

## CHAPTER 3

### Analysis of Financial Statements

- Ratio Analysis
- Effects of improving ratios

3-1

### Why are ratios useful?

- Ratios standardize numbers and facilitate comparisons.
- Ratios are used to highlight weaknesses and strengths.

3-2

### What are the five major categories of ratios, and what questions do they answer?

- Liquidity: Can we make required payments?
- Asset management: right amount of assets vs. sales?
- Debt management: Right mix of debt and equity?
- Profitability: Do sales prices exceed unit costs, and are sales high enough as reflected in PM, ROE, and ROA?

3-3

### Liquidity Ratios: Current Ratio

$$\begin{aligned}\text{Current ratio} &= \text{Current assets} / \text{Current liabilities} \\ &= \$2,680 / \$1,145 \\ &= 2.34x\end{aligned}$$

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### Asset Management Ratios: Inventory Turnover

$$\begin{aligned}\text{Inv. turnover} &= \text{Sales} / \text{Inventories} \\ &= \$7,036 / \$1,716 \\ &= 4.10x\end{aligned}$$

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### Comments on Inventory Turnover

p. 79

- Approx total # times inventory is restocked annually (4.1 means we sold everything in the store 4.1 times this year on average)
- Higher is usually better – selling through inventory more quickly. It costs to carry inventory, the money paid on stale inventory could be used elsewhere (O.C.)

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Asset Management Ratios:  
Days Sales Outstanding

$$\begin{aligned} \text{DSO} &= \text{Receivables} / \text{Average sales per day} \\ &= \text{Receivables} / \text{Sales}/365 \\ &= \$878 / (\$7,036/365) \\ &= 45.6 \end{aligned}$$

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Appraisal of DSO

Higher means collection on sales is getting worse, too high and you have to borrow to cover S-T expenses (p. 80)

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Asset Management Ratios: Fixed asset and  
Total asset turnover ratios

$$\begin{aligned} \text{FA turnover} &= \text{Sales} / \text{Net fixed assets} \\ &= \$7,036 / \$817 = 8.61x \end{aligned}$$

$$\begin{aligned} \text{TA turnover} &= \text{Sales} / \text{Total assets} \\ &= \$7,036 / \$3,497 = 2.01x \end{aligned}$$

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Evaluating the FA turnover and TA turnover ratios

Shows how many dollars in sales each \$1 in Fixed assets or Total assets creates (higher means better effect of assets)

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Debt Management Ratios:  
Debt ratio and TIE

$$\begin{aligned} \text{Debt ratio} &= \text{Total debt} / \text{Total assets} \\ &= (\$1,145 + \$400) / \$3,497 = 44.2\% \end{aligned}$$

$$\begin{aligned} \text{TIE} &= \text{EBIT} / \text{Interest expense} \\ &= \$492.6 / \$70 = 7.0x \end{aligned}$$

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Debt Management Ratios:  
EBITDA coverage

$$\begin{aligned} \text{EBITDA coverage} &= \frac{(\text{EBITDA} + \text{Lease pmts})}{\text{Int exp} + \text{Lease pmts} + \text{Principal pmts}} \end{aligned}$$

$$\begin{aligned} &= \frac{\$609.6 + \$40}{\$70 + \$40 + \$0} \\ &= 5.9x \end{aligned}$$

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### Debt management ratios explained

- D/A shows total debt as a % of Total assets (higher mean more debt-leverage and risk) (p. 83-84)
- TIE measures our ability to pay interest on loans (higher is less risky) (p. 84)
- EBITDA Coverage - All cash available to cover all fixed debt/lease amts (p. 85)

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### Profitability ratios: Profit margin and Basic earning power

$$\text{Profit margin} = \text{Net income} / \text{Sales} \\ = \$253.6 / \$7,036 = 3.6\%$$

$$\text{BEP} = \text{EBIT} / \text{Total assets} \\ = \$492.6 / \$3,497 = 14.1\%$$

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### Profitability ratios explained

- PM shows how many pennies in NI per \$1 sales are created on average. (Higher means better results) (p. 86)
- BEP shows how many pennies in EBIT are created per \$1 in assets. (Higher means TA are used more effectively)

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### Profitability ratios: Return on assets and Return on equity

$$\text{ROA} = \text{Net income} / \text{Total assets} \\ = \$253.6 / \$3,497 = 7.3\%$$

$$\text{ROE} = \text{Net income} / \text{Total common equity} \\ = \$253.6 / \$1,952 = 13.0\%$$

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### Profitability ratios explained

p. 88

- ROA shows how many pennies in NI are created by \$1 in Total Assets (Higher mean Assets are creating more Net Income on average)
- ROE shows how many pennies in NI are created by \$1 in Common Equity (Book value of Common Stock + Retained Earnings on Balance sheet) (Higher mean Assets are creating more Net Income on average)

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### Problems with ROE

P. 99-101

- ROE and shareholder wealth are correlated, but problems can arise when ROE is the sole measure of performance.
  - ROE does not consider risk.
  - ROE does not consider the amount of capital invested.
  - Might encourage managers to make investment decisions that do not benefit shareholders.
- ROE focuses only on return. A better measure is one that considers both risk and return.

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An example:  
The effects of improving ratios

A/R	878	Debt	1,545
Other CA	1,802	Equity	1,952
Net FA	<u>817</u>		
TA	<u>3,497</u>	Total L&E	<u>3,497</u>

Sales / day = \$7,035,600 / 365 = \$19,275.62

How would reducing the firm's DSO to 32 days affect the company?

3-19

Reducing accounts receivable and the days sales outstanding

- Reducing A/R will have no effect on sales

Old A/R = \$19,275.62 x 45.6 = \$878,000

New A/R = \$19,275.62 x 32.0 = \$616,820

Cash freed up: \$261,180

Initially shows up as addition to cash.

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