

The Payoff from Improving Performance

Strategies to improve operating and financial performance are particularly critical in periods of low prices and incomes. What is the payoff or benefit of various strategies? And how can you analyze that payoff to determine which one is the best to pursue?

Fundamentally, for any business there are two primary ways to enhance operating performance as measured by ROA (return on assets): 1) increase net income per dollar of revenue or unit of output—operating profit margin, and 2) increase revenue per dollar invested—asset turnover. If operating profits exceed the cost of borrowed capital, you can augment operating performance through the use of debt or leverage to generate the ultimate performance measure for the individual investor: ROE (return on equity). Thus, there are three primary levers that affect bottom line financial performance: 1) operating profit margin, 2) asset turnover, and 3) leverage. The relationship among these three levers is summarized graphically in Figure 4.

As illustrated in Figure 4, you assess operating performance by first calculating net income (gross revenue minus fixed and variable cost). Fixed costs are those costs that will not vary with the level of production. Depreciation expenses, real estate and property taxes, interest on term debt, and payments for operator labor and management contributions are examples of these costs. Variable costs are those items that will change with the level of production. Seed, fertilizer, and fuel expenses are examples of these expenses. Specific decisions on cost control, efficiency, and productivity will affect net income. Net income will also be affected by product pricing and input procurement decisions.

In determining net income, one of the fixed expenses is payment for operator labor and management. We suggest that you use family living plus income tax payments as an estimate of this cost item. Because these expense items are subtracted, net income represents the return to the operator's capital investment and the risk of operating the business.

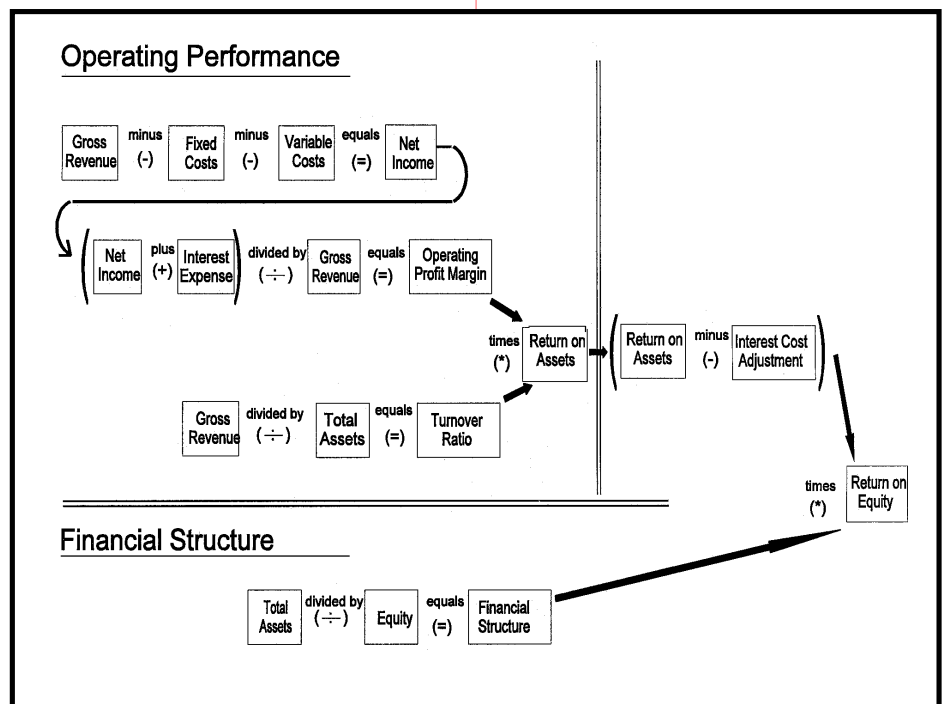


Figure 4. Relationship Among Operating Profit Margin, Asset Turnover, and Leverage

After you determine net income, add back interest cost to obtain earnings before interest, and divide the result by gross revenue to determine the operating profit margin (operating income \div gross revenue). Operating profit margin is the proportion of each dollar of revenue that is operating profit and thus remains to pay financing expenses.

Next, divide gross revenue by total assets to determine the asset turnover ratio. Asset turnover is the dollars of revenue that are generated annually by each dollar of invested funds or assets. Consequently, multiplying the operating profit margin (operating profit \div gross revenue) by the asset turnover ratio (gross revenue \div total assets) results in the rate of return on assets (ROA) which captures the essence—the bottom line—of operating performance.

You incorporate financial structure and debt cost into the analysis by first dividing assets by equity to obtain the asset to equity ratio. The asset to equity ratio indicates to what extent equity capital is being leveraged by the use of debt capital. Because ROA is a return to all assets (i.e., interest on debt is not subtracted as an expense) and you want to get the rate of return to equity only, you must subtract the interest cost per dollar of assets from ROA to get an adjusted ROA. Multiplying this adjusted ROA [(operating income \div total assets) - (interest expense \div total assets)] times the financial structure ratio (total assets \div equity) results in the rate of return on equity (ROE), which measures the rate of return you are generating on your invested funds.

Any decision that influences product prices, per unit costs, volume, or efficiency/productivity (output per unit of input) will affect the operating profit margin or the asset turnover ratio. And any decision that affects the amount of debt used will affect the financial structure as well as the operating profit margin. The model in Figure 4 allows you to determine the financial impact of any of numerous decisions that you might make to improve performance.

Links Between Managerial Decisions & Rates of Return

The information just presented won't be very useful for producing improved financial performance unless farm business managers can connect the bottom line results to their own actions and decisions. One step in making that connection involves thinking about the many factors that may influence those results. Figure 5 summarizes a few illustrative examples of factors that farm business managers should be able to influence that, in turn, will affect the measured value for ROE. For example, an increase in yields per acre will increase asset turnover, even if per bushel prices don't change, through its impact on gross revenues. The precise impact of a yield increase on the operating profit margin is less clear, because the yield increase will affect both revenues and variable costs. However, if the value of the additional yield exceeds the added cost to produce the increase, then operating profit margin will also increase.

In identifying strategies that you can use to improve performance or the rates of return (return on assets and return on equity), you should realize that some actions may affect only one of the performance measures (operating profit margin, asset turnover, or financial structure), whereas others will affect two or more. Cost-control strategies, such as lowering the cost of fertilizer or seed, will only improve the operating profit margin. Other strategies, such as devoting more time to the improvement of marketing skills, would increase both the operating profit margin and the asset turnover ratio. Improving both the operating profit margin and the asset turnover ratio gives you a better chance to improve the return on assets and return on equity than those strategies with just a single impact.

Worksheet 4 (p. 43) provides a method for assessing how changes in your operation will affect ROA and ROE. In completing Worksheet 4, we suggest that you use data for the current situation to complete the "Actual" column. This means that the values that go in the "Actual" column in Worksheet 4 should come from Worksheets 1 and 2. You can use the "Projected Change" column to estimate how a change will affect financial performance. Use the "Projected Change" column to refigure the financial data and financial measures based upon a proposed change. Then, compare the projected performance based on the change to your current situation, as it is summarized in the "Actual" column.

If the action is only revenue increasing (e.g., better prices), then only gross revenues will need to be changed. This will change both the

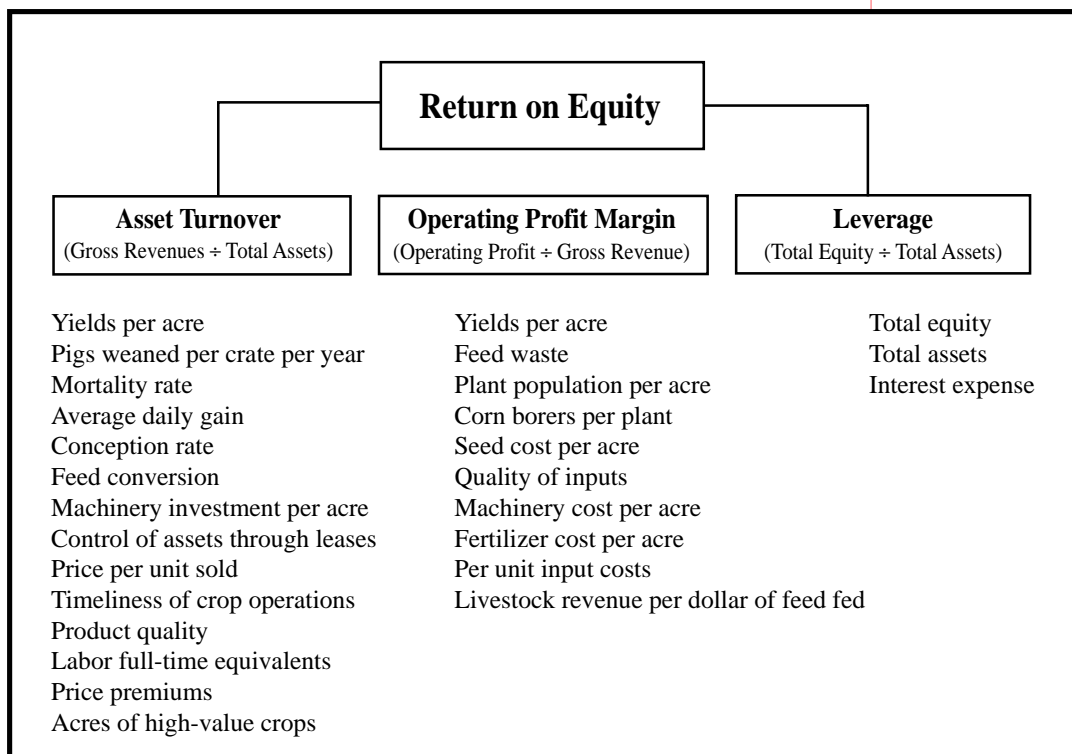


Figure 5. Selected Production and Management Factors that Influence Return on Equity

operating profit margin and the asset turnover ratio. If the action reduces variable costs (e.g., reduced fertilizer costs), this will change the operating profit margin. Each change you consider may influence various financial data items. If the action is designed to increase throughput, the change will affect both revenues and costs. Revenues will increase because of the increased level of production. The increased level of production will also cause variable expenses to increase. Because fixed resources are the same, fixed costs will remain the same. This type of change will influence both the operating profit margin and the asset turnover.

If the action is an asset sale, it is likely that you will need to change gross revenue, fixed costs, variable costs, and total assets. In estimating gross revenues, remember this is an estimate of the operating gross revenue after the asset sales are made. As a result, gross revenues would not include the revenue from the sales of the assets. If you use the proceeds of the asset sale to reduce debt, equity will remain the same, but interest costs are likely to decline. Asset sales can have a number of effects. You need to exercise care to be sure that all the changes are captured in the analysis.

Example

Let's finish this discussion by considering an example. John Jones, a local farmer, has completed Worksheets 1 and 2. His ROA was 7.25%, but his ROE was only 3.1%. The fact that his ROE was well below his ROA indicates that financial leverage is working against the farm and that improvement is needed. A local banker mentioned that he would refinance John's land mortgage at a 1% lower interest rate than the best rate he could obtain from his current lender. John has a \$300,000 land mortgage on the farm. John has estimated that his total interest expense on his mortgage would decrease by \$3,000 as a result of changing lenders. But he has been satisfied with his current lender and won't change lenders unless the change will significantly improve his farm's financial performance. Because debt appears to be part of the problem, he suspects the lower interest rate might have a big impact.

John hasn't projected his income for the upcoming year. So he decides to look at how the decreased interest expense would have affected performance during the year that has just ended, as reflected in the numbers in his Worksheet 1. This is what accountants call a "pro forma" analysis. Those numbers are restated below in the "Actual" column of Table 7, which corresponds to the "Actual" column in Worksheet 4. The numbers in the middle column of Table 7 are the recomputed performance measures for John's farm based on his estimates of what the impact of the reduced interest rate on his mortgage would have been.

Notice in Table 7 that if John had been able to obtain the 1% rate reduction on his \$300,000 mortgage, his return on equity would have improved only slightly from 3.1% to 3.45%. The only calculation affected by the change in the interest rate would have been the interest cost adjustment. Operating profit margin and asset turnover, the key elements of the productive use of the farm's assets to generate profits,

Table 7. Worksheet 4 Calculations for the John Jones Farm

	Actual	Reduced Operating Interest	More Timely Planting
1. Gross Revenues (Item 1 from John's Worksheet 4)	\$347,500	\$347,500	\$368,350
2. Fixed Costs (Item 2 from John's Worksheet 4)	\$128,450	\$125,450	\$128,450
3. Variable Costs (Item 3 from John's Worksheet 4)	\$192,675	\$192,675	\$192,675
4. Net Income (Item 4 from John's Worksheet 4)	\$26,375	\$29,375	\$47,225
5. Total Farm Assets (Item 5 from John's Worksheet 4)	\$1,150,000	\$1,150,000	\$1,150,000
6. Owner's Equity (Item 6 from John's Worksheet 4)	\$850,000	\$850,000	\$850,000
7. Interest Expense (Item 7 from John's Worksheet 4)	\$57,000	\$54,000	\$57,000
A. Operating Profit Margin $[(4 + 7) \div 1]$	0.2399	0.2399	0.2830
B. Asset Turnover Ratio $(1 \div 5)$	0.3022	0.3022	0.3203
C. Return on Assets $(A \times B) \times 100$	7.25%	7.26%	9.06%
D. Interest Cost Adjustment $(7 \div 5)$	0.0496	0.0470	0.0496
E. Financial Structure (leverage measure) $(5 \div 6)$	1.3529	1.3529	1.3529
F. Return on Equity $[(C \div 100) - D] \times E \times 100$	3.10%	3.45%	5.55%

wouldn't have changed at all. So the 1% interest rate reduction doesn't have nearly as big an impact as John had expected.

John's decision about whether to change lenders isn't that critical in terms of its likely impact on farm financial performance. Other factors, such as his history with his current lender, may have more impact on his farm's long-term prospects for improvement. However, it is apparent that he needs to take action to improve the performance of the farm. John's overall debt load isn't particularly large given his debt-to-asset ratio of 26%, but his interest expense consumes an uncomfortably large portion of the revenues the farm generates. Given the farm's current equity, he certainly appears to have the resources to change directions and a lot to gain from improved performance. If the drop in interest rate won't produce enough improvement, what other types of adjustments might have the amount of impact he really needs?

John decides to use Worksheet 4 to evaluate another alternative that he has been considering. John has been planting about half of his full-season soybeans after May 23. University research data suggests that he could increase his yields and revenues by pushing a little harder to get all of his bean crop in the ground earlier. That information is consistent with his own observations based on the yield history of the ground he farms. He estimates that his farm revenues could have been increased by 6% by pursuing this operating strategy and at negligible additional monetary cost. The right-hand column in Table 7 shows the estimated impact of the proposed change in the management of the bean planting operation. Both ROA and ROE have been improved, unlike the previous example, in which only ROE improved. Notice that the cost of debt and the amount of financial leverage haven't changed compared to the

actual column, and, thus, the increased ROE was entirely due to the increase in profitability.

The revised planting strategy looks potentially rewarding. John will need to consider making additional improvements in performance. Typically, poor performance isn't the product of only one problem, such as high interest rates or lack of timeliness, but instead is the result of a number of things that could be improved. Changes that will simultaneously increase profitability and decrease the amount or cost of using leverage will produce more impact dollar for dollar than changes that affect only one or the other. Typically, the impact of each one of the contributors to poor performance may not be that great by itself, but all the smaller performance shortfalls add up.

Worksheet 4. Assessing the Effect of a Change on the Rates of Return

Financial Data	Actual	Projected Change ⁴
1. Gross Revenues (Item w) ¹	_____	_____
2. Fixed Costs ² (Depreciation, interest, family living and income taxes Items c+x+v)	_____	_____
3. Variable Costs ³ (Other expenses minus depreciation, Item y-c)	_____	_____
4. Net Income (1-2-3)	_____	_____
5. Total Farm Assets (Item q)	_____	_____
6. Owner's Equity (Item s)	_____	_____
7. Interest Expense (Item x)	_____	_____
Calculations		
A. Operating Profit Margin [(4 + 7) ÷ 1]	_____	_____
B. Asset Turnover Ratio (1 ÷ 5)	_____	_____
C. Return on Assets (A x B) x 100	_____ %	_____ %
D. Interest Cost Adjustment (7 ÷ 5)	_____	_____
E. Financial Structure (5 ÷ 6)	_____	_____
F. Return on Equity [((C ÷ 100) - D) x E] x 100	_____ %	_____ %

¹ Items refer to Worksheet 1, page 13.

² Costs that do not vary with the level of production. If a more precise estimate of fixed costs is desired, include the insurance and property taxes reported on Schedule F.

³ Costs that vary with the level of production. If a more precise estimate of variable costs is desired, subtract the insurance and property taxes reported on Schedule F.

⁴ In conducting your analysis, it is best to consider only one change at a time.

