Ratio Analysis: Look Behind the Numbers

by Dr. Paul Ellinger

Lenders are using more comprehensive and formal methods to evaluate the performance and financial condition of agricultural producers. Financial ratios are integral components within these methods. Ratios are excellent tools to measure and monitor performance of borrowers over time or compare borrowers to a peer group or benchmark. Furthermore, credit-scoring models are often based on specific ratios (see Kohl's Call, page 4). The increasing reliance of credit scoring systems and other formal methods places increased significance on the quality and consistency of the ratios values.

Historical research studies have demonstrated the usefulness and applicability of financial ratios. I have worked extensively with financial ratios and credit scoring systems. Financial ratios and credit scoring systems, used appropriately, are excellent tools in assessing the financial conditions of an agricultural producer. However, there are potential pitfalls and "caution areas" when using financial ratios.

Financial Information for Two Producers

TABLE 1	Producer A	Producer B
Current ratio	1.20	2.00
Debt-to-equity ratio	2.20	0.87
Rate of return on farm assets	7.8%	10.1%
Balance Sheet 12/96		
Current assets	150,000	50,000
Noncurrent assets	90,000	90,000
Total assets	240,000	140,000
Current liabilities	125,000	25,000
Noncurrent liabilities	40,000	40,000
Total liabilities	165,000	65,000
Total equity	75,000	75,000
Total assets on 12/95	200,000	200,000
Total equity on 12/95	46,000	46,000
Income statement items for 1996		
Net farm income from operations	40,000	40,000
Interest expense	13,200	13,200
Family living withdrawals	36,000	36,000

The issue I would like to emphasize in this column relates to interpretation and implementation issues related to financial ratios. There are specific situations that can result in deviations in ratio values without real differences in the financial performance of the producer.

To illustrate some potential pitfalls in ratio analysis, note the abbreviated financial information reported in Table 1. The current ratio, debt-to-asset ratio and rate of return on farm assets are all clearly preferable for Producer B. However, the only difference between the two producers, is that Producer B sold $100,000 of grain inventory one day prior to the end of the year and used the proceeds to pay off the operating loan.

The transaction does not affect accrual income or equity but does affect the current ratio and debt-to-equity ratio. Furthermore, the most common method to calculate the rate of return on average farm assets is to use the average of beginning and end-of-year assets in the denominator. Since inventory values are liquidated prior to year end and the proceeds are used to pay the operating loan, the value for average assets is lower for Producer B. Although not reported here, the asset turnover ratio (gross returns/average farm assets) would also be quite different between the producers. I could carry the case one step further and state that Producer A sold $100,000 on Jan. 2, 1997, and used the proceeds to pay off the operating loan. Is the financial condition that different between the producers based on a three-day difference in sales? The credit scores of these producers would likely be substantially different if these ratios were used in a credit-scoring model.

The examples illustrate that ratios may not always be leading indicators of financial performance. One needs to look behind the numbers to investigate if the ratios truly reflect strong or weak performance. When comparing a specific producer's performance over time or comparing to other producers, be sure to look beyond the ratio values. Make sure to disentangle differences and changes in ratios that result from specific accounting methods, marketing patterns and tax issues from differences that truly reflect performance and financial condition.

Paul Ellinger is an associate professor at the University of Illinois. He can be reached at 217/333-5503 pellinge@uiuc.edu

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