CHAPTER 2

QUESTIONS

2-1 The four financial statements contained in most annual reports are the balance sheet, income statement, statement of retained earnings, and statement of cash flows.

2-2 No, because the $20 million of retained earnings probably would not be held as cash. The retained earnings figure represents the reinvestment of earnings by the firm. Consequently, the $20 million would be an investment in all of the assets of the firm.

2-3 Liquidating assets, borrowing more funds, and issuing stock would constitute sources of funds. Purchasing assets, paying off debt, and stock repurchases would constitute uses of funds. Thus, the following general rules can be used to determine what changes in balance sheet accounts represent sources and uses if funds:

Sources of cash:	*Uses of Cash:*
↑ in a liability or equity account	↓ in a liability of equity account
↓ in an asset account	↑ in an asset account

2-4 The emphasis of the various types of analysts is by no means uniform, nor should it be. *Management* is interested in all types of ratios for two reasons. First, the ratios point out weaknesses that should be strengthened; second, management recognizes that the other parties are interested in all the ratios and that financial appearances must be kept up if the firm is to be regarded highly by creditors and equity investors. *Equity investors* are interested primarily in profitability, but they examine the other ratios to get information on the riskiness of equity commitments. *Long-term creditors* are more interested in the debt ratio, TIE, and fixed charge coverage ratios, as well as the profitability ratios. *Short-term creditors* emphasize liquidity and look most carefully at the liquidity ratios.

2-5 The most important aspect of ratio analysis is the judgment used when interpreting the results to reach an overall conclusion concerning a firm's financial position. The analyst should be aware of, and include in the interpretation, the fact that: (1) large firms with many different divisions are difficult to categorize in a single industry; (2) financial statements are reported at historical costs; (3) seasonal factors can distort the ratios; (4) some firms try to "window dress" their financial statements to look good; (5) firms use different accounting procedures to compute inventory values, depreciation, and so on; (6) there might not exist a single value that can be used for comparing firms' ratios (e.g., a current ratio of 2.0 might not be good); and (7) conclusions concerning the overall financial position of a firm should a representative number of ratios, not a single ratio.

2-6 Differences in the amounts of assets necessary to generate a dollar of sales cause asset turnover ratios to vary among industries. For example, a steel company needs a greater number of dollars in assets to produce a dollar in sales than does a grocery store chain such as Safeway. Also, profit margins and turnover ratios might vary due to differences in the amount of expenses incurred to produce sales. For example, one would expect a grocery store chain like Safeway to spend more per dollar of sales than does a steel company. Often, a large turnover will be associated with a low profit margin (e.g., grocery chain), and vice versa.

2-7 ROE can be written

$$\text{ROE} = \frac{\text{NI}}{\text{Owners' equity}} = \frac{\text{NI}}{\text{TA}} \times \frac{\text{TA}}{\text{Owners' equity}}$$

Total assets divided by owners' equity, which is termed the equity multiplier, is a measure of debt utilization (the inverse of the percent equity the firm uses); the more debt, the higher the equity multiplier. Thus, using more debt will increase the equity multiplier, resulting in a higher ROE. However, as more debt is used, the chance of financial distress increases. If the risk of bankruptcy is high then the cost of debt could increase to the point where additional debt is detrimental to the firm.

2-8 a. Cash, receivables, and inventories, as well as current liabilities, vary over the year for firms with seasonal sales patterns. Therefore, those ratios that examine balance sheet figures will vary unless averages (monthly ones are best) are used.

b. Common equity is determined at a point in time, say, December 31, 2008. Profits are earned over time, say, during 2008. If a firm is growing rapidly, year-end equity will be much larger than beginning-of-year equity, so the calculated rate of return on equity will be different depending on whether end-of-year, beginning-of-year, or average common equity is used as the denominator. Average common equity is conceptually the best figure to use. In public utility rate cases, people are reported to have deliberately used end-of-year or beginning-of-year equity to make returns on equity appear excessive or inadequate. Similar problems can arise when a firm is being evaluated.

2-9 Net income represents the revenues net of expenses and taxes that the firm generates during a particular accounting period. Because firms use "accrual accounting" to account for revenues and expenses, revenues are recognized when they are earned, which could differ from when the cash is received, and expenses are recognized when they are incurred, which could differ from when the cash is paid. On the other hand, net cash flow represents the amount of cash net of cash expenses and taxes that the firm receives during the accounting period. Generally, the net income differs from the net cash flow because the firm recognizes a large non-cash expense called depreciation.

2-10 Net cash flow is the "bottom-line" amount of cash that the firm generates during an accounting period, which represents the total cash inflows minus the total cash outflows. Operating cash flow is the net cash flow that is generated from normal operations—for example, manufacturing and selling inventory—before considering the effects of financing on the "bottom-line" cash flow.

2-11 Free cash flow measures the cash flow that the firm is *free* to pay to investors (both bondholders and stockholders) after considering the cash investments that are needed to continue operations, including investments in fixed assets needed to manufacture products, working capital needed to continue operations, and new opportunities that will grow the stock price. We compute the free cash flow by subtracting the amount that is needed to fund investments during the year from operating cash flow: Free Cash Flow (FCF) = Operating cash flow – Investments.

2-12

	2009	2008	Source(+) or Use(-)?
Cash	$ 400	$ 500	+
Accounts receivable	250	300	+
Inventory	450	400	–

Current assets	1,100	1,200	
Net property & equipment	1,000	950	–*
Total assets	$2,100	$2,150	
Accounts payable	$ 200	$ 400	–
Accruals	300	250	+
Notes payable	400	200	+
Current liabilities	900	850	
Long-term debt	800	900	–
Total liabilities		1,700	1,750
Common stock	250	300	–
Retained earnings	150	100	+
Total equity	400	400	
Total liabilities and equity	$2,100	$2,150	

*The book value of property and equipment is stated net of depreciation. Because the book value of fixed assets increased, and depreciation is an adjustment that reduces the account balance, Batelan must have purchased addition fixed assets. But, without more information we cannot determine the amount of the purchase.

The retained earning balance increased in 2009, so Batelan must have generated a positive net income. But, without additional information (i.e. the amount of net income), we cannot tell whether dividends were paid in 2009.

2-13

		Total Current Assets	Current Ratio	Effect on Net Income
a.	Cash is acquired through issuance of additional common stock.	+	+	0
b.	Merchandise is sold for cash.	+	+	+
c.	Federal income tax due for the previous year is paid.	—	+	0
d.	A fixed asset is sold for less than its book value.	+	+	—
e.	A fixed asset is sold for more than its book value.	+	+	+
f.	Merchandise is sold on credit.	+	+	+
g.	Payment is made to trade creditors for previous purchases.	—	+	0
h.	A cash dividend is declared and paid.	—	—	0
i.	Cash is obtained through short-term bank loans.	+	—	0
j.	Marketable securities are sold below cost.	—	—	—
k.	Advances are made to employees.	0	0	0
l.	Current operating expenses are paid.	—	—	—
m.	Short-term promissory notes are issued to trade creditors in exchange for past due accounts payable.	0	0	0
n.	Long-term bonds are issued to pay off accounts payable.	0	+	0
o.	Accounts receivable are collected.	0	0	0
p.	Equipment is purchased with short-term notes.	0	—	0
q.	Inventory (raw materials) is purchased on credit.	+	—	0

PROBLEMS

2-1 $$\text{Present current ratio} = \frac{\$1,312,500}{\$525,000} = 2.5\times$$

$$\text{Minimum current ratio} = \frac{\$1,312,500 + \Delta NP}{\$525,000 + \Delta NP} = 2.0\times$$

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

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

Short-term debt can increase by a maximum of $262,500 without violating a 2-to-1 current ratio, assuming that the entire increase in notes payable is used to increase current assets. Because we assumed that the additional funds would be used to increase inventory, the inventory account will increase to $637,500, and current assets will total $1,575,000.

Quick ratio = ($1,575,000 ─ $637,500)/$787,500
= $937,500/$787,500
= 1.19x

2-2 (1) $$\frac{\text{Current assets}}{\text{Current liabilities}} = 3.0\times$$

$$\frac{\$810,000}{\text{Current liabilities}} = 3.0\times \qquad \text{Current liabilities} = \$270,000$$

(2) $$\frac{\text{Current assets - Inventories}}{\text{Current liabilities}} = 1.4\times$$

$$\frac{\$810,000 - \text{Inventories}}{\$270,000} = 1.4\times \qquad \text{Inventories} = \$432,000$$

(3) Current assets = Cash + Marketable securities + Accounts receivable + Inventories

$\$810,000 = \$120,000 + \text{Accounts receivable} + \$432,000$

Accounts receivable = $258,000

(4) $$\frac{\text{Cost of goods sold}}{\text{Inventory}} = 5.0\times$$

$$\frac{CGS}{\$432,000} = 5.0\times \qquad CGS = \$2,160,000$$

(5) CGS = 0.86 (Sales) $$\text{Sales} = \frac{\$2,160,000}{0.86} = \$2,511,628$$

(6) $$DSO = \frac{\text{Accounts receivable}}{\text{Sales} / 360} = \frac{\$258{,}000}{\$2{,}511{,}628 / 360} = 37 \text{ days}$$

2-3 TIE = EBIT/INT, so find EBIT and INT

Interest = $500,000 x 0.1 = $50,000

Net income = $2,000,000 x 0.05 = $100,000

Taxable income (EBT) = $100,000/(1 - T) = $100,000/0.8 = $125,000

EBIT = $125,000 + $50,000 = $175,000

TIE = $175,000/$50,000 = 3.5 x

2-4 ROE = NI/Equity

Now we need to determine the inputs for the equation from the data that were given. On the left we set up an income statement, and we put numbers in it on the right:

Sales (given)	$10,000
- Cost	na
EBIT (given)	$ 1,000
- INT (given)	(300)
EBT	$ 700
- Taxes (30%)	(210)
NI	$ 490

Now we can use some ratios to get some more data:

Total assets turnover = 2.0 = Sales/TA; TA = Sales/2 = $10,000/2 = $5,000

Debt/TA = 60%; so Equity/TA = 40%; therefore, Equity = TA x Equity/TA
= $5,000 x 0.40 = $2,000

Alternatively, Debt = TX x Debt/TA = $5,000 x 0.6 = $3,000; Equity = TA – Debt = $5,000 - $3,000 = $2,000

ROE = NI/E = $490/$2,000 = 24.5%, and ROA = NI/TA = $490/$5,000 = 9.8%

2-5 Net cash flow = $180,000 + $50,000 = $230,000

2-6 a. NI = (Sales – Operating costs – Interest expense)(1-T)
$650,000 = (Sales - $1,500,000 - $300,000 – 0)(1 – 0.35)

$$Sales = \frac{\$650{,}000}{0.65} + (\$1{,}500{,}000 + \$300{,}000) = \$2{,}800{,}000$$

b. Net cash flow = $650,000 + $300,000 = $950,000

c. Operating cash flow = $950,000

2-7 EVA = $150,000(1 – 0.4) – 0.10($1,100,000) = -$20,000

2-8 We are given ROA = 3% and Sales/Total assets = 1.5x

From DuPont equation:	ROA	=	Profit margin x Total assets turnover
	3%	=	Profit margin (1.5)
	Profit margin	=	3%/1.5 = 2%.

We can also calculate Zumwalt's debt ratio in a similar manner, given the facts of the problem. We are given ROA, which is NI/A and ROE, which is NI/Equity; if we use the reciprocal of ROE we have the following equation:

$$\frac{\text{Equity}}{\text{Assets}} = \frac{\text{NI}}{\text{Assets}} \times \frac{\text{Equity}}{\text{NI}} = 3.0\% \times \frac{1}{0.05} = 0.60 = 60\%$$

Debt/Assets = 1 - Equity/Assets = 1 - 0.60 = 0.40 = 40.0%

Thus, Zumwalt's profit margin = 2% and its debt ratio = 40%.

2-9 a. Currently, ROE is ROE_1 = $15,000/$200,000 = 7.5%

The current ratio will be set such that 2.5 = CA/CL. CL is $50,000 = $30,000 + $20,000, and it will not change, so we can solve to find the new level of current assets: CA = 2.5(CL) = 2.5($50,000) = $125,000. This is the level of current assets that will produce a current ratio of 2.5x.

At present, current assets amount to $210,000, so they can be reduced by $210,000 ─ $125,000 = $85,000.

If the $85,000 generated is used to retire common equity, then the new common equity balance will be $200,000 ─ $85,000 = $115,000.

Assuming that net income is unchanged, the new ROE will be ROE_2 = $15,000/$115,000 = 13.04%. Therefore, ROE will increase by 13.04% ─ 7.50% = 5.54%.

b. (1) Doubling the dollar amounts would not affect the answer; the ROE increase would still be 5.54%.

(2) Current assets would increase by $25,000, which would mean a new ROE of $15,000/$140,000 = 10.71%, which would mean a difference of 10.71% ─ 7.50% = 3.21%.

(3) If the company had 10,000 shares outstanding, then its EPS would be $15,000/10,000 = $1.50. The stock has a book value of $200,000/10,000 = $20, so the shares retired would be $85,000/$20 = 4,250, leaving 10,000 ─ 4,250 = 5,750 shares. The new EPS would be $15,000/5,750 = $2.6087, so the increase in EPS would be $2.6087 ─ $1.50 = $1.1087, which is a 73.91% increase, the same as the increase in ROE.

(5) If the stock was selling for twice book value, or 2 x $20 = $40, then only half as many shares could be retired ($85,000/$40 = 2,125), so the remaining shares would be 10,000 ─ 2,125 = 7,875, and the new EPS would be $15,000/7,875 = $1.9048, for an increase of $1.9048 ─ $1.5000 = $0.4048.

c. We could have started with lower inventories and higher accounts receivable, then had you calculate the DSO, then move to a lower DSO which would require a reduction in receivables, and then determine the effects on ROE and EPS under different conditions. Similarly, we could have focused on fixed assets and the FA turnover ratio. In any of these cases, we could have had you use the funds generated to retire debt, which would have lowered interest charges and consequently increased net income and EPS.

If we had to *increase* assets, then we would have had to finance this increase by adding either debt or equity, which would have lowered ROE and EPS, other things held constant.

Finally, note that we could have asked some conceptual questions about the problem, either as a part of the problem or without any reference to the problem. For example, "If funds are generated by reducing assets, and if those funds are used to retire common stock, will the effect on EPS and/or ROE be affected by whether the stock sells above, at, or below book value?"

2-10 a. Sources and Uses of Funds Analysis:

Lloyd Lumber Company
Balance Sheet, 2009
($ millions)

	Jan. 1	Dec. 31	Source	Use
Cash	$ 7	$ 15		$ 8
Marketable securities	0	11		11
Net receivables	30	22	$ 8	
Inventories	53	75		22
Total current assets	$ 90	$123		
Gross fixed assets	$ 75	$125		50
Less: depreciation	25	35	10*	
Net fixed assets	$ 50	$ 90		
Total assets	$140	$213		
Accounts payable	$ 18	$ 15		3
Notes payable	3	15	12	
Other current liabilities	15	7		8
Long-term debt	8	24	16	
Common stock	29	57	28	
Retained earnings	67	95	28	
Total liabilities and equity	$140	$213	$102	$102

*Depreciation is not a source of cash, but it affects cash in the form of taxes on the income statement

b.

Lloyd Lumber Company
Statement of Cash Flows, 2009
($ millions)

Operating Activities:		
Net income	$ 33	
Other additions (sources of cash):		
Depreciation	$ 10	
Decrease in accounts receivable	8	
Subtractions (uses of cash):		
Increase in inventories	($22)	
Decrease in accounts payable	(3)	
Decrease in other current liabilities	(8)	
Net cash flow from operations		$ 18
Long-term Investing Activities:		
Acquisition of fixed assets		($ 50)
Financing Activities:		
Increase in notes payable	$ 12	
Sale of long-term debt	16	
Sale of common stock	28	
Payment of dividends	(5)	
Net cash flow from financing		$ 51
Net increase in cash and marketable securities		$ 19
Cash and marketable securities at beginning of year		7
Cash and marketable securities at end of year		$ 26

c. Investments were made in plant and inventories. Funds were also utilized to reduce accounts payable and other current liabilities and to increase the cash and marketable securities accounts. Most funds were obtained by increasing long-term debt, selling common stock, and retaining earnings. The remainder was obtained from increasing notes payable and reducing receivables. A quick check of the ratios shows that the company's credit has not deteriorated—the current and quick ratios have increased, and the debt ratio has gone down slightly. Ratio analysis and the sources and uses statement both indicate a healthy situation.

2-11 a. Dollars are in millions.

	Income Statement		**Cash Flows**	
Sales revenues		$12.0		$12.0
Costs, except depreciation	(9.0)*		(9.0)	
Depreciation	(1.5)		--	
Total operating costs		(10.5)		(9.0) (Cash costs)

Net operating income (NOI)	$ 1.5	$ 3.0	(Pre-tax CF)
Taxes (40%)	(0.6)	(0.6)	(Cash taxes)
Operating income after taxes	$ 0.9		
Add back depreciation	1.5		
Cash flow from operations	$ 2.4	$ 2.4	

*Costs, except depreciation = 0.75 x $12.0 = $9.0

Net income = (NOI – Interest)(1 – T) = ($1.5 - $1.0)(0.6) = $0.3

b. Depreciation doubles.

	Income Statement	Cash Flows	
Sales revenues	$12.0	$12.0	
Costs, except depreciation	(9.0)	(9.0)	
Depreciation	(3.0)	---	
Total operating costs	(12.0)	(9.0)	(Cash costs)
Net operating income (NOI)	$ 0.0	$ 3.0	(Pre-tax CF)
Taxes (40%)	(0.0)	(0.0)	(Cash taxes)
Operating income after taxes	$ 0.0		
Add back depreciation	3.0		
Cash flow from operations	$ 3.0	$ 3.0	

Net income = (NOI – Interest)(1 – T) = ($0.0 - $1.0)(0.6) = –$0.6

c. Depreciation halves.

	Income Statement	Cash Flows	
Sales revenues	$12.00	$12.00	
Costs, except depreciation	(9.00)	(9.00)	
Depreciation	(0.75)	---	
Total operating costs	(9.75)	(9.00)	(Cash costs)
Net operating income (NOI)	$ 2.25	$ 3.00	(Pre-tax CF)
Taxes (40%)	(0.90)	(0.90)	(Cash taxes)
Operating income after taxes	$ 1.35		
Add back depreciation	0.75		
Cash flow from operations	$ 2.10	$ 2.10	

Net income = (NOI – Interest)(1 – T) = ($2.25 - $1.0)(0.6) = $0.75

d. The after-tax cash flows are greater if Congress increases the allowance for depreciation, so you should prefer greater depreciation.

2-12 a. Dollar amounts are in millions.

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$400}{\$105}$$

	Unilate	Industry Average	Comment
	3.81x	3.9x	Near average

$\text{Days sales outstanding} = \frac{\text{Accounts receivable}}{\text{Sales} / 360} = \frac{\$160}{\left[\frac{\$1,435}{360}\right]}$	40.14 days	33.5 days	Poor
$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventories}} = \frac{\$1,176.7}{\$200}$	5.88x	7.2x	Poor
$\text{Fixed assets turnover} = \frac{\text{Sales}}{\text{Fixed assets}} = \frac{\$1,435}{\$350}$	4.10x	4.1x	Average
$\text{Debt ratio} = \frac{\text{Total debt}}{\text{Total assets}} = \frac{\$360}{\$750}$	48.0%	43.0%	Poor
$\text{Net profit margin} = \frac{\text{Net income}}{\text{Sales}} = \frac{\$59}{\$1,435}$	4.11x	4.6x	Marginal
$\text{Return on assets} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\$59}{\$750}$	7.87%	9.9%	Poor

b. The ratios do not show any particular strengths. However, Unilate does have a low inventory turnover, higher than normal days sales outstanding, and poor return on assets. According to its 2008 ratios, it appears Unilate has liquidity problems.

c.

Ratio	2009	2008	Trend
Current ratio	3.6 x	3.8 x	Worse
Days sales outstanding	43.2 days	40.1 days	Worse
Inventory turnover	4.6 x	5.9 x	Worse
Fixed assets turnover	3.9 x	4.1 x	Worse
Debt ratio	50.9%	48.0%	Worse
Profit margin on sales	3.6%	4.1%	Worse
Return on assets	6.4%	7.9%	Worse

This comparison shows that Unilate's financial position worsened from 2008 to 2009.

d. It would be helpful to know the future plans Unilate has with respect to improving its current financial position, introducing new products, liquidating unprofitable investments, and so on. Perhaps the fixed assets turnover ratio and return on assets figures are low because the firm has expanded its product distribution, and this process has a large cost "up front" with significant payoffs beginning in two or three years.

2-13 a.

	Campsey	Industry Average
$\frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$655,000}{\$330,000}$	1.98x	2.0x
$\frac{\text{Accounts receivable}}{\text{Sales} / 360} = \frac{\$336,000}{\$4,465.28}$	75.2 days	35.0 days
$\frac{\text{Cost of goods sold}}{\text{Inventories}} = \frac{\$1,353,000}{\$241,500}$	5.60x	5.6x

$\frac{\text{Sales}}{\text{Total assets}} = \frac{\$1{,}607{,}500}{\$947{,}500}$	1.70x	3.0x
$\frac{\text{Net income}}{\text{Sales}} = \frac{\$27{,}300}{\$1{,}607{,}500}$	1.7%	1.2%
$\frac{\text{Net income}}{\text{Total assets}} = \frac{\$27{,}300}{\$947{,}500}$	2.9%	3.6%
$\frac{\text{Net income}}{\text{Common equity}} = \frac{\$27{,}300}{\$361{,}000}$	7.6%	9.0%
$\frac{\text{Total debt}}{\text{Total assets}} = \frac{\$586{,}500}{\$947{,}500}$	61.9%	60.0%

b. For Campsey, ROA = PM x TA turnover = 1.7% x 1.7 = 2.9%.

For the industry, ROA = 1.2% x 3.0 = 3.6%.

c. Campsey's days sales outstanding is more than twice as long as the industry average, indicating that the firm should tighten credit or enforce a more stringent collection policy. The total assets turnover ratio is well below the industry average so sales should be increased, assets decreased, or both. While Campsey's profit margin is higher than the industry average, its other profitability ratios are low compared to the industry—net income should be higher given the amount of equity and assets. However, the company seems to be in an average liquidity position and financial leverage is similar to others in the industry.

d. If 2009 represents a period of supernormal growth for Campsey, ratios based on this year will be distorted and a comparison between them and industry averages will have little meaning. Potential investors who look only at 2009 ratios will be misled, and a return to normal conditions in 2010 could hurt the firm's stock price.

2-14 (1) Total liabilities and equity = Total assets = $300,000.

(2) Debt = (0.50)(Total assets) = (0.50)($300,000) = $150,000.

(3) Accounts payable = Debt — Long-term debt = $150,000 — $60,000 = $90,000.

(4) Common stock = Total liabilities and equity – Debt – Retained earnings
= $300,000 - $150,000 - $97,500 = $52,500

(5) Sales = 1.5 x Total assets = 1.5 x $300,000 = $450,000

(6) Cost of goods sold = Sales(1 - 0.25) = $450,000(.75) = $337,500

(7) Inventory = (CGS)/5 = $337,500/5 = $67,500.

(8) Accounts receivable = (Sales/360)(DSO) = ($450,000/360)(36) = $45,000.

(9) (Cash + Accounts receivable)/(Accounts payable) = 0.80x

Cash + Accounts receivable = (0.80)(Accts payable)

Cash + $45,000 = (0.80)($90,000)

Cash = $72,000 ─ $45,000 = $27,000.

(10) Fixed assets = Total assets ─ (Cash + Accts Rec. + Inventories)

= $300,000 ─ ($27,000 + $45,000 + $67,500) = $160,500.

2-15 a.

	Finnerty Furniture	Industry Average
$\frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$303}{\$111}$	2.73x	2.0x
$\text{Debt ratio} = \frac{\text{Debt}}{\text{Total assets}} = \frac{\$135}{\$450}$	30.00%	30.0%
$\text{Times interest earned} = \frac{\text{EBIT}}{\text{Interest}} = \frac{\$49.5}{\$4.5}$	11.00x	7.0x
$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventories}} = \frac{\$660}{\$159}$	4.15x	8.5x
$\text{DSO} = \frac{\text{Accounts receivable}}{\text{Sales} / 360} = \frac{\$66}{(\$795 / 360)}$	29.89 days	24.0 days
$\text{Fixed assets turnover} = \frac{\text{Sales}}{\text{Fixed assets}} = \frac{\$795}{\$147}$	5.41x	6.0 x
$\text{Total assets turnover} = \frac{\text{Sales}}{\text{Total assets}} = \frac{\$795}{\$450}$	1.77x	3.0 x
$\text{Net profit margin} = \frac{\text{Net income}}{\text{Sales}} = \frac{\$27}{\$795}$	3.40%	3.0%
$\text{Return on total assets} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\$27}{\$450}$	6.00%	9.0%
$\text{Re turn on equity} = \frac{\text{Net income}}{\text{Total equity}} = \frac{\$27}{\$315}$	8.57%	12.9%

b. ROA = Profit margin x Total assets turnover

$$= \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Total assets}}$$

$$= \frac{\$27}{\$795} \times \frac{\$795}{\$450}$$

$$= 3.4\% \times 1.77 = 6.0\%$$

	Finnerty	Industry	Comment
Profit margin	3.4%	3.0%	Good
Total assets turnover	1.8x	3.0 x	Poor
Return on total assets	6.0%	9.0%	Poor

c. Analysis of the DuPont equation and the set of ratios shows that the turnover ratio of sales to assets is quite low. Either sales should be increased at the present level of assets, or the current level of assets should be decreased to be more in line with current sales. Thus, the problem appears to be in the balance sheet accounts.

d. The comparison of inventory turnover ratios shows that other firms in the industry seem to be getting along with about half as much inventory per unit of sales as Finnerty. If Finnerty's inventory could be reduced this would generate funds that could be used to retire debt, thus reducing interest charges and improving profits, and strengthening the debt position. There might also be some excess investment in fixed assets, perhaps indicative of excess capacity, as shown by a slightly lower than average fixed assets turnover ratio. However, this is not nearly as clear-cut as the over-investment in inventory.

e. If Finnerty had a sharp seasonal sales pattern, or if it grew rapidly during the year, many ratios might be distorted. Ratios involving cash, receivables, inventories, and current liabilities, as well as those based on sales, profits, and common equity, could be biased. It is possible to correct for such problems by using average rather than end-of-period figures.

2-16 a. Here are Cary's base case ratios and other data as compared to the industry:

	Cary	Industry	Comment
Quick	0.85x	1.0x	Weak
Current	2.33x	2.7x	Weak
Inventory turnover	4.0x	5.8x	Poor
Days sales outstanding	37.8 days	32.0 days	Poor
Fixed assets turnover	10.0x	13.0x	Poor
Total assets turnover	2.3x	2.6x	Poor
Return on assets	5.9%	9.1%	Bad
Return on equity	13.1%	18.2%	Bad
Debt ratio	54.8%	50.0%	High
Profit margin on sales	2.5%	3.5%	Bad
EPS	$4.71	n.a.	--
Stock Price	$23.57	n.a.	--
P/E ratio	5.0x	6.0x	Poor
M/B ratio	0.65	n.a.	--

Cary appears to be poorly managed—all of its ratios are worse than the industry averages, and the result is low earnings, a low P/E, a low stock price, and a low M/B ratio. The company needs to do something to improve.

b. A decrease in the inventory level would improve the inventory turnover, total assets turnover, and ROA, all of which are too low. It would have some impact on the current ratio, but it is difficult to say precisely how that ratio would be affected. If the lower inventory level allowed Cary to reduce its current liabilities, then the current ratio would improve. The lower cost of goods sold would improve all of the profitability ratios and, if dividends were not increased, would lower the debt ratio through increased retained earnings. All of this should lead to a higher market/book ratio and a higher stock price.

INTEGRATIVE PROBLEM

2-17 DONNA JAMISON WAS RECENTLY HIRED AS A FINANCIAL ANALYST BY COMPUTRON INDUSTRIES, A MANUFACTURER OF ELECTRONIC COMPONENTS. HER FIRST TASK WAS TO CONDUCT A FINANCIAL ANALYSIS OF THE FIRM COVERING THE PAST TWO YEARS. TO BEGIN, SHE GATHERED THE FOLLOWING FINANCIAL STATEMENTS AND OTHER DATA.

BALANCE SHEETS	2009	2008
ASSETS		
CASH	$ 52,000	$ 57,600
ACCOUNTS RECEIVABLE	402,000	351,200
INVENTORIES	836,000	715,200
TOTAL CURRENT ASSETS	$1,290,000	$1,124,000
GROSS FIXED ASSETS	527,000	491,000
LESS: ACCUMULATED DEPRECIATION	(166,200)	(146,200)
NET FIXED ASSETS	$ 360,800	$ 344,800
TOTAL ASSETS	$1,650,800	$1,468,800
LIABILITIES AND EQUITY		
ACCOUNTS PAYABLE	$ 175,200	$ 145,600
NOTES PAYABLE	225,000	200,000
ACCRUALS	140,000	136,000
TOTAL CURRENT LIABILITIES	$ 540,200	$ 481,600
LONG-TERM DEBT	424,612	323,432
COMMON STOCK	460,000	460,000
RETAINED EARNINGS	225,988	203,768
TOTAL EQUITY	$ 685,988	$ 663,768
TOTAL LIABILITIES AND EQUITY	$1,650,800	$1,468,800

INCOME STATEMENTS	2009	2008
SALES	$3,850,000	$3,432,000
COST OF GOODS SOLD	(3,250,000)	(2,864,000)
OTHER EXPENSES	(430,300)	(340,000)
DEPRECIATION	(20,000)	(18,900)
TOTAL OPERATING COSTS	($3,700,300)	($3,222,900)
EBIT	$ 149,700	$ 209,100
INTEREST EXPENSE	(76,000)	(62,500)
EBT	$ 73,700	$ 146,600
TAXES (40%)	(29,480)	(58,640)
NET INCOME	$ 44,220	$ 87,960
EPS	$0.442	$0.880

STATEMENT OF CASH FLOWS (2009)

OPERATING ACTIVITIES:	
NET INCOME	**$ 44,220**
OTHER ADDITIONS (SOURCES OF CASH):	
DEPRECIATION	**20,000**
INCREASE IN ACCOUNTS PAYABLE	**29,600**
INCREASE IN ACCRUALS	**4,000**
SUBTRACTIONS FROM NET INCOME:	
INCREASE IN ACCOUNTS RECEIVABLE	**(50,800)**
INCREASE IN INVENTORY	**(120,800)**
NET CASH FLOW FROM OPERATIONS	**($ 73,780)**
LONG-TERM INVESTING ACTIVITIES:	
INVESTMENT IN FIXED ASSETS	**(36,000)**
FINANCING ACTIVITIES:	
INCREASE IN NOTES PAYABLE	**$ 25,000**
INCREASE IN LONG-TERM DEBT	**101,180**
PAYMENT OF CASH DIVIDENDS	**(22,000)**
NET CASH FLOW FROM FINANCING	**$104,180**
NET CHANGE IN CASH ACCOUNT	**($ 5,600)**
CASH AT BEGINNING OF YEAR	**57,600**
CASH AT END OF YEAR	**$52,000**

OTHER DATA	**2009**	**2008**
DECEMBER 31 STOCK PRICE	**$ 6.00**	**$ 8.50**
NUMBER OF SHARES	**100,000**	**100,000**
DIVIDENDS PER SHARE	**$ 0.22**	**$ 0.22**
LEASE PAYMENTS	**$40,000**	**$40,000**

INDUSTRY AVERAGE DATA FOR 2009:

RATIO	**INDUSTRY AVERAGE**
CURRENT	**2.7x**
QUICK	**1.0x**
INVENTORY TURNOVER	**5.8x**
DAYS SALES OUTSTANDING (DSO)	**32.0 DAYS**
FIXED ASSETS TURNOVER	**10.7x**
TOTAL ASSETS TURNOVER	**2.6x**
DEBT RATIO	**50.0%**
TIE	**2.5x**
FIXED CHARGE COVERAGE	**2.1x**
PROFIT MARGIN	**3.5%**
ROA	**9.1%**
ROE	**18.2%**
PRICE/EARNINGS	**14.2x**
MARKET/BOOK	**1.4x**

ASSUME THAT YOU ARE DONNA JAMISON'S ASSISTANT, AND THAT SHE HAS ASKED YOU TO HELP HER PREPARE A REPORT THAT EVALUATES THE COMPANY'S FINANCIAL CONDITION. ANSWER THE FOLLOWING QUESTIONS:

A. WHAT CAN YOU CONCLUDE ABOUT THE COMPANY'S FINANCIAL CONDITION FROM ITS STATEMENT OF CASH FLOWS?

ANSWER: Begin by reviewing briefly what balance sheets and income statements are. Then give an overview of the statement of cash flows. Explain that some data (net income, depreciation, and dividends) come from the income statement, while the other items reflect differences between balance sheet accounts and thus show changes in those accounts between the two dates.

The cash flow statement highlights some important aspects of Computron's financial condition. First, note that the firm's net operating cash flow is -$73,780, so its operations are draining cash despite the positive net income reported on the income statement. Second, because of its negative cash flow from operations, Computron had to borrow a total of $126,180 in long- and short-term debt to cover its operating cash outlays, to pay for fixed asset additions, and to pay dividends. Even after all this borrowing, Computron's cash account still fell by $5,600 during 2009.

B. WHAT IS THE PURPOSE OF FINANCIAL RATIO ANALYSIS, AND WHAT ARE THE FIVE MAJOR CATEGORIES OF RATIOS?

ANSWER: Financial ratios are used to get an idea about how well the company is being operated, and where it needs improving. The ratio categories, and their purposes, are as follows:

1. Liquidity: Can the company make required payments in the short run (defined as the next year)?
2. Asset management: Are the investments in assets about right in view of sales levels?
3. Debt management (financing mix): Does the company have about the right amount of debt, or is it over leveraged?
4. Profitability: Are costs under good control as reflected in the profit margin, ROE, and ROE?
5. Market values: Do investors like what they see as reflected in the P/E and M/B ratios?

C. WHAT ARE COMPUTRON'S CURRENT AND QUICK RATIOS? WHAT DO THEY TELL YOU ABOUT THE COMPANY'S LIQUIDITY POSITION?

ANSWER: Computron has $540,200 in obligations that must be satisfied within the coming year. Will it have trouble meeting its required payments? A full liquidity analysis requires a cash budget, but these two ratios provide quick, easy-to-use measures of liquidity:

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$1{,}290{,}000}{\$540{,}200} = 2.39\times$$

$$\text{Quick ratio} = \frac{\text{Current assets - Inventories}}{\text{Current liabilities}} = \frac{\$1{,}290{,}000 - \$836{,}000}{\$540{,}200} = 0.84\times$$

	2009	2008	Industry
Current ratio	2.4x	2.3x	2.7x
Quick ratio	0.8x	0.8x	1.0x

Computron's current and quick ratios have both held steady from 2008 to 2009, but they are slightly below the industry average. With a 2009 current ratio of 2.4, Computron could liquidate assets at only 1/2.4 = 0.42 = 42% of book value and still pay off current creditors in full. In general, inventories are the least liquid of a firm's current assets, and they are the assets on which losses are most likely to occur in the event of a forced sale. Computron's quick ratio of 0.8 indicates that even if receivables can be collected in full, the firm would still need to raise some cash from the sale of inventories to meet its current claims.

D. WHAT ARE COMPUTRON'S INVENTORY TURNOVER, DAYS SALES OUTSTANDING, FIXED ASSETS TURNOVER, AND TOTAL ASSETS TURNOVER RATIOS? HOW DOES THE FIRM'S UTILIZATION OF ASSETS STACK UP AGAINST THAT OF THE INDUSTRY?

ANSWER:

$$\text{Inventory Turnover} = \frac{\text{Cost of goods sold}}{\text{Inventories}} = \frac{\$3{,}250{,}000}{\$836{,}000} = 3.9\times$$

	2009	2008	Industry
Inventory turnover	3.9x	4.0x	5.8x

As a rough approximation, each item of Computron's inventories was sold and then restocked, or "turned over," 3.9 times during 2009. This compares poorly with the industry average of 6.0 times, and the downward trend from 2008 is also worrisome. This analysis raises the question of whether Computron is holding excess inventories (relative to its sales level), and also whether any of its inventories is old and obsolete, hence worth less than its stated value. A problem arises in calculating and analyzing inventory turnover. Sales occur throughout the year, but the inventory figure is for one point in time. If a firm's sales are highly seasonal, or are experiencing a strong trend, it would be preferable to use an average inventory amount. An average monthly figure would be best, but (beginning of year + end of year)/2 is better than a point value because it at least adjusts for sales trends. For Computron, 2009 average inventories = ($715,200 + $836,000)/2 = $775,600, so average inventory turnover for 2009 = $3,250,000/$775,600 = 4.2x.

$$\text{DSO} = \frac{\text{Accounts receivable}}{\left[\frac{\text{Sales}}{360}\right]} = \frac{\$402{,}000}{\left[\frac{\$3{,}850{,}000}{360}\right]} = 37.6 \text{ days}$$

	2009	2008	Industry
DSO	37.6 days	36.8 days	32.0 days

The days sales outstanding (DSO) represents the average length of time that the firm must wait after making a sale before it receives cash. Computron's DSO is above the industry average and is trending higher, so it looks bad.

The DSO can also be compared with the firm's credit terms. To illustrate, if Computron's sales terms called for payment within 30 days, then a 37.6-day DSO would indicate that some customers are taking well in excess of the 30-day limit, because some presumably are paying on time, by the 30th day. Note that, as with inventories, an average figure for receivables would be better than the end-of-year amount.

$$\text{Fixed assets turnover} = \frac{\text{Sales}}{\text{Net fixed assets}} = \frac{\$3{,}850{,}000}{\$360{,}800} = 10.67\times$$

$$\text{Total assets turnover} = \frac{\text{Sales}}{\text{Total assets}} = \frac{\$3{,}850{,}000}{\$1{,}650{,}800} = 2.33\times$$

	2009	2008	INDUSTRY
Fixed assets turnover	10.7x	10.0x	10.7x
Total assets turnover	2.3x	2.3x	2.6x

Computron's fixed assets turnover ratio has improved from 2008 to 2009 to reach the industry average, but its total assets turnover ratio has remained relatively constant at a level just below the industry average. Thus, the company is utilizing its fixed assets at the industry average level, but its total assets turnover is below average. As indicated earlier, Computron might have excess inventories and receivables, and this would lower the total assets turnover relative to the fixed assets turnover. (Note again that average values of fixed and total assets would provide a better indication of the assets actually used to generate sales for the year.)

E. WHAT ARE THE FIRM'S DEBT, TIMES-INTEREST-EARNED, AND FIXED CHARGE COVERAGE RATIOS? HOW DOES COMPUTRON COMPARE TO THE INDUSTRY WITH RESPECT TO FINANCIAL LEVERAGE? WHAT CONCLUSIONS CAN YOU DRAW FROM THESE RATIOS?

ANSWER:

$$\text{Debt ratio} = \frac{\text{Total debt}}{\text{Total assets}} = \frac{\$540{,}200 + \$424{,}600}{\$1{,}650{,}800} = 58.4\%$$

$$\text{TIE} = \frac{\text{EBIT}}{\text{Interest expense}} = \frac{\$149{,}700}{\$76{,}000} = 1.97\times$$

$$\text{Fixed charge coverage} = \text{FCC} = \frac{\text{EBIT} + \text{Lease payment}}{\text{Interest expense} + \text{Lease payments} + \frac{\text{Sinking fund payment}}{(1 - T)}}$$

$$= \frac{\$149{,}700 + \$40{,}00}{\$76{,}000 + \$40{,}000} = 1.6\times$$

	2009	2009	Industry
Debt ratio	58.4%	54.8%	50.0%
TIE	2.0x	3.3x	2.5x
FCC	1.6x	2.4x	2.1x

All three measures reflect the extent of debt usage, but they focus on different aspects. Computron's debt ratio is above the industry average, and the trend is up. Creditors have supplied over one-half the firm's total financing. Computron probably would find it difficult to borrow additional funds at a reasonable cost without first raising more equity capital. Note that another leverage ratio, the debt-to-equity ratio, is also used in practice. Computron's debt-to-equity ratio for 2009 is 1.41, indicating that creditors have contributed $1.41 for each dollar of equity capital.

The tie ratio focuses on the firm's ability to cover its interest payments. In some situations, this is a better measure of debt usage than the debt ratio. For example, a firm might show a high debt ratio, but if its assets are old and largely depreciated, hence shown on the balance sheet at a low value even though the assets are really quite valuable and produce high income and cash flows, then the debt ratio might be overstating the impact of the debt on the firm's riskiness. In Computron's case, however, the 2009 tie is below the industry average and falling, and this, like the debt ratio, indicates high and possibly excessive use of debt.

The fixed charge coverage (FCC) ratio is similar to the tie ratio, but it is more inclusive in that it recognizes that long-term lease contracts also represent fixed, contractual payments. Computron's 2009 FCC ratio is also below the industry average, and it is falling. Again, this points out that Computron uses substantially more fixed charge financing than the average firm in the industry, so it probably would have trouble obtaining additional debt or lease financing. Note also that there are many variations of the coverage ratios, depending on the purpose of the analysis.

F. CALCULATE AND DISCUSS THE FIRM'S PROFITABILITY RATIOS—THAT IS, ITS PROFIT MARGIN, RETURN ON ASSETS (ROA), AND RETURN ON EQUITY (ROE).

ANSWER:

$$\text{Profit margin} = \frac{\text{Net income}}{\text{Sales}} = \frac{\$44{,}220}{\$3{,}850{,}000} = 1.15\%$$

	2009	2008	Industry
Profit margin	1.1%	2.6%	3.5%

Computron's profit margin is low and falling. This indicates that its sales prices are relatively low, that its costs are relatively high, or both. Note that because we are primarily concerned with the profitability to common stockholders, net income available to common stockholders after preferred dividends have been paid is used to calculate profit margin.

$$\text{ROA} = \frac{\text{Net income}}{\text{Total assets}} = \frac{\$44{,}220}{\$1{,}650{,}800} = 2.68\%$$

$$\text{ROE} = \frac{\text{Net income}}{\text{Common equity}} = \frac{\$44{,}220}{\$685{,}988} = 6.44\%$$

	2009	2008	Industry
ROA	2.7%	6.0%	9.1%
ROE	6.4	13.3	18.2

Computron's ROA and ROE are substantially below the industry average, and falling. These are "bottom line" ratios, and because they are poor, one would anticipate that the company's common stock has not been doing very well.

G. CALCULATE COMPUTRON'S MARKET VALUE RATIOS--THAT IS, ITS PRICE/EARNINGS RATIO AND ITS MARKET/BOOK RATIO. WHAT DO THESE RATIOS TELL YOU ABOUT INVESTORS' OPINIONS OF THE COMPANY?

ANSWER:

$$\text{Price eanrings (P/E) ratio} = \frac{\text{Price per share}}{\text{Earnings per share}} = \frac{\$6.00}{\$0.442} = 13.57\times$$

$$\text{Market/book (M/B) ratio} = \frac{\text{Markert price per share}}{\text{Book value per share}} = \frac{\$6.00}{\$6.86} = 0.87\times$$

	2009	2008	Industry
P/E	13.6x	9.7x	14.2x
M/B	0.9x	1.3x	1.4x

The P/E ratio shows how much investors are willing to pay per dollar of reported profits. At the end of 2009, Computron's stock sold for $6.00 per share; its reported earnings were $44,220/100,000 = $0.44 per share; and the result was a P/E ratio of $6.00/$0.44 = 13.6x. Note that the firm's P/E ratio actually improved from 2008 to 2009, almost reaching the industry average. However, this was not caused by an increase in stock price—the price fell by almost 30 percent, from $8.50 to $6.00. Rather, the P/E ratio rose because of the 2009 earnings decline—earnings fell by almost 50 percent from the 2008 level. With earnings normalized (averaged over several years), Computron's P/E ratio would be well below the industry average, indicating that investors view Computron as being riskier and/or as having poorer growth prospects than the average firm in the industry.

The m/B ratio gives another indication of how investors regard the company. Good companies with consistently high rates of return on equity sell at higher multiples of book value than those with low returns. In 2009, Computron had a book value (of equity) per share of $685,988/100,000 = $6.86 and a stock price of $6.00, for an M/B ratio of $6.00/$6.86 = 0.9x. This is well below the 1.4x industry average, which is not surprising given Computron's poor ROE.

H. USE THE DUPONT EQUATION TO PROVIDE A SUMMARY AND OVERVIEW OF COMPUTRON'S FINANCIAL CONDITION. WHAT ARE THE FIRM'S MAJOR STRENGTHS AND WEAKNESSES?

ANSWER: The DuPont equation provides an overview of (1) a firm's profitability as measured by ROA and ROE, (2) its expense control as measured by the profit margin, and (3) its assets utilization as measured by the total assets turnover, combining these items in the equation shows how the different factors interact to determine ROA and ROE. The data for Computron and the industry are given below.

DuPont Equation:	Profit margin (profit/sales)	x	Total assets turnover (Sales/TA)	=	ROA
2009:	1.15%	x	2.33	=	2.7%
2008:	2.56	x	2.34	=	6.0
Industry:	3.50	x	2.6	=	9.1

We see that Computron's expense control as reflected in the profit margin is both poor and trending down, and that its total assets utilization is somewhat below average but holding steady. These measures combine to produce an ROA that is very low and falling.

I. USE THE FOLLOWING SIMPLIFIED 2009 BALANCE SHEET TO SHOW, IN GENERAL TERMS, HOW AN IMPROVEMENT IN ONE OF THE RATIOS—SAY, THE DSO—WOULD AFFECT THE STOCK PRICE. FOR EXAMPLE, IF THE COMPANY COULD IMPROVE ITS COLLECTION PROCEDURES AND THEREBY LOWER THE DSO FROM 37.6 DAYS TO 27.6 DAYS, HOW WOULD THAT CHANGE "RIPPLE THROUGH" THE FINANCIAL STATEMENTS (SHOWN IN THOUSANDS BELOW) AND INFLUENCE THE STOCK PRICE?

ACCOUNTS RECEIVABLE	**$ 402**	**DEBT**	**$ 965**
OTHER CURRENT ASSETS	**888**		
NET FIXED ASSETS	**361**	**EQUITY**	**686**
TOTAL ASSETS	**$1,651**	**TOTAL LIABILITIES AND EQUITY**	**$1,651**

ANSWER: Sales per day amount to $3,850,000/360 = $10,694. Accounts receivable are now $402,000, or 37.6 days' sales. If A/R can be reduced to 27.6 days without affecting sales, then the balance sheet item A/R would be $10,694 x 27.6 = $295,154, down $106,846 from the current level. That $106,846 could be used (1) to reduce debt, which would lower interest charges and thus increase profits, (2) to buy back stock, which would lower shares outstanding and thus raise EPS; or (3) to invest in productive assets, which presumably would raise net income. In any event, EPS, hence DPS, should increase.

J. ALTHOUGH FINANCIAL STATEMENT ANALYSIS CAN PROVIDE USEFUL INFORMATION ABOUT A COMPANY'S OPERATIONS AND ITS FINANCIAL CONDITION, THIS TYPE OF ANALYSIS DOES HAVE SOME POTENTIAL PROBLEMS AND LIMITATIONS, AND IT MUST BE USED WITH CARE AND JUDGMENT. WHAT ARE SOME PROBLEMS AND LIMITATIONS?

ANSWER: Some of the problems and limitations of financial statement analysis are discussed below.

(1) Many large firms operate a number of different divisions in quite different industries, and in such cases it is difficult to develop a meaningful set of industry averages for comparative purposes. This tends to make ratio analysis more useful for small, narrowly-focused firms than for large, multi-divisional ones.

(2) Most firms want to be better than average, so merely attaining average performance is not necessarily good. To achieve high-level performance, it is preferable to target on the industry leaders' ratios.

(3) Inflation distorts firms' balance sheets. Further, because inflation affects both depreciation charges and inventory costs, profits also are affected. Thus, a ratio analysis for one firm over time, or a comparative analysis of firms of different ages, must be interpreted with care and judgment.

(4) Seasonal factors can also distort ratio analysis. For example, the inventory turnover ratio for a food processor will be radically different if the balance sheet figure used for inventories is the one just before versus the one just after the canning season. This problem can be minimized by using monthly averages for inventories when calculating ratios such as turnover.

(5) Firms can employ "window dressing" techniques to make their financial statements look better to credit analysts. To illustrate, a Chicago builder borrowed on a two-year basis on December 29, 2009, held the proceeds of the loan as cash for a few days, and then paid off the loan ahead of time on January 5, 2006. This improved his current and quick ratios, and made his year-end 2006 balance sheet look good. However, the improvement was strictly temporary; a week later the balance sheet was back at the old level.

(6) Different operating and accounting practices can distort comparisons. As noted earlier, inventory valuation and depreciation methods can affect the financial statements and thus distort comparisons among firms that use different accounting procedures. Also, if one firm leases a substantial amount of its productive equipment, then it might show relatively few assets in comparison to its sales, because leased assets often do not appear on the balance sheet. At the same time, the lease liability might not be shown as a debt. Thus, leasing can artificially improve both the debt and turnover ratios.

(7) It is difficult to generalize about whether a particular ratio is "good" or "bad." For example, a high current ratio might indicate a strong liquidity position, which is good, or excessive cash, which is bad, because excess cash in the bank is a non-earning asset. Similarly, a high fixed assets turnover ratio can occur either because a firm uses its assets efficiently or because it is undercapitalized and simply cannot afford to buy enough assets.

(8) A firm might have some ratios that look "good" and others that look "bad," making it difficult to tell whether the company is, on balance, in a strong or a weak position. However, statistical procedures can be used to analyze the net effects of a set of ratios. Many banks and other lending organizations use these procedures to analyze firms' financial ratios and, on the basis of their analyses, classify companies according to their probability of getting into financial distress.

Conclusion: In this chapter, we looked at financial statements from a historical perspective, to see how well the company has been run. Our real interest, though, is in the future. In the next chapter, we go on to forecast financial statements to get an idea of where the firm will be going in the future.

2-18 ***Computer-Related Problem***

a. The revised data and ratios are shown below:

INPUT DATA:		KEY OUTPUT:		
	2010		Cary	Industry
Cash	$ 84,527	Quick	1.2	1.0
A/R	395,000	Current	3.0	2.7
Inventories	700,000	Inv. turn.	4.9	5.8
Land and bldg	238,000	DSO	33	32
Machinery	132,000	F.A. turn.	8.3	13.0
Other F.A.	150,000	T.A. turn.	2.5	2.6
		ROA	10.5%	9.1%
Accts & Notes Pay.	$ 275,000	ROE	19.9%	18.2%
Accruals	120,000	TD/TA	47.0%	50.0%
Long-term debt	404,290	PM	4.2%	3.5%
Common stock	575,000	EPS	$7.78	n.a.
Retained earnings	325,237	Stock Price	$46.68	n.a.
		P/E ratio	6.0	6.0
Total assets	$ 1,699,527	M/B	1.19	n.a.
Total claims	$ 1,699,527			
2008 Ret. earnings	168,152			
Income statement				
Sales	$ 4,290,000			
Cost of G.S.	3,450,000			
Adm. & sales exp.	248,775			
Depreciation	159,000			
Misc.	134,000			
Net income	$ 178,935			
P/E ratio	6.0			
No. of shares	23,000			
Cash dividend	$ 0.95			

Under these new conditions, Cary Corporation looks much better. Its turnover ratios are still low, but its ROA and ROE are above the industry average, its estimated P/E ratio is better, and its stock price is anticipated to double. There still is room for improvement, but the company is in much better shape.

b. The financial statements and ratios for the scenario in which the cost of goods sold decreases by an additional $125,000 are shown next. As you can see, the profit ratios are quite high and the stock price has risen to $66.24.

INPUT DATA:		KEY OUTPUT:		
	2010		Cary	Industry
Cash	$ 159,527	Quick	1.4	1.0
A/R	395,000	Current	3.2	2.7
Inventories	700,000	Inv. turn.	4.8	5.8
Land and bldg	238,000	DSO	33	32
Machinery	132,000	F.A. turn.	8.3	13.0
Other F.A.	150,000	T.A. turn.	2.4	2.6
		ROA	14.3%	9.1%
Accts & Notes Pay.	$ 275,000	ROE	26.0%	18.2%
Accruals	120,000	TD/TA	45.0%	50.0%
Long-term debt	404,290	PM	5.9%	3.5%
Common stock	575,000	EPS	$11.04	n.a.
Retained earnings	400,237	Stock Price	$66.24	n.a.
		P/E ratio	6.0	6.0
Total assets	$ 1,774,527	M/B	1.56	n.a.
Total claims	$ 1,774,527			
2008 Ret. earnings	168,152			
Income statement				
Sales	$ 4,290,000			
Cost of G.S.	3,325,000			
Adm. & sales exp.	248,775			
Depreciation	159,000			
Misc.	134,000			
Net income	$ 253,935			
P/E ratio	6.0			
No. of shares	23,000			
Cash dividend	$ 0.95			

c. The financial statements and ratios for the scenario in which the cost of goods sold increases by $125,000 over the revised estimate are shown next. As you can see, profits would decline sharply. The ROE would drop to 12.6 percent, EPS would fall to $4.52, the stock price would drop to $27.11, and the M/B ratio would be only 0.76.

INPUT DATA:		KEY OUTPUT:		
	2010		Cary	Industry
Cash	$ 9,527	Quick	1.0	1.0
A/R	395,000	Current	2.8	2.7
Inventories	700,000	Inv. turn.	5.1	5.8
Land and bldg	238,000	DSO	33	32
Machinery	132,000	F.A. turn.	8.3	13.0
Other F.A.	150,000	T.A. turn.	2.6	2.6

		ROA	6.4%	9.1%
Accts & Notes Pay.	$ 275,000	ROE	12.6%	18.2%
Accruals	120,000	TD/TA	49.2%	50.0%
Long-term debt	404,290	PM	2.4%	3.5%
Common stock	575,000	EPS	$4.52	n.a.
Retained earnings	250,237	Stock Price	$27.11	n.a.
		P/E ratio	6.0	6.0
Total assets	$ 1,624,527	M/B	0.76	n.a.
Total claims	$ 1,624,527			
2008 Ret. earnings	168,152			
Income statement				
Sales	$ 4,290,000			
Cost of G.S.	3,575,000			
Adm. & sales exp.	248,775			
Depreciation	159,000			
Misc.	134,000			
Net income	$ 103,935			
P/E ratio	6.0			
No. of shares	23,000			
Cash dividend	$ 0.95			

d. Computer models allow us to analyze quickly the impact of operating and financial decisions on the firm's overall performance. A firm can analyze its financial ratios under different scenarios to see what might happen if a decision, such as the purchase of a new asset, did not produce the expected results. This gives the managers some idea about what might happen under the best and worst cases and helps them to make better decisions.

ETHICAL DILEMMA

HOCUS-POCUS—LOOK, AN INCREASE IN SALES!

Ethical dilemma:

Dynamic Energy Wares (DEW) has decided to change the manner in which it distributes its products to large companies. The change in the distribution system comes at a time when DEW's profits are declining. The declining profits might not be the sole reason for the change, but it appears to be the primary impetus for the decision. It also appears that the new policy requiring DEW's distributors to increase inventory levels before the end of the fiscal year will *artificially* inflate DEW's sales for the current year. However, DEW's new policy does not require the distributors to pay for any increased inventory until next year (six months), and any unsold inventory can be returned after nine months. So, if the demand for DEW's products actually is decreasing, the impact will appear on next year's financial statements. If the financial manager actually intends to artificially inflate DEW's profits this year, she must realize that such actions eventually will "catch up" with her.

Discussion questions:

- *What is the ethical dilemma?*

  Discussion about this question can be fueled by asking some additional questions: Is it unethical for DEW to change its distribution system if the reason is to artificially inflate profits? Would it be unethical if the decision was made for the purposes of eliminating inefficiencies in the distribution process?

- *Should DEW change its distribution system?*

  Most would agree that DEW should not change its distribution system if the intent is simply to artificially inflate earnings in the current period. In fact, empirical studies indicate that such actions are useless if the purpose is to make the company look good to investors, because investors as a whole generally recognize such tactics for what they really are—"smoke screens." On the other hand, if the purpose for the change is to increase inventory efficiency, then it probably is a wise decision. For example, the change should decrease the cost of holding (carrying) inventory because the levels of inventory held by DEW will decrease. If such actions do not adversely affect demand for its products, they should be carried out.

- *What should DEW do?*

  It appears that DEW needs some changes because profits have been declining during the past year. A quick, temporary "fix" is not an appropriate solution—it just delays the inevitable. DEW needs to come up with a solution that will stabilize or improve earnings in the long run. The fact that senior management has decided to form a task force to examine and recommend ways to improve its market share is a step in the right direction. Such action indicates that DEW wants to find a long-run solution to its declining profits.

  Discuss some additional steps (actions) DEW can take to improve its financial position and to remain competitive.

- *Would you go to the distributors' meeting? What should you tell the distributors?*

  If there is no penalty for declining to attend the distributors' meeting, most students would tell you they would prefer to stay home. But, ask them what they would do if their boss, the financial manager, said they had to attend the meeting or lose their well-paying job. Now, you will find that some of the students change their minds.

  Redirect the discussion by asking the students what strategy they would follow if they actually did attend the distributors' meeting. Would they try to mislead the distributors if they believed DEW's decision to change the distribution system was made solely for the purpose of artificially increasing profits? What tact would be taken if they believed the decision ultimately would improve inventory efficiency for both DEW and the distributors? How would distributors concerns be handled? The answers to these questions will be varied. But, you probably will find the discussion has an underlying theme—while many believe it is part of the business world, most students will express discomfort with the prospect of having to overtly mislead others.

References:

There have been many reports of firms that have followed a strategy similar to that described in this chapter's ethical dilemma. A couple of classic examples occurred in 1994—one involved Bausch & Lomb, Inc., which is a well-known eyewear company; the other involved PerSeptive Biosystems, which produces instruments used in biotechnology analysis.

In the last quarter of 1993, Bausch & Lomb instituted a change in its distribution system that helped reduce inventories significantly and allowed the company to post a $10 million gain for the quarter. Midway through 1994, however, Bausch & Lomb estimated its distributors had excess inventory equal to $75 million. During the year, the company had to repurchase much of this excess inventory because it could not be sold by the distributors. Because of the poor performance of Bausch & Lomb in 1994, the CEO's performance bonus was cut to zero. Additional information concerning Bausch & Lomb's decision to change its distribution system can be found in the following articles:

"Bausch & Lomb: Clouded Vision," *Financial World*, May 23, 1995, p. 16+.

“Bad Math at Bausch & Lomb?,” *Business Week*, December 19, 1994, p. 108+.

“Bausch & Lomb's Myopia,” *Forbes*, December 5, 1994, p. 14+.

It was reported that PerSeptive would offer its diagnostic equipment, some of which cost in excess of $50,000, to prospective customers on a trial basis, requiring payment at some later date only if the equipment was found to be desirable. At the time, PerSeptive's management stated the strategy was to increase renewable sales by allowing the market to experience its product firsthand before requiring a purchase commitment. Even though the trial offers were not technically considered sales, in some instances, PerSeptive recorded them as sales and corresponding receivables. For the quarter ending September 30, 1994, PerSeptive posted nearly a $21 million loss because it wrote off a large amount of inventory and had to reduce accounts receivable significantly. Its “free trial” offer did not generate the renewable sales that it hoped. For more information about PerSeptive and this situation, the following articles might be helpful:

"PerSeptive Restates Its Results for Much of Past 2 Fiscal Years," *The Wall Street Journal*, December 28, 1994.

"Biotech Company Is Questioned About 'Try It Out' Sales Strategy," *The Wall Street Journal*, November 8, 1994, p. B1+.

"Enterprise: Tech Concerns Fudge Figures to Buoy Stocks," *The Wall Street Journal*, May 19, 1994, p. B1+.

As you know, there are quite a few examples of “misjudgments” in the applications of accounting practices that have been reported in recent times, including the famous Enron situation. Recent articles that relate these misjudgments include the following:

"Accounting Abracadabra: Cooking the Books Proves Common Trick of the Trade," *USA Today*, August 11, 1998, p. 1B.

"More Second-Guessing: Markets Need Better Disclosure of Earnings Management," *Barron’s*, August 24, 1998, p. 47.

"SEC Probes Telxon’s Accounting Practices, Unusual Securities Trading," Dow Jones Business News, February 22, 1999.

"Rite Aid Restates Year Net Downward, Reversing Some Accounting Maneuvers," *The Wall Street Journal*, June 2, 1999, p. A3.