

#1

FINANCIAL STATEMENT ANALYSIS

Reading Between the Bottom Lines



CPA... Imagine the possibilities!

## Learning Activity

**Financial Statement Analysis:** *Students use a mathematical model based on financial ratios to assess the financial health of a company.*

### Learning Objectives

1. Obtain a working knowledge of financial statements.
2. Understand the purpose of specific financial ratios and interpret the meaning of calculated ratios.
3. Calculate financial ratios using an income statement and balance sheet.
4. Assess the financial condition of a company using financial ratios.

### Academic Standard

“Students use representations to model and interpret physical, social and mathematical phenomena.” (NCTM)

“Students prepare, interpret and analyze financial statements for service, merchandising, and manufacturing businesses.” (NBEA)

### Assessment

Students will: (1) calculate five financial ratios for a company using its income statement and balance sheet, (2) using a model, assign points for each ratio based on the calculation, and (3) conclude with a “financial diagnosis” of the company.

### Business Skill

Financial Analysis: Analytical skills are required to make intelligent and prudent business decisions. CPAs use financial ratios to assess the financial position of businesses and, in turn, to predict the future financial performance of publicly traded companies.

# Procedure

**Explain any terms and concepts** from the Topic Overview your students are unfamiliar with. In particular, discuss the importance of reliable information to both businesses and individuals and the roles and services that CPAs provide.

**Explain the purpose and use of the financial ratios** for Activity #1. In particular, discuss in detail the definition and meaning of each ratio, how to calculate each ratio and how to interpret each calculated ratio.

**Distribute copies of Activity #1 to the class and review the data** found in the Income Statement and Balance Sheet of the hypothetical company, Metro One Sportswear, and the use of the statements in calculating each of the five financial ratios.

**Have students compute the financial ratios** found on Activity #1 and rate the company accordingly.

## TEACHING-TIPS

Have students obtain an Annual Report of a company of their choice. (They're free!) The Internet could be used for this purpose. Visit the following Web sites: [www.freedgar.com](http://www.freedgar.com); [www.annualreportservice.com](http://www.annualreportservice.com); or [www.prars.com](http://www.prars.com).

Then calculate the five financial ratios\* using the financial statements of actual companies, and rate the companies using the scoring model in Activity #1.

Some suggested annual reports include Gateway Computers ([www.gateway.com](http://www.gateway.com) or 800-846-4503), McDonald's ([www.mcdonalds.com](http://www.mcdonalds.com) or 630-623-7428),

Ben & Jerry's Ice Cream ([www.benjerry.com](http://www.benjerry.com) or 802-846-1500), and The Gap ([www.gap.com](http://www.gap.com) or 800-427-6397).

Students could track the performance of companies' stock price, compare the performance against the assessment from the hypothetical scoring model and present the results.

\* Note: If a company does not have an inventory item on its balance sheet, students will be unable to calculate the inventory turnover ratio. In this instance, in order to maintain consistency and comparability among companies, advise students to assign points for the inventory turnover ratio equal to the average of the points of the other four financial ratios.

# Overview

**Public companies**, those companies whose stock is traded in public markets such as the New York Stock Exchange, are required by the Securities and Exchange Commission (SEC) to provide audited financial statements to investors and the general public at the end of every year. **Certified Public Accountants (CPAs)** use mathematics and financial analysis to evaluate financial statements and assess the financial condition of a company. Such analysis is frequently a factor in forecasting the likely future financial performance of a company and thus is useful for investment purposes.

**Financial Statements** are contained in the company's **Annual Report** and include an **Income Statement** (Statement of Earnings), **Balance Sheet** (Statement of Financial Position), and **Statement of Stockholder's Equity**.

The **Income Statement** is a report of a company's operating performance, in financial terms, over a period of time, which is usually one year. The income statement contains two main sections: **Revenue**, such as sales, that the company has earned, and **Expenses**, the costs incurred in generating sales, producing a product or providing a service. When revenue exceeds expenses, the company realizes a **Net Income** or **Profit**, and when expenses exceed revenue, the company realizes a **Net Loss**.

The **Balance Sheet** is a picture of a company's financial position at a particular point in time, usually the last day of the year. The balance sheet contains three main sections: **Assets**, **Liabilities**, and **Stockholder's Equity**.

**Assets** are items of value such as buildings, machinery, and equipment that are used to generate revenue or sales. Assets also consist of cash and items that can be turned into cash.

**Liabilities** represent the company's debt. Liabilities, such as loans, require the future sacrifice of assets, such as cash.

**Stockholder's Equity**, the third section of the balance sheet, represents the

value or "worth" of the company in accounting terms. If a company were to extinguish its liabilities or debt with its assets, such as cash, the remaining assets are the property of the stockholders and represent the company's "worth" or equity, thus the term "Stockholder's Equity."

The **basic accounting equation** is:

$$\text{Assets} = \text{Liabilities} + \text{Stockholder's Equity}$$

The **equity concept** is best illustrated as:

$$\text{Assets} - \text{Liabilities} = \text{Stockholder's Equity}$$

This equation is also a way to represent a company's net worth.

CPAs provide a variety of services that improve and assure the quality of information used to make business decisions. The **auditing** of financial statements and Web sites are examples of **assurance services** provided by CPAs. CPAs are the only business people permitted by the Securities and Exchange Commission to audit financial statements of publicly traded companies.

Since the **Annual Report** and the accompanying **Financial Statements** are prepared by the company itself, an exam by an independent third-party ensures by way of professional auditing procedures that the financial statements are indeed "presented fairly" so that stockholders, investors and the general public can rely on those statements.

The CPA's "**opinion**" of the financial statements, which is contained within the Annual Report in the section entitled "Report of Independent Auditors," is assurance that the figures presented have been derived using **Generally Accepted Accounting Principles (GAAP)**. The auditor's opinion of the financial statements, however, does not convey investment advice or predict future financial performance.



# Activities

## Can You Predict Whether the Price of a Stock Will Go Up or Down?

Shown below are the Balance Sheet and Income Statement of a hypothetical publicly-traded company, Metro One Sportswear, Inc. Use the data provided to assess the financial health of the company by calculating the following ratios:

### Balance Sheet

Assets	Current Year	Prior Year
Current assets	\$8,950,000	\$7,210,000
Inventory	760,000	640,000
Property, plant & equipment	13,730,000	12,670,000
<b>Total Assets</b>	<b>\$23,440,000</b>	<b>\$20,520,000</b>

Liabilities		
Current liabilities	\$2,480,000	\$2,070,000
Long term liabilities	10,970,000	9,560,000
<b>Total Liabilities</b>	<b>\$13,450,000</b>	<b>\$11,630,000</b>

Stockholder's Equity		
Retained earnings	\$7,990,000	\$6,890,000
Common stock (20,000 shares)	2,000,000	2,000,000
<b>Total Stockholder's Equity</b>	<b>\$9,990,000</b>	<b>\$8,890,000</b>
<b>Total Liabilities &amp; Stockholder's Equity</b>	<b>\$23,440,000</b>	<b>\$20,520,000</b>

### Income Statement

	Current Year
<b>Revenue (Sales)</b>	<b>\$11,500,000</b>
<b>Expenses</b>	
Cost of goods sold	8,100,000
Salary expense	1,230,000
Rent expense	780,000
Interest expense	290,000
<b>Total Expenses</b>	<b>\$10,400,000</b>
<b>Net Income</b>	<b>\$1,100,000</b>

**Profit Margin:** \_\_\_\_\_ (%)

**Definition:** Net Income, or profit, expressed as a percentage of sales. For example, if a company has a profit margin of 10%, for every dollar of sales, 10% of those dollar sales represents profit.

**Assessment:** Profit Margin is a primary measure of a company's profitability.

**Formula:** Net Income / Sales = Profit Margin (%)

**Debt Ratio:** \_\_\_\_\_ (%)

**Definition:** The degree (%) to which assets are purchased through debt (liabilities). (Note: Most companies finance their assets in one of two ways: debt or stock).

**Assessment:** The Debt Ratio is a primary measure with which to gauge the degree a company is leveraged or financed through debt.

**Formula:** Total Debt / Total Assets = Debt Ratio (%)

**Current Ratio:** \_\_\_\_\_ (#)

**Definition:** The ratio of current assets to current liabilities represents the number of times a company can pay current debts through current assets such as cash.

**Assessment:** The Current Ratio is a measure of a company's liquidity (how quickly a company can turn noncash assets into cash), and of a company's ability to meet future obligations (i.e., pay future debts).

**Formula:** Current Assets / Current Liabilities = Current Ratio (#)

**Return on Assets:** \_\_\_\_\_ (%)

**Definition:** Net Income, or profit, expressed as a percentage of total assets. For example, if a company has an "ROA" of 10%, the company will generate a net income equivalent to 10% of its assets. In other words, as a percentage, what is the net income produced by a company's assets.

**Assessment:** "ROA" is a measure of an asset's or a company's efficiency and profitability.

**Formula:** Net Income / Average Total Assets\* = ROA (%)

**Inventory Turnover:** \_\_\_\_\_ (#)

**Definition:** The number of times a company sells its inventory in a year.

**Assessment:** Inventory Turnover is the primary measure of a company's ability to sell or "move" inventory.

**Formula:** Cost of Goods Sold / Average Inventory\*\*

\* Average Total Assets = (Current Year Total Assets + Prior Year Total Assets) / 2

\*\*Average Inventory = (Current Year Inventory + Prior Year Inventory) / 2

## PART-1: Scoring Table

Based on the results of your calculations on the first page, circle the corresponding points:

Ratio	If Result is	Points
<b>Profit Margin</b>		
	20% or greater	10
	15% to 19.99%	8
	10% to 14.99%	6
	5% to 9.99%	4
	1% to 4.99%	2
	less than 1%	0

<b>Debt Ratio</b>		
	29.99% or less	10
	30% to 39.99%	8
	40% to 49.99%	6
	50% to 59.99%	4
	60% to 69.99%	2
	70% and greater	0

<b>Current Ratio</b>		
	5.0 or greater	10
	4.0 to 4.99	8
	3.0 to 3.99	6
	2.0 to 2.99	4
	1.0 to 1.99	2
	less than 1.0	0

<b>Return on Total Assets</b>		
	20% or greater	10
	15% to 19.99%	8
	10% to 14.99%	6
	5% to 9.99%	4
	1% to 4.99%	2
	less than 1%	0

<b>Inventory Turnover</b>		
	25 or greater	10
	20 to 24.99	8
	15 to 19.99	6
	10 to 14.99	4
	5 to 9.99	2
	0 - 4.99	0

## PART-2:

Add up your points and circle your investment recommendation based on the financial condition of the company.

If Your Company Point Total Is \_\_\_\_\_  
(enter total points scored from the five ratios)

### Then the Diagnosis Is:

(Circle one response using the table)

<b>45 or greater</b>	Your company looks awesome! Invest now.
<b>35 to 44.99</b>	Your company looks very good. Consider investing.
<b>25 to 34.99</b>	Your company looks OK. Don't rush to invest.
<b>15 to 24.99</b>	Your company needs to improve... quickly!
<b>5 to 14.99</b>	Your company looks terrible.
<b>4.99 or less</b>	Call 911!



# Answers

<b>Financial Ratio</b>	Profit Margin
<b>Calculation</b>	Net Income (\$1,100) / Sales (\$11,500)
<b># or %</b>	9.56%
<b>Assessment</b>	Below average profitability; for every \$100 of sales, \$9.56 is profit
<b>Points</b>	4

<b>Financial Ratio</b>	Debt Ratio
<b>Calculation</b>	Total Liabilities (\$13,450) / Total Assets (\$23,440)
<b># or %</b>	57.38%
<b>Assessment</b>	Above average amount of debt; 57.38% of total assets are financed with debt
<b>Points</b>	4

<b>Financial Ratio</b>	Current Ratio
<b>Calculation</b>	Current Assets (\$8,950) / Current Liabilities (\$2,480)
<b># or %</b>	3.61
<b>Assessment</b>	Above average liquidity; can pay current liabilities (with current assets) 3.61 times
<b>Points</b>	6

<b>Financial Ratio</b>	Return on Total Assets
<b>Calculation</b>	Net Income (\$1,100) / Average Total Assets $(\$23,440 + \$20,520) / 2$
<b># or %</b>	5%
<b>Assessment</b>	Below average efficiency and profitability; every \$100 of assets generates \$5 of net income
<b>Points</b>	4

<b>Financial Ratio</b>	Inventory Turnover
<b>Calculation</b>	Cost of Goods Sold (\$8,100) / Average Inventory $(\$760 + \$640) / 2$
<b># or %</b>	11.57
<b>Assessment</b>	Below average ability to sell inventory; sell inventory 11.57 times in one year, or sell inventory every 31.5 days $(365 \text{ days} / 11.57)$
<b>Points</b>	4

**Total Points:** 22

**Assessment:** Your company needs to improve...quickly!

**Prediction:** Follow the company and continue to assess the financial condition of the company. If the company's financial position begins to improve, consider investing in the company.