CHAPTER 3
Analysis of Financial Statements

- Ratio analysis
- Effects of improving ratios
- Limitations of ratio analysis
- Qualitative factors

Balance Sheet: Assets

	2002E	2001
Cash	85,632	7,282
AR	878,000	632,160
Inventories	1,716,480	1,287,360
Total CA	2,680,112	1,926,802
Gross FA	1,197,160	1,202,950
Less: Deprec.	380,120	263,160
Net FA	817,040	939,790
Total assets	3,497,152	2,866,592

Liabilities and Equity

	2002E	2001
Accounts payable	436,800	524,160
Notes payable	300,000	636,808
Accruals	408,000	489,600
Total CL	1,144,800	1,650,568
Long-term debt	400,000	723,432
Common stock	1,721,176	460,000
Retained earnings	231,176	32,592
Total equity	1,952,352	492,592
Total L & E	3,497,152	2,866,592

Income Statement

	2002E	2001
Sales	7,035,600	6,034,000
COGS	5,875,992	5,528,000
Other expenses	550,000	519,988
EBITDA	609,608	(13,988)
Depreciation	116,960	116,960
EBIT	492,648	(130,948)
Interest exp.	70,008	136,012
EBT	422,640	(266,960)
Taxes (40%)	169,056	(106,784)
Net income	253,584	(160,176)

Other Data

	2002E	2001
Shares out.	250,000	100,000
EPS	$1.014	($1.602)
DPS	$0.220	$0.110
Stock price	$12.17	$2.25
Lease pmts	$40,000	$40,000

Why are ratios useful?

- **Standardize numbers; facilitate comparisons**
- **Used to highlight weaknesses and strengths**

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?**
- **Market value: Do investors like what they see as reflected in P/E and M/B ratios?**

Calculate D'Leon's forecasted current and quick ratios for 2002.

$$CR_{02} = \frac{CA}{CL} = \frac{\$2,680}{\$1,145} = 2.34x.$$

$$QR_{02} = \frac{CA - Inv.}{CL}$$

$$= \frac{\$2,680 - \$1,716}{\$1,145} = 0.84x.$$

Comments on CR and QR

	2002	2001	2000	Ind.
CR	2.34x	1.2x	2.3x	2.7x
QR	0.84x	0.4x	0.8x	1.0x

- Expected to improve but still below the industry average.
- Liquidity position is weak.

What is the inventory turnover ratio vs. the industry average?

$$\text{Inv. turnover} = \frac{\text{Sales}}{\text{Inventories}}$$

$$= \frac{\$7,036}{\$1,716} = 4.10x.$$

	2002	2001	2000	Ind.
Inv. T.	4.1x	4.7x	4.8x	6.1x

Comments on Inventory Turnover

- Inventory turnover is below industry average.
- D’Leon might have old inventory, or its control might be poor.
- No improvement is currently forecasted.

DSO is the average number of days after making a sale before receiving cash.

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

$$= \frac{\text{Receivables}}{\text{Sales/365}} = \frac{\$878}{\$7{,}036/365} = 45.6.$$

Appraisal of DSO

	2002	2001	2000	Ind.
DSO	45.6	38.2	37.4	32.0

- D’Leon collects too slowly, and is getting worse.
- D’Leon has a poor credit policy.

F.A. and T.A. Turnover versus Industry Average

$$\text{Fixed assets turnover} = \frac{\text{Sales}}{\text{Net fixed assets}}$$

$$= \frac{\$7,036}{\$817} = 8.61\text{x.}$$

$$\text{Total assets turnover} = \frac{\text{Sales}}{\text{Total assets}}$$

$$= \frac{\$7,036}{\$3,497} = 2.01\text{x.}$$

	2002	2001	2000	Ind.
FA TO	8.6x	6.4x	10.0x	7.0x
TA TO	2.0x	2.1x	2.3x	2.6x

- FA turnover projected to exceed industry average. Good.
- TA turnover not up to industry average. Caused by excessive current assets (A/R and Inv.)

Calculate the debt ratio, TIE, and EBITDA coverage ratios.

$$\text{Debt ratio} = \frac{\text{Total debt}}{\text{Total assets}}$$

$$= \frac{\$1{,}145 + \$400}{\$3{,}497} = 44.2\%.$$

$$\text{TIE} = \frac{\text{EBIT}}{\text{Int. expense}}$$

$$= \frac{\$492.6}{\$70} = 7.0\text{x}.$$

$$\text{EBITDA coverage} = \frac{\text{EBITDA + Lease payments (in cash)}}{\text{Interest expense} + \text{Lease pmt.} + \text{Principal repayments}}$$

$$= \frac{\$609.6 + \$40}{\$70 + \$40 + \$0} = 5.9\text{x.}$$

How do the debt management ratios compare with industry averages?

	2002	2001	2000	Ind.
D/A	44.2%	82.8%	54.8%	50.0%
TIE	7.0x	-1.0x	4.3x	6.2x
EBITDA coverage	5.9x	0.1x	3.0x	8.0x

D/A and TIE are better than industry average but EBITDA still below industry average.

Profit margin vs. industry average?

$$\text{P.M.} = \frac{\text{NI}}{\text{Sales}} = \frac{\$253.6}{\$7{,}036} = 3.6\%.$$

	2002	2001	2000	Ind.
P.M.	3.6%	-2.7%	2.6%	3.5%

Very bad in 2001, but projected to exceed industry average in 2002. Looking good.

BEP vs. industry average?

$$BEP = \frac{EBIT}{Total\ assets}$$

$$= \frac{\$492.6}{\$3,497} = 14.1\%.$$

	2002	2001	2000	Ind.
BEP	14.1%	-4.6%	13.0%	19.1%

- BEP removes effect of taxes and financial leverage. Useful for comparison.
- Projected to be below average.
- Room for improvement.

Return on Assets

$$\text{ROA} = \frac{\text{Net income}}{\text{Total assets}}$$

$$= \frac{\$253.6}{\$3{,}497} = 7.3\%.$$

$$ROE = \frac{\text{Net income}}{\text{Common equity}}$$

$$= \frac{\$253.6}{\$1,952} = 13.0\%.$$

	2002	2001	2000	Ind.
ROA	7.3%	-5.6%	6.0%	9.1%
ROE	13.0%	-32.5%	13.3%	18.2%

Both below average but improving.

Effects of Debt on ROA and ROE

- ROA is lowered by debt--interest lowers NI, which also lowers ROA = NI/Assets.
- But use of debt lowers equity, hence could raise ROE = NI/Equity.

Typical Industry Average P/E Ratios

Industry	P/E ratio
Banking	16.58
Computer Software Services	84.28
Drug	43.89
Electric Utilities (Eastern U.S.)	25.28
Internet Services*	326.53
Semiconductors	85.44
Steel	12.38
Tobacco	11.07
Water Utilities	22.30

* Because many internet companies have negative earnings and no P/E, there was only a small sample of internet companies.

$$\text{CF per share} = \frac{\text{NI + Depr.}}{\text{Shares out.}}$$

$$= \frac{\$253.6 + \$117.0}{250} = \$1.48.$$

$$\text{P/CF} = \frac{\text{Price per share}}{\text{Cash flow per share}}$$

$$= \frac{\$12.17}{\$1.48} = 8.21\text{x}.$$

$$BVPS = \frac{\text{Com. equity}}{\text{Shares out.}}$$

$$= \frac{\$1,952}{250} = \$7.81.$$

$$M/B = \frac{\text{Mkt. price per share}}{\text{Book value per share}}$$

$$= \frac{\$12.17}{\$7.81} = 1.56x.$$

	2002	2001	2000	Ind.
P/E	12.0x	-1.4x	9.7x	14.2x
P/CF	8.21x	-5.2x	8.0x	11.0x
M/B	1.56x	0.5x	1.3x	2.4x

- P/E: How much investors will pay for $1 of earnings. High is good.
- P/CF: How much investors will pay for $1 of cash flow. High is good.
- M/B: How much paid for $1 of BV. Higher is better.
- P/E and M/B are high if ROE is high, risk is low.

$$\left(\begin{matrix}\text{Profit}\\ \text{margin}\end{matrix}\right)\left(\begin{matrix}\text{TA}\\ \text{turnover}\end{matrix}\right)\left(\begin{matrix}\text{Equity}\\ \text{multiplier}\end{matrix}\right) = \text{ROE}$$

$$\frac{\text{NI}}{\text{Sales}} \times \frac{\text{Sales}}{\text{TA}} \times \frac{\text{TA}}{\text{CE}} = \text{ROE}.$$

2000	2.6%	x	2.3	x	2.2	=	13.3%
2001	-2.7%	x	2.1	x	5.8	=	-32.5%
2002	3.6%	x	2.0	x	1.8	=	13.0%
Ind.	3.5%	x	2.6	x	2.0	=	18.2%

What are some potential problems and limitations of financial ratio analysis?

- Comparison with industry averages is difficult if the firm operates many different divisions.
- "Average" performance not necessarily good.
- Seasonal factors can distort ratios.

- **“Window dressing” techniques can make statements and ratios look better.**
- **Different operating and accounting practices distort comparisons.**
- **Sometimes hard to tell if a ratio is “good” or “bad.”**
- **Difficult to tell whether company is, on balance, in strong or weak position.**

What are some qualitative factors analysts should consider when evaluating a company's likely future financial performance?

- Are the company's revenues tied to 1 key customer, product, or supplier?
- What percentage of the company's business is generated overseas?
- Competition
- Future prospects
- Legal and regulatory environment