

**Audio:**

Welcome to Getting on Track: Understanding Financial Performance. In this course you will learn how to analyze the health of your business using financial ratios.

Click the next arrow to start at the beginning of the course or click the Menu link to select a lesson from the Main Menu. We recommend that you view the lessons in order the first time through the course.

Lesson 6

*Measures of Financial Efficiency*



## *Measures of Financial Efficiency*

### **Financial Efficiency Measures**

The Farm Financial Standards Council recommends five ratios for measuring financial efficiency:

- Asset Turnover
- Operating Expense
- Interest Expense
- Depreciation Expense
- Net Farm Income from Operations



### **Audio:**

Financial efficiency refers to whether or not the physical resources of your business are being utilized and combined in a profitable manner.

The Farm Financial Standards Council recommends five ratios for measuring financial efficiency; Asset Turnover, Operating Expense, Interest Expense, Depreciation Expense, and Net Farm Income from Operations.

In this lesson, you will learn how to calculate and evaluate the Asset Turnover, Operating Expense, and Interest Expense ratios.

# Measures of Financial Efficiency

## The Asset Turnover Ratio

$$\frac{\text{Gross Farm Income}}{\text{Average Farm Assets}} = \text{Asset Turnover Ratio}$$

*These values may be found on the income statement and beginning and ending book value balance sheets for the reporting period.*



### Audio:

The Asset Turnover ratio is calculated by dividing Gross Farm Income by Average Farm Assets.

These values can be found on the income statement and beginning and ending balance sheets for the reporting period.

The results of this calculation will help you assess how efficiently the business is using its assets to generate revenue.

# Measures of Financial Efficiency

## The Operating Expense Ratio

$$\frac{\text{Operating Expense (Minus interest and depreciation)}}{\text{Gross Farm Income}} = \text{Operating Expense Ratio}$$

*These values can be found on the income statement.*



### Audio:

The Operating Expense ratio is calculated by dividing Operating Expense (excluding interest and depreciation) by Gross Farm Income.

These values can be found on the income statement.

The Operating Expense ratio measures how efficiently the business is using operating inputs to generate income.

# Measures of Financial Efficiency

## The Interest Expense Ratio

$$\frac{\text{Interest Expense}}{\text{Gross Farm Income}} = \text{Interest Expense Ratio}$$

*These values can be found on the income statement.*



### Audio:

The Interest Expense ratio is calculated by dividing Interest Expense by Gross Farm Income.

These values can be found on the income statement.

The Interest Expense ratio measures the amount of gross farm income used to pay for interest on borrowed capital.

# Measures of Financial Efficiency

## Calculate the Ratios

Download *Jack and Joanie's financial statements*. Then, calculate the asset turnover ratio. Click *Submit* to check your answers.

[Jack and Joanie's financial statements](#) 

**Asset Turnover Ratio**

Gross Farm Income =

Average Farm Assets



Calculator



### Audio:

Now, try calculating the ratios. Click on the link to download Jack and Joanie's financial statements. Then, calculate Jack and Joanie's asset turnover ratio. Click the calculator icon to access a calculator tool.

Click Submit to check your answer.

# Measures of Financial Efficiency

## Calculate the Ratios

Download *Jack and Joanie's financial statements*. Then, calculate the asset turnover ratio. Click *Submit* to check your answers.

[Jack and Joanie's financial statements](#) 

**Asset Turnover Ratio**

Gross Farm Income	=	<input type="text" value=".41"/>	<input type="button" value="Submit"/>
Average Farm Assets			

That's correct! You have correctly calculated Jack and Joanie's asset turnover ratio.



Calculator





# Measures of Financial Efficiency

## Calculating the Return on Assets

### Calculating the Asset Turnover Ratio

**Step 1:**  
Locate the gross farm income value on Jack and Joanie's income statement

INCOME STATEMENTS											
	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Cash Receipts											
Receipts	1,200	1,100	1,200	1,100	1,200	1,100	1,200	1,100	1,200	1,100	1,200
Expenses	(800)	(750)	(800)	(750)	(800)	(750)	(800)	(750)	(800)	(750)	(800)
<b>Gross Farm Income</b>	<b>400</b>	<b>350</b>	<b>400</b>	<b>350</b>	<b>400</b>	<b>350</b>	<b>400</b>	<b>350</b>	<b>400</b>	<b>350</b>	<b>400</b>
Operating Expenses											
Feed & Hay	1,200	1,100	1,200	1,100	1,200	1,100	1,200	1,100	1,200	1,100	1,200
Utilities & Electricity	100	100	100	100	100	100	100	100	100	100	100
Repairs & Maintenance	100	100	100	100	100	100	100	100	100	100	100
Fuel & Oil	100	100	100	100	100	100	100	100	100	100	100
Supplies	100	100	100	100	100	100	100	100	100	100	100
Depreciation	100	100	100	100	100	100	100	100	100	100	100
Interest	100	100	100	100	100	100	100	100	100	100	100
Income - Operating	100	100	100	100	100	100	100	100	100	100	100
Income - Other	100	100	100	100	100	100	100	100	100	100	100
Income - Total	200	200	200	200	200	200	200	200	200	200	200
Assets											
Current Assets	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Fixed Assets	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Total Assets	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
<b>Asset Turnover Ratio</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>	<b>0.1</b>

Next Slide

# Measures of Financial Efficiency

## Calculate the Ratios - Cont.

### Calculating the Asset Turnover Ratio

**Step 2:**  
Determine the average farm assets on Jack and Joanie's balance sheet by adding the total assets from the past two reporting periods and dividing it by 2.

$$\frac{139,544 + 136,466}{2} = 138,005$$

**Step 3:**  
Divide the gross farm income by this value.

$$\frac{56,822}{138,005} = 0.41$$

FARM BALANCE SHEET - Asset Values											
Values in thousands (\$K) and entered in this table. Values in blue color/box are calculated.											
Assets	12/31/2019	12/31/2020	12/31/2021	12/31/2022	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027	12/31/2028	12/31/2029
Current Assets	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Current Liabilities	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Net Current Assets	0	0	0	0	0	0	0	0	0	0	0
Non-Current Assets	138,544	135,466	137,000	139,000	141,000	143,000	145,000	147,000	149,000	151,000	153,000
Non-Current Liabilities	138,005	136,466	135,000	133,000	131,000	129,000	127,000	125,000	123,000	121,000	119,000
Total Assets	139,544	136,466	138,000	140,000	142,000	144,000	146,000	148,000	150,000	152,000	154,000
Total Liabilities	139,005	137,466	136,000	134,000	132,000	130,000	128,000	126,000	124,000	122,000	120,000
Net Worth	0	0	2,000	6,000	12,000	18,000	24,000	30,000	36,000	42,000	48,000



## Measures of Financial Efficiency

### Calculate the Ratios

Download *Jack and Joanie's financial statements*. Then, calculate the *asset turnover ratio*. Click *Submit* to check your answers.

Operating Expense Ratio

Operating Expense (Minus interest and depreciation)	=	<input type="text"/>	Submit
Gross Farm Income			

Calculator



### Audio:

Now, try calculating Jack and Joanie's operating expense ratio, using information from the income statement and book value balance sheet for example year 10.

Click the calculator icon to access a calculator tool.

Click Submit to check your answer.

# Measures of Financial Efficiency

## Calculate the Ratios


Download *Jack and Joanie's financial statements*. Then, calculate the *asset turnover ratio*. Click *Submit* to check your answers.

Operating Expense Ratio

$$\frac{\text{Operating Expense (Minus interest and depreciation)}}{\text{Gross Farm Income}} = .44$$

Submit

That's correct! You have correctly calculated Jack and Joanie's operating expense ratio.

 Calculator



# Measures of Financial Efficiency

## Calculate the Ratios - Cont.

### Calculating the Operating Expense Ratio

**Step 1:**  
Locate the total operating expenses on Jack and Joanie's income statement.

**Step 2:**  
Locate the interest expense on Jack and Joanie's income statement.

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>Check Receipts</b>										
Revenue	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Expenses	700	470	2,430	2,430	2,430	2,430	2,430	2,430	2,430	2,430
<b>Profit</b>	19,300	19,530	17,570	17,570	17,570	17,570	17,570	17,570	17,570	17,570
<b>Cost of Revenue</b>	2,204	2,204	4,000	5,000	5,000	5,000	4,875	5,200	5,200	5,200
Feed & Supplies	500	600	1,000	375	1,000	1,000	750	500	1,000	1,000
Repairs & Maintenance	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Fuel & Oil	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Utilities	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Insurance	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Interest	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Other	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
<b>Net Profit</b>	17,100	17,330	13,570	12,570	12,570	12,570	12,700	12,370	12,370	12,370
<b>Net Cash Flow</b>	17,100	17,330	13,570	12,570	12,570	12,570	12,700	12,370	12,370	12,370
<b>Net Worth</b>	17,100	17,330	13,570	12,570	12,570	12,570	12,700	12,370	12,370	12,370
<b>Net Operating Income</b>	17,100	17,330	13,570	12,570	12,570	12,570	12,700	12,370	12,370	12,370
<b>Net Income</b>	17,100	17,330	13,570	12,570	12,570	12,570	12,700	12,370	12,370	12,370
<b>Net Assets</b>	17,100	17,330	13,570	12,570	12,570	12,570	12,700	12,370	12,370	12,370
<b>Net Equity</b>	17,100	17,330	13,570	12,570	12,570	12,570	12,700	12,370	12,370	12,370
<b>Net Liabilities</b>	0	0	0	0	0	0	0	0	0	0
<b>Net Total</b>	17,100	17,330	13,570	12,570	12,570	12,570	12,700	12,370	12,370	12,370

Next Slide





# Measures of Financial Efficiency

## Calculate the Ratios - Cont.

### Calculating the Operating Expense Ratio

**Step 5:**  
Locate the gross farm income value on Jack and Joanie's income statement

**Step 6:**  
Divide the result of Step 4 by the gross farm income.

$$\frac{25,236}{56,822} = 0.44$$

	2010	2011	2012	2013	2014	2015	2016	2017	2018
<b>Income Statement</b>									
Revenue	82,700	87,000	104,600	102,000	102,000	102,000	102,000	102,000	102,000
Expenses	57,464	61,764	79,364	76,764	76,764	76,764	76,764	76,764	76,764
<b>Gross Farm Income</b>	<b>25,236</b>	<b>25,236</b>	<b>25,236</b>	<b>25,236</b>	<b>25,236</b>	<b>25,236</b>	<b>25,236</b>	<b>25,236</b>	<b>25,236</b>
<b>Net Farm Income</b>	<b>10,454</b>	<b>10,454</b>	<b>10,454</b>	<b>10,454</b>	<b>10,454</b>	<b>10,454</b>	<b>10,454</b>	<b>10,454</b>	<b>10,454</b>



## Measures of Financial Efficiency

### Calculate the Ratios

Download *Jack and Joanie's financial statements*. Then, calculate the asset turnover ratio. Click Submit to check your answers.

Interest Expense Ratio

$$\frac{\text{Interest Expense}}{\text{Gross Farm Income}} = \text{[ ]} \quad \text{Submit}$$

Calculator



### Audio:

Now, try calculating Jack and Joanie's interest expense ratio, using information from the income statement and book value balance sheet for example year 10.

Click the calculator icon to access a calculator tool.

Click Submit to check your answer.



# Measures of Financial Efficiency

## Calculate the Ratios

Download *Jack and Joanie's financial statements*. Then, calculate the *asset turnover ratio*. Click *Submit* to check your answers.

Interest Expense Ratio

Interest Expense =  Submit

Gross Farm Income

That's correct! You have correctly calculated Jack and Joanie's interest expense ratio.

 Calculator



# Measures of Financial Efficiency

## Calculate the Ratios - Cont.

### Calculating the Interest Expense Ratio

**Step 1:**  
Locate the interest expense value on Jack and Joanie's income statement

**Step 2:**  
Locate the gross farm income value on Jack and Joanie's income statement.

**Step 3:**  
Divide the first value by the second value.

$$2,640 \div 56,822 = 0.05$$

INCOME STATEMENTS											
Return to this position after you have completed the study. Select the correct value of the ratio you calculated.											
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Jack's Farm</b>											
Revenue	10,000	11,000	12,000	13,000	14,000	15,000	16,000	17,000	18,000	19,000	20,000
Cost of Sales	(2,000)	(2,200)	(2,400)	(2,600)	(2,800)	(3,000)	(3,200)	(3,400)	(3,600)	(3,800)	(4,000)
<b>Gross Farm Income</b>	<b>8,000</b>	<b>8,800</b>	<b>9,600</b>	<b>10,400</b>	<b>11,200</b>	<b>12,000</b>	<b>12,800</b>	<b>13,600</b>	<b>14,400</b>	<b>15,200</b>	<b>16,000</b>
Operating Expenses	(3,000)	(3,200)	(3,400)	(3,600)	(3,800)	(4,000)	(4,200)	(4,400)	(4,600)	(4,800)	(5,000)
Interest Expense	(2,000)	(2,100)	(2,200)	(2,300)	(2,400)	(2,500)	(2,600)	(2,700)	(2,800)	(2,900)	(3,000)
Income Before Taxes	3,000	3,500	4,000	4,500	5,000	5,500	6,000	6,500	7,000	7,500	8,000
Taxes	(500)	(550)	(600)	(650)	(700)	(750)	(800)	(850)	(900)	(950)	(1,000)
<b>Net Farm Income</b>	<b>2,500</b>	<b>2,950</b>	<b>3,400</b>	<b>3,850</b>	<b>4,300</b>	<b>4,750</b>	<b>5,200</b>	<b>5,650</b>	<b>6,100</b>	<b>6,550</b>	<b>7,000</b>
Net Farm Income from 2010	2,500	2,950	3,400	3,850	4,300	4,750	5,200	5,650	6,100	6,550	7,000
Interest Expense from 2010	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000
<b>Interest Expense Ratio</b>	<b>0.075</b>	<b>0.082</b>	<b>0.087</b>	<b>0.092</b>	<b>0.096</b>	<b>0.100</b>	<b>0.104</b>	<b>0.108</b>	<b>0.112</b>	<b>0.116</b>	<b>0.120</b>
<b>Net Farm Income</b>	<b>2,500</b>	<b>2,950</b>	<b>3,400</b>	<b>3,850</b>	<b>4,300</b>	<b>4,750</b>	<b>5,200</b>	<b>5,650</b>	<b>6,100</b>	<b>6,550</b>	<b>7,000</b>
Net Farm Income from 2010	2,500	2,950	3,400	3,850	4,300	4,750	5,200	5,650	6,100	6,550	7,000
Interest Expense from 2010	2,000	2,100	2,200	2,300	2,400	2,500	2,600	2,700	2,800	2,900	3,000
<b>Interest Expense Ratio</b>	<b>0.075</b>	<b>0.082</b>	<b>0.087</b>	<b>0.092</b>	<b>0.096</b>	<b>0.100</b>	<b>0.104</b>	<b>0.108</b>	<b>0.112</b>	<b>0.116</b>	<b>0.120</b>



# Measures of Financial Efficiency

## Evaluating the Results

Financial ratios are most valuable when you have a value to compare them to. This might be your ratio calculations from previous years or industry **benchmarks**.

**Benchmarks: resting heart rate**

Low	Moderate	High
60-100	100-160	>160
No action necessary	Lifestyle changes, medication	Cardiacdefibrillation, surgery

These numbers are examples only. Always consult a doctor to evaluate real medical risk.

Financial benchmarks work much the same way. Variations will occur between size of operations, owned versus leased, types of operation, location of operation, and other factors.



## Audio:

Financial ratios are most valuable when you have something to compare them to. This might be ratio calculations from previous years or industry benchmarks.

Benchmarks are guidelines or general rules of thumb related to a specific industry. For instance, a normal heart rate is between 60 and 100 beats per minute.

However, heart rate can vary with age, athletic conditioning, exposure to stress and other variables. Thus, there is no single heart rate that can be considered normal. The benchmark range simply allows a doctor to interpret the measurement and to decide if further action is required.

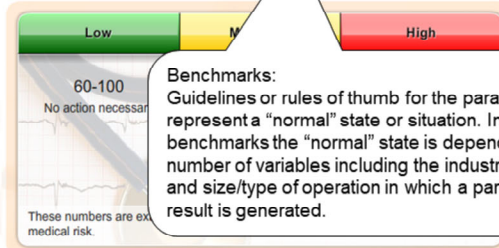
Financial benchmarks work much the same way.

# Measures of Financial Efficiency

## Evaluating the Results

Financial ratios are most valuable when you have a value to compare them to. This might be your ratio calculations from previous years or industry **benchmarks**.

**Benchmarks:** resting heart rate



Financial benchmarks work much the same way. Variations will occur between size of operations, owned versus leased, types of operation, location of operation, and other factors.



# Measures of Financial Efficiency

## Financial Efficiency Ratio Benchmarks

Financial Efficiency Benchmarks	Low	Moderate	High
Asset Turnover	Depends heavily on type of operation and whether it is owned or leased		
Operating Expense	< 0.7	0.7 - 0.85	> 0.85
Interest Expense	< 0.1	0.1 - 0.2	> 0.2



**Possible Actions For Improvement:** Increase the value of production, reduce production costs where prudent, control or reduce family living withdrawals, improve marketing practices, properly structure debt to revenue generation.



### Audio:

Some benchmarks for profitability ratio values are shown on screen.

The benchmarks are meant to be only a guideline for comparison purposes.

The correlated benchmarks are presented in terms of green, yellow, and red lights. A green light represents a financial strength with low risk. A yellow light corresponds to moderate risk, and a red light means weakness and high risk. A green light doesn't guarantee success, nor does a red light imply failure. A weakness in one area may be overcome by strengths in other areas.

Each farm operator should establish specific benchmarks for their specific farm situation.

# Measures of Financial Efficiency

## What Have You Learned?

Question 01 of 04

Select your answer(s) and click Submit for feedback.

According to industry benchmarks, what level of risk does Jack and Joanie's operating expense ratio indicate?

- Low Risk
- Moderate Risk
- High Risk

Submit



### Audio:

Check what you have learned about measures of financial efficiency by answering the questions on screen. Click Submit to check your answers.

# Measures of Financial Efficiency

## What Have You Learned?

Question 01 of 04

Select your answer(s) and click Submit for feedback.

According to industry benchmarks, what level of risk does Jack and Joanie's operating expense ratio indicate?

- Low Risk
- Moderate Risk
- High Risk

Submit

Next Question

**That's correct!**

Jack and Joanie's operating expense ratio is in the low risk range.



# Measures of Financial Efficiency

## What Have You Learned?

Question 02 of 04

Select your answer(s) and click Submit for feedback.

According to industry benchmarks, what level of risk does Jack and Joanie's interest expense ratio indicate?

- Low Risk
- Moderate Risk
- High Risk

Submit





# Measures of Financial Efficiency

## What Have You Learned?

Question 02 of 04

Select your answer(s) and click Submit for feedback.

According to industry benchmarks, what level of risk does Jack and Joanie's interest expense ratio indicate?

- Low Risk
- Moderate Risk
- High Risk

Submit

Next Question

**That's correct!**

Jack and Joanie's interest expense ratio is in the low risk range.



# Measures of Financial Efficiency

## What Have You Learned?

Question 03 of 04

Select your answer(s) and click Submit for feedback.

What can Jack and Joanie do to improve their operating expense ratio?

- Reduce expenses in relation to revenues generated
- Reduce or eliminate unnecessary input purchases
- Decrease revenues from product sales
- Increase expenses where possible

Submit



# Measures of Financial Efficiency

## What Have You Learned?

Question 03 of 04

Select your answer(s) and click Submit for feedback.

What can Jack and Joanie do to improve their operating expense ratio?

- Reduce expenses in relation to revenues generated
- Reduce or eliminate unnecessary input purchases
- Decrease revenues from product sales
- Increase expenses where possible

Submit

Next Question

**That's correct!**  
Reducing expenses in relation to revenues and reducing or eliminating input purchases will improve the operating expense ratio.



# Measures of Financial Efficiency

## What Have You Learned?

Question 04 of 04

Select your answer(s) and click Submit for feedback.

What actions will help you to reduce expenses in relation to revenues generated?

- Sell products at a lower market price
- Better manage to reduce expenses
- Select enterprises with higher net returns
- Increase expenses while reducing revenues

Submit



# Measures of Financial Efficiency

## What Have You Learned?

Question 04 of 04

Select your answer(s) and click Submit for feedback.

What actions will help you to reduce expenses in relation to revenues generated?

- Sell products at a lower market price
- Better manage to reduce expenses
- Select enterprises with higher net returns
- Increase expenses while reducing revenues

Submit

**That's correct!**  
Reducing expense and selecting enterprises with higher net returns will help you to reduce expenses in relation to revenues generated.

