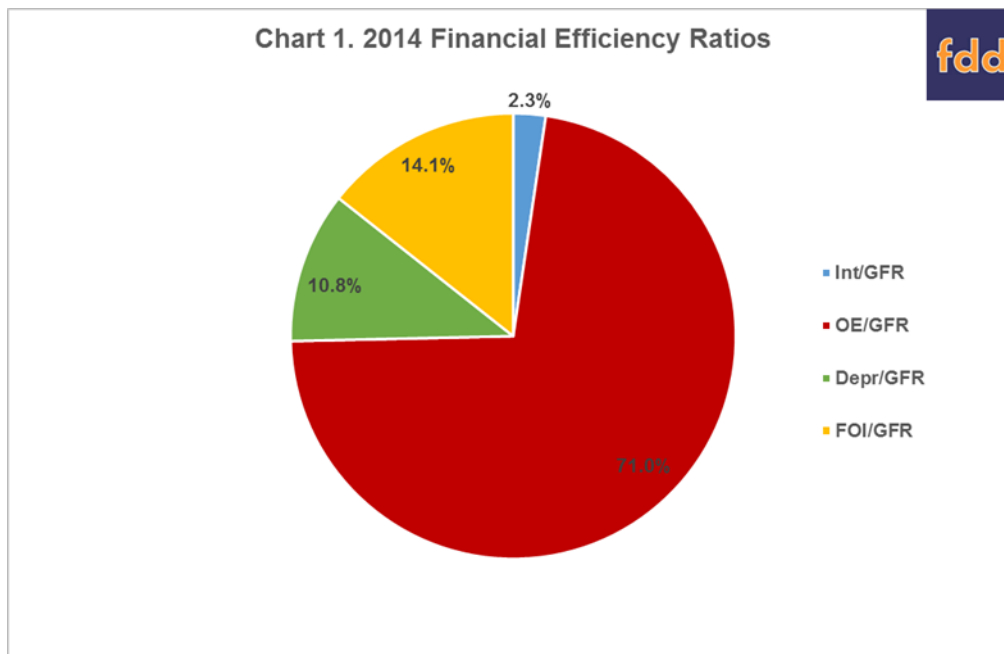
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Table 1. - Financial Efficiency, 2006 to 2014

Year	Int/GFR	OE/GFR	Depr/GFR	FOI/GFR
2006	4.80%	62.60%	5.60%	25.80%
2007	3.80%	51.90%	4.60%	38.50%
2008	2.90%	57.60%	5.10%	33.10%
2009	3.10%	72.20%	7.10%	16.60%
2010	2.60%	57.20%	6.80%	32.50%
2011	2.10%	55.10%	6.60%	35.00%
2012	1.90%	56.00%	7.30%	33.50%
2013	2.00%	68.60%	10.00%	17.10%
2014	2.30%	71.00%	10.80%	14.10%

It is interesting to note that the Interest Expense Ratio has remained in a narrow range with a high of 4.8% (2006) to a low of 1.9% (2012). The Interest Expense Ratio is sometimes used as a proxy for financial leverage when an accurate balance sheet isn't available. This ratio becomes less relevant in the current low interest rate environment. The dollar level of average accrual interest paid over the nine year period varied by only \$3,860 from its high point in 2007 to its low point in 2013. In the current low interest rate environment, one's debt to asset ratio could be increasing while the amount of interest paid on that debt could be a relatively small amount of dollars.

Of more interest is the Operating Expense Ratio which ranges from a high of 72.2% (2009) to a low of 51.9% just two years earlier. The Operating Expense Ratio for 2013 and 2014 rank 3rd and 2nd respectively for the nine years. This is evidence of the high cost of production combined with gross farm revenues that have abated in the recent two years. The dollar level of average operating expenses has increased by nearly 100% in the nine year period. Operating expenses take the largest share of the gross farm returns 'pie'. Thus, controlling operating expenses has the greatest potential to shift more of the 'pie' to Farm Operating Income.



The Depreciation/Amortization Expense Ratio ranges from a high of 10.8% (2014) to a low of 4.6% (2007). The depreciation method in use for this article is an economic method of depreciation that does not include the effects of the IRS Code Section 179 Expense Election or Bonus Depreciation. Economic depreciation

while not perfect better approximates the actual decrease in value of equipment and machinery due to age and obsolescence. The increasing level of capital purchases over the nine year period means that the dollar level of economic depreciation will increase in the near future. Depending on the levels of gross farm returns, the Depreciation/Amortization Expense Ratio could take an increasing share of the gross farm returns 'pie' in the near future.

The authors would like to acknowledge that data used in this study comes from the local Farm Business Farm Management (FBFM) Associations across the State of Illinois. Without their cooperation, information as comprehensive and accurate as this would not be available for educational purposes. FBFM, which consists of 5,600 plus farmers and 60 professional field staff, is a not-for-profit organization available to all farm operators in Illinois. FBFM field staff provide on-farm counsel with recordkeeping, farm financial management, business entity planning and income tax management. For more information, please contact the State FBFM Office located at the University of Illinois Department of Agricultural and Consumer Economics at 217-333-5511 or visit the FBFM website at www.fbfm.org.