

Financial Savvy for Safety Professionals

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Learning Objectives

1. Understand why financial statements are important to the safety professional
2. Understand key income statement concepts
3. Understand key balance sheet concepts
4. Understand financial ratios & compare ratios using time series analysis & cross section analysis
5. Know the components of weighted average cost of capital (WACC)

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I. Why safety professionals use financial information?

- A. Risk managers/safety professionals
1. Find sources of funds for retentions
  2. Identify exposures
  3. Determine cost of risk
  4. Allocate cost of risk
  5. Compliance
  6. Justify financially safety recommendations

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Learning Objective #1

Understand Why Financial Statements Are Important To The Safety Professional

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IV. The Importance of Financial Statement Analysis

A. Asset valuation

- Inventory
- Accounts receivable (A/R)
- Plant & equipment (P&E, PP&E)

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IV. The Importance of Financial Statement Analysis

B. Net income loss potential

1. What is **profit**? How much?
2. What are **continuing expenses**?
3. What are the **sources** of income?
4. Sources of expenses?
5. Where can a loss occur?
6. Which are **controllable**?
7. If a loss occurs & business is interrupted, which expenses will continue?

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IV. The Importance of Financial Statement Analysis

- C. Hidden assets/liabilities
- D. Expansion plans
- E. Liquidity
- F. Management's tolerance for risk and safety recommendations
- G. Risk assumed by contract
  - Leases
  - Hold harmless agreements

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IV. The Importance of Financial Statement Analysis

- H. Ability to qualify financially for a bond
- I. Outstanding/previous litigation
- J. Financial projections (pro-formas)

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V. Risk Management Loss Exposures

- C. Personnel
  - Salaries from income statements
- D. Liabilities
- E. Employee benefits
  - Health care
  - Retirement
  - Life insurance
  - Accidental death & dismemberment

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## VI. Accounting versus Finance

- A. Accounting – a process to help quantify an organization’s assets, liabilities, owners equity & cash flow at a point in time
- B. Finance
  - Managing an organization’s assets & cash flow to maximize shareholder wealth

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## VI. Accounting versus Finance

- A. Accounting (continued)
  - 3. Multiple sets of books (for legitimate reasons)
    - a. GAAP – Generally Accepted Accounting Principles
    - b. RAP – Regulatory Accounting Principles
  - 4. Key financial statements to identify exposures: balance sheet & income statement

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**Income Statement**  
(in thousands of dollars)

	12/31/X1	12/31/X2
<b>Net sales</b>	\$ 910	\$ 960
<b>Costs and expenses</b>		
Cost of goods sold	<u>407</u>	<u>446</u>
Gross profit	503	514
Operating expenses	330	345
Depreciation	<u>18</u>	<u>19</u>
Total operating costs	<u>\$ 755</u>	<u>\$ 810</u>
Net operating income, or earnings before interest and taxes (EBIT)	\$ 155	\$ 150
<b>Less interest expense</b>	<u>32</u>	<u>30</u>
Earnings before taxes	\$ 123	\$ 120
Income taxes (at 40%)	<u>49.2</u>	<u>48</u>
<b>Net income</b>	<u>\$ 73.8</u>	<u>\$ 72</u>
<b>Disposition of net income</b>		
Dividends paid to common stockholders	\$ 35	\$ 37
Addition to retained earnings	\$ 38.8	\$ 35
<b>Market and per-share data</b>		
Shares outstanding (December 31)	48,000	48,000
Earnings per share	\$ 1.54	\$ 1.50
Dividends per share	\$ .729	\$ .77
Market price (close December 31)	\$ 15.00	\$ 13.50

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Learning Objective #2

Understand Key Income Statement Concepts

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VII. Income Statement Notes

A. Sales

1. Nominal vs. Real
  - a. What constitutes sales?
  - b. When is an item sold?
2. Sales = number of units × price per unit
  - a. Allowances for bad debts & returns
  - b. Difference results in net sales

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VII. Income Statement Notes

A. Sales (continued)

3. Credit or recognize revenue when it is
  - a. Captured
  - b. Measurable
  - c. Earned
4. Risk exposure may not have left the shipper even though sale is complete

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VII. Income Statement Notes

A. Sales (continued)

- 5. Sales for service companies appear as rental or service revenues. Accepted methods for recording sales:
  - a. Delivery or performance of service (most common)
  - b. Percentage of completion (only for long-term construction projects)
  - c. Completion of production
  - d. Installment

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VII. Income Statement Notes

B. Cost of Goods Sold (COGS)

- 1. Labor, material & overhead – Inventory shrinkage also included (obsolescence, errors, theft)
- 2. Calculated using either of two different methods
  - a. Periodic – an accounting of goods sold & their corresponding expenses is performed at specified points during the accounting period or it could be
  - b. Perpetual – record is made of every sale, continuous record of cost of each item sold is transferred from inventory asset to the cost of goods sold expense on an ongoing basis

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VII. Income Statement Notes

B. COGS (continued)

- 3. Inventory cost flow assumption
  - a. First in, first out (FIFO) – accounts for the cost associated with items in the inventory earliest in the accounting period
  - b. Last in, first out (LIFO) – accounts for costs associated with items most recently added to inventory

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VII. Income Statement Notes

B. COGS (continued)

- 4. Weighted average
  - Applies the costs of individual items as items are sold throughout the accounting period
- 5. Specifically identified

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VII. Income Statement Notes

C. Wages & Pensions

- 1. Defined benefit vs. defined contribution
- 2. Accounting charge: minimum & maximum
- 3. Funding: over funded vs. under funded plans
- 4. Assumed rate of return

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VII. Income Statement Notes

D. Depreciation, Depletion & Amortization

- 1. Depreciation
  - a. Straight line depreciation (used by > 70% of corporations for financial reporting)  
Annual Depreciation =  $\frac{\text{Cost less Estimated Salvage Value}}{\text{years of estimated useful life}}$
  - b. Units of Production  
Depreciation charged per unit of production =  $\frac{\text{Cost less estimated salvage value}}{\text{number of units to be produced}}$

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VII. Income Statement Notes

D. Depreciation, Depletion & Amortization (continued)

- 1. Depreciation (continued)
  - c. Declining balance depreciation  
Annual Depreciation = double the straight line depreciation rate times the non-current assets net book value at the beginning of each accounting period
  - Benefit is that the depreciation expense is charged more quickly
  - c. Accelerated Cost Recovery System (ACRS) (now Modified Accelerated Cost Recovery System (MACRS) since Tax Reform Act of 1986)

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VII. Income Statement Notes

D. Depreciation, Depletion & Amortization (continued)

- 2. Depletion
- 3. Amortization
  - a. Expensing (short term) or capitalizing (long term) of intermediate term costs (development costs)
  - b. Examples
    - 1) Unsuccessful drilling efforts
    - 2) New product marketing costs
    - 3) Interest during construction phase
    - 4) Developing new complex software programs
    - 5) Goodwill...assets with a defined life

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VII. Income Statement Notes

E. Interest Expense

- 1. Maturity structure
- 2. Variable vs. fixed

F. Taxes

- 1. Effective rate
- 2. Deferred taxes
- 3. Investment Tax Credits (ITC), carry backs & forwards

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VII. Income Statement Notes

- G. Profit Margins: Time series & cross sectional analysis
1. Gross profit = Sales revenue less cost of goods sold
    - a. Gross profit margin = gross profit/sales
  2. Operating income = Gross profit less operating expenses
    - a. Operating income margin as a percentage of sales = operating income/sales
  3. Net income = Operating income less interest expense & taxes
    - a. Net income margin as a percentage of sales = net income/sales

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Balance Sheet  
(In Thousands of Dollars)

	12/31/X1	12/31/X2
Cash	\$ 28	\$ 97
Marketable securities	42	10
Receivables	93	120
Inventories	<u>65</u>	<u>85</u>
Total current assets	\$ 228	\$ 312
Net fixed assets	<u>621</u>	<u>735</u>
Total assets	<u>\$ 849</u>	<u>\$1,047</u>
Accounts payable	\$ 64	\$ 95
Notes payable	20	87
Other current liabilities	<u>95</u>	<u>75</u>
Total current liabilities	\$ 179	\$ 257
Long-term debt	257	310
Total liabilities	436	567
Common stock	248	280
Retained earnings	<u>165</u>	<u>200</u>
Total Stockholder's Equity	413	480
Total Liabilities and SH Equity	<u>\$ 849</u>	<u>\$1,047</u>

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Learning Objective #3

Understand Key Balance Sheet Concepts

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VIII. Balance Sheet Notes

A. Current assets

- 1. Cash
- 2. Marketable securities
  - Short term highly liquid securities that have a low but positive yield
- 3. Accounts receivable (A/R)
  - a. Pay late & collect early
  - b. Aging of A/R

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VIII. Balance Sheet Notes

A. Current assets (continued)

- 4. Inventory
  - a. Raw materials (RM), work-in-progress (WIP), & finished goods (FG)
  - b. Advantages & disadvantages of inventory levels
    - 1. Just in time inventories
    - 2. Synchronous production with suppliers
    - 3. Dangers for business interruption

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VIII. Balance Sheet Notes

B. Fixed Assets (Long-term)

- 1. Plant & Equipment (net of depreciation)
- 2. Investments
  - Consolidated & unconsolidated
- 3. Intangibles
  - Patents & goodwill
- 4. Off balance sheet liabilities
  - a. Non-capitalized leases
  - b. Over/under funded pensions & non-pension retirement benefits (FASB 106)

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**VIII. Balance Sheet Notes**

C. Current Liabilities

1. Accounts payable, a.k.a., trade credit
2. Accruals
3. Notes payable

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**VIII. Balance Sheet Notes**

D. Long term debt

1. Mortgages vs. debentures
2. Fixed vs. variable cost
3. Callable or convertible

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VIII. Balance Sheet Notes

E. Stockholders' equity

1. Preferred Stock
  - Features of debt & equity
2. Common Stock
  - Residual equity
3. PIE
  - Paid in Excess of Par Value
4. Retained earnings

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Balance Sheet  
(In Thousands of Dollars)

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Learning Objective #4

Understand Financial Ratios &  
Compare Ratios Using Time  
Series Analysis & Cross  
Section Analysis

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### X. Ratios

#### A. Types of analysis

1. Cross section – compare to the industry
2. Time series – to identify trends over time

#### B. Who uses ratios & why

1. Creditors
2. Investors
3. Management

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### X. Ratios

#### C. Ratios by purpose (liquidity, debt, coverage, profitability, market)

1. Liquidity – ability of entity to pay bills over the short term
  - a. Current ratio =  $\frac{\text{current assets}}{\text{current liabilities}}$
  - b. Quick ratio =  $\frac{\text{current assets} - \text{inventory}}{\text{current liabilities}}$
  - c. Net working capital =  $\text{current assets} - \text{current liabilities}$

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### X. Ratios

2. Debt ratios – Organization's ability to repay its creditors over the long term. Assesses the organization's financial leverage

- a. Debt ratio =  $\frac{\text{total debt}}{\text{total assets}}$
- b. Debt-to-equity ratio =  $\frac{\text{long-term debt}}{\text{stockholders' equity}}$

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X. Ratios

3. Coverage (for interest obligations)

a. **Times interest earned (TIE)** = 
$$\frac{\text{earnings before interest \& taxes (EBIT)}}{\text{total interest paid during the accounting period}}$$

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X. Ratios

4. Profitability

a. Net profit margin = 
$$\frac{\text{net income}}{\text{sales}}$$

b. Return on assets (ROA) = 
$$\frac{\text{net income}}{\text{total assets}}$$

c. Return on equity (ROE) = 
$$\frac{\text{net income}}{\text{stockholders' equity}}$$

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X. Ratios

5. Market

a. Price/earnings (P/E) = 
$$\frac{\text{price per share}}{\text{earnings per share}}$$

b. Market/book (M/B) = 
$$\frac{\text{market price}}{\text{book value per share}}$$

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## X. Ratios

- Ratio Analysis – Industry Comparison

	Organization Value		Industry Average
<b>Liquidity</b>			
Current (CA + CL)	1.21	Good	1.00
Quick (CA – Inv + CL)	0.88	Good	0.70
<b>Debt Management</b>			
Debt Ratio (TD + TA)	54%	Bad	50%
<b>Coverage</b>			
Times Interest Earned (EBIT + Int)	5.00x	Bad	8.15x
<b>Profitability</b>			
Net Profit Margin (NI + S)	7.50%	Bad	8.50%
ROA (NI + TA)	6.88%	Bad	10.0%
ROE [common equity] (NI + SE)	15.0%	Bad	20.0%

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## X. Ratios

- Ratio Analysis – Time Series & Industry Comparison

	'X2 Value	'X1 Value	Industry Average
<b>Liquidity</b>			
Current (CA + CL)	1.21	1.27	1.00
Quick [(CA – Inv) + CL]	0.88	0.91	0.70
<b>Debt Management</b>			
Debt Ratio (TD + TA)	54%	51.45	50%
<b>Coverage</b>			
Times Interest Earned (EBIT + Int)	5.00x	4.84x	8.15x
<b>Profitability</b>			
Net Profit Margin (NI + S)	7.50%	8.11%	8.50%
ROA (NI + TA)	6.88%	8.69%	10.0%
ROE [common equity] (NI + SE)	15.0%	17.86%	20.0%
<b>Market</b>			
Price/earning (Price/share + EPS)	9.0	9.74	12.5
Market/book (Mkt Price + BV/share)	1.25	1.74	2.5

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## X. Ratios

- Ratio Analysis – Time Series Comparison

	'X2 Value		'X1 Value
<b>Liquidity</b>			
Current (CA + CL)	1.21	Bad	1.27
Quick [(CA – Inv) + CL]	0.88	Bad	0.91
<b>Debt Management</b>			
Debt Ratio (TD + TA)	54%	Bad	51.45
<b>Coverage</b>			
Times Interest Earned (EBIT + Int)	5.00x	Good	4.84x
<b>Profitability</b>			
Net Profit Margin (NI + S)	7.50%	Bad	8.11%
ROA (NI + TA)	6.88%	Bad	8.69%
ROE [common equity] (NI + SE)	15.0%	Bad	17.86%
<b>Market</b>			
Price/earning (Price/share + EPS)	9.0	Bad	9.74
Market/book (Mkt Price + BV/share)	1.25	Bad	1.74

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## X. Ratios

### Key Financial Ratios

**Liquidity**

Current Ratio =  $\frac{\text{Current Assets}}{\text{Current Liabilities}}$       Benchmark-Standard = 1.50 & up

Quick Ratio (acid test) =  $\frac{(\text{CA} - \text{Inventory})}{\text{Current Liabilities}}$       Benchmark-Standard = 1.00 & up

**Debt**

Debt Ratio =  $\frac{\text{Total Debt}}{\text{Total Assets}}$       Benchmark-Standard = .50 & down

Debt to Equity Ratio =  $\frac{\text{Long-term Debt}}{\text{Stockholders' Equity}}$       Benchmark-Standard = 1.00 & down

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## X. Ratios

### Key Financial Ratios

<b>Coverage</b>		
Times Interest Earned	= $\frac{\text{EBIT}}{\text{Interest Charges}}$	Benchmark-Standard = 4 to 7 and up
<b>Profitability</b>		
Return on Equity (ROE)	= $\frac{\text{Net Income}}{\text{Equity}}$	Benchmark-Standard = 15%
Return on Assets (ROA)	= $\frac{\text{Net Income}}{\text{Total Assets}}$	Benchmark-Standard varies by industry
Net Profit Margin	= $\frac{\text{Net Income}}{\text{Sales}}$	Benchmark Standard varies by industry
<small>Other profit margins can be found on page 17.</small>		

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## XI. Methods of Financing Losses

- A. Regular cost of operations, no special provisions
- B. Build contingency reserves
  - Can build up over time
  - Does not mean cash will be available
- C. Establish a contingency fund: maintain & allocate extra working capital
  - Return on assets less discount rate is reasonable cost of maintaining a fund
  - Also, lose tax benefit of insurance because cash "held" is not tax deductible until paid out
  - The advantage is the retention is highly visible as top management "sees" the money is set aside

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Learning Objective #5

Know The Components Of  
Weighted Average Cost Of Capital  
(WACC)

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IX. Weighted Average  
Cost of Capital (WACC)

—The after-tax cost to the organization of an  
average dollar of capital or long term funds

—Required to evaluate the cost & return on  
projects

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IX. WACC

**A.** Capital consists of:

1. Long-Term Debt (LTD)
2. Preferred Stock (PS)
3. Common Stock (New CS)
  - Externally generated
4. Retained Earnings (Old CS)
  - Internally generated

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**IX. WACC**

- B. We are assuming that WACC is the appropriate discount rate for capital budgeting for risk management (safety) projects
- C. Long-term debt
  - Usually the least expensive source of external funds
  - Normally represents the least risky alternative
  - Tax break on interest expense

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**IX. WACC**

- D. To calculate WACC
  - Take the amount outstanding in each category (total book value) times the interest rate times the percent it bears to the total of all outstanding monies
  - Interest rate on long-term debt should take into account the company's tax rate
  - The sum of these percentages will result in the WACC

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**Example of WACC calculation**

Ajax has the following amounts and costs for their capital structure. The firm has a 40% tax rate.

Amount Outstanding	Type of Capital	Pre-tax Cost	After Tax Cost	Percent of Total Capital	Weighted Average Cost
\$20 million	RE	8%	8%	_____	_____
\$30 million	CS	11%	11%	_____	_____
\$10 million	PS	7%	7%	_____	_____
\$40 million	LTD	10%	6%	_____	_____
Total \$100 million				100%	_____

Calculate the firm's weighted average cost of capital.

**Questions:**

1. If Ajax Company has an investment opportunity that earns 9%, should they accept it?
2. If Ajax Company issues a bond paying 10% interest to bondholders, would the cost of the bond interest be similar to the interest paid on the commercial bank loans from the perspective of the financial impact on Ajax?
3. If the firm is reviewing a proposal to spend \$1,000,000 today and expects to receive benefits of \$300,000 a year for the next five years, what interest rate should the firm use to calculate the present value of those benefits?

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**Example of WACC calculation**

Ajax has the following amounts and costs for their capital structure. The firm has a 40% tax rate.

Amount Outstanding	Type of Capital	Pre-tax Cost	After Tax Cost	Percent of Total Capital	Weighted Average Cost
\$20 million	RE	8%	8%	<del>20%</del> <b>0.20</b>	_____
\$30 million	CS	11%	11%	<del>30%</del> <b>0.30</b>	_____
\$10 million	PS	7%	7%	<del>10%</del> <b>0.10</b>	_____
\$40 million	LTD	10%	6%	<del>40%</del> <b>0.40</b>	_____
Total \$100 million				100%	_____

Calculate the firm's weighted average cost of capital.

**\$20/\$100 = 20% or 0.20**

**\$30/\$100 = 30% or 0.30**

**\$10/\$100 = 10% or 0.10**

**\$40/\$100 = 40% or 0.40**

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Amount Outstanding	Type of Capital	Pre-tax Cost	After Tax Cost	Percent of Total Capital	Weighted Average Cost
\$20 million	RE	8%	8%	<b>0.20</b>	<b>1.6%</b>
\$30 million	CS	11%	11%	<b>0.30</b>	<b>3.3%</b>
\$10 million	PS	7%	7%	<b>0.10</b>	<b>0.7%</b>
\$40 million	LTD	10%	6%	<b>0.40</b>	<b>2.4%</b>
Total \$100 million				100%	<b>8.0%</b>

Calculate the firm's weighted average cost of capital.

**8% x 0.20 = 1.6%**

**11% x 0.30 = 3.3%**

**7% x 0.10 = 0.7%**

**6% x 0.40 = 2.4%**

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IX. WACC

Examples

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### Review Learning Objectives

1. Understand why financial statements are important to the safety professional
2. Understand key income statement concepts
3. Understand key balance sheet concepts
4. Understand financial ratios & compare ratios using time series analysis & cross section analysis
5. Know the components of weighted average cost of capital (WACC)

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Thank you!

Financial Concepts for  
Safety Professionals



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