Analysis of Financial Statements
Finance 160:266

4-1 Greene Sisters has a DSO [Daily Sales Outstanding] of 20 days. The company's average daily sales are $20,000. What is the level of its accounts receivable? Assume there are 365 days in the year.

DSO = 20 ; Average Daily Sale = $20,000 = Sales/365

$$DSO = \frac{A/R}{\text{Average Daily Sale}} \Rightarrow 20 = \frac{A/R}{20,000}$$

$$20 \times 20,000 = A/R$$
$$\$40,000 = A/R$$

4-2 Vigo Vacations has an equity multiplier of 2.5. The company's assets are financed with some combination of long-term debt and common equity. What is the company's debt ratio?

2.5 = Equity Multiplier = A/E # times equity turns over in Assets

DR = D/A

$1/A/E = E/A$

However, $1 - E/A = \frac{A-E}{A} = \frac{D}{A}$

$$\therefore \frac{D}{A} = 1 - \frac{1}{A/E} = 1 - \frac{1}{2.5}$$
$$= 1 - .40 = .60 \text{ or } 60\%$$

4-4 A Company has an EPS of $1.50, a cash flow per share of $3.00, and a price/cash flow ratio of 8.0 times. What is its P/E ratio? EPS = $1.50; CFPS = $3.00; P/CF = 8x

P/CF = 8 so P/3.00 = 8 ⇒ P = $24

$$\therefore P/E = \$24/\$1.50 = 16.0x$$

4-6 Donaldson & Son has a ROA of 10%, a 2% profit margin, and a return on equity equal to 15%. What is the company's total assets turnover? What is the firm's equity multiplier?

ROA = 10% ; PM = 2% ; ROE = 15%

$$PM = NI/Sales \Rightarrow ROA = \frac{NI}{TA} = \frac{NI}{Sales} \times \frac{Sales}{TA}$$
$$\frac{NI}{TA} = PM \times TATO$$
$$10\% = 2\% \times TATO \Rightarrow TATO = 5$$

Now, ROE = PM × TATO × TA/E [Equity Multiplier] Du Pont Eq^{n}

$$15\% = 2\% \times 5 \times EM$$
$$15\%/10\% = EM = 1.5$$

4-8 Assume you are given the following relationships for the Clayton Corporation.

Sales/Total Assets	1.5X	= TATO
Return on Assets [ROA]	3%	
Return on Equity [ROE]	5%	

Calculate Clayton's profit margin and debt ratio.

DuPont Eq^{n}: ROA = PM × TATO

3% = PM × 1.5 ⇒ PM = 3/1.5 or 2%

Similarly,

DuPont Eq^{n}: ROE = ROA × EM

5% = 3% × EM ⇒ EM = 5/3 = TA/E

⇒ E/TA = 3/5 or 60%

1 − E/TA = DR

So DR = 1 − 60% or 40%

4-9 The Nelson Company has $1,312,500 in current assets and $525,000 in current liabilities. Its initial inventory level is $375,000 and it will raise funds as additional notes payable and use them to increase inventory. How much can Nelson's short-term debt (notes payable) increase without pushing its current ratio below 2.0 [i.e. violate a debt covenant]? What will be the firm's quick ratio after Nelson has raised the maximum amount of short-term funds?

$$CR = CA/CL = \frac{\$1,312,500}{\$525,000} = 2.5$$

$$\text{Minimum } CR = \frac{2}{1} = \frac{\$1,312,500 + \Delta NP}{\$525,000 + \Delta NP}$$

$$\$1,312,500 + \Delta NP = 2[\$525,000 + \Delta NP]$$

$$\$1,312,500 + \Delta NP = \$1,050,000 + 2\Delta NP$$

$$\$262,500 = \Delta NP$$

So, short-term debt (NP) can increase by a maximum of $262,500 without violating the debt covenant (i.e. CR=2) assuming this amount will be used to increase current assets. Since this amount is assumed to be used to fund inventory

New inventory = $375,000 + $262,500 = $637,500

CA = $1,312,500 + $262,500 = $1,575,000

$$\therefore QR = \frac{\$1,575,000 - \$637,500}{525,000 + 262,500} = 1.19\times$$

14-13 [Bonus Question]

Data for Morton Chip Company and its industry averages follow:

a. Calculate the indicated ratios for Morton.
b. Construct the extended Du Pont equation for both Morton and the industry.
c. Outline Morton's strengths and weaknesses as revealed by your analysis.
d. Suppose Morton had doubled its sales as well as its inventories, accounts receivable, and common equity during 2007. How would that information affect the validity of your ratio analysis? [Hint: Think about averages and the effects of rapid growth on ratios if averages are not used. No calculations are needed.]

Morton Chip Company: Balance Sheet as of December 31, 2007 (In Thousands)

Cash	$77,500	Accounts Payable	$129,000
Receivables	336,000	Notes Payable	84,000
Inventories	241,500	Other Current Liabilities	117,000
Total CA	$ 655,000	Total CL	$330,000
Net Fixed Assets	292,500	Long-Term Debt	256,500
		Common Equity	361,000
Total Assets	$ 947,500	Total Liabilities + Equity	$947,500
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Morton Chip Company: Income Statement for Year Ended December 31, 2007
[In Thousands]

Sales	$1,607,500
Cost of Goods Sold	1,392,500
Selling, general, and Admin. Expenses	145,000
EBIT	$ 70,000
Interest Expense	24,500
EBT	$ 45,500
Federal and State Income Taxes [40%]	18,200
Net Income	$ 27,300
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Ratio	Morton	Industry Average
CA/CL		2.0X
DSO		35.0 days
Sales/Inventory [Inventory Turnover]		6.7X
Sales/Fixed Assets [Fixed Asset Turnover]		12.1X
Sales/Total Assets [Total Asset Turnover]		3.0X
Net Income/Sales [Profit Margin on Sales]		3.6%
NI/Equity [ROE]		9.0%
Total Debt/Total Assets[Debt Ratio]		60.0%

Note: DSO is based on a 365-day year.

(a)

		Morton	Industry	Perspective
CR = CA/CL	$\frac{\$655,000}{330,000}$	1.98x	2.0x	Slightly −
DSO = A/R / Sales/365	$= \frac{\$336,000}{\$4,404.11}$	76 days	35 days	− too long
Sales/Inventory	$= \frac{\$1,607,500}{\$241,500}$	6.66x	6.7x	neutral
Sales/Fixed Assets	$= \frac{\$1,607,500}{\$292,500}$	5.50x	12.1x	− too low
Sales/TA	$= \frac{\$1,607,500}{\$947,500}$	1.70x	3.0x	− too low
NI/Sales	$= \frac{\$27,300}{\$1,607,500}$	1.7%	1.2%	+ favorable
NI/TA	$= \frac{\$27,300}{\$947,500}$	2.9%	3.6%	− unfavorable
NI/E	$= \frac{\$27,300}{\$361,000}$	7.6%	9%	− unfavorable
DR = D/TA	$= \frac{\$586,500}{\$947,500}$	61.9%	60.0%	Slightly −

(b) DuPont Eq: for Morton ROE = PM × TATO × EM

$$7.6\% = 1.7\% \times 1.7 \times \frac{\$947,500}{361,000}$$

$$= 1.7\% \times 1.7 \times 2.62$$

Industry $9\% = 1.2\% \times 3 \times 2.5$

Morton has a better PM, but greater DSO, Fixed asset turnover, TATO than the industry

(c) Wrap-Up Morton's daily sales outstanding is more than twice as long as the industry average — which may indicate the firm is financing a great deal of its sales through accounts receivable. Morton should consider tightening its credit policy and instituting better collection policies. The total asset turnover ratio is below the industry average indicating higher asset levels per unit of sales. Morton should seek to address this issue by increasing sales and/or decreasing assets particularly in the area of AIR. Note though there may be a trade off ⇒ tighter credit ↓ AIR but it is likely to decrease sales ⇒ on the other hand if higher sales is due to customers who represent bad debt loss these are sales ultimately reducing company earnings. Morton has a higher profit margin, but when looking at the DuPont eq^{n} it is apparent this advantage is lost due to the higher level of assets than the industry average.

4-13 (d) If 2007 represents a period of super normal growth for the firm, ratios based on this year will be distorted and a comparison between them and the industry averages will have little meaning. Potential investors who look only at 2008 ratios will be misled and a return to normal conditions in 2008 could hurt the firm's stock price if shareholders have come to expect continuing growth at an above average level.

Note: Super growth is much easier to demonstrate for a small, emerging company. However, as the firm matures, and the asset base increases, it may be difficult to generate the same ROA. Consequently, investing in small, emerging growth companies is viewed as having a greater degree of risk relative to earnings consistency and growth.