

# Financial Accounting

## Module 15: Financial Statement Analysis



# Module Learning Outcomes

Compare financial statements and analyze performance

- 15.1: Describe how financial statements are used to analyze a business
- 15.2: Calculate ratios that indicate a company's ability to pay short-term debt
- 15.3: Calculate ratios that indicate a company's operating efficiency
- 15.4: Calculate ratios that analyze a company's earnings performance
- 15.5: Calculate ratios that analyze a company's long-term debt-paying ability
- 15.6: Compare financial statements - intercompany and intracompany

# Objectives of Financial Statement Analysis

# Learning Outcomes: Objectives of Financial Statement Analysis

15.1: Describe how financial statements are used to analyze a business

15.1.1: Define financial statement analysis

15.1.2: Identify common sources of information for financial statement analysis

# Financial Statement Analysis Defined

- **Ratio Analysis:** examine the relationship among financial statement data.
  - **Liquidity measures** assess the short-term ability of the company to pay obligations and to meet unexpected cash needs.
  - **Operating efficiency measures** assess how efficiently a firm is paying its bills, collecting cash from customers, and turning inventory into sales.
  - **Profitability measures** assess the income or operating success of a company for a given period of time.
  - **Solvency measures** assess the ability of the company to survive over a long period of time.
- **Comparative Analysis:** compare different ratios or measures
  - **Intracompany comparisons** covering two years for the same company.
  - **Industry-average comparisons** based on average ratios for particular industries.
  - **Intercompany comparisons** based on comparisons with a competitor in the same industry.

# Sources of Information

- For publicly traded companies, your most reliable source of information for financial statement analysis will be the Form 10-K filed with the SEC.
  - These can be found on each company's website.
- Additionally, there are some services, like Morningstar, that have computed some of the ratios and compiled additional information, and may even allow you to download financial information



# Liquidity Measures

# Learning Outcomes: Liquidity Measures

15.2: Calculate ratios that indicate a company's ability to pay short-term debt

15.2.1: Calculate working capital

15.2.2: Calculate the current ratio

15.2.3: Calculate the common variations of the current ratio

15.2.4: Calculate the cash turnover ratio

# Liquidity Measures

The most common measures of liquidity are:

- Working Capital
- Current Ratio
- Quick Ratio (also called Acid-Test Ratio)
- Cash Turnover Ratio



# Working Capital and Current Ratio

## Working Capital

a measure of a company's liquidity, operational efficiency, and its short-term financial health

current assets – current liabilities = working capital

## Current Ratio

a measure of the ability of a firm to pay its current liabilities with its cash

current assets ÷ current liabilities

# Quick Ratio and Cash Turnover Ratio

## Quick Ratio

- Also called Acid-Test Ratio
- measures the firm's ability to pay its current liabilities with its cash and other current assets that can be converted to cash

$\text{quick assets} \div \text{current liabilities}$

## Cash Turnover Ratio

an efficiency ratio that shows the number of times cash is turned over in an accounting period.

$\text{revenue} \div \text{average cash and cash equivalents}$

# Practice Question 1

What is the correct formula to calculate a company's cash turnover ratio?

- A. Cash Turnover Ratio = Revenue / Average Cash + Cash Equivalents
- B. Cash Turnover Ratio = Cost of Goods Sold / Cash Equivalents + Avg Cash
- C. Cash Turnover Ratio = Revenue / Avg Cash Equivalents + Avg Cash
- D. Cash Turnover Ratio = Total Assets / Revenue + Cash Equivalents

# Operating Efficiency Measures

# Learning Outcomes: Operating Efficiency Measures

- 15.3: Calculate ratios that indicate a company's operating efficiency
  - 15.3.1: Calculate inventory turnover and number of days sales in inventory
  - 15.3.2: Calculate accounts receivable turnover and number of days sales in receivables
  - 15.3.3: Calculate the asset turnover ratio

# Operating Efficiency Measures

Indicators of efficiency include:

- Inventory turnover and number of days' sales in inventory that gauge how effectively a company manages its inventory.
- Accounts receivable turnover and number of days' sales in receivables that look at the firm's ability to collect its accounts receivable.
- Asset turnover ratio that indicates how efficient a company is at generating revenue from its assets.



# Inventory Turnover

shows how many times a company has sold and replaced inventory during a given period

cost of merchandise sold ÷  
average inventory



# Accounts Receivable Turnover and Days' Sales in Accounts Receivable Ratio

## Accounts Receivable Turnover

shows the number of times per year a business collects its average accounts receivable

$$\frac{\text{Net Annual Credit Sales}}{(\text{Beginning Accounts Receivable} + \text{Ending Accounts Receivable}) / 2}$$

## Days' Sales in Accounts Receivable Ratio

- also known as the average collection period
- shows the number of days it took on average to collect the company's accounts receivable during the past year

the number of days in the year  $\div$  by the accounts receivable turnover ratio during a past year

# Asset Turnover

shows how effectively a company uses its assets to generate revenue

net sales or revenue ÷ average total assets



# Measures of Profitability

# Learning Outcomes: Measures of Profitability

15.4: Calculate ratios that analyze a company's earnings performance

15.4.1: Calculate the rate of return on total assets

15.4.2: Calculate the rate of return on shareholders' equity

15.4.3: Calculate gross and net profit margins

15.4.4: Calculate earnings per share and the price-earnings ratio

15.4.5: Calculate the dividend payout ratio

15.4.6: Calculate free cash flow

# Profitability Measures

The most common measures of profitability are:

- Return on assets (ROA)
- Return on equity (ROE)
- Gross profit
- Net profit
- Earnings per share
  - Price-earnings ratio
- Dividend payout ratio
- Free cash flow



# Return on Assets (ROA) and Return on Equity (ROE)

## Return on Assets (ROA)

measures how effectively a company uses its assets to generate income

$(\text{interest expense} + \text{net income}) \div \text{average total assets}$

## Return on Equity (ROE)

- measures financial performance by dividing net income by shareholders' equity
- ROE is considered the return on net assets (as opposed to return on total assets)

$\text{net income} \div \text{average total stockholders' equity}$

# Gross Profit Percentage and Net Profit Percentage

## Gross Profit Percentage

measures how effectively a company generates gross profit from sales or controls cost of merchandise sold

gross profit ÷ sales

## Net Profit Percentage

measures how effectively a company generates net profit from sales or controls cost of merchandise sold

net profit ÷ sales

# Earnings per Share

measures the dollar amount of net income associated with each share of common stock outstanding

$(\text{net income} - \text{preferred stock dividends}) \div \text{common shares}$

Earning per share can also be expressed as a price/earnings ratio:

$\text{current price per share} \div \text{EPS}$

# Dividend Payout Ratio

shows the total amount of dividends paid out to shareholders relative to the net income of the company

common stock dividends  $\div$  net income

another useful analysis of dividends calculates dividends per share on common stock

common stock dividends  $\div$  common stock shares outstanding

# Free Cash Flow

represents the cash a company generates after accounting for cash outflows to support operations and maintain its capital assets

operating cash flow – capital expenditures

Because FCF accounts for investments in property, plant, and equipment, it can be lumpy and uneven over time

A variation of Free Cash Flow subtracts dividends from cash flows from operating income as well as capital expenditures (can be used for intracompany analysis over time)

## Practice Question 2

The Quantum, Inc company reported sales at December 31, 20X3 of \$4,100,000 which included interest expense of \$20,000 and Cost of Goods Sold of \$3,100,000. What was Quantum, Inc.'s gross profit percentage for 20X3?

- A. 24.0%
- B. 24.4%
- C. 75.6%
- D. 24.9%

# Measures of Solvency

# Learning Outcomes: Measures of Solvency

15.5: Calculate ratios that analyze a company's long-term debt-paying ability

15.5.1: Calculate the debt to equity ratio

15.5.2: Calculate the debt to assets ratio

15.5.3: Calculate the times-interest-earned ratio

# Solvency Measures

Three of the common measures of solvency are:

- Debt to Equity
- Debt to Assets (and Equity to Assets)
- Times Interest Earned



# Debt to Equity Ratio

- used to evaluate a company's financial leverage
- measure of the degree to which a company is financing its operations through debt versus wholly-owned funds

company's total liabilities ÷  
shareholder equity



# Debt to Total Assets Ratio and Equity to Assets

Variations on the debt to equity ratio include:

- Debt to total assets
  - $\text{company's total debt} \div \text{company's total assets}$
- Equity to total assets
  - $\text{company's equity} \div \text{company's total assets}$

These two as percentages should add up to 100%. If they don't, check your data and your calculations!

# Times Interest Earned

shows how much a company earned, in comparison to the amount of interest incurred

$$(\text{net income before tax} + \text{interest expense}) \div \text{interest expense}$$

a similar ratio could be applied in order to monitor the company's ability to pay those dividends

$$\text{net income} \div \text{preferred dividends}$$

# Comparative Analysis of Financial Statements

# Learning Outcomes: Comparative Analysis of Financial Statements

15.6: Compare financial statements: intercompany and intracompany

15.6.1: Perform a horizontal analysis of a company's financial statements

15.6.2: Perform a vertical analysis of a company's financial statements

# Horizontal Analysis

- Important information can result from looking at changes in the same financial statement over time, both in terms of dollar amounts and percentage differences
- A horizontal analysis involves noting the increases and decreases both in the amount and in the percentage of each line item across different years.



# Vertical Analysis

Vertical analysis can be used to compare and identify trends within a company from year to year (intracompany) or between different companies (intercompany).

Vertical analysis looks at percentages and how they compare, rather than comparing dollar amounts.

Intracompany examples:

- comparative income statement
- comparative balance sheet

Intercompany examples:

- comparative income statement

## Practice Question 3

Hesperia, Inc. reported at year end that it had \$50,000 in long-term investments, \$200,000 in current assets, \$650,000 in fixed assets minus depreciation. Additionally the company had \$100,000 in accounts payable and \$50,000 for a long-term note payable with the balance due in 5 years. At the end of the next year, Hesperia, Inc. had \$77,000 in long-term investments and \$250,000 in current assets, and \$130,000 in accounts payable. All other accounts were exactly the same as the previous year. What account had the largest percentage change from the first to the second year?

- A. Fixed Assets
- B. Accounts Payable
- C. Current Assets
- D. Long-Term Investments

# Quick Review

- How is financial statement analysis defined?
- What are the common sources of information for financial statement analysis?
- How is working capital calculated?
- How is the current ratio figured?
- How are the common variations of the current ratio calculated?
- When and how is the cash turnover ratio figured?
- How is inventory turnover and number of days sales in inventory calculated?
- What is the process to calculate accounts receivable turnover and number of days sales in receivables?
- What is the process of calculating the asset turnover ratio?
- How is the rate of return on total assets discovered?

# More Quick Review

- How is the rate of return on shareholders' equity calculated?
- What is the formula for calculating gross and net profit margins?
- How are earnings per share and the price-earnings ratio figured out?
- How is the dividend payout ratio calculated?
- How does an accountant calculate free cash flow?
- What is the process to calculate the debt to equity ratio?
- How is the debt to assets ratio discovered?
- How is the times-interest-earned ratio calculated and understood?
- What is the process to create a horizontal analysis of a company's financial statements?
- How is a vertical analysis of a company's financial statements created?