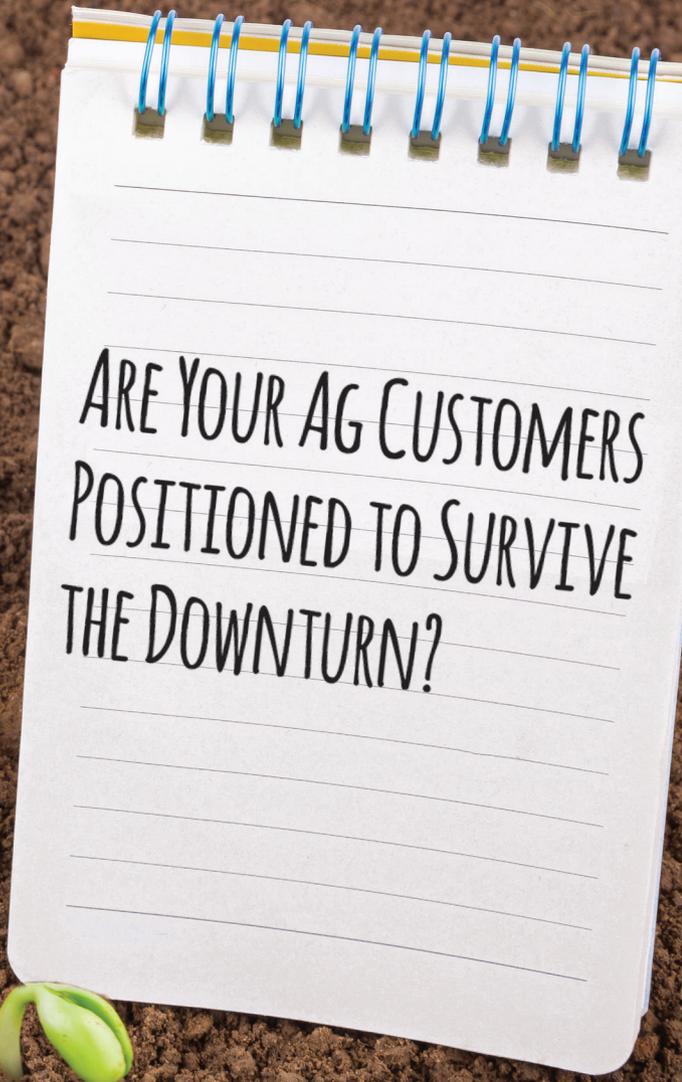


AG BANKING

THE LEADING INFORMATION SOURCE FOR AGRICULTURAL BANKS COAST-TO-COAST

2nd Quarter 2017 • www.ag-banking.com



ARE YOUR AG CUSTOMERS
POSITIONED TO SURVIVE
THE DOWNTURN?



PLUS

FSA's Preferred Lender Program

Measuring Repayment Capacity

8 Questions for a Colorado Lender

Measure Repayment Capacity

Evaluating the effectiveness of operating strategies for firms with different levels of financial leverage.

By Elizabeth A. Yeager and Freddie L. Barnard

This article is the second in a three-part series on evaluating repayment capacity and alternatives. The first appeared in the Q1 (March) issue of Ag Banking; the final installment, which will examine the effectiveness of loan-term changes on repayment capacity for firms with different levels of financial leverage, will appear in the Q3 (September) issue.

As seen in...

AG BANKING

A quarterly supplement to BankNews magazine.

Reprinted with permission of BankNews Media. Contents of BankNews are, and remain, the property of BankNews, Inc.

The effectiveness of changes in operating strategies on repayment capacity will vary according to degree of financial leverage. This article evaluates the effectiveness of several operating strategies on repayment capacity for an ongoing farming operation, using the spreadsheet discussed and published in the previous issue of this magazine (access at banknews.com/blog/worksheets). The evaluation is conducted using a case farm and results illustrate differences in effectiveness when implementing the same operating strategy changes under two levels of financial leverage: a relatively low level (debt-to-asset ratio 30 percent) and a relatively high level (debt-to-asset ratio 46 percent). The difference in leverage results solely from an increase in farm real estate debt, with farm size, enterprise mix and operating and machinery debt held constant.

The term debt and capital lease coverage ratio is used to measure effectiveness of each change. As the ratio increases, the capacity to make term debt and capital lease payments increases.

Base-Case Farm Example

The base-case farm example used in this analysis is the same as used in the March *Ag Banking* overview article. References to cell numbers refer to appendices

to the overview article. The base-case farm has gross revenues calculated on an accrual-adjusted basis of \$1,044,769 (Worksheet 1, Cell Y), resulting in net farm income from operations of \$51,034 (Worksheet 1, Cell AC). Family Living Expenses and Taxes are \$90,000 (Worksheet 1, Data Cell X), \$80,000 Family Living and \$10,000 Taxes.

To represent the high-leverage situation, term debt for the base case (30 percent debt-to-asset ratio) was increased from \$655,480 to \$1,224,209. Principal outstanding on the machinery debt remained constant (\$140,190) but farm real estate debt increased from \$515,290 to \$1,084,019. Consequently, the base case is the same as the low-leverage situation, except it has more farm real estate debt and a higher interest expense.

Evaluating Changes in Operating Strategies

Operating strategies are represented by changing individual amounts entered for the base case. Changes to gross revenues and operating expenses were discussed in March. Non-farm income can be inputted on Worksheet 3, Line 2 and its impact shown on the coverage ratio. Reducing family living withdrawals can be examined by reducing family living expenses and taxes on Worksheet 1, Data Cell X.



Results

Four operating strategies and a lifestyle change are evaluated. These are: 1) increase gross revenues 10 percent; 2) increase non-farm income from \$0 to \$80,000; 3) reduce operating expenses 10 percent; and 4) a combination of increasing gross revenues and reducing operating expenses, each by 5 percent. The lifestyle change is a decrease in family living expenditures of \$1,000 per month (15 percent).

Operating Strategies

The low-leverage base-case situation had \$51,034 in net farm income from operations and coverage ratio of 1.00. The high-leverage base case situation had \$44,921 in net farm income from operations and coverage ratio of 0.77.

Increase Gross Farm Revenues 10 Percent

To represent a marketing gain or other increase in revenue, an increase in gross farm revenues of 10 percent was combined with constant total operating expenses. For the low leverage situation, net farm income from operations increased from \$51,034 to \$164,579 and coverage ratio increased from 1.00 to 2.11 (Table 1). For the high leverage situation, net farm income from operations increased from \$44,921 to \$158,466 and coverage ratio increased from 0.77 to 1.46 (Table 1).

Increase Non-Farm Income

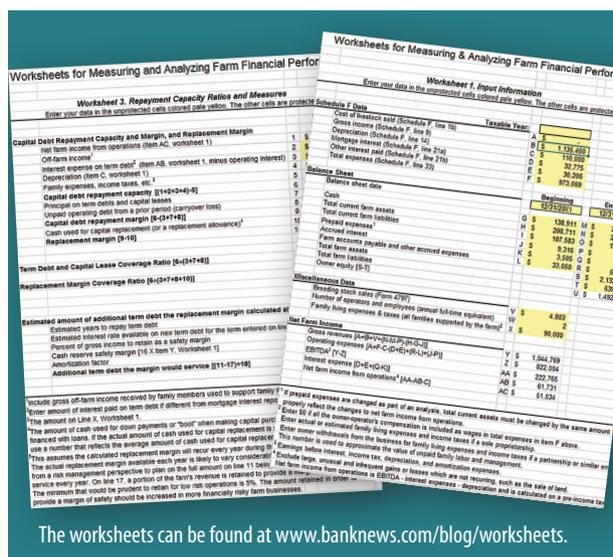
The effectiveness of an increase in non-farm income will differ across operations, depending on source and

amount of non-farm income. For instance, if a family member decision-maker obtains off-farm employment and contributes less time to management, the strategy could be counterproductive.

Non-farm income was increased from \$0 to \$80,000, which offsets the amount withdrawn for family living expenditures. All net farm income from operations was available to pay taxes and/or make principal payments on term debt. There is no change in net farm income from operations, but repayment capacity improved because nothing was withdrawn for family living expenditures. The coverage ratio improved from 1.00 to 1.78 for the low-leverage situation and from 0.77 to 1.26 for the high-leverage situation.

Decrease Operating Expenses

A cost-cutting strategy was represented by reducing operating expenses by 10 percent while leaving gross farm revenues constant. The results for the low-leverage situation were net farm income from operations increased from \$51,034 to \$148,341 and the coverage ratio increased from 1.00 to 1.95. For the high-leverage situation, net farm income from operations increased from \$44,921 to \$142,839 and the coverage ratio increased from 0.77 to 1.37.



The worksheets can be found at www.banknews.com/blog/worksheets.

Increase Gross Farm Revenues and Decrease Operating Expenses

A combination strategy was represented by increasing gross farm revenues and reducing operating expenses, each by 5 percent. The results were net farm income from operations increased from \$51,034 to \$156,460 and coverage ratio increased from 1.00 to 2.03 for the low-leverage situation. Net farm income from operations increased from

Term Debt and Capital Lease Coverage Ratios for Operating Strategies, Low- and High-Leveraged Firms

Strategy/Change	Leverage Level	
	Low	High
Base	1.00	0.77
Operating Strategies:		
Increase Revenue 10%	2.11	1.46
Increase Non-farm Income	1.78	1.26
Decrease Expenses 10%	1.95	1.37
Increase Revenue 5%	2.03	1.42
Decrease Expenses 5%		
Decrease Family Living 15%	1.12	0.84

\$44,921 to \$150,653 and coverage ratio increased from 0.77 to 1.42 for the high leverage situation.

Decrease Withdrawals for Family Living \$1,000 per Month or 15 Percent

A reduction in amount withdrawn for family living expenditures was represented by reducing family living withdrawals \$1,000 per month, 15 percent, from the \$80,000 used in the base case. The amount withdrawn for taxes was added to the amount withdrawn for family living, reducing family living expenditures and taxes from \$90,000 to \$78,000, Worksheet 1, Data Cell X. The result for the low leverage situation was coverage ratio increased from 1.00 to 1.12. For the high-leverage situation, coverage ratio increased from 0.77 to 0.84.

Final Comment

Every farming operation is unique, so the effectiveness of operating strategies will be different for each operation. Differences in effectiveness were found when evaluating operating strategies for the same-case farm with two levels of financial leverage. Consequently, each change must be assessed as to its effectiveness for each farming operation. **AB**

Elizabeth A. Yeager is assistant professor, Department of Agricultural Economics, Kansas State University, and Freddie L. Barnard is professor of agricultural economics, Department of Agricultural Economics, Purdue University. Contact them at yeager@k-state.edu, or barnardf@purdue.edu.