E5-4 **Assessing receivable and inventory turnover**  
(AICPA adapted)

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

where average trade receivables = \( \frac{\$475,000 + \$450,000}{2} \) = \$462,500

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

where average inventory = \( \frac{\$600,000 + \$550,000}{2} \) = \$575,000

E5-5 **Analyzing 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 the quick ratio takes only the most liquid assets (cash, marketable securities, and receivables) into account.

E5-6 **Analyzing effects on 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 (= $90,000/$210,000).

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.

**P5-1 Comparing profitability**

**Requirement 1:**
Calculating a three-year average of the annual sales growth rates for each company are: 7-Eleven = 7.0%; Publix = 6.9%; Albertson’s = -1.6%. For example, here is the calculation for 7-Eleven.

<table>
<thead>
<tr>
<th>7-Eleven Sales Growth Rates</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>$8,251,700</td>
<td>$9,178,711</td>
<td>$9,622,301</td>
<td>$10,109,744</td>
</tr>
<tr>
<td>Annual sales growth rate</td>
<td>11.2%</td>
<td>4.8%</td>
<td>5.1%</td>
<td></td>
</tr>
<tr>
<td>Average sales growth rate</td>
<td></td>
<td></td>
<td></td>
<td>7.0%</td>
</tr>
</tbody>
</table>

On this basis, 7-Eleven has experienced slightly stronger sales growth than Publix. Sales at Albertson’s have declined over the period. (Note: some students may have reached the same conclusion using “compound annual growth rates”.)

**Requirement 2:**
ROA at 7-Eleven declined from 5.5% in Year 1 to 3.1% in Year 4. ROA at the other two companies increased over the same time period—from 11.9% to 13.8% at Publix and from 3.9% to 7.0% at Albertson’s.

Albertson’s has experienced the greatest improvement in profitability over the years in question.

**Requirement 3:**
In Year 4, Publix was the most profitable of the three companies as measured by ROA. Publix achieved its superior profitability through a combination of higher operating profit margin (4.0% compared to 0.9% at 7-Eleven and 3.1% at
Albertson’s) and higher asset turnover (3.46 compared to 3.39 at 7-Eleven and 2.28 at Albertson’s). This combination of higher margin and higher turnover enabled Publix to achieve its superior performance.

Notes to the instructor:
1) All three companies use LIFO for substantially all of their inventories thus easing comparisons among them.

2) Unlike Publix and 7-Eleven, Albertson’s experienced a sales decline over the past several years. The company has, however, managed to improve operating profit margins as a result of a vigorous cost cutting campaign. Albertson’s ROA performance would increase substantially if the company could improve its asset turnover ratio—i.e., generate more sales dollars from each asset dollar.

3) Albertson’s has the highest dollar level of profit in Year 4 because it has substantially higher sales revenue than do 7-Eleven and Publix.

**P5-2 Assessing short-term liquidity**

**Requirement 1:**
Spiegel appears to have short-term liquidity problems. Its cash cycle is relatively long, the company is slow to pay its suppliers, and its current ratio is dangerously low.

**Requirement 2:**
Spiegel has the most mismatched cash flow. The company pays its suppliers almost 82 days before it receives cash from product sales, thus it must rely on other cash sources to meet its working capital requirements.

**Requirement 3:**
GAP and J. Crew have no receivables because they do not extend credit to their customers. Instead, they accept bank credit cards (e.g., VISA, MasterCard) from customers desiring to make credit purchases.

Note to the instructor: The Spiegel data in this problem is taken from the company’s 2001 annual report. Spiegel filed for
bankruptcy protection in early 2003, in part because of its ailing credit card business. Fiscal 2002 data is presented for the GAP and J. Crew.

P5-3 Analyzing credit risk analysis and long-term solvency

Requirement 1:
The answer to this question depends upon the analytical tool used to assess interest payment risk. If the analyst uses the traditional interest coverage ratio to determine whether AK Steel is generating sufficient income flows to meet its interest obligation, the answer would be “yes” in 2008 and 2009, but “no” in 2010 and 2011. The situation looks particularly bleak in 2011 because the coverage ratio that year is –5.44. However, if the analyst uses the cash flow coverage ratio, where the numerator represents operating cash flows before interest and tax payments are factored in, the company appears to be comfortably able to make its interest payments in all four years.

The two measures paint a very different picture of AK Steel’s interest payment risk. Which is the preferred analytical tool? The cash flow coverage ratio because it best captures the company’s ability to generate cash from operations sufficient to cover interest payments. Why do the two measures yield such different results in this case? AK Steel must have recorded some large non-cash expenses in 2010 and 2011. Such non-cash charges will reduce the interest coverage ratio but leave the cash flow coverage ratio unchanged.

Requirement 2:
Based on AK Steel’s long-term debt to assets ratio, the company finances approximately 25% of its assets with long-term debt. This ratio has declined slightly over the past several years.

Requirement 3:
AK Steel does not have significant amounts of intangible assets given that the long-term debt to assets ratio each year is nearly equal to the long-term debt to tangible assets ratio. Because the numerators in both ratios are the same, the
ratios can only be approximately the same if the denominators (total assets and tangible assets) are approximately the same.

P5-4 Decomposing return on common shareholders’ equity

ROCE measures a company’s performance in using capital provided by common shareholders to generate earnings. ROCE increased from 24% in 2007 to 26% in 2008, but then declined to 22% in 2009.

Breaking ROCE into components aids in its interpretation. ROA measures the profitability of operations before considering how Best Buy financed its assets. Best Buy’s ROA was 11% in both 2007 and 2008, but fell to 7% in 2009. Notice that ROA performance was flat during 2007-2008, a period when ROCE increased. Notice also that ROA fell in 2009 and so did ROCE.

The common earnings leverage ratio shows the proportion of earnings that belongs to common stockholders. Best Buy’s ratio—which increased slightly—indicates that it pays little interest or preferred stock dividends. The stability of this ratio over time means that it does not contribute to the company’s recent ROCE decline.

The financial structure leverage ratio measures the degree to which the company uses common stockholders’ capital to finance assets. Best Buy’s financial structure leverage ratio increased from 2.22 in 2007 to 3.13 in 2009, indicating that over half of its assets were creditor financed in 2007 and that this proportion is growing.

ROCE has deteriorated over the three years in question. The drop in 2009 can be traced to a decline in ROA that was partially offset by the increased use of financial leverage. Had Best Buy retained its 2007 financial structure leverage (2.22), ROCE in 2009 would have been only 15.5% (.07 X 1.00 X 2.22) rather than 22%.
Note to the instructor: Over the years in question, approximately half of Best Buy’s assets were financed by current liabilities.

P5-5 Interpreting accounts receivable turnover

Requirement 1:
Weyerhaeuser has a higher accounts receivable turnover ratio, indicating that it collects accounts receivable more quickly than does Georgia-Pacific. While both companies’ ratios have improved, Georgia-Pacific’s best turnover rate during the three years in question was lower than the worst year for Weyerhaeuser. Converting the turnover ratio to days accounts receivable outstanding yields the following:

<table>
<thead>
<tr>
<th>Days Accounts Receivable Outstanding</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Georgia Pacific</td>
<td>40.2</td>
<td>36.9</td>
<td>32.4</td>
</tr>
<tr>
<td>Weyerhaeuser</td>
<td>31.8</td>
<td>31.7</td>
<td>26.5</td>
</tr>
</tbody>
</table>

Requirement 2:
Georgia-Pacific’s accounts receivable turnover increased by 24.3% while Weyerhaeuser’s increased by 19.9% so Georgia-Pacific was the most effective at improving accounts receivable turnover. This can also be seen in the “days outstanding” table above, where Georgia-Pacific improved its days receivables outstanding by 7.8 days while the improvement at Weyerhaeuser was only 5.3 days.

Requirement 3:
Possible reasons for the different accounts receivable turnover at these two firms include:
- One may “factor”—meaning sell to a third-party financial institution—some (or a larger proportion) of its accounts receivable to make cash available more quickly;
- Weyerhaeuser may be more aggressive in its collection efforts;
• Credit terms may vary by product line; as can be seen from the table below, the two companies do not have the same sales mixes.

Year 4 Sales (% of total)

<table>
<thead>
<tr>
<th></th>
<th>Georgia-Pacific</th>
<th>Weyerhaeuser</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building products</td>
<td>35</td>
<td>41</td>
</tr>
<tr>
<td>Consumer products</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Paper distribution</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Pulp &amp; paper</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Containerboard, packaging &amp; recycling</td>
<td>10</td>
<td>23</td>
</tr>
<tr>
<td>Real estate &amp; related assets</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Timberlands</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>