

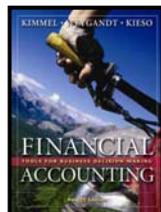
Financial Accounting:

Tools for Business Decision Making, 4th Edition

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CHAPTER 13

FINANCIAL ANALYSIS: The Big Picture



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Chapter 13

After studying Chapter 13, you should be able to:

- Understand the concept of “CONTINUING” operations and the importance of a multiple-step income statement presentation.
- Explain the concept of comprehensive income.
- Interpret financial statements, including the use of ratio analysis.

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KEEPIN' IT REAL:

A strong analytic includes first developing an expectation.

Also, can we use financial statements to prove/disprove some of the “economics” you are learning?

- How's the economy been doing?
 - What sort of effect do you suppose that may have on financial statements?
 - “Price elasticity” and “law of demand”... how about WalMart? Have a look: <http://sec.gov/cgi-bin/browse-edgar?company=&match=&CIK=wal&filenum=&State=&Country=&SIC=&owner=exclude&Find=Find+Companies&action=getcompany>
 - What economic principle is that?

“Giffen Goods”

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Sustainable Income... “CONTINUING OPERATIONS”

REMEMBER: FINANCIAL STATEMENTS TELL WHAT HAPPENED (PAST TENSE) TO USERS WHO WANT TO DEVELOP EXPECTATIONS ABOUT WHAT IS GOING TO HAPPEN. Thus a need for a **MULTIPLE STEP INCOME STATEMENT**, which:

- Segregates the continuing operations from two principle items which are NOT continuing::
 - Discontinued Operations and
 - Extraordinary Items

WHY DO POTENTIAL NEW INVESTORS AND CREDITORS CARE ABOUT WHAT ALREADY HAPPENED?

THE PAST IS A STRONG INDICATOR OF THE FUTURE.

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Components of the MULTIPLE STEP Income Statement

| | | |
|-----------------------------------|-----------------------|--|
| Revenue | X | |
| COGS | Y | |
| Gross Profit | $x-y=GP$ | Typical examples •SG&A •Depreciation exp •Rent •Etc. |
| Operating expenses | A | |
| Income before taxes | $GP-A=IBT$ | |
| Taxes | $Tax\ rate * IBT = T$ | |
| Inc. from continuing Op's | $ICO = IBT - T$ | |
| Discontinued op's (Net of Tax!) | D | |
| Extraordinary items (Net of Tax!) | E | |
| Net Income | $ICO + D + E$ | |

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Irregular Items

Two types of irregular items are reported -- (all net of taxes)

- discontinued operations
- extraordinary items

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Discontinued Operations...

Refers to the disposal of a significant segment of a business...

- the elimination of a major class of customers or
- an entire activity.

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Discontinued Operations

Rozek net income of \$800,000 from continuing operations in 2007.

During 2007 the company discontinued and sold its unprofitable chemical division. The loss in 2007 from chemical operations (net of \$90,000 taxes) was \$210,000. The tax rate is 30%.

| ROZEK INC. Income Statement (partial) For the Year Ended December 31, 2007 | |
|--|------------|
| Income before income taxes | \$ 800,000 |
| Income tax expense | 240,000 |
| Income before irregular items | 560,000 |
| Discontinued operations | |
| Loss from disposal of chemical division, net of \$90,000 income tax savings | (210,000) |
| Net income | \$ 350,000 |

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Extraordinary Items...

Are events and transactions that meet two conditions:

- Unusual in nature
- Infrequent in occurrence

HELP FROM BOB: (1) Has not happened before
(2) is not expected to happen again.



Extraordinary Items

- In 2007 a revolutionary foreign government expropriated property held as an investment by Rozek Inc.
- The loss is \$70,000 before applicable income taxes of \$21,000, the income statement presentation will show a deduction of \$49,000.

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Presentation of Extraordinary Items...

| ROZEK INC. Income Statement (partial) For the Year Ended December 31, 2007 | |
|--|-------------------|
| Income before income taxes | \$ 800,000 |
| Income tax expense | <u>240,000</u> |
| Income before irregular items | 560,000 |
| Discontinued operations: Loss from disposal of chemical division, net of \$90,000 income tax savings | (210,000) |
| Extraordinary item: Expropriation of investment, net of \$21,000 income tax savings | (49,000) |
| Net income | <u>\$ 301,000</u> |

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Extraordinary Items

| Extraordinary items | Ordinary items |
|---|---|
| 1. Effects of major natural casualties, if rare in the area.  | 1. Effects of major natural casualties, not uncommon in the area.  |
| 2. Expropriation (takeover) of property by a foreign government.  | 2. Write-down of inventories or write-off of receivables.  |
| 3. Effects of a newly enacted law or regulation, such as a condemnation action.  | 3. Losses attributable to labor strikes.  |
| | 4. Gains or losses from sales of property, plants, or equipment.  |

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Estimating Sustainable Income

When evaluating a company, it generally makes sense to **eliminate all irregular items** in estimating future sustainable income.

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Change in Accounting Principle

- I DON'T COVER, EVEN THOUGH IT IS IN YOUR TEXT.

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Comprehensive Income

- Most revenues, expenses, gains, and losses recognized during the period are included in **net income**.
- Specific exceptions to this practice have developed - these items bypass income and are reported directly in stockholders' equity as "**other comprehensive income**" (aka OCI).

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Comprehensive Income

- The FASB now requires that, in addition to reporting net income, a company must also report comprehensive income.

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Comprehensive Income

Includes all changes in stockholders' equity during a period except those resulting from investments by stockholders and distributions to stockholders.

EASIER TO UNDERSTAND:

Comprehensive income = Net Income + Other Comprehensive Income.

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Complete Income Statement

| PACE CORPORATION | |
|---|-----------|
| Income Statement and Statement of Comprehensive Income For the Year Ended December 31, 2007 | |
| Net sales | \$440,000 |
| Cost of goods sold | 260,000 |
| Gross profit | 180,000 |
| Operating expenses | 110,000 |
| Income from operations | 70,000 |
| Other revenues and gains | \$ 5,600 |
| Other expenses and losses | (9,600) |
| Income before income taxes | 66,000 |
| Income tax expense (\$66,000 × 30%) | 19,800 |
| Income before irregular items | 46,200 |
| Discontinued operations: Gain on disposal of Plastics Division, net of \$15,000 income taxes (\$50,000 × 30%) | 35,000 |
| Extraordinary item: Tornado loss, net of income tax savings \$18,000 (\$60,000 × 30%) | (42,000) |
| Net income | 39,200 |
| Add: Unrealized gain on available-for-sale securities | 10,000 |
| Comprehensive income | \$ 49,200 |

Other
Comprehensive
Income
(aka "OCI")

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Comparative Analysis

There are three types of comparisons to improve decision usefulness of financial information:

- **Intracompany basis:**
 - Compare a company to itself (usually over time)
- **Intercompany basis**
 - Compare a company to its competitors
- **Industry averages**
 - Compare a company to the average of the companies in its industry



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Financial Statement Analysis

Three basic tools are used in financial statement analysis :

1. **Horizontal analysis**
 - Comparison over time
 - Expressed as a % of a base year
2. **Vertical analysis**
 - Relational analysis within a statement
 - Expressed as a % of:
 - Assets if analyzing the balance sheet;
 - Revenues if analyzing the income statement;
3. **Ratio analysis**
 - Relational analysis among statements;
 - Allows comparing various sized entities to one another ("right sizing")



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Horizontal Analysis

$$\text{Change Since Base Period} = \frac{\text{Current-Year Amount} - \text{Base-Year Amount}}{\text{Base-Year Amount}}$$

$$\text{Current Results in Relation to Base Period} = \frac{\text{Current-Year Amount}}{\text{Base-Year Amount}}$$

KELLOGG COMPANY Net Sales (in millions) Base Period 1997

| 2004 | 2003 | 2002 | 2001 | 2000 |
|-----------|-----------|-----------|-----------|-----------|
| \$9,613.9 | \$8,811.5 | \$8,304.1 | \$7,548.4 | \$6,086.7 |
| 157.95% | 144.77% | 136.43% | 124.01% | 100% |

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Horizontal Analysis- Balance Sheet

| | KELLOGG COMPANY, INC. Condensed Balance Sheets December 31 (in millions) | | Increase (Decrease) during 2004 | |
|---|---|------------|------------------------------------|---------|
| | 2004 | 2003 | Amount | Percent |
| Assets | | | | |
| Current assets | \$ 2,121.8 | \$ 1,787.9 | \$333.9 | 18.7 |
| Property assets (net) | 2,715.1 | 2,780.2 | (65.1) | (2.3) |
| Other assets | 5,933.5 | 5,574.6 | 378.9 | 6.8 |
| Total assets | \$10,790.4 | \$10,142.7 | \$647.7 | 6.4 |
| Liabilities and Stockholders' Equity | | | | |
| Current liabilities | \$ 2,846.0 | \$ 2,766.0 | \$ 80.0 | 2.9 |
| Long-term liabilities | 5,687.2 | 5,933.5 | (246.3) | (4.2) |
| Total liabilities | 8,533.2 | 8,699.5 | (166.3) | (1.9) |
| Stockholders' equity | | | | |
| Common stock | 103.8 | 128.3 | (24.5) | (19.1) |
| Retained earnings | 2,261.4 | 1,518.5 | 742.9 | 48.9 |
| Treasury stock (cost) | (108.0) | (203.6) | (95.6) | 47.0 |
| Total stockholders' equity | 2,257.2 | 1,443.2 | 814.0 | 56.4 |
| Total liabilities and stockholders' equity | \$10,790.4 | \$10,142.7 | \$647.7 | 6.4 |

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Horizontal Analysis – Income Statement

| | KELLOGG COMPANY, INC. Condensed Income Statements For the Years Ended December 31 (in millions) | | Increase (Decrease) during 2004 | |
|-------------------------------------|--|-----------|------------------------------------|---------|
| | 2004 | 2003 | Amount | Percent |
| Net sales | \$9,613.9 | \$8,811.5 | \$802.4 | 9.1 |
| Cost of goods sold | 5,298.7 | 4,898.9 | 399.8 | 8.2 |
| Gross profit | 4,315.2 | 3,912.6 | 402.6 | 10.3 |
| Selling and administrative expenses | 2,634.1 | 2,368.5 | 265.6 | 11.2 |
| Income from operations | 1,681.1 | 1,544.1 | 137.0 | 8.9 |
| Interest expense | 308.6 | 371.4 | (62.8) | (16.9) |
| Other income (expense), net | (6.6) | (3.2) | 3.4 | 106.3 |
| Income before income taxes | 1,365.9 | 1,169.5 | 196.4 | 16.8 |
| Income tax expense | 475.3 | 382.4 | 92.9 | 24.3 |
| Net income | \$ 890.6 | \$ 787.1 | \$103.5 | 13.1 |

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Review

In horizontal analysis, each item is expressed as a percentage of the:

- net income amount.
- stockholders' equity amount.
- total assets amount.
- base-year amount.

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Review

In horizontal analysis, each item is expressed as a percentage of the:

- net income amount.
- stockholders' equity amount.
- total assets amount.
- base-year amount.

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Vertical Analysis - Balance Sheet

| | 2004 | | 2003 | |
|---|-------------------|--------------|-------------------|--------------|
| | Amount | Percent* | Amount | Percent* |
| Assets | | | | |
| Current assets | \$ 2,121.8 | 19.7 | \$ 1,787.9 | 17.6 |
| Property assets (net) | 2,715.1 | 25.1 | 2,750.2 | 27.4 |
| Other assets | 5,953.5 | 55.2 | 5,574.6 | 55.0 |
| Total assets | \$10,790.4 | 100.0 | \$10,142.7 | 100.0 |
| Liabilities and Stockholders' Equity | | | | |
| Current liabilities | \$ 2,846.0 | 26.4 | \$ 2,766.0 | 27.3 |
| Long-term liabilities | 5,687.2 | 52.7 | 5,933.5 | 58.5 |
| Total liabilities | 8,533.2 | 79.1 | 8,699.5 | 85.8 |
| Stockholders' equity | 103.8 | 1.0 | 128.3 | 1.2 |
| Common stock | 2,261.4 | 20.9 | 1,518.5 | 15.0 |
| Retained earnings | (108.0) | (1.0) | (203.6) | (2.0) |
| Treasury stock (cost) | 2,257.2 | 20.9 | 1,443.2 | 14.2 |
| Total stockholders' equity | \$10,790.4 | 100.0 | \$10,142.7 | 100.0 |
| Total liabilities and stockholders' equity | \$10,790.4 | 100.0 | \$10,142.7 | 100.0 |

*Numbers have been rounded to total 100%.

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Intercompany Comparison by Vertical Analysis

| | Kellogg Company, Inc. | | General Mills, Inc. | |
|--|-----------------------|------------|---------------------|------------|
| | Amount | Percent* | Amount | Percent* |
| Net sales | \$9,613.9 | 100.0 | \$11,070.0 | 100.0 |
| Cost of goods sold | 5,298.7 | 55.1 | 6,584.0 | 59.5 |
| Gross profit | 4,315.2 | 44.9 | 4,486.0 | 40.5 |
| Selling and administrative expenses | 2,634.1 | 27.4 | 2,443.0 | 22.1 |
| Nonrecurring charges | 0.0 | — | 26.0 | .2 |
| Income from operations | 1,681.1 | 17.5 | 2,017.0 | 18.2 |
| Other expenses and revenues (including income taxes) | 790.5 | 8.2 | 962.0 | 8.7 |
| Net income | \$ 890.6 | 9.3 | \$ 1,055.0 | 9.5 |

*Numbers have been rounded to total 100%.

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Review

In vertical analysis, the base amount for depreciation expense is generally:

- net sales.
- depreciation expense in a previous year.
- gross profit.
- fixed assets.

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Review

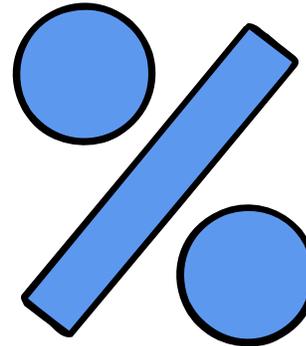
In vertical analysis, the base amount for depreciation expense is generally:

- a. net sales.
- b. depreciation expense in a previous year.
- c. gross profit.
- d. fixed assets.

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Ratio Analysis



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Ratios

- Three types:
 - Liquidity ratios
 - Solvency ratios
 - Profitability ratios
- Can provide clues to underlying conditions that may not be apparent from an inspection of the individual components.
- Single ratio by itself is not very meaningful.



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Liquidity Ratios

Measure the short-term ability of the enterprise to pay its maturing obligations and to meet unexpected needs for cash.

WHO CARES?

Short-term creditors such as bankers and suppliers



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Liquidity Ratios

| Liquidity Ratios | |
|----------------------------|--|
| Working capital | Current assets – Current liabilities |
| Current ratio | $\frac{\text{Current assets}}{\text{Current liabilities}}$ |
| | |
| Inventory turnover ratio | $\frac{\text{Cost of goods sold}}{\text{Average inventory}}$ |
| Days in inventory | $\frac{365 \text{ days}}{\text{Inventory turnover ratio}}$ |
| Receivables turnover ratio | $\frac{\text{Net credit sales}}{\text{Average net receivables}}$ |
| Average collection period | $\frac{365 \text{ days}}{\text{Receivables turnover ratio}}$ |

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Solvency Ratios

Measure the ability of the enterprise to survive over a long period of time

WHO CARES?

Long-term creditors and stockholders- particularly with respect to ability to make principle and interest payments.



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Solvency Ratios

| Solvency Ratios | |
|-----------------------------|--|
| Debt to total assets ratio | $\frac{\text{Total liabilities}}{\text{Total assets}}$ |
| | |
| Times interest earned ratio | $\frac{\text{Net income} + \text{Interest expense} + \text{Tax expense}}{\text{Interest expense}}$ |
| Free cash flow | Cash provided by operations – Capital expenditures – Cash dividends |

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Profitability Ratios

Measure the income or operating success of an enterprise for a given period of time

WHO CARES? Everybody

WHY? A company's income affects:

- its ability to obtain debt and equity financing
- its liquidity position
- its ability to grow

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PER SHARE

Why does it make sense to convert items on the statements to "per share" amounts?

Unless you own all the stock of a company, you would like to see activity converted to the basis at which you made your purchase

What about a lender, would they be interested in net income per share or net income?

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Profitability Ratios

| Profitability Ratios | |
|---|---|
| Earnings per share | $\frac{\text{Net income} - \text{Preferred stock dividends}}{\text{Average common shares outstanding}}$ |
| Price-earnings ratio | $\frac{\text{Stock price per share}}{\text{Earnings per share}}$ |
| Gross profit rate | $\frac{\text{Gross profit}}{\text{Net sales}}$ |
| Profit margin ratio | $\frac{\text{Net income}}{\text{Net sales}}$ |
| Return on assets ratio | $\frac{\text{Net income}}{\text{Average total assets}}$ |
| Asset turnover ratio | $\frac{\text{Net sales}}{\text{Average total assets}}$ |
| Return on common stockholders' equity ratio | $\frac{\text{Net income} - \text{Preferred stock dividends}}{\text{Average common stockholders' equity}}$ |

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Price Earnings Ratio

$$\text{Price-Earnings (P-E) Ratio} = \frac{\text{Stock Price per Share}}{\text{Earnings per Share}}$$

The P/E ratio reflects the investors' assessment of a company's future earnings.

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Earnings Per Share and Price Earnings Ratio

| Company | Earnings Per Share | Price-Earnings Ratio |
|---------------------|--------------------|----------------------|
| Kellogg Company | \$ 2.22 | 20.5 |
| Google Inc. | 3.41 | 86.6 |
| United States Steel | 11.4 | 3.9 |
| eBay Inc. | 0.68 | 62.4 |
| Nike | 19.5 | 4.31 |

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Limitations Of Financial Analysis

- Horizontal, vertical, and ratio analysis are frequently used in making significant business decisions.
- One should be aware of the limitations of these tools and the financial statements.



Estimates

- **Financial statements are based on estimates.**

- allowance for uncollectible accounts
- depreciation
- costs of warranties
- contingent losses

To the extent that these estimates are inaccurate, the financial ratios and percentages are also inaccurate.

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Quality of Earnings

A company that has a high quality of earnings provides full and transparent information that will not confuse or mislead users of the financial statements.

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Pro Forma Income

A measure of the net income generated that usually excludes items that the company thinks are unusual or nonrecurring.

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Improper Recognition

- Offering big discounts (channel stuffing) to companies to get them to buy early-
Often leads to disaster in subsequent periods.
- Improper capitalization of operating expenses

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LAST BUT CERTAINLY NOT LEAST

Financial statements display what happened (past tense)

- Will the past always repeat itself?

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