

Financial Statement Analysis

The Interrelationships of the 4 Financial Statements

BALANCE SHEET	
As of December 31, 20x1	
(000)	
Assets	
Cash	\$ 100
Other Current Assets	\$ 1,300
Long-term Investments	\$ 3,000
Long-term Assets	\$ 10,000
Intangible Assets	\$ 1,600
Total Assets	\$ 16,000
Liabilities and Owner's Equity	
Current Liabilities	\$ 1,000
Long-term Liabilities	\$ 4,950
Joe Owner, Capital	\$ 10,050
Total Liabilities and Equity	\$ 16,000

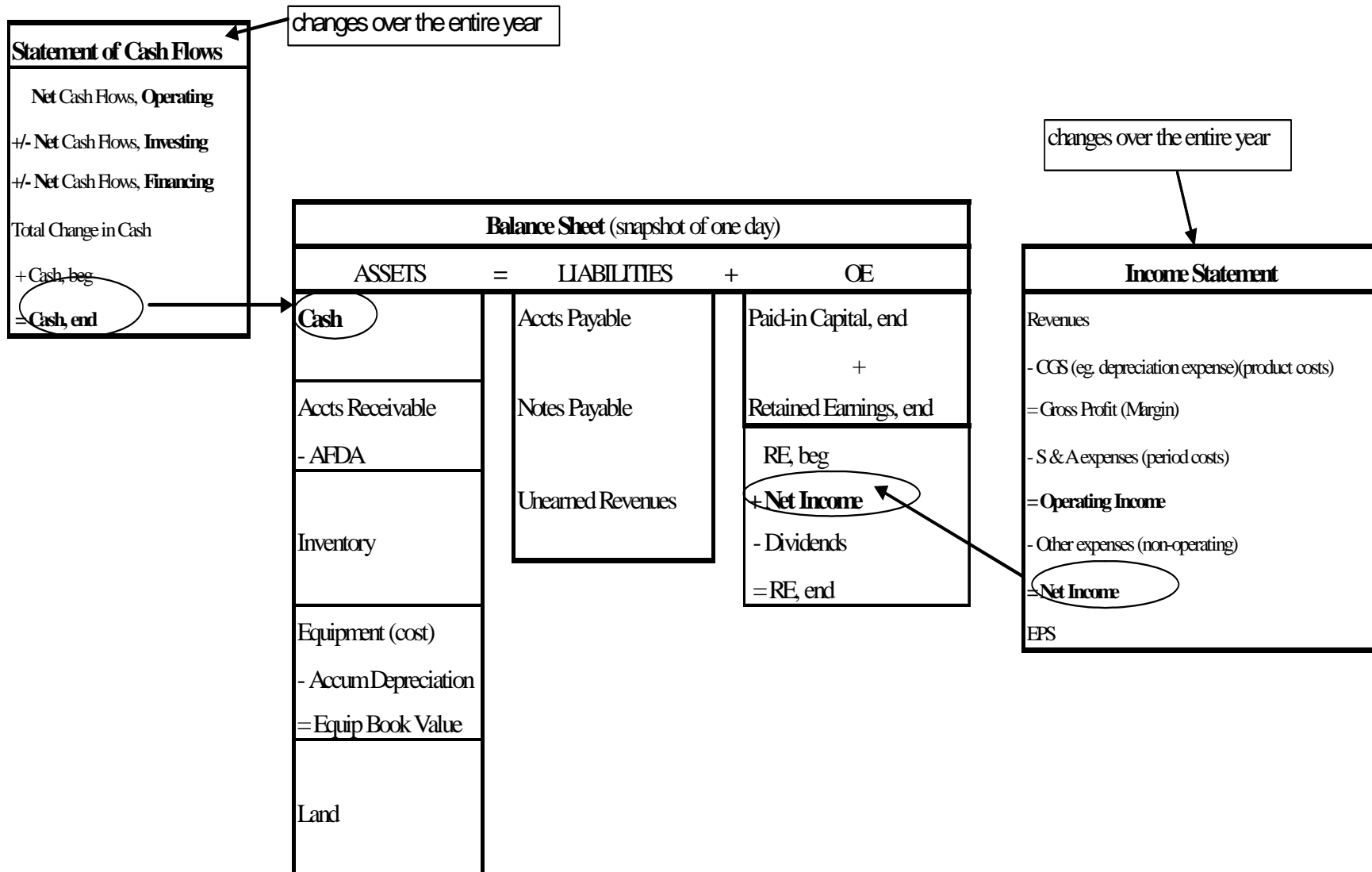
Statement of Cash Flows	
For the year ended December 31, 20x2	
(000)	
Net cash flows from operating activities	\$ 1,470
Net cash used by investing activities	\$ (4,100)
Net cash provided by financing activities	\$ 2,750
Increase in cash balance	\$ 120
Beginning cash balance (12/31/x1)	\$ 100
Ending cash balance (12/31/x2)	\$ 220

Income Statement	
For the year ended December 31, 20x2	
(000)	
Revenues	\$ 5,880
Expenses	\$ 4,795
Net Income	\$ 1,085

Statement of Changes in Owner's Equity	
For the year ended December 31, 20x2	
(000)	
Joe Owner, capital, 1/1/x2	\$ 10,050
Plus: Investments by owner	\$ -
Plus: Net Income	\$ 1,085
Less: Withdrawals by owner	\$ 200
Joe Owner, capital, 12/31/x2	\$ 10,935

BALANCE SHEET	
As of December 31, 20x2	
(000)	
Assets	
Cash	\$ 220
Other Current Assets	\$ 1,195
Long-term Investments	\$ 4,000
Long-term Assets	\$ 11,500
Intangible Assets	\$ 1,700
Total Assets	\$ 18,615
Liabilities and Owner's Equity	
Current Liabilities	\$ 740
Long-term Liabilities	\$ 6,940
Joe Owner, Capital	\$ 10,935
Total Liabilities and Equity	\$ 18,615

The Interrelationships of the 4 Financial Statements



ANALYSIS TOOLS

HORIZONTAL (TREND) ANALYSIS
evaluates a series of financial statement
data over a period of time.

VERTICAL ANALYSIS
expresses each item
in a financial statement
as a percent of a base amount

RATIO ANALYSIS
expresses the relationship among
selected items of financial statement data.

HORIZONTAL ANALYSIS

Changes are measured against a base year with the following formula.

**Change
since base
period**



Current year amount — Base year amount

Base year amount

HORIZONTAL ANALYSIS OF BALANCE SHEET

QUALITY DEPARTMENT STORE INC.

Condensed Balance Sheets
December 31

	<u>2003</u>	<u>2002</u>	<u>Increase or (Decrease) during 2003</u>	
			<u>Amount</u>	<u>Percent</u>
<u>Assets</u>				
Current assets	\$1,020,000	\$ 945,000	\$ 75,000	7.9%
Plant assets (net)	800,000	632,500	167,500	26.5%
Intangible assets	15,000	17,500	(2,500)	(14.3%)
Total assets	<u>\$1,835,000</u>	<u>\$1,595,000</u>	<u>\$240,000</u>	15.0%
<u>Liabilities</u>				
Current liabilities	\$ 344,500	\$ 303,000	\$ 41,500	13.7%
Long-term liabilities	487,500	497,000	(9,500)	(1.9%)
Total liabilities	<u>832,000</u>	<u>800,000</u>	<u>32,000</u>	4.0%
<u>Stockholders' Equity</u>				
Common stock, \$1 par	275,400	270,000	5,400	2.0%
Retained earnings	727,600	525,000	202,600	38.6%
Total stockholders' equity	<u>1,003,000</u>	<u>795,000</u>	<u>208,000</u>	26.2%
Total liabilities and stockholders' equity	<u>\$1,835,000</u>	<u>\$1,595,000</u>	<u>\$240,000</u>	15.0%

HORIZONTAL ANALYSIS OF INCOME STATEMENT

QUALITY DEPARTMENT STORE INC.

Condensed Income Statements
For the Years Ended December 31

	2003	2002	Increase or (Decrease) during 2003	
			Amount	Percent
Sales	\$2,195,000	\$1,960,000	\$235,000	12.0%
Sales returns and allowances	98,000	123,000	(25,000)	(20.3%)
Net sales	2,097,000	1,837,000	260,000	14.2%
Cost of goods sold	1,281,000	1,140,000	141,000	12.4%
Gross profit	816,000	697,000	119,000	17.1%
Selling expenses	253,000	211,500	41,500	19.6%
Administrative expenses	104,000	108,500	(4,500)	(4.1%)
Total operating expenses	357,000	320,000	37,000	11.6%
Income from operations	459,000	377,000	82,000	21.8%
Other revenues and gains				
Interest and dividends	9,000	11,000	(2,000)	(18.2%)
Other expenses and losses				
Interest expense	36,000	40,500	(4,500)	(11.1%)
Income before income taxes	432,000	347,500	84,500	24.3%
Income tax expense	168,200	139,000	29,200	21.0%
Net income	<u>\$ 263,800</u>	<u>\$ 208,500</u>	<u>\$ 55,300</u>	<u>26.5%</u>

HORIZONTAL ANALYSIS OF RETAINED EARNINGS STATEMENT

The change in January 1 retained earnings is calculated as follows

$$39.4\% = \frac{525,000 - 376,500}{376,500}$$

ILLUSTRATION 15-7

QUALITY DEPARTMENT STORE INC. Retained Earnings Statement For the Years Ended December 31

	2003	2002	Increase or (Decrease) during 1999	
			Amount	Percentage
Retained earnings, January 1	\$ 525,000	\$ 376,500	\$ 148,500	39.4%
Add: Net income	263,800	208,500	55,300	26.5%
	<u>788,800</u>	<u>585,000</u>	<u>203,800</u>	
Deduct: Dividends	61,200	60,000	1,200	2.0%
Retained earnings, December 31	<u>\$ 727,600</u>	<u>\$ 525,000</u>	<u>\$ 202,600</u>	38.6%

VERTICAL ANALYSIS

Financial statement elements are measured as a percent of the total.

<u>Balance Sheet</u>	<u>Income Statement</u>
Elements are a percent of total assets	Elements are a percent of total sales

VERTICAL ANALYSIS OF BALANCE SHEET

QUALITY DEPARTMENT STORE INC. Condensed Balance Sheets December 31

	2003		2002	
	Amount	Percent	Amount	Percent
Assets				
Current assets	\$ 1,020,000	55.6%	\$ 945,000	59.2%
Plant assets (net)	800,000	43.6%	632,500	39.7%
Intangible assets	15,000	0.8%	17,500	1.1%
Total assets	\$ 1,835,000	100.0%	\$ 1,595,000	100.0%
Liabilities				
Current liabilities	\$ 344,500	18.8%	\$ 303,000	19.0%
Long-term liabilities	487,500	26.5%	497,000	31.2%
Total liabilities	832,000	45.3%	800,000	50.2%
Stockholders' Equity				
Common stock, \$1 par	275,400	15.0%	270,000	16.9%
Retained earnings	727,600	39.7%	525,000	32.9%
Total stockholders' equity	1,003,000	54.7%	795,000	49.8%
Total liabilities and stockholders' equity	\$ 1,835,000	100.0%	\$ 1,595,000	100.0%

VERTICAL ANALYSIS OF BALANCE SHEET

QUALITY DEPARTMENT STORE INC. Condensed Income Statements For the Years Ended December 31

	2003		2002	
	Amount	Percent	Amount	Percent
Sales	\$ 2,195,000	104.7%	\$ 1,960,000	106.7%
Sales returns and allowances	98,000	4.7%	123,000	6.7%
Net sales	2,097,000	100.0%	1,837,000	100.0%
Cost of goods sold	1,281,000	61.1%	1,140,000	62.1%
Gross profit	816,000	38.9%	697,000	37.9%
Selling expenses	253,000	12.0%	211,500	11.5%
Administrative expenses	104,000	5.0%	108,500	5.9%
Total operating expenses	357,000	17.0%	320,000	17.4%
Income from operations	459,000	21.9%	377,000	20.5%
Other revenues and gains				
Interest and dividends	9,000	0.4%	11,000	0.6%
Other expenses and losses				
Interest expense	36,000	1.7%	40,500	2.2%
Income before income taxes	432,000	20.6%	347,500	18.9%
Income tax expense	168,200	8.0%	139,000	7.5%
Net income	<u>\$ 263,800</u>	<u>12.6%</u>	<u>\$ 208,500</u>	<u>11.4%</u>

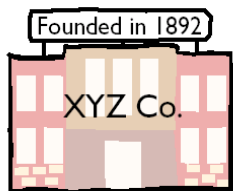
RATIO ANALYSIS



Revenues

Expenses

=



Liquidity Ratios

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

Profitability Ratios

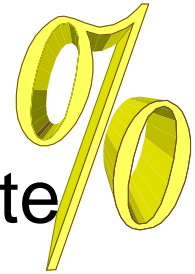
Measures of the income or operating success of an enterprise for a given period of time

Solvency Ratios

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

Ratio Analysis

- Profitability Ratios
 - Reveals a company's ability to generate profits
- Turnover Ratios
 - Reveals the company's efficiency with regard to the use of its assets
- Debt-Related Ratios
 - Reveals a company's ability to re-pay its obligations



Profitability Ratios

- Earnings Per Share (EPS)
 - Measures the earnings per each share of common stock outstanding
- Price-Earnings Ratio (PE)
 - Measures an investor's expectations of future profitability
- Gross Margin Percentage
 - Estimates the incremental profit generated by each dollar of sales
- Return on Total Assets
 - Measures the net income generated for each dollar invested in assets
- Return on Common Stockholders' Equity
 - Measures the net income generated for each dollar invested by the shareholders

Profitability Ratio Formulas

Earnings per share

$(\text{Net income} - \text{Preferred dividends})$
 \div Number of common shares outstanding

Price-earnings ratio

$\text{Market price per share} \div \text{Earnings per share}$

Gross margin percentage

$\text{Gross margin} \div \text{Net sales}$

Return on total assets

$[\text{Net income} + (\text{Interest expense}$
 $\times (1 - \text{Tax rate}))] \div \text{Total assets}$

Return on common
stockholders' equity

$(\text{Net income} - \text{Preferred dividends})$
 \div Common stockholders' equity

Turnover Ratios

- **Asset Turnover**
 - Measures how efficiently assets are utilized
- **Accounts Receivable Turnover**
 - Measures the number of times each year receivables are collected
- **Days' Sales in Receivables**
 - Measures the average number of days necessary to collect credit sales
- **Inventory Turnover**
 - Measures the number of times each year inventory is sold
- **Days' Sales in Inventory**
 - Measures the average number of days necessary to sell all inventory

Turnover Ratio Formulas

Asset turnover

Net sales \div Total assets

Accounts receivable turnover

Net credit sales \div Accounts receivable

Days' sales in receivables

365 \div Accounts receivable turnover

Inventory turnover

Cost of goods sold \div Inventory

Days' sales in inventory

365 \div Inventory turnover

Debt-Related Ratios

- Current Ratio
 - Measures a company's ability to meet short-term obligations
- Acid-Test Ratio (Quick Ratio)
 - More stringent measure of the current ratio
- Debt-to-Equity Ratio
 - Assesses the company's debt position
- Times Interest Earned
 - Measures a company's ability to re-pay long-term debt

Debt-Related Ratios

Current ratio

Current assets \div Current liabilities

Acid test (Quick ratio)

[(Cash + Marketable securities) + Short-term receivables] \div Current liabilities

Debt-to-equity ratio

Total liabilities \div Stockholders' equity

Times interest earned

Operating income \div Interest expense

Summary of Ratio Formulas

Profitability Ratios	
Earnings per share	$(\text{Net income} - \text{Preferred dividends}) \div \text{Number of common shares outstanding}$
Price-earnings ratio	$\text{Market price per share} \div \text{Earnings per share}$
Gross margin percentage	$\text{Gross margin} \div \text{Net sales}$
Return on total assets	$[\text{Net income} + (\text{Interest expense} \times (1 - \text{Tax rate}))] \div \text{Total assets}$
Return on common stockholders' equity	$(\text{Net income} - \text{Preferred dividends}) \div \text{Common stockholders' equity}$
Turnover Ratios	
Asset turnover	$\text{Net sales} \div \text{Total assets}$
Accounts receivable turnover	$\text{Net credit sales} \div \text{Accounts receivable}$
Days' sales in receivables	$365 \div \text{Accounts receivable turnover}$
Inventory turnover	$\text{Cost of goods sold} \div \text{Inventory}$
Days' sales in inventory	$365 \div \text{Inventory turnover}$
Debt Related Ratios	
Current ratio	$\text{Current assets} \div \text{Current liabilities}$
Acid test (Quick ratio)	$[(\text{Cash} + \text{Marketable securities}) + \text{Short-term receivables}] \div \text{Current liabilities}$
Debt-to-equity ratio	$\text{Total liabilities} \div \text{Stockholders' equity}$
Times interest earned	$\text{Operating income} \div \text{Interest expense}$

LIMITATIONS OF F/S ANALYSIS

Estimates	Depreciation, allowances, contingencies
Cost	Historical data not adjusted for inflation/deflation
Alternative methods	FIFO, LIFO, Average Cost. Completed contract, percentage of completion
Atypical data	Seasonal accounting data may not be representative
Firm diversification	Conglomerates hard to identify with single industry.