Section Four
Financial Ratios

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Liquidity Ratios:

Ratios that show the relationship of a firm's cash and other current assets to its current liabilities.

1. **Current ratio**
2. **Quick (Acid Test) ratio**
3. **Cash ratio**

1. Current Ratios:

It indicates the extent to which current liabilities are covered by those assets expected to be converted to cash in the near future.

$$\textbf{Current ratio} = \frac{\textit{Current Assets}}{\textit{Current Liabilities}}$$

Example 1:

Suppose a company has the following balance sheet data:

Cash = $ 25 Million

Marketable securities = $ 20 million

Accounts receivable = $ 10 million

Inventory = $ 60 million

Accounts payable = $ 55 million

Short-term debt = $ 60 million

Long-term loans = $ 50 million

Capital = $ 10 million

Calculate Current ratio for this company.

Answer:

$$\text{Current ratio} = \frac{\textit{Current Assets}}{\textit{Current Liabilities}}$$

$$= \frac{\$115\ \textit{Million}}{\$115\ \textit{Million}} = 1.0\ X$$

2. Quick (Acid Test) Ratio:

$$\text{Quick Ratio} = \frac{\textit{Current Assets} - \textit{Inventories}}{\textit{Current Liabilities}}$$

According to the previous Example:

$$\text{Quick Ratio} = \frac{\$\,115\ \textit{Million} - \$\,60\ \textit{Million}}{\$\,115\ \textit{Million}}$$

$$= \mathbf{0.48\ X}$$

3. Cash Ratio:

$$Cash\ Ratio = \frac{Cash}{Current\ Liabilities}$$

$$= \frac{\$\ 25\ Million}{\$\ 115\ Million} = 0.22\ X$$

Asset Management Ratios:

A set of ratios that measure how effectively a firm is managing its assets.

1. Inventory Turnover Ratio
2. Days Sales Outstanding (DSO)
3. Fixed Assets Turnover Ratio
4. Total Assets Turnover Ratio

1. Inventory Turnover Ratio

Inventory turnover ratio

$$= \frac{Sales}{Inventories}$$

$$= \frac{Cost\ of\ goods\ sold\ (COGS)}{Inventories}$$

Example 3

Suppose a retail company has the following income statement and balance sheet data:

Cost of goods sold = $ 100000

Beginning Inventory = $ 60000

Ending Inventory = $ 40000

So,

Inventory Turnover Ratio =

$$= \frac{\boldsymbol{COGS}}{\boldsymbol{Inventory}} = \frac{\mathbf{100000}}{\mathbf{(60000+40000)/2}}$$

$$= \mathbf{2.0}\boldsymbol{X}$$

2. Days Sales Outstanding (DSO):

This ratio finds How many days sales are ties up in Receivable.

The DSO represents the average length of time the firm must wait after making a sale before receiving cash.

$$= \frac{\textit{Receivables}}{\textit{Average sales per day}}$$

$$= \frac{\textit{Receivables}}{\textit{Annual sales}/365}$$

Example 4:

Suppose a company accounts receivable balance of \$ 30000 and \$ 200000 in sales.
Calculate Days Sales Outstanding Ratio.

Answer:

$$DSO = \frac{\boldsymbol{Receivables}}{\boldsymbol{Average\ sales\ per\ day}}$$

$$= \frac{\$\,\mathbf{30000}}{\$\,\mathbf{200000/365}} = \mathbf{55}\ \boldsymbol{days}$$

Fixed Assets Turnover Ratio:

Measures How effectively the firm uses its plant and equipment.

Fixed Assets Turnover Ratio

$$= \frac{\boldsymbol{Sales}}{\boldsymbol{Net\ Fixed\ Assets}}$$

Example 5

Company X has sales of $2000 and total fixed assets of $ 1000. While Company Y has sales of $ 500 and total fixed assets of $ 1000.

Compare between company X and company Y according to Fixed Asset Turnover Ratio.

Answer:

Company X $= \frac{\mathbf{2000}}{\mathbf{1000}}$ = 2.0 X

Company Y = $= \frac{\mathbf{500}}{\mathbf{1000}} = \mathbf{0.5\ X}$

This means that company X uses fixed assets efficiently compared to company Y.

Total Assets Turnover Ratio:

$$\textit{Total Assets Turnover} = \frac{\textit{Sales}}{\textit{Total Assets}}$$

Example:

Net Sales = $ 500000

Assets value at the beginning of the year = $ 700000

Assets value at the ending of the year = $ 900000

Answer:

$$\text{Assets Turnover Ratio} = \frac{\textit{Sales}}{\textit{Total Assets}}$$

$$= \frac{\$\,5000000}{(700000+900000)/2} = 6.25\,X$$

Debt Management Ratios:

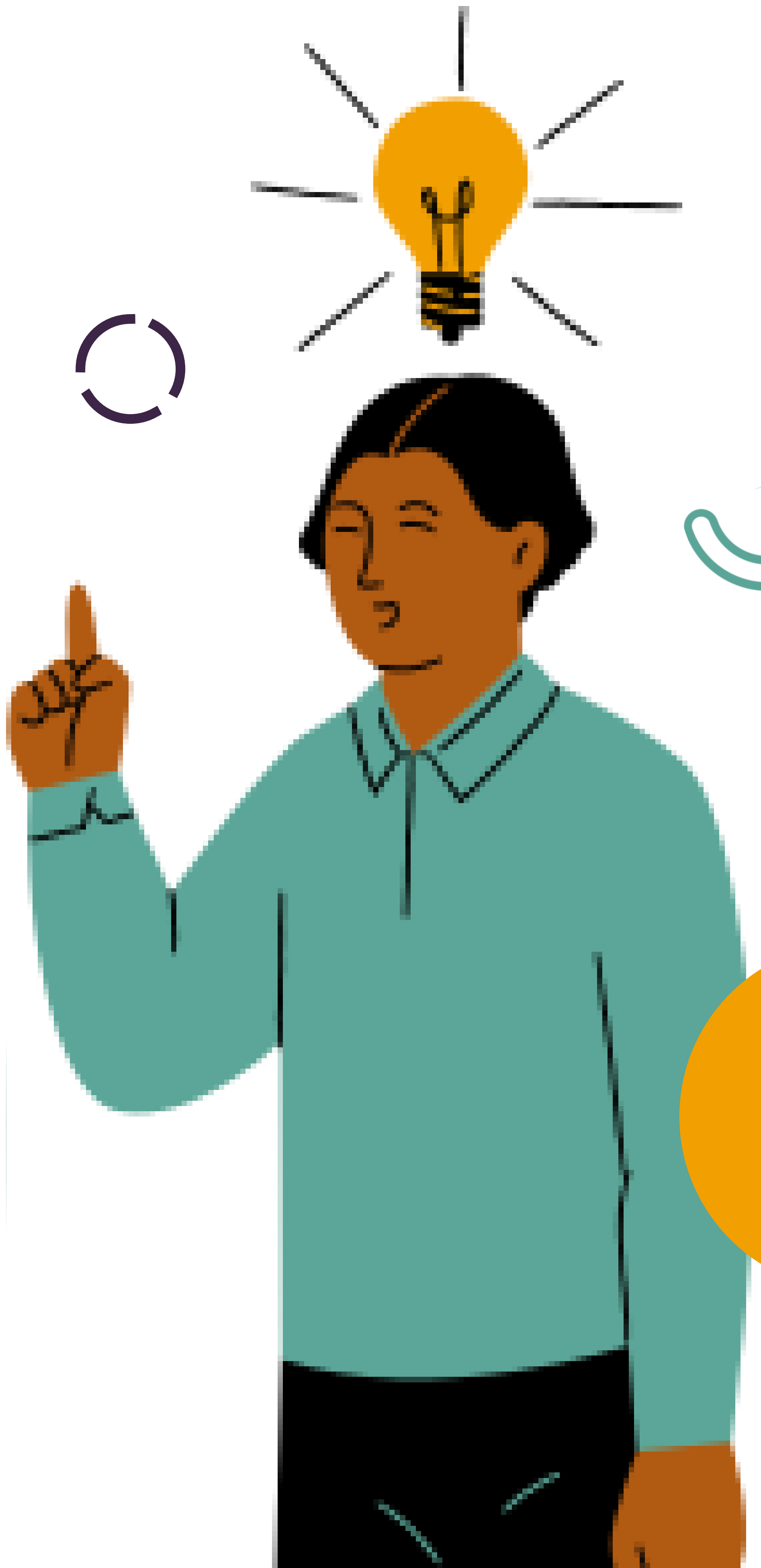
A set of ratios that measure how effectively a firm manages its debt.

1. Debt Ratio (Total Debt to Total Assets)
2. Times- interest – Earned Ratio

1. Total Debt to Total Assets

Measures the percentage of funds provided by creditors.

$$\text{Debt Ratio} = \frac{\textit{Total Dept}}{\textit{Total Assets}}$$



Example 6:

ABC company balance sheet items as follow:

Cash = 63726
Accounts receivable = 3677206
Inventory = 1887231
Prepaid expenses = 274207
Shareholder advance = 8213
investments = 475386
Fixed assets = 727257
Intangible assets = 1248857
Bank loan = 260000
Accounts payable = 1297672
Deferred tax liability = 262906
Current portion of long- term debt = 688620
Long= term liabilities = 1999026
Share capital = 1335
Retained earnings = 3852524

Example 6:

$$\text{Debt Ratio} = \frac{\textit{Total Dept}}{\textit{Total Assets}}$$

$$= \frac{4508224}{8362083} = 0.54$$

Times - Interest – Earned Ratio (TIE)

Measures the extent to which operating income can decline before the firm is unable to meet its annual interest costs.

Times – Interest – Earned Ratio

$$= \frac{\boldsymbol{EBIT}}{\boldsymbol{Interest\ Charges}}$$

Example 7

Suppose a retail company has the following income statement data :

	2015
Total Net Revenue	19,473.0
Expenses	
Total Expenses	5,508.4
Earnings Before Interest & Taxes	8,030.2
Interest Expense	1,200.0
Earnings Before Taxes	6,830.2
Income Taxes	111.8
Net Earnings	6,718.4

Answer:

$$\text{Times} - \text{Interest} - \text{Earned Ratio} = \frac{\boldsymbol{EBIT}}{\boldsymbol{Interest\ Charges}}$$

$$= \frac{\mathbf{8030}}{\mathbf{1200}} = \mathbf{6.7}\boldsymbol{X}$$

Barry Computer Company

Balance sheet as of December 31, 2022 (in thousands)

Cash	77500	Accounts payable	129000
Receivables	336000	Notes payable	84000
Inventories	241500	Other current Liabilities	117000
Total current assets	655000	Total current liabilities	330000
Net fixed assets	292500	Long- term debt	256500
Total assets	947500	Common equity	361000
		Total liabilities and equity	947500

Barry Computer Company: Income statement for year ended December 31, 2022 (in thousands)

Sales		1607500
Cost of goods sold		
Materials	717000	
Labor	453000	
Heat, light, and power	68000	
Indirect labor	113000	
Depreciation	41500	1392500
Gross profit		215000
Selling expenses		115000
General and administrative expenses		30000
Earnings before interest and taxes		70000
Interest expense		24500
Earnings before taxes		45500
Income taxes		18200
Net income		27300

From the previous Balance sheet and Income statement, Calculate the following ratios:

1. Current ratio
2. Quick ratio
3. Cash ratio
4. Inventory turnover ratio, Depending on Sales
5. Days sales outstanding ratio
6. Fixed assets turnover ratio
7. Total assets turnover ratio
8. Debt ratio
9. Times – interest – earned ratio

Answer:

1. Current ratio = $\frac{Current\ Assets}{Current\ Liabilities}$

$$= \frac{655000}{330000} = 1.98\ X$$

2. Quick Ratio = $\frac{Current\ Assets - Inventories}{Current\ Liabilities}$

$$= \frac{655000-241500}{330000} = 1.25\ X$$

Answer:

$$3.\ \textit{Cash Ratio} = \frac{\textit{Cash}}{\textit{Current Liabilities}}$$

$$= \frac{77500}{330000} = 0.23\ X$$

4. Inventory turnover ratio = $= \dfrac{\textit{Cost of goods sold (COGS)}}{\textit{Inventories}}$

$$= \frac{\textit{Sales}}{\textit{Inventories}} = \frac{1607500}{241500} = 6.66\ X$$

Answer:

5. Days sales outstanding ratio

$$= \frac{Receivables}{Average\ sales\ per\ day}$$

$$= \frac{Receivables}{Annual\ sales/365} = \frac{336000}{1607500/365} = 76\ days$$

6. Fixed Assets Turnover ratio = $\frac{Sales}{Net\ Fixed\ Assets}$

$$\frac{1607500}{292500} = 5.5\ X$$

7. Total Assets Turnover ratio = $\frac{Sales}{Total\ Assets}$

$$\frac{1607500}{947500} = 1.7\ X$$

Answer:

$$8.\ \text{Debt Ratio} = \frac{\textit{Total Dept}}{\textit{Total Assets}}$$

$$= \frac{330000+256500}{947500} = 0.62$$

$$9.\ \text{Times} - \text{interest} - \text{earned}$$

$$= \frac{\textit{EBIT}}{\textit{Interest Charges}}$$

$$= \frac{70000}{24500} = 2.86\ \text{X}$$

Thank For Your Good Listening!