INFO 7225

Module 1

9. Financial Statement Analysis

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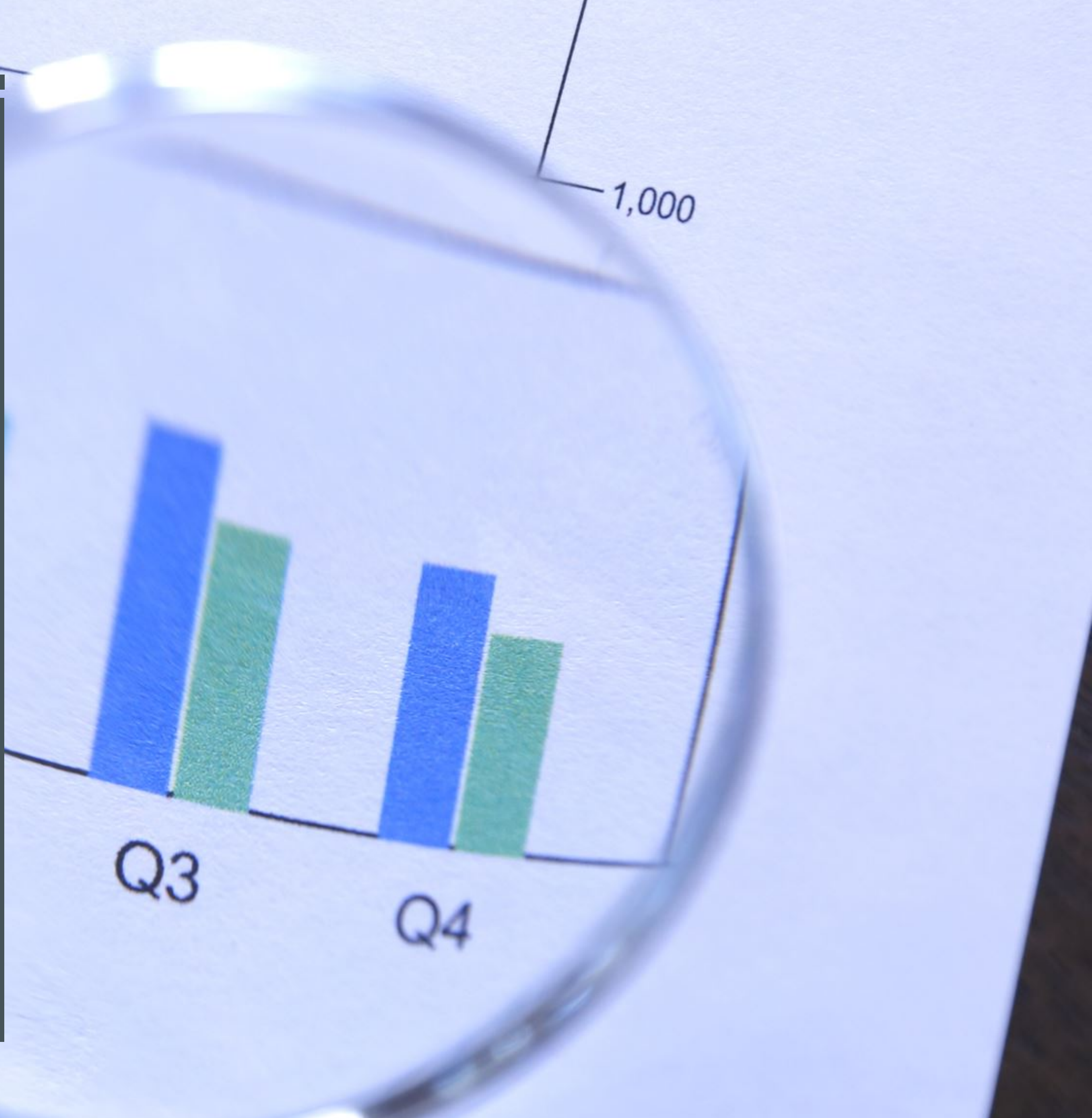

Financial Statement Analysis: Overview

Three common analysis tools

1. Horizontal analysis (trend analysis)

2. Vertical analysis (common size FS analysis)

3. Financial ratios:
   1) Liquidity ratios
   2) Solvency ratios
   3) Efficiency ratios
   4) Profitability ratios

Objectives:
1) Budgeting
2) Where to cut costs
3) How to increase revenues
4) Future capital investments

BARRY'S SUPERSTORE Comparative Year-End Income Statements		
	Prior Year	**Current Year**
Net Sales	$100,000	$120,000
Cost of Goods Sold	50,000	60,000
Gross Profit	50,000	60,000
Rent Expense	5,000	5,500
Depreciation Expense	2,500	3,600
Salaries Expense	3,000	5,400
Utility Expense	1,500	2,500
Operating Income	38,000	43,000
Interest Expense	3,000	2,000
Income Tax Expense	5,000	6,000
Net Income	$ 30,000	$ 35,000

BARRY'S SUPERSTORE Comparative Year-End Balance Sheets		
	Prior Year	**Current Year**
Assets:		
Cash	$90,000	$110,000
Accounts Receivable	20,000	30,000
Inventory	35,000	40,000
Short-Term Investments	15,000	20,000
Total Current Asstes	160,000	200,000
Equipment	40,000	50,000
Total Assets	$200,000	$250,000
Liabilities:		
Accounts Payable	$ 60,000	$ 75,000
Unearned Revenue	10,000	25,000
Total Current Liabilities	70,000	100,000
Notes Payable	40,000	50,000
Total Liabilities	110,000	150,000
Stockholder Equity		
Common Stock	75,000	80,000
Ending Retained Earnings	15,000	20,000
Total Stockholder Equity	90,000	100,000
Total Liabilities and Stockholder Equity	$200,000	$250,000

Horizontal Analysis (Trend Analysis)

BARRY'S SUPERSTORE Comparative Year-End Income Statements Horizontal Analysis	Prior Year	Current Year	Dollar Change	% Change
Net Sales	$100,000	$120,000	$20,000	20%
Cost of Goods Sold	50,000	60,000	$10,000	20%
Gross Profit	50,000	60,000	$10,000	20%
Rent Expense	5,000	5,500	$ 500	10%
Depreciation Expense	2,500	3,600	$ 1,100	44%
Salaries Expense	3,000	5,400	$ 2,400	80%
Utility Expense	1,500	2,500	$ 1,000	67% *
Operating Income	38,000	43,000	$ 5,000	13% *
Interest Expense	3,000	2,000	($ 1,000)	(33%)*
Income Tax Expense	5,000	6,000	$ 1,000	20%
Net Income	$ 30,000	$ 35,000	$ 5,000	17% *

*Rounded to nearest whole percent

- Looks at trends over time on various financial statement line items.
- A company will look at one period (usually a year) and compare it to another period.
- The year being used for comparison purposes is called the base year (usually the prior period).

Dollar Change =

Percent Change =

BARRY'S SUPERSTORE Comparative Year-End Income Statements Horizontal Analysis	Prior Year	Current Year	Dollar Change	% Change
Net Sales	$100,000	$120,000	$20,000	20%
Cost of Goods Sold	50,000	60,000	$10,000	20%
Gross Profit	50,000	60,000	$10,000	20%
Rent Expense	5,000	5,500	$ 500	10%
Depreciation Expense	2,500	3,600	$ 1,100	44%
Salaries Expense	3,000	5,400	$ 2,400	80%
Utility Expense	1,500	2,500	$ 1,000	67% *
Operating Income	38,000	43,000	$ 5,000	13% *
Interest Expense	3,000	2,000	($ 1,000)	(33%)*
Income Tax Expense	5,000	6,000	$ 1,000	20%
Net Income	$ 30,000	$ 35,000	$ 5,000	17% *

*Rounded to nearest whole percent

BARRY'S SUPERSTORE Comparative Year-End Balance Sheets Horizontal Analysis	Prior Year	Current Year	Dollar Change	% Change
Assets:				
Cash	$90,000	$110,000	$20,000	22%*
Accounts Receivable	20,000	30,000	$10,000	50%
Inventory	35,000	40,000	$ 5,000	14%*
Short-Term Investments	15,000	20,000	$ 5,000	33%*
Total Current Asstes	160,000	200,000	$40,000	25%
Equipment	40,000	50,000	$10,000	25%
Total Assets	$200,000	$250,000	$50,000	25%
Liabilities:				
Accounts Payable	$ 60,000	$ 75,000	$15,000	25%
Unearned Revenue	10,000	25,000	$15,000	150%
Total Current Liabilities	70,000	100,000	$30,000	43%*
Notes Payable	40,000	50,000	$10,000	25%
Total Liabilities	110,000	150,000	$40,000	36%*
Stockholder Equity				
Common Stock	75,000	80,000	$ 5,000	7%*
Ending Retained Earnings	15,000	20,000	$ 5,000	33%*
Total Stockholder Equity	90,000	100,000	$10,000	11%*
Total Liabilities and Stockholder Equity	$200,000	$250,000	$50,000	25%

*Rounded to nearest whole percent

Criticism of Horizontal Analysis

- Pro: allows financial statement users to easily spot trends and growth patterns.
- Con: it can be manipulated to make the current period look better if specific historical periods of poor performance are chosen as a comparison.
  - ➢ Depending on which accounting period an analyst starts from and how many accounting periods are chosen, the current period can be made to appear unusually good or bad.
  - ➢ Sometimes companies change the way they break down their business segments to make the horizontal analysis of growth and profitability trends more difficult to detect.
- Con: accurate analysis can be affected by one-off events and accounting charges.

BARRY'S SUPERSTORE Comparative Year-End Income Statements Vertical Analysis				
			Common Size*	
	Prior Year	Current Year	Prior Year	Current Year
Net Sales	$100,000	$120,000	100%	100%
Cost of Goods Sold	50,000	60,000	50%	50%
Gross Profit	50,000	60,000	50%	50%
Rent Expense	5,000	5,500	5%	5%
Depreciation Expense - Eq.	2,500	3,600	3%	3%
Salaries Expense	3,000	5,400	3%	5%
Utility Expense	1,500	2,500	2%	2%
Operating Income	38,000	43,000	38%	36%
Interest Expense	3,000	2,000	3%	2%
Income Tax Expense	5,000	6,000	5%	5%
Net Income	$ 30,000	$ 35,000	30%	29%

*Some figures rounded to the nearest whole percent, which may alter the total percentage to +/– 1% of 100%

Vertical Analysis

- Looks at each line item as a percentage of a base figure within the same period.
- Line items on an income statement can be stated as a percentage of net sales, while line items on a balance sheet can be stated as a percentage of total assets or liabilities.
- Also known as ***common size*** financial statement analysis

Common-Size Percentage =

BARRY'S SUPERSTORE Comparative Year-End Income Statements Vertical Analysis				
			Common Size*	
	Prior Year	Current Year	Prior Year	Current Year
Net Sales	$100,000	$120,000	100%	100%
Cost of Goods Sold	50,000	60,000	50%	50%
Gross Profit	50,000	60,000	50%	50%
Rent Expense	5,000	5,500	5%	5%
Depreciation Expense - Eq.	2,500	3,600	3%	3%
Salaries Expense	3,000	5,400	3%	5%
Utility Expense	1,500	2,500	2%	2%
Operating Income	38,000	43,000	38%	36%
Interest Expense	3,000	2,000	3%	2%
Income Tax Expense	5,000	6,000	5%	5%
Net Income	$ 30,000	$ 35,000	30%	29%

BARRY'S SUPERSTORE Comparative Year-End Balance Sheets Vertical Analysis				
			Common Size	
	Prior Year	Current Year	Prior Year	Current Year
Assets:				
Cash	$90,000	$110,000	45%	44%
Accounts Receivable	20,000	30,000	10%	12%
Inventory	35,000	40,000	17.5%	16%
Short-Term Investments	15,000	20,000	7.5%	8%
Total Current Asstes	160,000	200,000	80%	80%
Equipment	40,000	50,000	20%	20%
Total Assets	$200,000	$250,000	100%	100%
Liabilities:				
Accounts Payable	$ 60,000	$ 75,000	30%	30%
Unearned Revenue	10,000	25,000	5%	10%
Total Current Liabilities	70,000	100,000	35%	40%
Notes Payable	40,000	50,000	20%	20%
Total Liabilities	110,000	150,000	55%	60%
Stockholder Equity				
Common Stock	75,000	80,000	37.5%	32%
Ending Retained Earnings	15,000	20,000	7.5%	8%
Total Stockholder Equity	90,000	100,000	45%	40%
Total Liabilities and Stockholder Equity	$200,000	$250,000	100%	100%

*Some figures rounded to the nearest whole percent, which may alter the total percentage to +/– 1% of 100%

Further Analysis

- What caused this change?
- Is this change favorable or unfavorable?

- How do the percentages of this company compare with other companies in the same industry?
- In other industries?

Financial Statement Analysis: Financial Ratios

1. Horizontal analysis

2. Vertical analysis

3. Financial ratios:

1) **Liquidity ratios**
2) **Solvency ratios**
3) **Efficiency ratios**
4) **Profitability ratios**

Three common analysis tools

Ratio analysis:

1) Examine trends in performance
2) Establish benchmarks for success
3) Set budget expectations, and
4) Compare industry competitors

Financial Statement Analysis: Liquidity Ratios

1. Horizontal analysis

2. Vertical analysis

3. Financial ratios:

1) **Liquidity ratios**
2) Solvency ratios
3) Efficiency ratios
4) Profitability ratios

Ratio analysis:

1) Examine trends in performance
2) Establish benchmarks for success
3) Set budget expectations, and
4) Compare industry competitors

Liquidity ratios:

1. Working capital = CA - CL
2. Current ratio = CA / CL
3. Quick ratio = (Cash + STI + AR) / CL

Can a company meet its short-term obligations?

CA, current assets

CL, current liabilities

STI, short-term investment

AR, accounts receivable

Current Ratio and Quick Ratio (Acid-test Ratio)

= ________ = _______________

	Corp. A	Corp. B
Current Assets		
Cash	$ 1,000	$ 10,000
Accounts Receivable	2,000	20,000
Inventories	37,000	10,000
Total Current Assets	$ 40,000	$ 40,000
Current Liabilities	$ 20,000	$ 20,000
Current Ratio	2:1	2:1

Quick Current Assets

Cash
Short-term investments
Accounts Receivable

These current assets are considered to be readily convertible into cash.

Non-quick Current Assets

Inventories
Prepaid Expenses

Cash cannot be obtained either at all or easily from these current assets.

Financial Statement Analysis: Solvency Ratios

Horizontal analysis

Vertical analysis

Financial ratios:

1. Liquidity ratios
2. **Solvency ratios**
3. Efficiency ratios
4. Profitability ratios

Ratio analysis:

1) Examine trends in performance
2) Establish benchmarks for success
3) Set budget expectations, and
4) Compare industry competitors

$$\text{Debt-to-Equity Ratio} = \left(\frac{\text{Total Liabilities}}{\text{Total Stockholder Equity}}\right)$$

$$\text{Times Interest Earned} = \left(\frac{\text{Earnings before Interest and Taxes}}{\text{Interest Expense}}\right)$$

Can a company meet its long-term obligations?

Financial Statement Analysis: Efficiency Ratios

1. Horizontal analysis

2. Vertical analysis

3. Financial ratios:
   1) Liquidity ratios
   2) Solvency ratios
   3) **Efficiency ratios**
   4) Profitability ratios

Ratio analysis:
1) Examine trends in performance
2) Establish benchmarks for success
3) Set budget expectations, and
4) Compare industry competitors

- Efficiency shows how well a company uses and manages their assets.
- Areas of importance with efficiency are management of sales, accounts receivable, and inventory.
- A company that is efficient typically will be able to generate revenues quickly using the assets it acquires.

$$\text{Accounts Receivable Turnover} = \left(\frac{\text{Net Credit Sales}}{\text{Average Accounts Receivable}}\right)$$

$$\text{Total Asset Turnover} = \left(\frac{\text{Net Sales}}{\text{Average Total Assets}}\right)$$

$$\text{Inventory Turnover} = \left(\frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}\right)$$

$$\text{Days' Sales in Inventory} = \left(\frac{\text{Average Inventory}}{\text{Cost of Goods Sold}}\right) \times 365$$

Financial Statement Analysis: Efficiency Ratios

($000s)	Current Year	Prior Year
Net sales	$3,200	$2,800
Net credit sales	3,200	2,800
Cost of goods sold	2,500	2,150
Average AR	482	338.5
Average inventory	668	432
Average total assets	2,294	1,764.5
AR turnover		
Avg collection period		
Total asset turnover		
Inventory turnover		
Days sales in inventory		

Average AR = (beginning balance + ending balance)/2

- Efficiency shows how well a company uses and manages their assets.
- Areas of importance with efficiency are management of sales, accounts receivable, and inventory.
- A company that is efficient typically will be able to generate revenues quickly using the assets it acquires.

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$$\text{Days' Sales in Inventory} = \left(\frac{\text{Average Inventory}}{\text{Cost of Goods Sold}}\right) \times 365$$

Financial Statement Analysis: Profitability Ratios

1. Horizontal analysis

2. Vertical analysis

3. Financial ratios:
   1) Liquidity ratios
   2) Solvency ratios
   3) Efficiency ratios
   4) **Profitability ratios**

Ratio analysis:
1) Examine trends in performance
2) Establish benchmarks for success
3) Set budget expectations, and
4) Compare industry competitors

- Profitability considers how well a company produces returns given their operational performance.
- The company needs to leverage its operations to increase profit.

$$\text{Profit Margin} = \left(\frac{\text{Net Income}}{\text{Net Sales}}\right)$$

$$\text{Return on Total Assets} = \left(\frac{\text{Net Income}}{\text{Average Total Assets}}\right)$$

$$\text{Return on Equity} = \left(\frac{\text{Net Income}}{\text{Average Stockholder Equity}}\right)$$

Advantages and Disadvantages of Financial Statement Analysis

- Financial statement analysis can show trends over time, which can be helpful in making future business decisions.
  - ➢ Converting information to percentages or ratios eliminates some of the disparity between competitor sizes and operating abilities, making it easier for stakeholders to make informed decisions.
  - ➢ It can assist with understanding the makeup of current operations within the business, and which shifts need to occur internally to increase productivity.
- Past performance does not always dictate future performance
  - ➢ Possible economic influences that could skew the numbers being analyzed
  - ➢ The way a company reports information within accounts may change over time
- A company that wants to budget properly, control costs, increase revenues, and make long-term expenditure decisions may want to use financial statement analysis to guide future operations.

Summary

Horizontal analysis is used in the review of a company's financial statements over multiple periods

- ➢ It is usually depicted as a percentage growth over the same line item in the base year
- ➢ Allows financial statement users to easily spot trends and growth patterns

Vertical analysis looks at each line item as a percentage of a base figure within the same period

- ➢ Line items on an income statement can be stated as a percentage of gross sales
- ➢ Line items on a balance sheet can be stated as a percentage of total assets or liabilities

Four categories of **financial ratios**:

- ✓ Liquidity ratios: can a company meet its short-term obligations?
- ✓ Solvency ratios: can a company meet its long-term obligations?
- ✓ Efficiency ratios: how well a company manage its resources and operation?
- ✓ Profitability ratios: how profitable is the company?

Thank you!