Exercises

E5-1. Inventory turnover  
(AICPA adapted)

\[
\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}} = \frac{\$2,200,000}{\$550,000} = 4.0
\]

\[
\$550,000 = \frac{\$500,000 + \$600,000}{2}
\]

E5-2. Receivable and inventory turnover  
(AICPA adapted)

\[
\text{Accounts receivable turnover} = \frac{\text{Net credit sales}}{\text{Average trade receivables}} = \frac{\$2,500,000}{\$462,500} = 5.41
\]

\[
\$462,500 = \frac{\$475,000 + \$450,000}{2}
\]

\[
\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}} = \frac{\$2,000,000}{\$575,000} = 3.48
\]

\[
\$575,000 = \frac{\$600,000 + \$550,000}{2}
\]
E5-3. **Inventory turnover**  
(AICPA adapted)

\[
\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}} = \frac{\$1,800,000}{\$450,000} = 4.0
\]

\[
\$1,800,000 = \$400,000 + \$1,900,000 - \$500,000
\]

\[
\$450,000 = \frac{\$400,000 + \$500,000}{2}
\]

E5-4. **Receivable turnover**  
(AICPA adapted)

Total net sales equals total credit sales plus total cash sales. The accounts receivable turnover ratio is used to find total credit sales:

\[
\text{Accounts receivable turnover} = \frac{\text{Total credit sales}}{\text{Average receivables}}
\]

\[
5.0 = \frac{\text{Total credit sales}}{\$275,000}
\]

\[
\$275,000 = \frac{\$250,000 + \$300,000}{2}
\]

\[
\text{Total credit sales} = \$275,000 \times 5.0 = \$1,375,000
\]

\[
\text{Total net sales} = \$1,375,000 + \$100,000 = \$1,475,000
\]

E5-5. **Current and quick ratios**  
(AICPA adapted)

The write-off of obsolete inventory would decrease Todd Corporation's current assets, thus decreasing the current ratio. The quick ratio would be unaffected by the inventory write-off because it takes only the most liquid assets (cash, marketable securities, and receivables) into account.

E5-6. **Current ratio**  
(AICPA adapted)

1) The refinancing of a $30,000 long-term mortgage with a short-term note would increase Gil’s current liabilities, decreasing the current ratio to .43.

2) Purchasing $50,000 of inventory with a short-term account payable would increase Gil’s current assets to $140,000, and increase the current liabilities to $230,000, making the current ratio .61.
3) Paying $20,000 of short-term accounts payable decreases both the current assets and liabilities by $20,000, making the current ratio .44.

4) Collection of $10,000 of short-term accounts receivable has no effect on Gil’s current ratio.

E5-7. Interest coverage
(AICPA adapted)

The number of times that bond interest was earned can be calculated by using the following ratio:

\[
\text{Times interest earned} = \frac{\text{Income before interest charges & taxes}}{\text{Interest charges}}
\]

\[
= \frac{\$800,000 + \$600,000 + \$120,000}{\$120,000} = 12.67 \text{ times}
\]

E5-8. Why inventory turnover increased
(AICPA adapted)

(4) The gross profit margin decreased. Sales were unchanged, so the gross profit margin decline would be due to increased cost of goods sold. If inventory were also unchanged, the higher cost of goods sold would result in greater inventory turnover.

E5-9. Days sales outstanding
(AICPA adapted)

Requirement 1:
Gross margin equals net sales minus cost of goods sold. Net sales can be found by using the accounts receivable turnover ratio:

\[
\text{Accounts receivable turnover} = \frac{\text{Net sales}}{\text{Average receivables}}
\]

\[
5 = \frac{\text{Net sales}}{\$950,000} = \frac{\$900,000 + \$1,000,000}{2}
\]

Net sales = $950,000 \times 5 = $4,750,000
Cost of goods sold can be found by using the inventory turnover ratio:

\[
\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}
\]

\[
4 = \frac{\text{Cost of goods sold}}{\$1,150,000} \quad \text{and} \quad \$1,150,000 = \frac{\$1,100,000 + \$1,200,000}{2}
\]

Cost of goods sold = \$1,150,000 \times 4 = \$4,600,000

Gross margin = \$4,750,000 - \$4,600,000 = \$150,000

**Requirement 2:**

Days’ sales in average receivables = \frac{360}{5} = 72 days

Days’ sales in average inventories = \frac{360}{4} = 90 days
Problems
P5-1. Ratio Analysis: Alpine Chemical
(CFA adapted)

Requirement 1:

a) EBIT/interest expense = \(\frac{1,629 + 318}{318}\) = 6.12

b) Long-term debt/total capitalization = \(\frac{1,491}{(1,491 + 3,075)}\) = 33%

Note: Some students may include the $1,900 note payable as part of long-term debt and total capitalization. This approach is quite appropriate if the note is a permanent component of borrowed capital. Observe in (c) below, that all debt is included.

c) Funds from operations/total debt:

\[
\frac{(\text{Net income} + \text{Depreciation expense})}{(\text{Long-term debt} + \text{Notes payable})} = \frac{(1,479 + 511)}{(1,900 + 1,491)} = 59\%
\]

d) Operating income/sales = \(\frac{2,458}{19,460}\) = 12.6%

Requirement 2:

a) EBIT/interest expense measures Alpine Chemical’s ability to make its interest payments from pre-tax earnings. A ratio of less than 1 would indicate that Alpine must sell assets or seek financing to make its interest payments.

b) Long-term debt/total capitalization measures Alpine’s financial leverage. A highly leveraged company can find issuing new debt difficult or expensive. Also, a highly leveraged company is more sensitive to a business downturn.

c) Funds from operations/total debt measures Alpine’s ability to generate enough working capital from continuing operations to meet its debt obligations and future growth needs.
d) Operating income/sales measures Alpine’s profitability. Deterioration in this ratio would indicate that sales volume must be increased, or costs reduced, to generate the same level of operating income. If Alpine cannot raise sales volume or reduce costs, then its ability to issue new debt without adversely affecting current debt holders is limited.

Requirement 3:
a) *EBIT/interest expense.* With the exception of 1997, interest coverage has been consistently above 4X. The year 2001 shows the best (highest) interest coverage of the past six years and is consistent with a rating of an A–AA rated bond.

b) *Long-term debt/total capitalization.* The trend in this leverage measure has been stable in the past three years. During the six-year period, leverage has declined erratically from 44% to 33%. At a leverage ratio of 33%, based on the 2001 financial statements, Alpine would appear to be a weak A rated company.

c) *Funds from operations/total debt.* The cash flow ratio has been relatively steady during the past three years and, at 59% in 2001, would reflect a rating between A and AA.

d) *Operating income/sales.* Operating margins remain stable but low. At 12.6%, this ratio would indicate that Alpine should be a strong-BBB-rated company.

In summary, these four credit ratios appear stable or improving. Despite a low operating margin, the four ratios indicate that Alpine should be rated A, based on a comparison with the data in Table 2.

**P5-2. Financial statement analysis**  
(AICPA adapted)

1) $39,000  This value can be derived from the equation that total assets (prior to the restatement) equals total liabilities and stockholders’ equity, which is $140,000 (computation follows). Total stockholders’ equity is $80,000 ($66,000 + $13,000 + $16,000 - $6,000 - $9,000). The given ratio indicates that total stockholders’ equity divided by total liabilities is 4 to 3, making total liabilities equal to $60,000 ($80,000 ÷ 4/3). Now that we know the total liabilities and stockholders’ equity equals $140,000, the balance for land can be calculated as follows: $140,000 - $12,000 + $25,000 - $92,000 - $22,000 = $39,000.

2) $5,500  Current liabilities = Current assets - Beginning working capital, or ($22,000 - $16,500).
3) $50,000  The face value of the bonds is equal to the stated interest divided by the interest rate. The stated interest is equal to bond interest expense plus bond premium amortization ($3,500 + $500). Thus, the face value of the bonds is equal to $4,000/.08 = $50,000.

4) $1,900  Deferred income taxes can be found by summing the closing balance on the balance sheet and the debit to the deferred income taxes account during the year (from the statement of cash flows). ($1,700 + $200 = $1,900)

5) $26,100  Year-end working capital is $17,400, or $16,500 beginning working capital plus $700 increase in noncash working capital + $200 cash increase. Working capital is equal to current assets minus current liabilities. At year end, current assets are 3 times current liabilities (current ratio of 3:1). We can substitute “current assets = 3 \times \text{current liabilities}” into the working capital equation so that “3 \times \text{current liabilities}” equals $17,400. Current liabilities must be $8,700 and current assets must be $26,100.

6) $77,000  The balance for buildings and equipment is equal to the opening balance in this account minus the cost of equipment sold during the year ($92,000 - $15,000). The $15,000 is equal to 3/2 the $10,000 book value of the equipment ($10,000 \div 2/3 = $15,000). If the equipment cost $15,000 and had a book value of $10,000, then its accumulated depreciation must have been $5,000.

7) ($23,000)  See (6). The accumulated depreciation is equal to the opening balance plus depreciation expense, less $5,000 accumulated depreciation on equipment sold. ($25,000 + $3,000 - $5,000)

8) $53,715  The balance in the land account is equal to the opening balance plus the acquisition cost of new land. ($39,000 from balance sheet + $14,715 from statement of cash flows)

9) $8,000  The ending balance of goodwill is equal to the opening balance (prior to restatement) minus goodwill amortization for 2000 and 2001. ($12,000 - $2,000 - $2,000)

10) $8,700  See (5)

11) $42,800  The closing balance of bonds payable is equal to the opening balance—derived in (3)—less the current maturity of long-term debt (from the statement of cash flows). ($50,000 - $7,200)

12) $2,100  The bond premium can be calculated by subtracting the bond premium amortization (statement of cash flows) from the opening balance ($2,600 - $500).
13) $73,500  The balance of common stock at year end is equal to the opening balance plus the par value of common stock issued to reacquire preferred stock (statement of cash flows), ($66,000 + $7,500).

14) $15,400  The ending balance of paid-in capital is equal to the opening balance plus the excess of proceeds from reissue of treasury stock ($13,000 + $2,400). The excess of proceeds from reissue of treasury stock is equal to the proceeds from the reissue less the opening balance of treasury stock from the balance sheet ($11,400 - $9,000).

15) $8,500  The balance of preferred stock is equal to the opening amount on the balance sheet less the par value of preferred stock reacquired by the issue of common stock ($16,000 - $7,500).

16) ($10,885)  The retained earnings balance is equal to the opening balance as shown on the balance sheet prior to the restatement plus the 2001 net loss (after tax) adjustment plus the prior period adjustment. ($6,000 + $2,885 + $2,000)
The current ratio on January 1, 2001 was 4-to-1, and the total stockholders’ equity divided by total liabilities ratio at year end was 1.564 (rounded). Here is a correct comparative balance sheet for the company:

<table>
<thead>
<tr>
<th>Woods Company Balance Sheet</th>
<th>1-Jan-01</th>
<th>31-Dec-01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current assets</td>
<td>$22,000</td>
<td>$26,100</td>
</tr>
<tr>
<td>Building and equipment</td>
<td>92,000</td>
<td>77,000</td>
</tr>
<tr>
<td>Accumulated depreciation</td>
<td>(25,000)</td>
<td>(23,000)</td>
</tr>
<tr>
<td>Land</td>
<td>39,000</td>
<td>53,715</td>
</tr>
<tr>
<td>Goodwill</td>
<td>12,000</td>
<td>8,000</td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td>$140,000</td>
<td>$141,815</td>
</tr>
<tr>
<td>Current liabilities</td>
<td>$5,500</td>
<td>$8,700</td>
</tr>
<tr>
<td>Bonds payable (8%)</td>
<td>50,000</td>
<td>42,800</td>
</tr>
<tr>
<td>Bond premium</td>
<td>2,600</td>
<td>2,100</td>
</tr>
<tr>
<td>Deferred income taxes</td>
<td>1,900</td>
<td>1,700</td>
</tr>
<tr>
<td>Common stock</td>
<td>66,000</td>
<td>73,500</td>
</tr>
<tr>
<td>Paid-in capital</td>
<td>13,000</td>
<td>15,400</td>
</tr>
<tr>
<td>Preferred stock</td>
<td>16,000</td>
<td>8,500</td>
</tr>
<tr>
<td>Retained earnings (deficit)</td>
<td>(6,000)</td>
<td>(10,885)</td>
</tr>
<tr>
<td>Treasury stock (at cost)</td>
<td>(9,000)</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total liabilities and stockholders’ equity</strong></td>
<td>$140,000</td>
<td>$141,815</td>
</tr>
</tbody>
</table>

P5-3. **Explaining changes in financial ratios**  
(AICPA adapted)

1) a,b,d  Inventory turnover is defined as the cost of goods sold divided by average inventory. A lower inventory would cause the inventory turnover ratio to increase, as would a higher cost of goods sold. Consignment items should still be included in inventory, but in this case were mistakenly recorded as sales and removed from inventory. Credit memos were not recorded for returned merchandise, understating ending inventory and overstating cost of goods sold. Also, year-end purchases were not recorded, understating ending inventory.

2) a,b,e  Accounts receivable turnover is net credit sales divided by average accounts receivable. Recording goods shipped on consignment before they are actually sold overstates accounts receivable and net
credit sales. Failing to record credit memos also overstates accounts receivable and net credit sales. When an unusually large percentage of annual credit sales occur in the last month of the year, the year-end balance in accounts receivable will be unusually high. All three situations produce a decrease in the accounts receivable turnover ratio.

3) a,b,e If the allowance for doubtful accounts increased in dollars, but the allowance decreased as a percentage of accounts receivable, then accounts receivable must have increased by a greater degree than the allowance decreased. Accounts receivable would increase if items shipped on consignment were mistakenly recorded as sales, if significant credits for returned goods were not recorded, or if a larger percentage of sales occurred during the month compared to the prior year.

4) p The refinancing of short-term debt as long-term debt at a higher interest rate would cause the long-term debt to increase, but not as significantly as interest expense. This is caused by the increased rate being applied to a greater amount of long-term debt.

5) l,p Net income for the year can be found from operating income less interest expenses and federal income taxes. If operating income increased but net income decreased, it must be that interest expense and/or federal income taxes increased. This could result from an increase in the effective income tax rate, or from refinancing short-term debt as long-term debt with a higher interest rate.

6) h Gross margin percentage is defined as gross margin divided by sales. If the gross margin percentage remained constant while the gross margin increased, then sales must have increased by the same proportionate amount. Since gross margin is Sales less cost of goods sold, then cost of goods sold must have also increased by the same proportionate amount.
P5-4. Current asset ratios
(AICPA adapted)

1) Alpha’s quick ratio is \( \frac{\$10,000 + \$50,000 + \$30,000}{\$70,000 + \$20,000} = \frac{\$90,000}{\$90,000} = 1.0 \)

2) The accounts receivable turnover is \( \frac{\$500,000}{\$100,000} = 5.0 \)
   \( \frac{\$100,000}{2} = \frac{\$150,000 + \$50,000}{2} \)

3) Alpha’s merchandise inventory turnover is \( \frac{\$1,000,000}{\$120,000} = 8.3 \)
   \( \frac{\$120,000}{2} = \frac{\$150,000 + \$90,000}{2} \)

4) Alpha’s current ratio at December 31, 2001, is
   \( \frac{\$10,000 + \$50,000 + \$90,000 + \$30,000}{\$70,000 + \$20,000} = \frac{\$180,000}{\$90,000} = 2.0 \)
Clapton Corporation  
Consolidated Balance Sheet  

<table>
<thead>
<tr>
<th></th>
<th>December 31,</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2001</td>
</tr>
<tr>
<td></td>
<td>2000</td>
</tr>
<tr>
<td><strong>Assets:</strong></td>
<td></td>
</tr>
<tr>
<td>Current assets</td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$800,000</td>
</tr>
<tr>
<td>Marketable securities</td>
<td>$3,200,000</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>$2,200,000</td>
</tr>
<tr>
<td>Inventories</td>
<td>$3,250,000</td>
</tr>
<tr>
<td>Prepaid expenses</td>
<td>$550,000</td>
</tr>
<tr>
<td>Total current assets</td>
<td>$10,000,000</td>
</tr>
</tbody>
</table>

| Property, plant, and equipment, less accumulated depreciation | $25,000,000 | $18,000,000 |

| Non-current assets     |               |
| Long-term receivables  | $2,500,000    |
| Investments            | $1,500,000    |
| Other                  | $1,000,000    |
| Total assets           | $40,000,000   |

| **Liabilities and Stockholders’ Equity:** |               |
| Current liabilities    |               |
| Accounts payable       | $2,625,000    |
| Wages and employee benefits payable | $775,000     |
| Income taxes           | $300,000      |
| Advances and deposits  | $100,000      |
| Other current liabilities | $200,000   |
| Total current liabilities | $4,000,000 |

| Long-term liabilities  |               |
| Long-term debt         | $16,000,000   |
| Deferred income taxes  | $3,000,000    |
| other                  | $1,000,000    |
| Total liabilities      | $24,000,000   |

| Stockholders’ equity   |               |
| Preferred stock        | $1,000,000    |
| Common stock           | $2,000,000    |
| Paid-in capital        | $9,000,000    |
| Retained earnings      | $4,000,000    |
| Total stockholders’ equity | $16,000,000 |

| Total liabilities and stockholders’ equity | $40,000,000 | $30,000,000 |
1) Some givens from #5 under additional information:

   \[ s = 1,000,000. \quad t = 2,000,000. \quad u = 9,000,000. \]

2) Total assets (j) at the end of 2000 using #9 under additional information:

   \[ \text{LTD/total assets} = 0.30 = 9,000,000/j = 0.30. \quad \text{So, } j = 30,000,000. \]

   Total assets must equal total liabilities and stockholders’ equity, so, \( zz \) also equals 30,000,000.

3) Total assets at the end of 2001 (i) using #6 and #13 under additional information:

   \[ \text{ROA for 2001} = 5\% \quad \text{and NOPAT} = 1,750,000. \]

   \[ \text{ROA} = \frac{\text{NOPAT}}{\text{Avg. total assets}} \]

   \[ 0.05 = \frac{1,750,000}{(30,000,000 + i)/2} \]

   \[ i = \frac{(1,750,000 \times 2)}{0.05} - 30,000,000 = 40,000,000 \]

   Total assets must equal total liabilities and stockholders’ equity, so, \( z \) also equals 40,000,000.

4) LTD (p) at the end of 2001 using #9 under additional information:

   \[ p/40,000,000 = 0.40 \quad \text{which means } p = 16,000,000. \]

5) Current liabilities (o) in 2000:

   From the balance sheet, total liabilities at the end of 2000 are 15,000,000 and total long-term liabilities are 11,500,00. Therefore, current liabilities equal \( 15,000,000 - 11,500,000 = 3,500,000. \)

6) Current assets (f) in 2000 using #2 under additional information:

   Since the current ratio at the end of 2000 is 2.0, current assets must be 7,000,000 or \( 2 \times 3,500,000. \)

7) Other assets (h) in 2000:

   Using “f” and the information about assets in the balance sheet:

   \[ h = 30,000,000 - 7,000,000 - 18,000,000 - 3,000,000 = 2,000,000. \]
8) Plant, property, and equipment (g) in 2001:

Using the information about assets in the balance sheet:
\[ g = 40,000,000 - 10,000,000 - 5,000,000 = 25,000,000. \]

9) Current liabilities (n) in 2001 using #2 under additional information:

The current ratio at the end of 2001 is 2.5, and current assets at the end of 2001 are 10,000,000 (see the balance sheet).

\[ \text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} \]
\[ 2.5 = \frac{10,000,000}{n} \]
\[ n = 4,000,000. \]

10) Accounts payable (k) in 2001:

Using “n” and the information about current liabilities in the balance sheet:
\[ k = 4,000,000 - 775,000 - 300,000 - 100,000 - 200,000 = 2,625,000. \]

11) Accounts receivable (c) in 2001 using #8 and #12 under additional information:

Days receivable outstanding in 2001 is 36.5. This implies the A/R turnover ratio is 10.

\[ \text{Days AR outstanding} = \frac{365}{\text{AR turnover}} \]
\[ 36.5 = \frac{365}{\text{AR turnover}} \]
\[ \text{AR turnover} = \frac{\text{Sales}}{\text{Avg. AR}} \]
\[ \text{so that means} \ 10 = \frac{20,000,000}{\text{Avg. AR}} \]
\[ \text{Avg. AR} = 2,000,000. \]

Since A/R at the end of 2000 is 1,800,000 (see the balance sheet), for average A/R to be 2,000,000, A/R at the end of 2001 must be 2,200,000.
\[ c = 2,200,000. \]

12) Inventories (e) in 2000 using #10 under additional information:

The 2000 quick ratio is 1.5.
\[ \text{quick ratio} = \frac{(\text{Current assets} - \text{Inventories})}{\text{Current liabilities}} \]
\[ \text{Therefore,} \ 1.5 = \frac{(7,000,000 - e)}{3,500,000}, \text{and} \ e = 1,750,000. \]
13) Inventories (d) in 2001 using #3, #11, and #12 under additional information:

   Days inventory held = 60.8 in 2001. This implies an inventory turnover of 6.0 because:

   Days inventory held = 365/Inventory turnover = 60.8
   Inventory turnover   = 365/60.8 = 6

   Next, Inventory turnover = CGS/Average inventory. With a gross profit rate of 25%, CGS as a percentage of sales is 75%. This means CGS in 2001 is 0.75 x 20,000,000 = 15,000,000.
   Thus, 6 = 15,000,000/Average inventory, and average inventory must be 2,500,000.

   With a 2000 inventory of 1,750,000, for the average inventory to be 2,500,000, 2000 ending inventory (d) must be 3,250,000.

14) Marketable securities (b) in 2000:

   Using “f” and “e” and the numbers in the balance sheet,
   b = 7,000,000 - 4,500,000 = 2,500,000

15) Cash (a) in 2001:

   Using “c” and “d” and the numbers in the balance sheet,
   a = 10,000,000 - 9,200,000 = 800,000

16) Accounts payable (l) in 2000 using #1 under additional information:

   Days’ payable outstanding was 45.6, which implies an A/P turnover ratio of 8.
   Days’ payable outstanding = 365/AP turnover = 45.6
   AP turnover = 365/45.6 = 8.
   AP turnover = Inventory purchases/Avg. accts payable
   8 = (CGS + Change in inventory)/Avg. accts payable
   8 = (15,000,000 + 1,500,000)/Avg. accts payable
   Avg. accts payable = 2,062,500.
   Since accts payable at the end of 2001 was 2,625,000, for the average A/P to be 2,062,500, A/P at the end of 2000 must have been 1,500,000.

17) Wages and employee benefits payable (m) for 2000:

   Using earlier calculations and existing numbers in the balance sheet:
   m = 3,500,000 - 2,850,000 = 650,000.
18) Total stockholders’ equity (y) at the end of 2000:

Using earlier calculations and existing numbers in the balance sheet:
\[ y = 30,000,000 - 15,000,000 = 15,000,000. \]

19) Retained earnings (w) at the end of 2000:

Using earlier calculations and existing numbers in the balance sheet:
\[ w = 15,000,000 - 12,000,000 = 3,000,000. \]

20) Retained earnings (v) at the end of 2001:

Using earlier calculations, existing numbers in the balance sheet, and #4 and #7 under additional information:
\[ v = 3,000,000 + 1,250,000 (NI) - 250,000 (dividends) = 4,000,000. \]

21) Total stockholders’ equity (x) at the end of 2001:

Using earlier calculations and existing numbers in the balance sheet:
\[ x = 1,000,000 + 2,000,000 + 9,000,000 + 4,000,000 = 16,000,000. \]

22) Total liabilities (r) at the end of 2001:

Using earlier calculations and existing numbers in the balance sheet:
\[ r = 40,000,000 - 16,000,000 = 24,000,000. \]

23) Other long-term liabilities (q) at the end of 2001:

Using earlier calculations and existing numbers in the balance sheet:
\[ q = 24,000,000 - 4,000,000 - 16,000,000 - 3,000,000 = 1,000,000 \]

**P5-6. Why financial ratios change**

(AICPA adapted)

1) This transaction would decrease the current ratio, have no effect on the inventory turnover ratio, and increase the total debt/total asset ratio. Daley’s current liabilities are increased by the declaration of a cash dividend.

2) If customers returned invoiced goods for which they had not paid, Daley’s current ratio and inventory turnover would decrease, and the total debt/total asset ratio would increase.

3) The payment of accounts payable would increase the current ratio, have no effect on inventory turnover ratio, and decrease the total debt/total asset ratio.
4) This transaction would increase the current ratio and the total debt/total asset ratio, and have no effect on inventory turnover.

5) The increase in selling price would increase the current ratio, have no effect on inventory turnover, and decrease the total debt/total asset ratio.

P5-7. **Working backward to the statements**  
(AICPA adapted)

**Requirement 1:**
The balance in trade accounts payable can be found from the current ratio. The amount of current assets is equal to total assets minus noncurrent assets ($432,000 - 294,000 = $138,000).

The current ratio is \[ \frac{\text{Current assets}}{\text{Current liabilities}} ; \text{or} \quad 1.5 = \frac{\$138,000}{\text{Current liabilities}} \]

Current liabilities are \[ \frac{\$138,000}{1.5} = \$92,000 \]

Thus, trade accounts payable is equal to \$92,000 - \$25,000 = \$67,000

**Requirement 2:**
The balance in retained earnings can be found by examining the following equations, setting \( X = \) the balance in long-term debt, and \( Y = \) the balance in retained earnings:

a) Total assets = Total liabilities + Total stockholders’ equity, and

b) \[ 0.8 = \frac{\text{Total liabilities}}{\text{Total stockholders’ equity}} \] (given in the problem)

From equation a):

Total liabilities = \$92,000 + X, and total stockholders’ equity = \$300,000 + Y. Therefore, \$92,000 + X + \$300,000 + Y = \$432,000, which yields \( X = \$40,000 - Y \).

From equation b):

\[ 0.8 = \frac{\$92,000 + X}{\$300,000 + Y} , \text{ which yields } (\$300,000 + Y)(0.8) = \$92,000 + X. \]
Substituting the relationship we obtained from equation a) for the X in equation b): \((300,000 + Y)(0.8) = 92,000 + 40,000 - Y\). Solving for Y yields \((60,000)\), the balance in retained earnings.

**Requirement 3:**
The balance in the inventory account can be calculated from three relationships given in the problem:

\[10.5 = \frac{\text{Cost of goods sold}}{\text{Ending inventory}},\]

which yields \(\text{Cost of goods sold} = (10.5)(\text{Ending inventory})\),

\[15 = \frac{\text{Sales}}{\text{Ending inventory}},\]

and \(315,000 = \text{Sales} - \text{Cost of goods sold}\), which yields \(\text{Sales} = 315,000 + \text{Cost of goods sold}\).

Beginning with the relationship \(15 = \frac{\text{Sales}}{\text{Ending inventory}}\), substitute the derived relationship for \(\text{Sales}\), so that

\[15 = \frac{315,000 + \text{Cost of goods sold}}{\text{Ending inventory}}.\]

Then, substitute the relationship we derived for cost of goods sold, leaving

\[15 = \frac{315,000 + (10.5)(\text{Ending inventory})}{\text{Ending inventory}}.\]

So ending inventory = \(\frac{315,000}{4.5}\).

Solving for ending inventory yields a balance of \(70,000\).
P5-8. EBITDA and revenue recognition

Requirement 1:

<table>
<thead>
<tr>
<th>EBITDA</th>
<th>1993</th>
<th>1994</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBIT</td>
<td>$74.8</td>
<td>$75.8</td>
<td>$38.1</td>
</tr>
<tr>
<td>Depreciation and amortization</td>
<td>+14.8</td>
<td>+15.4</td>
<td>+19.3</td>
</tr>
<tr>
<td>EBITDA</td>
<td>$89.6</td>
<td>$91.2</td>
<td>$57.4</td>
</tr>
</tbody>
</table>

Adjusted EBITDA (Note that only 1995 needs to be adjusted for plant writedown)

<table>
<thead>
<tr>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBIT</td>
</tr>
<tr>
<td>Depreciation and amortization</td>
</tr>
<tr>
<td>Plant writedown</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Requirement 2:
Sales at G&L grew at 8.4% in 1994 and almost 18% in 1995 while profits grew by only 1.8% in 1994 and decreased almost 4% in 1995. G&L is enjoying moderate sales growth but they have not been able to transfer this growth to the bottom line.

Requirement 3:
Days receivable outstanding

<table>
<thead>
<tr>
<th>Receivable turnover</th>
<th>1993</th>
<th>1994</th>
<th>1995</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>571.5</td>
<td>619.5</td>
<td>730.6</td>
</tr>
<tr>
<td>÷ Year end receivables</td>
<td>÷246.1</td>
<td>÷343.9</td>
<td>÷350.6</td>
</tr>
<tr>
<td>Receivable turnover</td>
<td>2.3</td>
<td>1.8</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Days receivable outstanding

<table>
<thead>
<tr>
<th>Days</th>
<th>365</th>
<th>365</th>
<th>365</th>
</tr>
</thead>
<tbody>
<tr>
<td>÷ Accounts receivable turnover</td>
<td>÷ 2.3</td>
<td>÷ 1.8</td>
<td>÷ 2.1</td>
</tr>
<tr>
<td>158.69</td>
<td>202.77</td>
<td>173.81</td>
<td></td>
</tr>
</tbody>
</table>

What we learn from this tabulation is that G&L’s sales growth is accompanied by a longer receivables collection period, that rebounds in 1995, but that is still significantly weaker than 1993. There has also been a noticeable shift in the composition of receivables (“billed” and “unbilled”) over this time period.
Receivable Composition  |  1993 |  1994 |  1995  
Billed                | $141.6| $ 94.5| $147.9  
Unbilled             | 104.5| 249.4| 202.7  
Total                | $246.1| $343.9| $350.6  

% of receivables unbilled  | 42.5%| 72.5%| 57.8%  

So, here we discover that one reason for the increase in days accounts receivable outstanding is that the percentage of “unbilled” receivables has increased. Customers do not pay unless they are billed!

Requirement 4:
G&L uses percentage-of-completion to record revenue on its long-term construction projects. This approach, when used properly, assigns revenue to the period when G&L does the work—i.e., when the revenue is “earned”. However, the exact amount of “work done” each year, and thus the amount of revenue earned that year, is a judgment call made by management. One way a company can make it look like sales are growing (and profits are holding steady) is to overstate the amount of work done that year. More revenue gets recorded, and some of that revenue falls to the bottom line. The extra revenue is also likely to show up as an “unbilled” receivable.

Some analysts would spot the pattern of sales growth, profitability, and unbilled receivables increase and conclude that G&L is aggressive in estimating the amount of work done on its long-term construction projects. Of course, there are other reasons these accounts may have moved in the way they did at G&L.

P5-9. Profitability Analysis: Maytag

Step 1
Average total assets for 1999: $2,612,075  
Average total liabilities for 1999: $2,144,603  
Average total equity for 1999: $467,742
### Step 2

#### Return on assets (ROA)

<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
<th>1998</th>
<th>1997</th>
</tr>
</thead>
<tbody>
<tr>
<td>N.I. (before extraordinary item)</td>
<td>$328,528</td>
<td>$286,510</td>
<td>$183,490</td>
</tr>
<tr>
<td>+ Interest expense</td>
<td>59,259</td>
<td>62,765</td>
<td>58,995</td>
</tr>
<tr>
<td>x (1 - tax rate)</td>
<td>X 0.65</td>
<td>X 0.65</td>
<td>X 0.65</td>
</tr>
<tr>
<td>= Adjusted net income</td>
<td>38,518</td>
<td>40,797</td>
<td>38,347</td>
</tr>
</tbody>
</table>

\[
\text{ROA} = \frac{\text{Adjusted net income}}{\text{Average total assets}}
\]

- **1999**: 14.05%
- **1998**: 12.83%
- **1997**: 9.16%

#### Decomposition of ROA: Profit margin ratio

<table>
<thead>
<tr>
<th>Year</th>
<th>1999</th>
<th>1998</th>
<th>1997</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted N.I. (per above)</td>
<td>$367,046</td>
<td>$327,307</td>
<td>$221,837</td>
</tr>
<tr>
<td>÷ Sales (net)</td>
<td>÷4,323,673</td>
<td>÷4,069,290</td>
<td>÷3,407,911</td>
</tr>
<tr>
<td>Profit margin ratio</td>
<td>8.49%</td>
<td>8.04%</td>
<td>6.51%</td>
</tr>
</tbody>
</table>

- **1999**: 14.05%
- **1998**: 12.83%
- **1997**: 9.16%

#### Common Size Income Statements:

<table>
<thead>
<tr>
<th>Item</th>
<th>1999</th>
<th>1998</th>
<th>1997</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales (net)</td>
<td>100.00%</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Cost of sales</td>
<td>71.00%</td>
<td>70.96%</td>
<td>72.52%</td>
</tr>
<tr>
<td>Selling, general &amp; admin. exp.</td>
<td>15.63%</td>
<td>16.19%</td>
<td>16.96%</td>
</tr>
<tr>
<td>Other income, net</td>
<td>(0.33%)</td>
<td>(0.27%)</td>
<td>(0.03%)</td>
</tr>
<tr>
<td>Interest expense</td>
<td>1.37%</td>
<td>1.54%</td>
<td>1.73%</td>
</tr>
<tr>
<td>Tax expense</td>
<td>4.51%</td>
<td>4.33%</td>
<td>3.22%</td>
</tr>
<tr>
<td>Minority interest</td>
<td>0.16%</td>
<td>0.20%</td>
<td>0.21%</td>
</tr>
<tr>
<td>N.I. (before extraordinary item)</td>
<td>7.58%</td>
<td>7.04%</td>
<td>5.38%</td>
</tr>
</tbody>
</table>
Comment: The analysis demonstrates that asset turnover increased substantially in 1998 and then remained steady for 1999. Profit margins have increased steadily since 1997. Both factors—improved asset turnover and better profit margins—have contributed to the company's increased ROA. The profit margin increases are attributable to a lower cost of sales (down from 72.52% in 1997 to 71.00% in 1999), reduced SG&A expenses (down from 16.96% to 15.63%), lower interest and more “Other income.” These benefits were offset somewhat by higher tax expense (4.51% of net sales in 1999 compared to only 3.22% in 1997).

Step 3
Some students might properly focus only on interest-bearing debt (notes payable and long-term debt) for purposes of this section. The solution that follows uses "total liabilities" in keeping with the ROE-ROA decomposition. Also, note that some interest charges might not appear on the income statement if Maytag capitalizes interest during construction. The solution presumes that capitalized interest is inconsequential.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest expense</td>
<td>$59,259</td>
<td>$62,765</td>
<td>$58,995</td>
</tr>
<tr>
<td>x(1 - tax rate)</td>
<td>X 0.65</td>
<td>X 0.65</td>
<td>X 0.65</td>
</tr>
<tr>
<td>Interest expense (net of tax)</td>
<td>$38,518</td>
<td>$40,797</td>
<td>$38,347</td>
</tr>
<tr>
<td>÷ Avg. total liabilities</td>
<td>÷2,144,603</td>
<td>÷1,989,222</td>
<td>÷1,827,148</td>
</tr>
<tr>
<td>After-tax% rate paid on debt</td>
<td>1.80%</td>
<td>2.05%</td>
<td>2.10%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Percent of assets financed with debt:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. total liab.</td>
</tr>
<tr>
<td>÷ Avg. total assets</td>
</tr>
<tr>
<td>% Assets financed with debt</td>
</tr>
</tbody>
</table>

This data indicates that the company is becoming more highly leveraged since debt is financing a greater portion of assets in 1999 than it was in 1997. Also notice that debt is a rather cheap source of financial capital at Maytag because the after-tax return paid to debt holders is just around 2%.
Step 4

Return on equity (ROE) | 1999 | 1998 | 1997
---|---|---|---
N.I. before extraordinary item | $328,528 | $286,510 | $183,490
\[\div\] Average stockholders' equity | 467,472 | 561,687 | 594,900
ROE | 70.28% | 51.01% | 30.84%

Decomposition of ROE

N.I. before extraordinary item | $328,528 | $286,510 | $183,490
\[\div\] Sales (net) | 4,323,673 | 4,069,290 | 3,407,911
Profit margin percent | 7.60% | 7.04% | 5.38%
Avg. total assets | $2,612,075 | $2,550,909 | $2,422,047
\[\div\] Avg. stockholders' equity | 467,472 | 561,687 | 594,900
Leverage ratio | 5.59 | 4.54 | 4.07

Total asset turnover (see above) | 1.66 | 1.60 | 1.41

Profit margin percent | 7.60% | 7.04% | 5.38%
\[\times\] Leverage ratio | X 5.59 | X 4.54 | X 4.07
\[\times\] Total asset turnover | X 1.66 | X 1.60 | X 1.41
ROE | 70.28% | 51.01% | 30.84%

Comparison of ROA and ROE | 1999 | 1998 | 1997
---|---|---|---
ROA | 14.05% | 12.83% | 9.16%
ROE | 70.28% | 51.01% | 30.84%

The differences between ROA and ROE over these three years are due primarily to the effects of financial leverage. As shown in Step 3, Maytag's average after-tax return paid to debt holders ranged from 2.10% in 1997 to 1.80% in 1999. From 1997-1999, when the return on assets was greater than the after-tax cost of debt, leverage worked to the benefit of shareholders and increased ROE relative to ROA.
Demonstration of how leverage affected return to common shareholders:

Excess return on assets financed with debt:

<table>
<thead>
<tr>
<th>Year</th>
<th>ROA</th>
<th>After-tax Return to Int.</th>
<th>Assets Financed w/debt</th>
<th>Excess return to shareholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>(14.05% - 1.80%)</td>
<td>12.26% x $2,144,603</td>
<td>$262,839</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>(12.83% - 2.05%)</td>
<td>10.78% x $1,989,222</td>
<td>$214,440</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>(9.16% - 2.10%)</td>
<td>7.06% x $1,827,148</td>
<td>$129,003</td>
<td></td>
</tr>
</tbody>
</table>

Return on assets financed with common equity:

<table>
<thead>
<tr>
<th>Year</th>
<th>ROA</th>
<th>Assets Financed with Equity (Avg. total equity)</th>
<th>Return to Shareholders</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>14.05%</td>
<td>X $467,472</td>
<td>$65,689</td>
</tr>
<tr>
<td>1998</td>
<td>12.83%</td>
<td>X $561,687</td>
<td>$72,070</td>
</tr>
<tr>
<td>1997</td>
<td>9.16%</td>
<td>X $594,900</td>
<td>$54,487</td>
</tr>
</tbody>
</table>
Requirement 1:
The following table summarizes the key financial ratios for these two companies

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Current ratio</td>
<td>2.26</td>
<td>1.99</td>
<td>2.07</td>
<td>2.22</td>
</tr>
<tr>
<td>Quick ratio</td>
<td>1.43</td>
<td>1.33</td>
<td>1.25</td>
<td>1.35</td>
</tr>
<tr>
<td>Accounts receivable turnover</td>
<td>5.46</td>
<td>6.20</td>
<td>5.57</td>
<td>5.97</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days receivable outstanding</td>
<td>66.9</td>
<td>58.9</td>
<td>65.5</td>
<td>61.1</td>
</tr>
<tr>
<td>Inventory turnover</td>
<td>4.23</td>
<td>3.76</td>
<td>4.44</td>
<td>3.71</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days inventory held</td>
<td>86.3</td>
<td>97.2</td>
<td>82.2</td>
<td>98.4</td>
</tr>
<tr>
<td>Accounts payable turnover</td>
<td>11.1</td>
<td>9.31</td>
<td>9.63</td>
<td>10.16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days accounts payable</td>
<td>33.0</td>
<td>39.2</td>
<td>37.9</td>
<td>35.9</td>
</tr>
<tr>
<td>payable outstanding</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Return on assets</td>
<td>9.60</td>
<td>5.00</td>
<td>9.70</td>
<td>4.90</td>
</tr>
<tr>
<td>Long-term debt to total assets</td>
<td>7.40</td>
<td>23.7</td>
<td>7.00</td>
<td>31.9</td>
</tr>
<tr>
<td>Long-term debt to total tangible assets</td>
<td>8.00</td>
<td>24.8</td>
<td>7.60</td>
<td>33.2</td>
</tr>
<tr>
<td>Interest coverage</td>
<td>17.9</td>
<td>1.40</td>
<td>11.90</td>
<td>1.60</td>
</tr>
<tr>
<td>Operating cash flow to total liabilities</td>
<td>49.0</td>
<td>28.5</td>
<td>23.90</td>
<td>13.20</td>
</tr>
<tr>
<td>Operating profit margin</td>
<td>5.80</td>
<td>2.90</td>
<td>5.50</td>
<td>2.70</td>
</tr>
<tr>
<td>Asset turnover</td>
<td>1.65</td>
<td>1.76</td>
<td>1.78</td>
<td>1.84</td>
</tr>
</tbody>
</table>
Requirement 2:
Profitability:

- In general, both firms show improved profitability over the 1998-1999 period

- Nike has a higher ROA in 1998 (9.7% versus 4.9%) and 1999 (9.6% versus 5.0%). Both companies experienced a decrease in asset turnover. Reebok decreased from 1.84 to 1.76 while Nike fell from 1.78 to 1.65. Since asset turnover declined, the ROA improvement at both firms must be due to increased profit margins.

- And it is! The margins at both companies jumped from just under 3% to over 5.5% in 1999.

Liquidity:

- Reebok was more liquid than Nike in 1998 for both the current and quick ratios. Nike’s liquidity increased between 1998 and 1999 while Reebok’s liquidity deteriorated slightly.

- Nike’s accounts receivable turnover is a bit slower than Reebok’s (e.g., in 1999 5.46 vs. 6.20) which means Nike’s average receivable is outstanding slightly longer than Reebok’s in 1999 (66.9 days vs. 58.9 days).

- Nike’s inventory turnover is slightly higher than Reebok’s in 1999 (4.23 vs. 3.76), which means that Nike holds inventory for fewer days (86.3 vs. 97.2).

- The relatively high accounts payable turnover rates of both firms suggests that both pay their A/P rather quickly, taking advantage of cash discounts offered by their suppliers.

Long-Term Solvency:

- Nike uses little long-term debt compared to Reebok (long-term debt to total assets is 7.4% vs. 23.7% for 1999). It seems reasonable to conclude that both firms have some unused debt capacity that could be available to fund future PP&E expansion or acquisitions.

- Nike has a much larger interest coverage ratio than Reebok does (17.9 vs. 1.4 in 1999). It appears that Reebok’s coverage ratio is somewhat thin.

- For 1999, both Reebok and Nike’s operating cash flows were large enough to pay off about 30% and 50% of the firm’s total liabilities.

- In summary, both firms use more equity than debt financing.
Requirement 3:
Based on the ratio analysis above, the analyst might do several things: gather information about the industry to help interpret the ratios and their changes from 1998 to 1999; or contact the companies to obtain additional clarifying information about why the ratios changed over time.

Possible non-financial information that might be useful includes:
- Pending lawsuits or other litigation
- New product developments or introductions, patent expiration dates
- The nature of any restrictive covenants in debt contracts
- The features of executive compensation and bonus plans and how they may use accounting numbers
- Expected (future) costs for the firms’ raw material inputs, recent trends in raw material prices
- Expected (future) labor costs, recent trends in labor costs
- Plant capacity and plant utilization rates
- Expected future demand for various footwear products
- Athletes under contract for each firm and when these contracts expire
- Market share in various market segments (e.g., men’s footwear, women’s footwear, kids footwear), and penetration into various markets worldwide (i.e., share of U.S. markets, share of European markets, etc.). Potential new markets (e.g., China)
- Recent management earnings and/or sales forecasts for the next “n” quarters or years. Other public disclosures by management (e.g., future R&D expenditure or capital expenditure budgets)
- Reports by various research/brokerage houses
- Population growth rates and changes in population demographics as they pertain to the demand for the firms’ products
- Managerial quality/skill and managerial reputation in the capital markets
- Availability (and size) of short-term bank lines of credit

P5-11. Toy’s “R” Us, Inc: Common-size statements of cash flow

Requirement 1:
Common-size financial statements provide a convenient and effective means to organize and summarize financial information about a company. These statements help analysts identify major trends and relationships among statement items. Comparisons among companies are also made easier by the preparation of common-size statements.
Requirement 2:
TOYS "R' US, INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(as a % of sales)

<table>
<thead>
<tr>
<th></th>
<th>Year Ended</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cash Flows From Operating Activities</strong></td>
<td></td>
</tr>
<tr>
<td>Net (loss) earnings</td>
<td>2.4%</td>
</tr>
<tr>
<td>Adjustments:</td>
<td></td>
</tr>
<tr>
<td>Depreciation, amortization asset write-offs</td>
<td>2.3%</td>
</tr>
<tr>
<td>Deferred income taxes</td>
<td>1.3%</td>
</tr>
<tr>
<td>Restructuring and other charges</td>
<td>0.0%</td>
</tr>
<tr>
<td>Changes in operating assets &amp; liabilities:</td>
<td></td>
</tr>
<tr>
<td>Accounts and other receivables</td>
<td>0.3%</td>
</tr>
<tr>
<td>Merchandise inventories</td>
<td>(1.6)%</td>
</tr>
<tr>
<td>Prepaid expenses and other operating assets</td>
<td>(0.6)%</td>
</tr>
<tr>
<td>Accounts payable, accrued expenses and other liabilities</td>
<td>4.2%</td>
</tr>
<tr>
<td>Income taxes payable</td>
<td>(1.0)%</td>
</tr>
<tr>
<td>Total adjustments</td>
<td>4.9%</td>
</tr>
<tr>
<td><strong>Net cash provided by operating activities</strong></td>
<td>7.3%</td>
</tr>
</tbody>
</table>

| **Cash Flows From Investing Activities** |            |            |            |
| Capital expenditures, net | (4.5)%     | (3.3)%     | (4.5)%     |
| Other assets              | (0.2)%     | (0.4)%     | (0.2)%     |
| Cash received with acquisition of Baby Superstore | (0.4)%     | 0.0%       | 0.0%       |
| **Net cash used in investing activities** | (5.1)%     | (3.8)%     | (4.7)%     |

| **Cash Flows From Financing Activities** |            |            |            |
| Short-term borrowings, net | 0.8%       | 0.0%       | (1.3)%     |
| Long-term borrowings       | 5.0%       | 6.9%       | 0.1%       |
| Long-term debt repayments  | (5.1)%     | (3.7)%     | (1.6)%     |
| Exercise of stock options  | 0.1%       | 0.1%       | 0.6%       |
| Share repurchase program   | (1.7)%     | (6.5)%     | (2.3)%     |
| **Net cash used in financing activities** | (0.9)%     | (3.1)%     | (4.5)%     |
| **Effect of exchange rate changes** | 0.1%       | (0.0)%     | (0.4)%     |

| **Cash and Cash Equivalents** |            |            |            |
| Increase (decrease) during year | 1.5%       | 1.8%       | (5.0)%     |
| Beginning of year            | 3.5%       | 1.9%       | 6.9%       |
| End of year                  | 4.9%       | 3.7%       | 1.9%       |
Requirement 3:

- Net income has been somewhat volatile over these three years, in part because of a rather large restructuring charge recorded in 1999.

- Depreciation and amortization has remained at 2.3% of sales. These expenses have no cash flow impact, but analysts will want to know when they are changing.

- Cash from operating activities increased from 4.6% to 8.6% and then fell back to 7.3% between 1998 and 2000. The decline can be traced to the changes in inventories, prepaid expenses, and income tax payables.

- Capital expenditures dropped between 1998 and 1999 but increased again in 2000. Capital expenditure levels at this company are driven by unit growth in retail stores and the firm’s e-commerce initiative. The analyst should determine if the changes in capital spending percentages occurred because of changes in real investment (the ratio numerator) or changes in sales (the ratio denominator), or a combination of both.

- The company has increased its long-term debt repayments while also borrowing more money. One financing transaction seems to just offset the other. The analyst should determine why the company seems to be “rolling over” its debt.

- Overall, the company’s operating cash flows seem strong. Those flows are being used for capital expenditures and to increase the company’s cash balance (4.9% of sales in 2000). In addition, cash shortfalls are being supplemented with additional borrowing.
### J.C. PENNEY COMPANY, INC. AND SUBSIDIARIES
Consolidated Statement of Income
(as a % of total revenue)

<table>
<thead>
<tr>
<th>For the Year</th>
<th>1999</th>
<th>1998</th>
<th>1997</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail sales, net</td>
<td>96.6%</td>
<td>96.6%</td>
<td>96.9%</td>
</tr>
<tr>
<td>Direct marketing revenue</td>
<td>3.4</td>
<td>3.4</td>
<td>3.1</td>
</tr>
<tr>
<td>Total revenue</td>
<td>100.0%</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Costs and expenses</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>71.9%</td>
<td>71.0%</td>
<td>70.0%</td>
</tr>
<tr>
<td>Selling, general and administrative expenses</td>
<td>22.0</td>
<td>21.7</td>
<td>21.6</td>
</tr>
<tr>
<td>Costs and expenses of Direct Marketing</td>
<td>2.7</td>
<td>2.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Real estate and other</td>
<td>(0.1)</td>
<td>(0.1)</td>
<td>(0.1)</td>
</tr>
<tr>
<td>Interest expense, net</td>
<td>0.9</td>
<td>1.3</td>
<td>1.5</td>
</tr>
<tr>
<td>Amortization of intangible assets</td>
<td>0.4</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Other charges, net</td>
<td>0.5</td>
<td>(0.1)</td>
<td>1.2</td>
</tr>
<tr>
<td>Total costs and expenses</td>
<td>98.4%</td>
<td>96.9%</td>
<td>97.0%</td>
</tr>
<tr>
<td>Income before income taxes</td>
<td>1.6%</td>
<td>3.1%</td>
<td>3.0%</td>
</tr>
<tr>
<td>Income taxes</td>
<td>0.6</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Net income</td>
<td>1.0%</td>
<td>2.0%</td>
<td>1.9%</td>
</tr>
</tbody>
</table>
**Requirement 2:**
- Retail sales consistently represent about 97% of total revenues.

- Cost of goods sold has increased from 70% to almost 72% over these three years. This means that the gross profit rate has been falling and now stands at about 28% of sales.

- Selling, general, and administrative expenses run about 22% of sales. This percentage has increased slightly over the past few years, suggesting that management may need to focus on cost reductions in these areas.

- Interest is not a major expense item for the company. It was only .9% in 1999, down from 1.5% in 1997. This may indicate that Penney’s retail store leases are structured as operating leases rather than as capital leases. As discussed more fully in a later chapter, capital leases result in the recognition of interest expense but operating leases do not.

- The net profit margin for 1999 is half of the amount for 1998 and 1997. Only one cent of every sales dollar remained after all expenses. Two reasons for this decline have already been mentioned: increased cost of goods sold, and increase SG&A expenses.

- On balance, the common-size analysis suggests a mature and profitable company whose income statement items are stable proportion of sales.

Note: it would be instructive to compare the common-size income statement of J.C. Penney with other companies in the industry. This would more clearly identify Penney’s strengths and weaknesses relative to competitors.
### J.C. PENNEY COMPANY, INC. AND SUBSIDIARIES

#### Trend Statements

For the Year 1999 1998 1997

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Retail sales, net</td>
<td>106.5</td>
<td>99.9</td>
<td>100</td>
</tr>
<tr>
<td>Direct marketing revenue</td>
<td>120.6</td>
<td>110.1</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total revenue</strong></td>
<td><strong>106.9</strong></td>
<td><strong>100.2</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Costs and expenses</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of goods sold</td>
<td>109.8</td>
<td>101.6</td>
<td>100</td>
</tr>
<tr>
<td>Selling, general and administrative expenses</td>
<td>109.1</td>
<td>100.9</td>
<td>100</td>
</tr>
<tr>
<td>Costs and expenses of Direct Marketing</td>
<td>122.6</td>
<td>110.4</td>
<td>100</td>
</tr>
<tr>
<td>Real estate and other</td>
<td>71.8</td>
<td>66.7</td>
<td>100</td>
</tr>
<tr>
<td>Net interest expense and credit operations</td>
<td>65.4</td>
<td>85.6</td>
<td>100</td>
</tr>
<tr>
<td>Amortization of intangible assets</td>
<td>110.3</td>
<td>96.6</td>
<td>100</td>
</tr>
<tr>
<td>Other charges, net</td>
<td>44.6</td>
<td>(5.8)</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total costs and expenses</strong></td>
<td><strong>108.5</strong></td>
<td><strong>100.1</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

| Income before income taxes           | 57.4  | 103.2 | 100  |
| Income taxes                         | 54.3  | 100.6 | 100  |

| **Net income**                       | **59.4** | **104.9** | **100** |
Requirement 4:
- Revenue growth is quite modest. Retail sales grew by only 6.5% over the period, an average annual increase of about 3.25%.

- Revenue from direct marketing revenue is increasing at a pace better than 10% each year. However, the direct marketing costs are also increasing at this same rate or slightly faster.

- Cost of goods sold have increased at a higher rate than sales.

- Income before income taxes decreased by 42.6% over the 1997-1999 period, an average annual decrease of around 20%.

- Collectively these revenue and expense trends resulted in a 60.6% decrease in net income between 1997-1999.

- On balance, the trend analysis is consistent with the results of the common-size statements and indicates that J.C. Penney is a mature company.

Requirement 5:
The common-size and trend statements can reveal important changes in a company’s revenues and expenses. Both statements allow the analyst to look at the same underlying data through two different lenses. The two approaches should be viewed as complements rather than as substitutes for one another.
### Requirement 1:

**J.C. Penney Company, Inc. and Subsidiaries**  
**2000 Projected Income Statement**

($ in millions)

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
</tr>
<tr>
<td>Retail sales, net</td>
<td>$32,396</td>
</tr>
<tr>
<td>Direct marketing revenue</td>
<td>1,231</td>
</tr>
<tr>
<td>Total revenue</td>
<td>$33,627</td>
</tr>
<tr>
<td><strong>Costs and expenses</strong></td>
<td></td>
</tr>
<tr>
<td>Cost of goods sold</td>
<td>23,429</td>
</tr>
<tr>
<td>Selling, general and administrative expenses</td>
<td>8,380</td>
</tr>
<tr>
<td>Costs and expenses of Direct Marketing</td>
<td>948</td>
</tr>
<tr>
<td>Real estate and other</td>
<td>(31)</td>
</tr>
<tr>
<td>Net interest expense and credit operations</td>
<td>299</td>
</tr>
<tr>
<td>Amortization of intangible assets</td>
<td>129</td>
</tr>
<tr>
<td>Other charges, net</td>
<td>0</td>
</tr>
<tr>
<td>Total costs and expenses</td>
<td>33,154</td>
</tr>
<tr>
<td><strong>Income before income taxes</strong></td>
<td>473</td>
</tr>
<tr>
<td><strong>Income taxes</strong></td>
<td>180</td>
</tr>
<tr>
<td><strong>Net income</strong></td>
<td>$293</td>
</tr>
</tbody>
</table>
The forecasting steps are:

2000 Retail sales:
Growth rate 1997-99=(31,391/29,482)\(^{0.5}\) = 1.032
31,391 x 1.032 = 32,396

2000 Direct Marketing revenue:
1999 Direct Marketing revenue x 10% growth
1,119 x 1.10 = 1,231

2000 Cost of goods sold (CGS):
1999 gross profit = (32,510 - 23,374) / 32,510 = 28.1%
2000 gross profit = 28.1% + 2.0% increase = 30.1%
Implies that CGS = 1 - 30.1% or 69.9%
Therefore CGS = 33,518 x 69.9% or 23,429

2000 Selling, general and administrative expenses (SGA):
7,164 / 32,510 = 22.0%
22.0% + 3.0% increase = 25.0%
Therefore SGA = 33,518 x 25.0% or 8,380

2000 Costs and expenses of Direct Marketing:
Growth rate 1997-99 = \([(872/1,119) + (785/1,022) + (711/928)]/3 = .77
1,231 x 0.77 = 948

2000 Real estate and other:
(28 + 26 + 39)/3 = 31

2000 Income tax expense:
473 x 38% = 180

**Requirement 2:**
A comparison of the actual 1999 income statement with the projected 2000 income statement reveals that projected net earnings for 2000 of $32,396 is slightly more than the actual 1999 net earnings of $31,391. Penney's is not expected to have a much better year in 2000 compared to 1999.

The reason is that retail sales are predicted to increase only 3.2%. The expected two percentage point improvement in the gross profit rate is offset by increases in advertising expenditures. Selling, general, and administrative expenses increase from about 22% of total revenue in 1999 to about 25% in 2000 and hold down net earnings growth.
Requirement 3:
J.C. Penney’s did not meet the expected target for net income in 2000. The net sales, cost of goods sold, and selling, general, and administrative results were all similar to the figures calculated in the projection. The deviation came from the large non-operating expense ($141 million). The result was a net income 58 million higher in the projection compared to actual ($394 vs. $336).

C5-3. Iomega Corporation (CW): Attending an analysts meeting

Income Statement:

- Sales fell in 1999 and 1998. What factors have contributed to this sales decline? Are sales expected to decrease again in 2000? What do you plan to do about these problems?

- The gross profit margin has declined from 31.5% in 1997 to 24.2% in 1999. At the same time SG&A expenses have grown from 16% of sales in 1997 to about 19% in 1999. Why have cost of goods sold and SG&A expenses increased when sales have actually fallen?

- The company reported net losses in 1999 and 1998 after being profitable in 1997. Will the company be profitable in 2000?

- Explain the restructuring charges that occurred in 1999. Will further restructuring charges be made in the next several years?

- What inventory turnover ratio is ideal for the company? How has this target turnover ratio compared with actual results for recent periods?

- In what quarter of the year are most sales recorded?

Balance Sheet:

- Comment on the company’s short-term liquidity.

- Are there target levels for the current and quick ratios, and, if so, what are they?

- The ratio of accumulated depreciation to original cost of equipment seems rather high (62%). This indicates that existing buildings and equipment are getting old. Are any major capital replacements planned for the next several years?

- What is the “temporary investments” account shown under current assets? How have these monies been invested, and what has been the investment performance?
• The balance sheet shows a liability called “accrued warranty.” What are the company’s warranty policies?

• Why has the “accrued warranty” liability increased from $7,435 to $17,211 between 1998 and 1999 while sales declined?

• Does management expect to raise capital in the near future by issuing long-term notes or bonds? If so, when and how much?

• Does management expect to sell common stock in the near future? If so, when, why, and how much?

• Is the company in compliance with all debt covenants? Which accounting-based debt covenants are most stringent at this point in time?

Statement of Cash Flows:

• Does management believe that cash provided by operations will continue to meet the demands of investing and financing needs?

• Why doesn’t the company pay dividends or buy back stock?

Other Some students may develop questions that are beyond the scope of the financial statements. Possibilities include:

• Is Iomega a party to any pending lawsuits or major litigation?

• What new products is the company working on, and when might they be introduced?

• What are patent expiration dates on the company’s products?

• Please discuss expected future raw material costs, labor costs, and current plant utilization rates.

• What are your sales projections for current and new products?

• What product markets (e.g., home, educational, governmental, corporate, etc.) have the greatest potential for growth?

• What new worldwide markets are you planning to enter?

• Who are the company’s major competitors, and how do their products compare to yours?
C5-4. **Nike and Reebok:** Examine a management discussion and analysis

**Requirement 1:**
The annual reports for this case may be obtained from the SEC’s EDGAR site, through a related site [www.freeedgar.com](http://www.freeedgar.com), or in electronic form from the textbook support site [www.prenhall.com/phlip/revsine](http://www.prenhall.com/phlip/revsine).

**Requirement 2:**
Some positives for Nike are:

- In fiscal year 1999, net income increased 13% to $451.4 million, or $1.57 per diluted share. Net income included a net pre-tax restructuring charge of $45.1 million, $27.3 million after taxes, or $0.10 per dilute share.

- Excluding fiscal years 1999 and 1998 restructuring charges, fiscal 1999 net income remained constant with the prior year.

- Gross margins as percentage of revenues improved to 37.4%, compared to 36.5% in the prior year.

- Selling and administrative expenses dropped by nearly $200 million or 7.5%, and were 27.6% of revenues compared with 27.5% in the prior year.

- Revenues in Europe increased 8% (6% in constant dollars), driven by a 26% increase in apparel. Apparel sales in Europe surpassed the $1 billion mark for the first time.

- Worldwide orders for athletic footwear and apparel scheduled for delivery between June and November 1999 are approximately $4.2 billion, 4% higher than such orders in the comparable period of the prior year.

- Cash provided by operations reached nearly $1 billion, an increase of $443.5 million over the prior year, primarily due to increased net income and a significant reduction in working capital.

- The company’s financial position remains extremely strong at May 31, 1999. Shareholders' equity increased $73 million and remained at $3.3 billion.

- Dividends per share of common stock for fiscal 1999 rose $.02 over fiscal 1998 to $.48 per share. Dividend declaration in all four quarters has been consistent since February 1984. Based upon current projected earnings and cash flow requirements, the company anticipates continuing dividends and reviewing them at the November Board of Directors meeting.
Some negatives for Nike are:

- In fiscal 1999, revenues decreased for the first time in five years, dropping 8% to $8.78 billion.

- In the United States, revenues declined by 8%; Asia Pacific's revenues were reduced by over a third compared to last year.

- Three of the top five apparel categories experienced revenue decreases, including: Branded Athletic (down 20%), Accessories (down 30%), and Special Make-up product (down 12%).

Some positives for Reebok are:

- Ralph Lauren Footwear had a sales increase of 31.1% in 1999 to $96.0 million from $73.2 million in 1998.

- The Company's overall gross margin was 38.5% of sales for 1999, as compared to 36.8% for 1998, an increase of 170 basis points. The increase is primarily attributable to the strengthening of the Company’s initial pricing margins due to manufacturing and sourcing efficiencies and to lower markdowns, cancellations and returns for the Reebok Brand.

- Interest expense decreased in 1999 as compared to 1998 as a result of strong cash flow generation and debt repayments. Other expense was $8.6 million for the twelve months, a decline of $10.5 million from last year.

- During the 1999 fiscal year, cash and cash equivalents increased $101.7 million and net debt repayments were $107.3 million. Cash provided by operations during 1999 was $281.6 million, as compared to cash provided by operations of $151.8 million during 1998. The change in operating cash flows is attributable to improved inventory management practices and improved cash collections on receivables in the U.S.

- The company’s financial position remains strong. Working capital increased by $101.1 million, or 13.8% from the same period a year ago.

- Cash generated from operations, together with the company’s existing credit lines and other financing sources, is expected to adequately finance all of the company’s current and planned cash requirements.
Some negatives for Reebok are:

- Net sales for the year ended December 31, 1999 were $2,900 billion, a 10.1% decrease from the year ended December 31, 1998 sales of $3.225 billion. The Reebok Division's worldwide sales were $2.369 billion in 1999, a 12% decrease from sales of $2.691 billion in 1998.

- Selling, general, and administrative expenses for the year ended December 31, 1999 were $971.9 million, or 33.5% of sales, as compared to $1.043 billion, or 32.4% of sales for 1998. While the Company's overall spending declined $71.3 million during 1999 as compared to 1998, spending as a percentage of sales increased slightly.

**Requirement 3:**
Overall, the MD&A disclosures tend to complement rather than contradict the results of the earlier financial ratio analysis. In particular, the MD&A disclosures provide an in-depth narrative discussion of the various reasons that caused the observed changes in the numbers reported in the firms' financial statements. In addition, these disclosures contain information that is not and cannot be summarized numerically in the financial statements (e.g., current and expected future product demand, competition, and descriptions of new products).

**Requirement 4:**
Examples of items the analyst might have wanted the company to disclose: quantitative forecasts of future earnings; quantitative forecasts of future sales; quantitative estimates of trends in the expected future cost of input/raw materials; a discussion of the competitive advantages and disadvantages the firm faces with regard to competitors.

**Requirement 5:**
No solution provided because it depends on which MD&As are examined by students.

**C5-5. Sun Microsystems and Micron Electronics:** Comparative financial statement analysis

**Requirement 1:**
Analysis of common-size income statements for Micron Electronics reveals that:

- The company’s largest expense is its cost of sales, which represents about 81.2% of sales (i.e., the gross margin on sales has been about 18.8% over the past year).
• The next largest expense is selling, general, and administrative expenses which amounts to about 15.2% of sales.

• Micron spends very little on R&D. This is consistent with the fact that the company just assembles and sells personal computers, it does not design and develop personal computers.

• Micron’s net profit margin was above 4.5% in 1997, but fell to 2.5% by 1999. The reason for the decline is an increase in selling, general, and administrative expenses. The increase in these expenses as a percent of sales also explains why Micron’s operating profit as a percent of sales declined from 7% in 1997 to 3% in 1999.

Sun Microsystems common-size income statements show:

• Sun’s largest expense is also cost of sales, which represents about 48.2% of sales (i.e., the gross margin on sales has been about 51.8% over the past year).

• The next largest expense is selling, general, and administrative expenses which have been accounting for about 27% of sales.

• Sun spends significant amounts on R&D. These expenditures have overall increased as a percent of sales over the 1997–1999 period. The company has been spending upwards of 9.9% of sales on R&D. This is consistent with the fact that Sun puts considerable emphasis on developing new computer hardware and software technology. This investment seems to pay off in a premium selling price for Sun products—notice Sun has a gross profit margin (usually in excess of 50%) that is considerably above Micron’s margin.

• Sun’s net profit margin has been fluctuating slightly but remained steady over the 1997–1999 period. Sun has shown improvement in its selling, general and administrative expenses but this has been slightly offset by an increase in the cost of sales.

Analysis of the common-size balance sheets for Micron Electronics shows that:

• The majority of Micron’s assets are current assets (about 74.2% of the total). Further, in 1999 and 1998, 48.3% and 65.9% of the firm’s assets were either cash or accounts receivable (i.e., highly liquid assets). It is unclear why Micron has retained such a large cash balance (more than 25% of assets in most years).
• On the liability side, Micron has virtually no long-term debt (less than 3.8% of total assets in 1999 and 3.7% in 1998).

• Micron’s largest liability is its accounts payable, about 30% of total assets in 1999. Given the firm’s liquidity (noted above), this should not be a problem for the firm.

• The firm’s shareholders’ equity constitutes about 48.2% of total assets, and the majority is in the form of retained earnings.

• On balance, the common-size analysis of Micron’s balance sheets indicates that the firm is in reasonably good financial health.

Sun Microsystems’ common-size balance sheets show that:

• Like Micron, the majority of Sun’s assets are current assets (about 72.6% of the total). A substantial portion of these assets are in the form of cash and accounts receivable (40.1% in 1999 and 46.7% in 1998).

• Sun’s investment in property, plant, and equipment (net) as a percent of total assets is about 19.1%, which is comparable to Micron’s 21.8% prior to 1996.

• Like Micron, Sun has virtually no long-term debt (less than 4.5% of total assets in 1999).

• Sun’s current liabilities constitute about 38.4% of total assets, which is not alarming, given that most of its assets are highly liquid assets like cash, accounts receivable, and inventory. Given that Sun’s inventories and receivables are large current assets, it would be important for the analyst to continually monitor how quickly Sun is able to convert inventory into cash.

• The firm’s shareholders’ equity constitutes about 57.1% of total assets and about 49% of that is in retained earnings.

• On balance, the common-size analysis of Sun’s balance sheets indicates that the firm is in reasonably good financial health.

Comparison of Micron and Sun:

• In all three years Sun has had a higher profit margin than Micron. While Sun's profit margin has fluctuated slightly, Micron’s has been on a downward trend.
Related to the previous point, Sun has a much higher gross profit rate when compared to Micron, and Sun spends more on selling, general, and administrative expenses as a percent of sales when compared to Micron.

Refer to balance sheet comments for Sun Microsystems.

Trend analysis of Micron Electronics' income statements:

- Micron has experienced a decline over the 1997 to 1998 period. There have been significant decreases in both gross profit and in net income.
- When 1999 is factored in, Micron's decline is even more apparent. From 1998 to 1999, sales decreased to 73.5% and net income to only 41.9% of base year 1997.

Trend analysis of Sun Microsystems' income statements:

- While Micron's sales declined, Sun experienced some growth over the 1997 to 1999 period. For example, from 1997 to 1998, sales increased by about 13.9%, while net income increased by .1%.
- When 1996 is factored in, Sun's growth is even better than the growth from 1997 to 1998. For example, sales increased by 36.4% and net income by 35.3% from 1997 to 1999.

Comparison of Micron and Sun:

Micron lost sales while Sun was able to maintain growth over the 1997 to 1999 period. However, analysts need to determine how long Sun can sustain its sales growth. Analysts must also concern themselves with the reasons for Micron's decline in sales. Finally, some of the differences between these two companies are due to the fact that they operate in distinctly different segments of the technology sector—that is, they do very different things. It would be helpful to use as benchmark companies in the analysis, two firms that more closely fit the businesses of Sun and Micron. That approach would help the analyst identify industry trends.

Trend analysis of Micron Electronics' balance sheets:

- Micron's marketable securities holdings tripled in 1998, and for the full 1997-1998 period increased more than 13-fold.
- Notable changes in Micron's balance sheet assets are that receivables have declined by almost 32%. Micron has also cut inventories to a mere 15.2% of 1997 levels. It is also useful to note that property, plant and equipment have declined by 16.5% while other assets have risen by 700%.
A notable change on the liability side of Micron’s balance sheet is that total current liabilities decreased by about 30% from 1997 to 1999. This decrease is consistent with the decrease in inventories. Another decrease is seen in notes payable, which has declined to 37.6%. This indicates that the company is relying on less financing for its assets.

For 1997 to 1999, stockholders' equity has gradually risen from 14% in 1998 to 25% in 1999. Retained earnings have been the main source of the increase in stockholders' equity.

Trend analysis of Sun Microsystems’ balance sheets:

From 1997 to 1999, Sun’s total assets increased by about 79% while Micron actual had a decrease of 3.4%.

Notable changes on the asset side of Sun’s balance sheet are that cash increased by 65% and short-term investments increased by more than 248%. Other changes include that Sun’s accounts receivable increased by about 37% which is in line with the firm’s sales increase from 1997 to 1999, and that inventories decreased by about 30%.

A notable change on the liability side of Sun’s balance sheet is that total current liabilities increased by about 74% which is less than the 64% growth in current assets. This suggests a slight decline in the firm’s short-term liquidity position from the end of 1997 to the end of 1999. Long-term debt grew by 259%.

With regard to Sun’s shareholders’ equity, the overall increases of 28% by 1998 and 79% by 1999 are due primarily to the increase in retained earnings and to an issuance of stock.

Requirement 2:
Questions an equity research analyst might ask of management include:

Are there any pending lawsuits or other major litigation facing the firm?

What new products are under development, and when might they be brought to market?

What are the recent trends in the prices of the company’s raw material and component parts?

Is the company operating at capacity (i.e., what are the plant utilization rates)?
• Please comment on the expected future demand for various computer products in general, and Micron’s products specifically.

• What is the company’s market share in each major market segment (e.g., home, educational, governmental, corporate, etc.)?

• Is the company trying to penetrate worldwide markets (e.g., European markets or China)? If not, why not?

• What is management’s forecast of earnings and/or sales for the next quarter or year?

• Who are the company’s major competitors, and how does management plan to compete with these firms?

C5-6. Sun Microsystems vs. Micron Electronics: Management’s discussion and analysis

Requirement 1:
The annual reports for this case may be obtained from the SEC’s EDGAR site, through a related site www.freeedgar.com, or in electronic form from the textbook support site www.prenhall.com/philip/revsine.

Requirement 2:
Some positives for Sun are:

• Net revenue increased $1,488 million, or 17.3%, to $10,091 million in fiscal 1999.

• In fiscal 1999 and fiscal 1998 domestic net revenues grew by 19% and 16%, respectively, while international net revenues (including United States exports) grew 21% and 12%, respectively.

• Services gross margin was 40.4% for fiscal 1999, compared with 39.3% and 37.7% for fiscal 1998 and 1997, respectively. The increase in 1999 reflects increased market penetration, an overall shift towards premium priced service and support contracts, and increased economies of scale.

• Research and development (R&D) expenses increased by $249 million, or 24.5%, in fiscal 1999 to $1,263 million, compared with an increase of $188 million, or 22.8%, in fiscal 1998.

• R&D spending continued at a substantial level throughout the three-year period ended June 30, 1999, as the company invested in specific projects in support of new software and hardware products. Much of the increase in
R&D expenses for 1999 reflects increased compensation expense associated with increased staffing.

- Sun’s cash portfolio (cash, cash equivalents, and short-term investments) was $2,034 million at June 30, 1999.

- During fiscal 1999, operating activities generated $2,517 million cash, compared with $1,527 million in fiscal 1998.

- The company believes that the liquidity provided by existing cash and short-term investment balances and available borrowing will be sufficient to meet the company’s capital requirements for fiscal 1999.

- New technologies were introduced in fiscal 1999.

Some negatives for Sun are:

- Because Sun operates in a highly competitive industry characterized by increasingly aggressive pricing, systems repricing actions may be initiated in the future, which would result in downward pressure on gross margin.

- Sun operates in an industry characterized by increasing competition, rapidly changing technology, and increasingly aggressive pricing. As a result, the company’s future operating results will depend to a considerable extent on its ability to rapidly and continuously develop, introduce, and deliver in quantity new systems, software, and service products, as well as new microprocessor technologies, that offer its customers enhanced performance at competitive prices.

- Competition in the firm’s markets will continue to intensify as Sun and its competitors, principally Hewlett-Packard, International Business Machines, Digital Equipment Corporation, and Silicon Graphics, aggressively position themselves to benefit from changing customer buying patterns and demand.

- The timing of introductions of new desktop and server products by Sun’s competitors may negatively impact the future operating results of the company, particularly when occurring in periods leading up to the company’s introductions of its own new or enhanced products.

- The company’s operating results will also be affected by the volume, mix, and timing of orders received during a period and by conditions in the computer industry and in the general economy, such as recessionary periods, political instability, changes in trade policies, and fluctuations in interest or currency exchange rates.
Some positives for Micron are:

- Net income for 1999 was $36.5 million on net sales of $1,437.8 million, compared to a net loss for 1998 of $46.5 million on net sales of $1,591.7 million.

- Gross margins for PC Systems were 15.3% in 1999 compared to 12.2% in 1998 primarily due to better inventory management and improved sales mix.

- Micron believes that the liquidity provided by existing cash and short-term investments, and borrowing arrangements will provide sufficient capital to meet their needs through fiscal 2000.

Some negatives for Micron are:

- The company has recently made several acquisitions. Through these acquisitions several risks could develop, including the risk associated with co-managing operations, personnel, and technologies as well as the potential for unknown liabilities.

- Product gross margin for fiscal 1999 was 53.7% compared with 53.8% for fiscal 1998. Fiscal year 1999 product gross margin was relatively flat in relation to 1998. Product gross margin was adversely impacted by increased volumes of low-end desktop systems and certain workgroup servers, as well as increased manufacturing costs.

- Competition in the PC industry is based primarily upon performance, price, quality, service, and support. The PC industry is highly competitive and has been characterized by intense pricing pressure, rapid technological advances in hardware and software, frequent introduction of new products and low gross margin percentages and declining product prices. The company must, therefore, introduce many new products each year and continue to price its products competitively. Failure by the company to make specific product transitions or to accurately forecast its market demand for product mix may adversely affect the company’s results of operations.

**Requirement 3:**
On balance, the MD&A section of the annual reports tends to complement rather than contradict the results of the financial ratio analysis. Moreover, the MD&A discusses the underlying causal factors that gave rise to the observed changes in the numbers reported by the firms in their financial statements. Furthermore, the MD&A disclose information that is not available in the financial statements (e.g., current and expected future product demand, competition, and descriptions of new products).
Requirement 4:
Additional information about the following would aid the analyst: quantitative forecasts of future earnings and sales; quantitative estimates of trends in the future cost of raw materials and components; a discussion of the company’s competitive advantage and disadvantage in markets and by customer segment.

In May of 2001, Micron Electronic decided to sell its core PC business and refocus its business on web hosting. This decision came after a sharp contraction in PC sales at the company, reported losses, and serious operating cash flow shortfalls. Apparently, Micron was not able to successfully weather an increasingly competitive industry environment.

C5-7. Argenti Corporation: Evaluating credit risk

Requirement 1:
Why did the company need to increase its note payable borrowing during the year? An analysis of cash flows provides the answer.

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating cash flows for 2000</td>
<td>($356) million</td>
</tr>
<tr>
<td>Long-term debt repayment</td>
<td>($336) million</td>
</tr>
<tr>
<td>Other various cash uses</td>
<td>($176) million</td>
</tr>
<tr>
<td>Expansion of note payable</td>
<td>$868 million</td>
</tr>
</tbody>
</table>

The company’s operating cash flows are described in the case exhibit. The long-term debt repayment is the account balance decrease (from $423 million to $87 million).

Property, plant, and equipment, and investments declined during 2000, which suggests that these items provided cash rather than consumed it. There does not appear to have been a net expansion in the company’s size during the year. Other assets increased $271 million, but much of this increase is likely to be deferred tax-related. Other liabilities decreased $73 million, and there was a net purchase of $17 million in stock plus $9 million in dividends.

Thus, two factors seem responsible for the increased short-term borrowing: repayment of the company’s existing long-term debt and the negative cash flow from operations. The company’s operating cash flow problems are particularly troublesome because a “mature and established” business should be generating solid earnings and strong operating cash flows.

There are several aspects of the financial statements that point to a company in its decline: falling sales, declining earnings and recent losses, and negative operating cash flows coupled with the absence of any plant expansion.
Requirement 2:
What recommendation would you make regarding the company’s request for a $1.5 billion refinancing package?

By almost any measure, Argenti’s credit risk has increased substantially since 1998: sales have declined, losses are being recorded, operating cash flows are negative, and the company has already violated its existing loan covenants. In addition, the company recorded a $141 million loss for the first quarter of 2001, and this suggests even greater erosion of profits and operating cash flows are likely this coming year.

Under normal circumstances, this would not be the time for a lender to expand its credit position with the company from $165 million to $1.5 billion. Such a high concentration of credit risk with a single borrower would probably not be considered prudent.

But circumstances are not normal since GE Capital is also Argenti’s largest stockholder. In this case, it may be advisable to keep the company afloat by providing the refinancing package, thereby protecting GE Capital’s equity investment.

What happened?

This case is drawn from the experience of Montgomery Ward & Company, which was taken private in a $3.8 billion leveraged buyout by GE Capital and the then CEO, Bernard Brennan, in 1988. Shortly after releasing its first-quarter results for 1997, Wards filed for Chapter 11 bankruptcy because lenders failed to agree on a rescue plan. At the time, Wards was the nation’s ninth-largest department-store chain and employed 60,000 people. A copy of an article appearing in the Chicago Tribune follows:

Wards Files Chapter 11 Bankruptcy—Some Closings, Cuts Expected

Montgomery Ward & Company, the venerable but struggling Chicago retailer, filed for Chapter 11 bankruptcy protection late Monday after lenders failed to agree on a rescue plan. The move is sure to mean significant store closings and layoffs at the nation’s ninth-largest department-store chain, which employs 60,000 people, consultants said.

The 400-store, $6.6 billion chain had been desperately negotiating with lenders to delay a $1.4 billion payment due in August and to secure fresh cash to pay suppliers, but talks fell apart late in the day, Wards said. Wards’ petition, filed in Delaware, is the largest retail Chapter 11 bankruptcy since the 1990 filing by Federated and Allied Department Stores. “This is no surprise at all,” said George Whalin, president of Retail Management Consultants in San Marcos, California. “They owe everybody money, and no one is shipping them merchandise.”
The filing comes nine years after the dowdy chain known for its polyester pants and cheap mattresses was taken private in a $3.8 billion leveraged buyout by GE Capital Corp. and then-Wards chief executive officer Bernard Brennan.

Bankruptcy protection is “the best way for the company to conclude a quick and effective restructuring,” said Edward Stewart, executive vice president of GE Capital, which is Wards’ largest shareholder, with a 50% stake.

Wards’ stores around the country will be open as usual Tuesday. And shipments of everything from back-to-school apparel to appliances should resume because Wards has lined up $1 billion in so-called debtor-in-possession financing from GE. Many of Wards’ anxious suppliers stopped shipping merchandise two weeks ago, raising the prospect that Wards would enter the important back-to-school selling season with empty shelves.

Some of the biggest losers, besides Brennan and GE Capital, include Wards’ managers, who own 20% of the privately held company. Under bankruptcy reorganization, shareholders’ equity is wiped out before creditors’ claims are paid.

Monday’s drastic action was taken by Wards CEO Roger Goddu, the former Toys ’R Us executive brought in by GE Capital last January to lead Wards. Goddu had hoped to avoid a bankruptcy filing by selling Wards’ highly profitable Signature Group direct-marketing unit and using the $800 million-plus proceeds to satisfy bank and insurance lenders. But the sale was held up when some insurance companies refused to budge on the debt-restructuring plan. Signature, which peddles everything from dental insurance to car-towing services to Wards’ database of credit-card customers, isn’t included in the bankruptcy filing, Wards said.

The retailer said it is close to selling Signature to HFS Inc., the Parsippany, N.J.-based hotel and real estate brokerage company, but cautioned that a deal requires quick approval of Wards’ reorganization plan.

Getting some financial breathing room is key to Goddu’s plan to turn around Wards’ disheveled retail operation. To slow the financial bleeding, Goddu fired 400 corporate staffers—20% of the headquarters work force—last month. Goddu last week announced plans to upgrade apparel offerings to attract slightly older female customers with household incomes of $25,000-$50,000. But that strategy will have to be put on hold, consultants say, because companies with strong brands such as Nike and Levi won’t sell to a company under bankruptcy protection.

Wards’ recent decline has been swift and comes despite a healthy economic environment. After earning $109 million in 1994, it lost $9 million in 1995 and $237 million in 1996 on $6.6 billion in revenue as shoppers rejected its
offerings of consumer electronics, cheap apparel, and gold jewelry. The retailer has estimated it will lose another $250 million in the first half of 1997.

This isn’t the first crisis Wards has faced since it was founded in 1872 by Aaron Montgomery Ward, a retail innovator who stopped selling goods out of his buggy in favor of marketing them through mail-order catalogs. But as would happen repeatedly in Wards’ long history, competitors quickly followed suit, creating their own catalogs. By 1985, when Wards was an underperforming unit of Mobil Corp., it was forced to close its catalog, then the nation’s third largest, laying off 5,000 people, including 1,000 in Chicago.

Ward’s fortunes began looking up in 1988, when veteran retail executive and Wards’ CEO Brennan persuaded GE Capital to finance the leveraged buyout of the lackluster chain. The plan was to spiff up Wards' offerings and take the company public again in five years. Brennan, who paid only $3 million for a 30% stake in Wards, moved quickly to turn its stores into a collection of retail boutiques. His Electric Avenue department for consumer electronics soon was doing bangup business. By 1993, Wards had paid down much of its original debt, and sales had grown to $6 billion from $4.8 billion in 1988.

But as consumer electronics played a bigger role in Wards’ sales, profit margins began to shrink. New competitors, led by Best Buy and Circuit City Stores, entered the field, slashing prices and stealing Wards’ customers.

Meanwhile, Wards was never able to devise a successful strategy to sell apparel, where profit margins are fatter. Top-level executives brought in by Brennan to upgrade apparel offerings in the 1990s were fired when improvements were slow to arrive. Finally, Brennan, already known for micromanaging, tried to run the apparel business himself with disastrous results.

GE Capital, which received ownership of Wards’ highly profitable credit-card operation in the buyout in addition to 50% of the equity, ran out of patience with Brennan last fall, forcing him to step down and move out of the retailer’s Near North Side headquarters on Chicago Avenue.

But Wards’ problems were bigger than one man. Its niche as a value-oriented department store was being squeezed by fast-growing discounter, such as Wal-Mart and Target Stores at one end and a revitalized Sears, Roebuck and Co. and J.C. Penney at the other. “It’s been a long time since anyone had an idea who Montgomery Ward was,” said Whalin, the consultant. “The strategy hasn’t worked for three years, and that’s way too long.”

Susan Chandler, Tribune Staff Writer
Chicago Tribune July 8, 1997.
Requirement 1:
- March: 573.9/293.6 = 95% year to year
- December: 676.0/252.9 = 167% year to year

December 1999 sales growth outpaced March 2000 sales growth. Amazon is a retailer and sales for retailers are cyclical with the holiday shopping season (December quarter) usually the strongest.

Requirement 2:
- March 00: 146.3/573.9 = 25.5%
- December 99: 5.5/676.0 = .8%
- September 99: (61.9)/355.8 = (17.4)%
- June 99: 67.6/314.4 = 21.5%
- March 99: 70.0/293.6 = 23.8%
- December 98: 53.4/252.9 = 21.1%

Overall, Amazon’s gross profit margin has been volatile over this time period, ranging from 25.5% down to (17.4)%.

Requirement 3:
Selling, general, and administrative expenses are growing at a faster rate than gross profit. It seems that Amazon has not been managing these expenses since they are contributing to the large negative operating losses.

Requirement 4:
All of Amazon’s sales are done with customers using their credit cards. The credit card companies then pay Amazon immediately.

Requirement 5:
- March 00: 427.6/172.3 = 2.48
- December 99: 670.5/220.6 = 3.04
- September 99: 417.7/118.8 = 3.52
- June 99: 246.8/59.4 = 4.15
- March 99: 223.6/45.2 = 4.95
- December 98: 199.5/29.5 = 6.76

Inventory turnover has been improving which should mean that Amazon’s operations have become more efficient. However, this efficiency gain seems to be coming at the price of higher SG&A expenses. We need to talk with management about how they are achieving inventory turnover improvement, and what price they are paying for this improvement.
Requirement 6:
1,008.8/(320.5) = 9.442 months. Not a good sign for the company. Unless operating cash flows turn positive, or other sources of cash are found (new debt or stock issues) the company will run out of money in only 10 months.

As of May 2001, Amazon continues to operate as a e-commerce business, although many analysts continue to question the company’s long-term viability. The company’s stock price reflects this concern, having fallen 60% since January 2000. Here is a graph of the Amazon’s stock price.

Requirement 7:
Analysts are interested in cash burn rates because it is an indication of how long the company will be able to operate on the amount of cash present before needing to issue stock, debt, or be bought out to gain cash to meet their needs.