



Financial Statement Analysis





Methods of Analysis

There are two main ways to analyze financial statements:

- Horizontal analysis—provides a year-to-year comparison of a company's performance in different periods
 - Vertical analysis—the standard way to compare different companies
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Objective 1

Perform a horizontal analysis of
financial statements





Horizontal Analysis

Horizontal analysis provides a year-to-year comparison of a company's performance in different periods

- Compute dollar amount of the change from the earlier period to the later period
 - Divide the dollar amount of change by the earlier period amount
 - Earlier period is the base period
- 



Horizontal Analysis Example

	2007	2006	Difference
Net sales	\$430,000	\$373,000	\$57,000

$$\$57,000 \div \$373,000 = .153 \text{ or } 15.3\%$$



Horizontal Analysis of Comparative Financial Statements

Enchanted Designs, Inc.

Horizontal Analysis of Comparative Income Statement

Years Ended December 31, 2007 and 2006

			Incr.(Decr.)	
	2007	2006	AMT	%
Total revenues	<u>\$430,000</u>	<u>\$373,000</u>	<u>\$57,000</u>	15.3%
Expenses:				
Cost of goods sold				
Selling & gen expenses				
Other expenses				
Total expenses				
Net income				



Horizontal Analysis Cost of Goods Sold

	2007	2006	Difference
Cost of Goods sold	\$202,000	\$188,000	\$14,000

$$\$14,000 \div \$188,000 = 0.074 \text{ or } 7.4\%$$



Horizontal Analysis of Comparative Financial Statements

Enchanted Designs				
Horizontal Analysis of Comparative Income Statement				
Years Ended December 31, 2007 and 2006				
			Incr.(Decr.)	
	2007	2006	AMT	%
Total revenues	<u>\$430,000</u>	<u>\$373,000</u>	<u>\$57,000</u>	15.3%
Expenses:				
Cost of goods sold	\$202,000	\$188,000	\$14,000	7.4
Selling & gen expenses	98,000	93,000	5,000	5.4
Other expenses	<u>7,000</u>	<u>4,000</u>	<u>3,000</u>	75.
Total expenses	<u>307,000</u>	<u>285,000</u>	<u>22,000</u>	07.7
Net income	<u>\$123,000</u>	<u>\$ 88,000</u>	<u>35,000</u>	39.8



Trend Percentages

- **Trend percentages** are a form of horizontal analysis
 - Trends indicate the direction a business is taking
- Trend percentages are computed by selecting a base year.
 - Base year amounts are set equal to 100%.
 - Trend % = $\frac{\text{Any year \$}}{\text{Base year \$}}$



Compute Trend Percentages

	<u>20X8</u>	<u>20X7</u>	<u>20X6</u>	<u>20X5</u>	<u>20X4</u>
Net sales	126%	114%	106%	97%	100%
Net income					100

Net sales:

2005: $1009/1043 = 97\%$

2006: $1106/1043 = 106\%$

2007: $1187/1043 = 114\%$

2008: $1318/1043 = 126\%$



Compute Trend Percentages

	<u>2008</u>	<u>2007</u>	<u>2006</u>	<u>2005</u>	<u>2004</u>
Net sales	126%	114%	106%	98%	100%
Net income	144	134	98	84	100

Net income grew by 44% during the period, compared to 26% for net sales.





Objective 2

Perform a vertical analysis of financial statements





Vertical Analysis

- Shows relationship of each item to a base amount on financial statements
 - Income statement—each item expressed as percentage of net sales
 - Balance sheet—each item expressed as percentage of total assets
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Perform Vertical Analysis

Percentages based on total assets:

Current assets:

$$42,000/284,000 = 14.8\%$$

Property, plant, and equipment:

$$207,000/284,000 = 72.9\%$$

Other assets:

$$35,000/284,000 = 12.3\%$$





Perform Vertical Analysis

Percentages based on total assets:

Current liabilities:

$$48,000/284,000 = 16.9\%$$

Long-term debt:

$$108,000/284,000 = 38.0\%$$

Total stockholders' equity:

$$128,000/284,000 = 45.1\%$$



Alpha Graphics, Inc.
Vertical Analysis of Balance Sheet
December 31, 20X6

	AMT	%
ASSETS		
Total current assets	\$ 42,000	14.8%
Property, plant, & equipment, net	207,000	72.9
Other assets	<u>35,000</u>	<u>12.3</u>
Total assets	<u>\$284,000</u>	<u>100.0%</u>
LIABILITIES		
Total current liabilities	\$ 48,000	16.9%
Long-term debt	<u>108,000</u>	<u>38.0</u>
Total liabilities	156,000	54.9
STOCKHOLDERS' EQUITY		
Total stockholders' equity	<u>128,000</u>	<u>45.1</u>
Total liabilities & stockholders' equity	<u>\$284,000</u>	<u>100.0%</u>



Objective 3

Prepare and use common-size
financial statements





Common-Size Statements

- Reports only percentages used in vertical analysis
- Useful when comparing a company against industry averages or key competitors





Prepare Common-Size Income Statement

Percentages based on net sales:

Cost of goods sold:

$$2007: 202,000/430,000 = 47.0\%$$

$$2006: 188,000/373,000 = 50.4\%$$

Selling & General Expenses:

$$2007: 98,000/430,000 = 22.8\%$$

$$2006: 93,000/373,000 = 24.9\%$$





Prepare Common-Size Income Statement

Percentages based on total revenues:

Other Expense:

$$2007: 7,000/430,000 = 1.6\%$$

$$2006: 4,000/373,000 = 1.1\%$$





Prepare Common Size Income Statement

Enchanted Designs, Inc.

Comparative Common-Size Income Statement

Years Ended December 31, 2007 and 2006

	<u>2007</u>	<u>2006</u>
Net Sales	<u>100.0%</u>	<u>100.0%</u>
Expenses:		
Cost of goods sold	47.0	50.4
Selling and general expenses	22.8	24.9
Other expense	<u>1.6</u>	<u>1.1</u>
Total expense	<u>71.4</u>	<u>76.4</u>
Net income	<u>28.6%</u>	<u>23.6%</u>



Objective 4

Compute the standard financial ratios





Ability to Pay Current Liabilities

Working capital – measure of amount of current asset remaining after all current liabilities have been paid

Current assets – Current liabilities



Ability to Pay Current Liabilities

Current ratio – measures ability to pay current assets with current liabilities

$$\frac{\text{Current assets}}{\text{Current liabilities}}$$



Ability to Pay Current Liabilities

- Acid test ratio (quick ratio) reveals whether the entity could pay all its current liabilities if they came due immediately
 - Quick assets – cash, short-term investments, net current receivables

$$\frac{\text{Quick assets}}{\text{Current liabilities}}$$



Ability to Sell Inventory and Collect Receivables

Inventory turnover – how many times a year the company sells its average level of inventory

$$\frac{\text{Cost of goods sold}}{\text{Average inventory}^*}$$

*Average inventory =
(Beginning inventory + Ending inventory)/2





Ability to Sell Inventory and Collect Receivables

Accounts receivable turnover – how quickly the company collects cash from credit customers

$$\frac{\text{Net credit sales}}{\text{Average net accounts receivable}^*}$$

*Average net accounts receivable =
(Beginning receivables + Ending receivables)/2





Ability to Sell Inventory and Collect Receivables

Days' sales in receivables – how many days' sales remain uncollected in accounts receivable

$$\frac{\text{Average net accounts receivable}}{\text{One days' sales}^*}$$

*One days' sales = Net sales / 365





Current Ratio

Current assets
Current liabilities

\$175,000
\$131,000

1.34



Acid-Test Ratio

Quick assets
Current liabilities

$$\frac{\$17,000 + \$11,000 + \$54,000}{\$131,000}$$

.63





Inventory Turnover

$$\frac{\text{Cost of goods sold}}{\text{Average inventory}^*}$$

$$\frac{\$317,000}{(\$77,000 + 71,000) / 2}$$

4.28 times





Days' Sales in Receivables

Average net receivables
One days' sales

$$\frac{(\$54,000 + 73,000) / 2}{(\$464,000/365)}$$

50 days



Ability to Pay Long-Term Debt

Debt ratio – proportion of company's assets financed with debt

$$\frac{\text{Total liabilities}}{\text{Total assets}}$$



Ability to Pay Long-Term Debt

Times-interest-earned (interest coverage)
– how many times operating income covers interest expense

$$\frac{\text{Income from operations}^*}{\text{Interest expense}}$$

*Income from operations =
Income before income tax & interest expense





Current Ratio

$$\text{2007: } \frac{\$61,000 + 28,000 + 122,000 + 237,000}{\$275,000} = 1.63$$

$$\text{2006: } \frac{\$47,000 + 116,000 + 272,000}{\$202,000} = 2.15$$





Acid-Test Ratio

$$2007: \frac{\$61,000 + 28,000 + 122,000}{\$275,000} = .77$$

$$2006: \frac{\$47,000 + 116,000}{\$202,000} = .81$$




Debt Ratio

$$2007: \frac{\$275,000 + 40,000}{\$560,000} = .56$$

$$2006: \frac{\$202,000 + 52,000}{\$490,000} = .52$$





Times-Interest-Earned

$$2007: \frac{\$165,000}{\$48,000} = 3.44 \text{ times}$$

$$2006: \frac{\$158,000}{\$39,000} = 4.05 \text{ times}$$





Measuring Profitability

Rate of return on net sales (profit margin)
– percentage of each sales dollar that is earned as net income

$$\frac{\text{Net income}}{\text{Net sales}}$$



Measuring Profitability

Rate of return on total assets – how successful the business is in using assets to earn a profit

Net income + Interest expense

*Average total assets

*Average total assets =
(Beginning assets + Ending assets) / 2



Measuring Profitability

Rate of return on common stockholders' equity – how much income is earned for every \$1 invested by the common stockholder

$$\frac{\text{Net income} - \text{Preferred dividends}}{\text{*Average common stockholders' equity}}$$

$$\text{*Average common stockholders' equity} = \frac{\text{(Beginning + Ending common stockholders; equity)}}{2}$$



Measuring Profitability

- Trading on the equity (using leverage) – company borrows at a lower rate, then invests the money to earn a higher rate
- A company is favorably leveraged if return on assets is greater than the return on stockholders' equity





Measuring Profitability

Earnings per share of common stock –
income generated by one share of stock

Net income – Preferred dividends

Number of shares of common stock outstanding



Rate of Return on Net Sales

$$\frac{\text{Net income}}{\text{Net sales}}$$

20X6

$$\frac{\$16,000}{\$174,000}$$

9.2%

20X5

$$\frac{\$12,000}{\$158,000}$$

7.6%



Rate of Return on Total Assets

$$\frac{\text{Net income} + \text{Interest expense}}{\text{*Average total assets}}$$

20X6

$$\frac{\$16,000 + 9,000}{(\$204,000 + 191,000) / 2}$$

12.7%

20X5

$$\frac{\$12,000 + 10,000}{(\$191,000 + 171,000) / 2}$$

12.2%



Rate of Return on Common Stockholders' Equity

Net income – Preferred dividends
*Average common stockholders' equity

20X6

$$\frac{\$16,000 - 3,000}{(\$96,000 + 89,000) / 2}$$

14.1%

20X5

$$\frac{\$12,000 - 3,000}{(\$89,000 + 79,000) / 2}$$

10.7%



Earnings per Share

Net income – Preferred dividends
Number of shares of common stock outstanding

20X6

$$\frac{\$16,000 - 3,000}{20,000}$$

\$0.65

20X5

$$\frac{\$12,000 - 3,000}{20,000}$$

\$0.45





Analyzing Stock as an Investment

Price/earnings ratio – the market price of \$1 of earnings

$$\frac{\text{Market price per share}}{\text{EPS}}$$



Analyzing Stock as an Investment

Dividend yield – percentage of a stock's market value that is returned annually as dividends

$$\frac{\text{Dividend per share}}{\text{Market price per share}}$$



Analyzing Stock as an Investment

Book value per share of common stock – amount of equity one share of common stock has in the company

Total stockholders' equity – Preferred equity
Number of shares of common stock outstanding



Price/Earnings Ratio

$$\frac{\text{Market price per share}}{\text{EPS}}$$

20X8

20X7

\$16.50

$(\$60,000 - 12,000) / 80,000$

\$13.00

$(\$52,000 - 12,000) / 80,000$

27.5

26





Dividend Yield

Dividend per share
Market price per share

20X8

20X7

$$\frac{20,000/80,000}{\$16.50}$$

$$\frac{20,000/80,000}{\$13.00}$$

.015

.019





Book Value Per Share

Total stockholders' equity – Preferred equity
Number of shares of common stock **outstanding**

20X8

$$\frac{\$780,000 - 200,000}{80,000}$$

\$7.25

20X7

$$\frac{\$600,000 - 200,000}{80,000}$$

\$5.00





Red Flags in Financial Statement Analysis

- Strange movement of sales, inventory, and receivables
- Earnings problems
- Decreased cash flow
- Too much debt
- Inability to collect receivables
- Inventory buildup





End

