

# Financial accounting

Prepared by Dr. Mohamed Hamouda

## Lecture 3

### **Financial Statements Analysis and Interpretation**



جامعة الجميع الذكية  
EVERYONE'S SMART UNIVERSITY

# Basics of Analysis

Application of  
analytical tools

Reduces uncertainty



Involves transforming  
data

# Purpose of Analysis

**Financial statement analysis helps users make better decisions.**



Internal Users

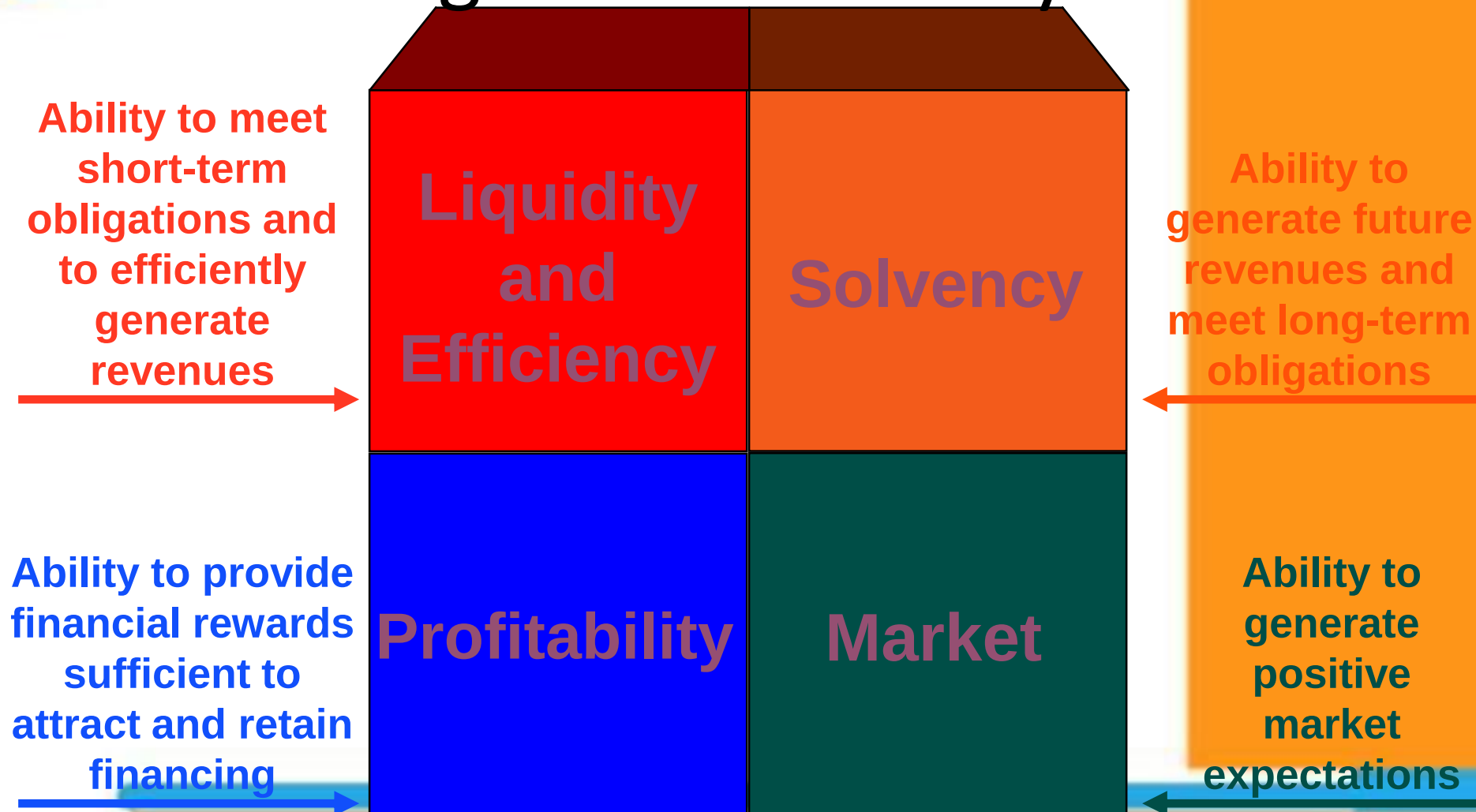
Managers  
Officers  
Internal Auditors



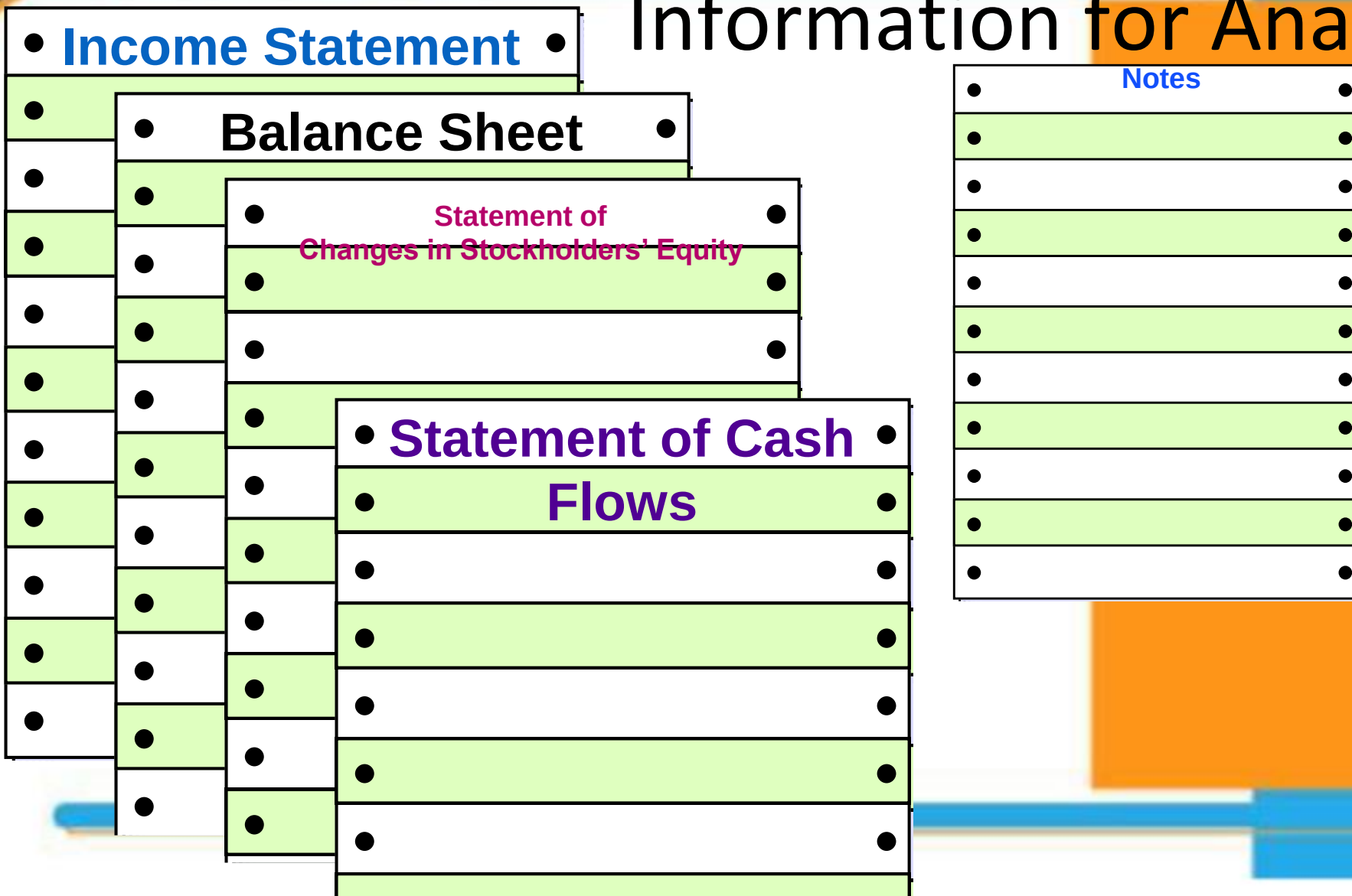
External Users

Shareholders  
Lenders  
Customers

# Building Blocks of Analysis



## Information for Analysis



# Standards for Comparison

To help me interpret our financial statements, I use several standards of comparison.



- ① **Intracompany**
- ② **Competitor**
- ③ **Industry**
- ④ **Guidelines**

## Tools of Analysis

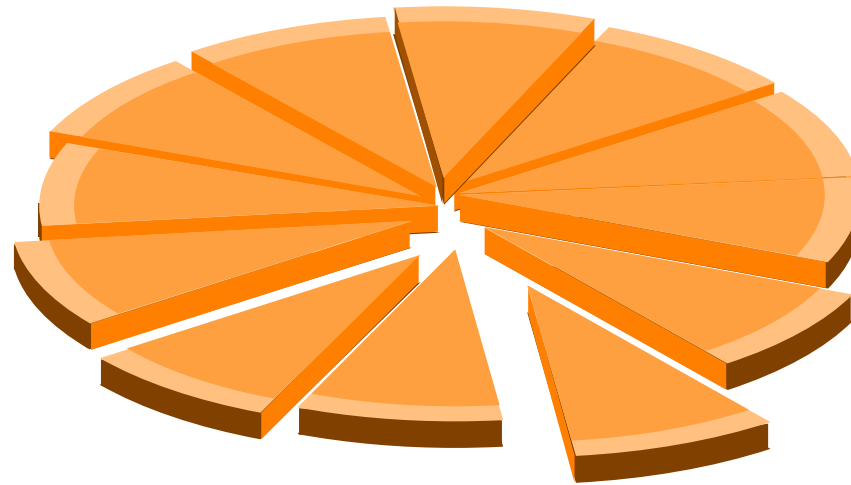
# Horizontal Analysis

Comparing a company's financial condition and performance across time



# Tools of Analysis

**Comparing a company's  
financial condition and  
performance to a base amount**



# Tools of Analysis

Using key relations  
among financial  
statement items

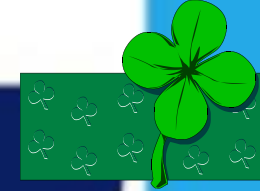
Ratio Analysis



# Horizontal Analysis



**Now, let's  
look at  
some ways  
to use  
horizontal  
analysis.**



**CLOVER CORPORATION**  
**Comparative Balance Sheets**  
**December 31,**

|                                     | 2002              | 2001              | Dollar Change | Percent Change* |
|-------------------------------------|-------------------|-------------------|---------------|-----------------|
| <b>Assets</b>                       |                   |                   |               |                 |
| <b>Current assets:</b>              |                   |                   |               |                 |
| Cash and equivalents                | \$ 12,000         | \$ 23,500         |               |                 |
| Accounts receivable, net            | 60,000            | 40,000            |               |                 |
| Inventory                           | 80,000            | 100,000           |               |                 |
| Prepaid expenses                    | 3,000             | 1,200             |               |                 |
| <b>Total current assets</b>         | <b>\$ 155,000</b> | <b>\$ 164,700</b> |               |                 |
| <b>Property and equipment:</b>      |                   |                   |               |                 |
| Land                                | 40,000            | 40,000            |               |                 |
| Buildings and equipment, net        | 120,000           | 85,000            |               |                 |
| <b>Total property and equipment</b> | <b>\$ 160,000</b> | <b>\$ 125,000</b> |               |                 |
| <b>Total assets</b>                 | <b>\$ 315,000</b> | <b>\$ 289,700</b> |               |                 |

\* Percent rounded to first decimal point.

# Comparative Statements

Calculate Change in Dollar Amount

$$\text{Dollar Change} = \text{Analysis Period Amount} - \text{Base Period Amount}$$



Since we are measuring the amount of the change between 2001 and 2002, the dollar amounts for 2001 become the “base” period amounts.

# Comparative Statements

Calculate Change as a Percent

Percent  
Change

=

Dollar Change  
Base Period Amount

×

100%

%



| CLOVER CORPORATION<br>Comparative Balance Sheets<br>December 31, |                                                  |            |                                 |                            |
|------------------------------------------------------------------|--------------------------------------------------|------------|---------------------------------|----------------------------|
|                                                                  | 2002                                             | 2001       | Dollar Change                   | Percent Change*            |
| <b>Assets</b>                                                    |                                                  |            |                                 |                            |
| Current assets:                                                  |                                                  |            |                                 |                            |
| Cash and equivalents                                             | \$ 12,000                                        | \$ 23,500  | <b><math>\\$(11,500)</math></b> | <b><math>(48.9)</math></b> |
| Accounts receivable                                              | $\$12,000 - \$23,500 = \$(11,500)$               |            |                                 |                            |
| Inventory                                                        | 80,000                                           | 100,000    |                                 |                            |
| Prepaid expenses                                                 | 3,000                                            | 1,200      |                                 |                            |
| Total current                                                    | $(\$11,500 \div \$23,500) \times 100\% = 48.9\%$ |            |                                 |                            |
| Property and equipment:                                          |                                                  |            |                                 |                            |
| Land                                                             | 40,000                                           | 40,000     |                                 |                            |
| Buildings and equipment, net                                     | 120,000                                          | 85,000     |                                 |                            |
| Total property and equipment                                     | \$ 160,000                                       | \$ 125,000 |                                 |                            |
| Total assets                                                     | \$ 315,000                                       | \$ 289,700 |                                 |                            |
| * Percent rounded to first decimal point.                        |                                                  |            |                                 |                            |

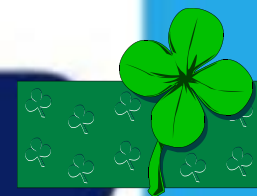


**CLOVER CORPORATION**  
**Comparative Balance Sheets**  
**December 31,**

|                                     | 2002              | 2001              | Dollar Change     | Percent Change* |
|-------------------------------------|-------------------|-------------------|-------------------|-----------------|
| <b>Assets</b>                       |                   |                   |                   |                 |
| <b>Current assets:</b>              |                   |                   |                   |                 |
| Cash and equivalents                | \$ 12,000         | \$ 23,500         | \$ (11,500)       | (48.9)          |
| Accounts receivable, net            | 60,000            | 40,000            | 20,000            | 50.0            |
| Inventory                           | 80,000            | 100,000           | (20,000)          | (20.0)          |
| Prepaid expenses                    | 3,000             | 1,200             | 1,800             | 150.0           |
| <b>Total current assets</b>         | <b>\$ 155,000</b> | <b>\$ 164,700</b> | <b>\$ (9,700)</b> | <b>(5.9)</b>    |
| <b>Property and equipment:</b>      |                   |                   |                   |                 |
| Land                                | 40,000            | 40,000            | -                 | 0.0             |
| Buildings and equipment, net        | 120,000           | 85,000            | 35,000            | 41.2            |
| <b>Total property and equipment</b> | <b>\$ 160,000</b> | <b>\$ 125,000</b> | <b>\$ 35,000</b>  | <b>28.0</b>     |
| <b>Total assets</b>                 | <b>\$ 315,000</b> | <b>\$ 289,700</b> | <b>\$ 25,300</b>  | <b>8.7</b>      |

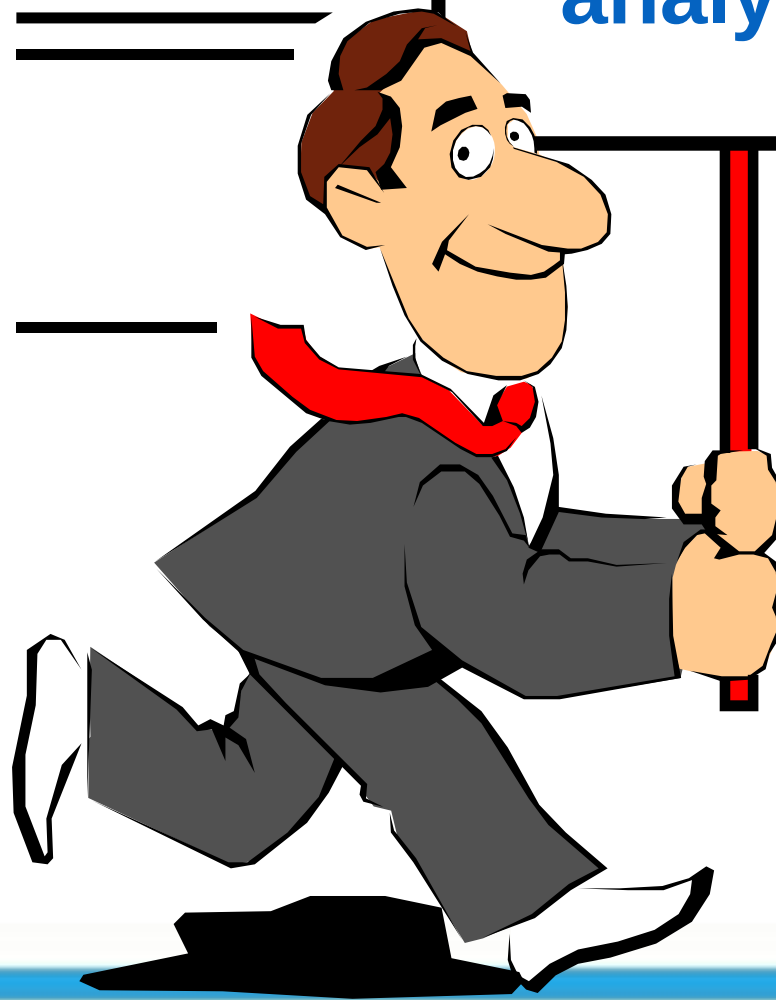
\* Percent rounded to first decimal point.





| CLOVER CORPORATION<br>Comparative Balance Sheets<br>December 31, |                   |                   |                  |                    |
|------------------------------------------------------------------|-------------------|-------------------|------------------|--------------------|
|                                                                  | 2002              | 2001              | Dollar<br>Change | Percent<br>Change* |
| <b>Liabilities and Shareholders' Equity</b>                      |                   |                   |                  |                    |
| <b>Current liabilities:</b>                                      |                   |                   |                  |                    |
| Accounts payable                                                 | \$ 67,000         | \$ 44,000         | \$ 23,000        | 52.3               |
| Notes payable                                                    | 3,000             | 6,000             | (3,000)          | (50.0)             |
| <b>Total current liabilities</b>                                 | <b>\$ 70,000</b>  | <b>\$ 50,000</b>  | <b>\$ 20,000</b> | <b>40.0</b>        |
| <b>Long-term liabilities:</b>                                    |                   |                   |                  |                    |
| Bonds payable, 8%                                                | 75,000            | 80,000            | (5,000)          | (6.3)              |
| <b>Total liabilities</b>                                         | <b>\$ 145,000</b> | <b>\$ 130,000</b> | <b>\$ 15,000</b> | <b>11.5</b>        |
| <b>Shareholders' equity:</b>                                     |                   |                   |                  |                    |
| Preferred stock                                                  | 20,000            | 20,000            | -                | 0.0                |
| Common stock                                                     | 60,000            | 60,000            | -                | 0.0                |
| Additional paid-in capital                                       | 10,000            | 10,000            | -                | 0.0                |
| <b>Total paid-in capital</b>                                     | <b>\$ 90,000</b>  | <b>\$ 90,000</b>  | <b>-</b>         | <b>0.0</b>         |
| Retained earnings                                                | 80,000            | 69,700            | 10,300           | 14.8               |
| <b>Total shareholders' equity</b>                                | <b>\$ 170,000</b> | <b>\$ 159,700</b> | <b>\$ 10,300</b> | <b>6.4</b>         |
| <b>Total liabilities and shareholders' equity</b>                | <b>\$ 315,000</b> | <b>\$ 289,700</b> | <b>\$ 25,300</b> | <b>8.7</b>         |
| * Percent rounded to first decimal point.                        |                   |                   |                  |                    |

Now, let's  
look at trend  
analysis!



## Trend Analysis



**Trend analysis** is used to reveal patterns in data covering successive periods.

$$\text{Trend Percent} = \frac{\text{Analysis Period Amount}}{\text{Base Period Amount}} \times 100\%$$

# Trend Analysis

Berry Products  
Income Information  
For the Years Ended December 31,



| Item          | 2002       | 2001       | 2000       | 1999       | 1998       |
|---------------|------------|------------|------------|------------|------------|
| Revenues      | \$ 400,000 | \$ 355,000 | \$ 320,000 | \$ 290,000 | \$ 275,000 |
| Cost of sales | 285,000    | 250,000    | 225,000    | 198,000    | 190,000    |
| Gross profit  | 115,000    | 105,000    | 95,000     | 92,000     | 85,000     |

**1998 is the base period so its amounts will equal 100%.**

# Trend Analysis

Berry Products  
Income Information  
For the Years Ended December 31,



| Item          | 2002       | 2001       | 2000       | 1999       | 1998       |
|---------------|------------|------------|------------|------------|------------|
| Revenues      | \$ 400,000 | \$ 355,000 | \$ 320,000 | \$ 290,000 | \$ 275,000 |
| Cost of sales | 285,000    | 250,000    | 225,000    | 198,000    | 190,000    |
| Gross profit  | 115,000    | 105,000    | 95,000     | 92,000     | 85,000     |

| Item          | 2002 | 2001 | 2000 | 1999 | 1998 |
|---------------|------|------|------|------|------|
| Revenues      |      |      |      | 105% | 100% |
| Cost of sales |      |      |      | 104% | 100% |
| Gross profit  |      |      |      | 108% | 100% |

$$(290,000 \div 275,000) \times 100\% = 105\%$$

$$(198,000 \div 190,000) \times 100\% = 104\%$$

$$(92,000 \div 85,000) \times 100\% = 108\%$$

# Trend Analysis

Berry Products  
Income Information  
For the Years Ended December 31,



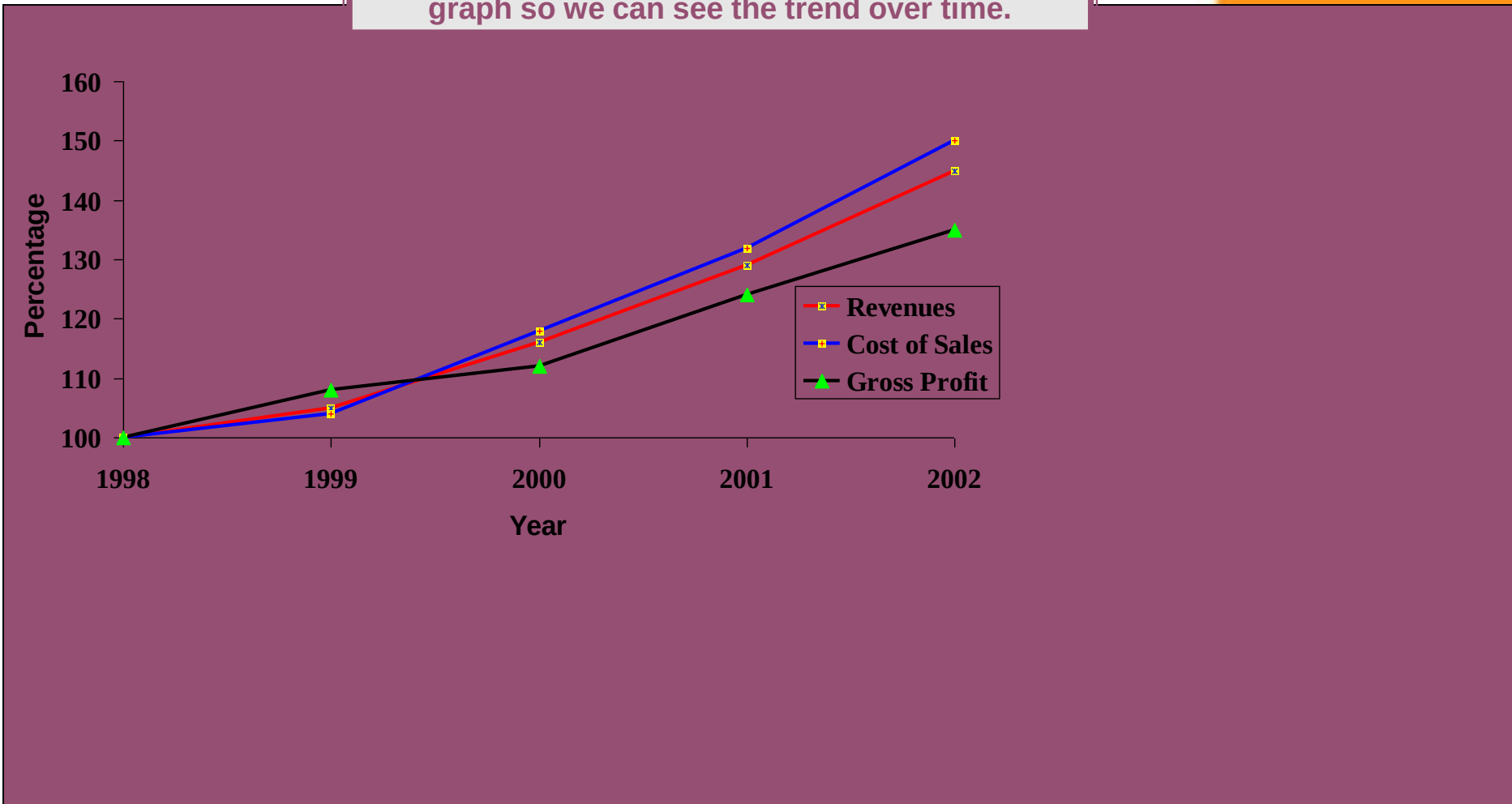
| Item          | 2002       | 2001       | 2000       | 1999       | 1998       |
|---------------|------------|------------|------------|------------|------------|
| Revenues      | \$ 400,000 | \$ 355,000 | \$ 320,000 | \$ 290,000 | \$ 275,000 |
| Cost of sales | 285,000    | 250,000    | 225,000    | 198,000    | 190,000    |
| Gross profit  | 115,000    | 105,000    | 95,000     | 92,000     | 85,000     |

| Item          | 2002 | 2001 | 2000 | 1999 | 1998 |
|---------------|------|------|------|------|------|
| Revenues      | 145% | 129% | 116% | 105% | 100% |
| Cost of sales | 150% | 132% | 118% | 104% | 100% |
| Gross profit  | 135% | 124% | 112% | 108% | 100% |

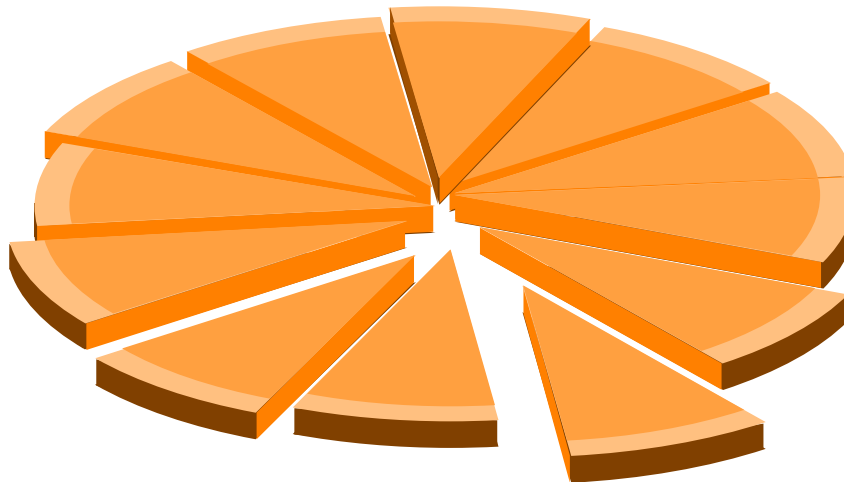
How would this trend analysis  
look on a **line graph**?

# Trend Analysis

We can use the trend percentages to construct a graph so we can see the trend over time.



Now, let's look at some vertical analysis tools!



# Common-Size Statements

Calculate Common-size Percent

$$\text{Common-size Percent} = \frac{\text{Analysis Amount}}{\text{Base Amount}} \times 100\%$$

Financial Statement   Base Amount

Balance Sheet

Total Assets

Income Statement

Revenues

**CLOVER CORPORATION**  
**Comparative Balance Sheets**  
**December 31,**



|                                     |                                                  |                   | <b>Common-size<br/>Percents*</b> |               |
|-------------------------------------|--------------------------------------------------|-------------------|----------------------------------|---------------|
|                                     | <b>2002</b>                                      | <b>2001</b>       | <b>2002</b>                      | <b>2001</b>   |
| <b>Assets</b>                       |                                                  |                   |                                  |               |
| <b>Current assets:</b>              |                                                  |                   |                                  |               |
| Cash and equivalents                | \$ 12,000                                        | \$ 23,500         | 3.8%                             | 8.1%          |
| Accounts receivable, net            | 60,000                                           | 40,000            |                                  |               |
| Inventory                           | 80,000                                           | 100,000           |                                  |               |
| Prepaid expenses                    | $(\$12,000 \div \$315,000) \times 100\% = 3.8\%$ |                   |                                  |               |
| <b>Total current assets</b>         | <b>\$ 155,000</b>                                | <b>\$ 164,700</b> |                                  |               |
| <b>Property and equipment:</b>      |                                                  |                   |                                  |               |
| Land                                | 40,000                                           | 40,000            |                                  |               |
| Buildings and equipment, net        | 120,000                                          | 85,000            |                                  |               |
| <b>Total property and equipment</b> | <b>\$ 160,000</b>                                | <b>\$ 125,000</b> |                                  |               |
| <b>Total assets</b>                 | <b>\$ 315,000</b>                                | <b>\$ 289,700</b> | <b>100.0%</b>                    | <b>100.0%</b> |

\* Percent rounded to first decimal point.

**CLOVER CORPORATION**  
**Comparative Balance Sheets**  
**December 31,**



|                                     |                   |                   | <b>Common-size<br/>Percents*</b> |               |
|-------------------------------------|-------------------|-------------------|----------------------------------|---------------|
|                                     | <b>2002</b>       | <b>2001</b>       | <b>2002</b>                      | <b>2001</b>   |
| <b>Assets</b>                       |                   |                   |                                  |               |
| <b>Current assets:</b>              |                   |                   |                                  |               |
| Cash and equivalents                | \$ 12,000         | \$ 23,500         | 3.8%                             | 8.1%          |
| Accounts receivable, net            | 60,000            | 40,000            | 19.0%                            | 13.8%         |
| Inventory                           | 80,000            | 100,000           | 25.4%                            | 34.5%         |
| Prepaid expenses                    | 3,000             | 1,200             | 1.0%                             | 0.4%          |
| <b>Total current assets</b>         | <b>\$ 155,000</b> | <b>\$ 164,700</b> | <b>49.2%</b>                     | <b>56.9%</b>  |
| <b>Property and equipment:</b>      |                   |                   |                                  |               |
| Land                                | 40,000            | 40,000            | 12.7%                            | 13.8%         |
| Buildings and equipment, net        | 120,000           | 85,000            | 38.1%                            | 29.3%         |
| <b>Total property and equipment</b> | <b>\$ 160,000</b> | <b>\$ 125,000</b> | <b>50.8%</b>                     | <b>43.1%</b>  |
| <b>Total assets</b>                 | <b>\$ 315,000</b> | <b>\$ 289,700</b> | <b>100.0%</b>                    | <b>100.0%</b> |

\* Percent rounded to first decimal point.

**CLOVER CORPORATION**  
**Comparative Balance Sheets**  
**December 31,**



|                                                   |                   |                   | Common-size<br>Percents* |               |
|---------------------------------------------------|-------------------|-------------------|--------------------------|---------------|
|                                                   | 2002              | 2001              | 2002                     | 2001          |
| <b>Liabilities and Shareholders' Equity</b>       |                   |                   |                          |               |
| <b>Current liabilities:</b>                       |                   |                   |                          |               |
| Accounts payable                                  | \$ 67,000         | \$ 44,000         | 21.3%                    | 15.2%         |
| Notes payable                                     | 3,000             | 6,000             | 1.0%                     | 2.1%          |
| <b>Total current liabilities</b>                  | <b>\$ 70,000</b>  | <b>\$ 50,000</b>  | <b>22.2%</b>             | <b>17.3%</b>  |
| <b>Long-term liabilities:</b>                     |                   |                   |                          |               |
| Bonds payable, 8%                                 | 75,000            | 80,000            | 23.8%                    | 27.6%         |
| <b>Total liabilities</b>                          | <b>\$ 145,000</b> | <b>\$ 130,000</b> | <b>46.0%</b>             | <b>44.9%</b>  |
| <b>Shareholders' equity:</b>                      |                   |                   |                          |               |
| Preferred stock                                   | 20,000            | 20,000            | 6.3%                     | 6.9%          |
| Common stock                                      | 60,000            | 60,000            | 19.0%                    | 20.7%         |
| Additional paid-in capital                        | 10,000            | 10,000            | 3.2%                     | 3.5%          |
| <b>Total paid-in capital</b>                      | <b>\$ 90,000</b>  | <b>\$ 90,000</b>  | <b>28.6%</b>             | <b>31.1%</b>  |
| Retained earnings                                 | 80,000            | 69,700            | 25.4%                    | 24.1%         |
| <b>Total shareholders' equity</b>                 | <b>\$ 170,000</b> | <b>\$ 159,700</b> | <b>54.0%</b>             | <b>55.1%</b>  |
| <b>Total liabilities and shareholders' equity</b> | <b>\$ 315,000</b> | <b>\$ 289,700</b> | <b>100.0%</b>            | <b>100.0%</b> |

\* Percent rounded to first decimal point.

**CLOVER CORPORATION**  
**Comparative Income Statements**  
**For the Years Ended December 31,**

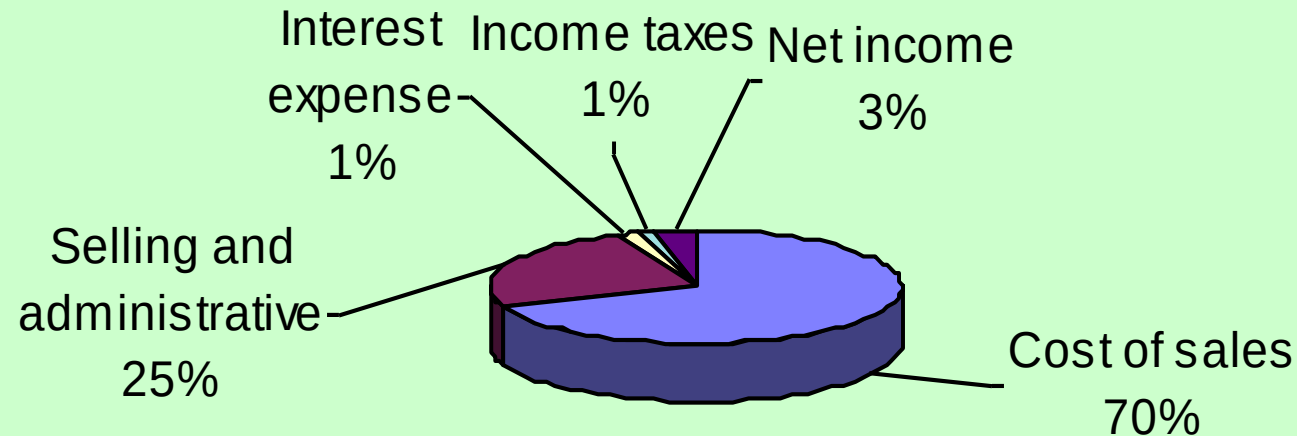


|                             |                  |                  | <b>Common-size<br/>Percents*</b> |               |
|-----------------------------|------------------|------------------|----------------------------------|---------------|
|                             | <b>2002</b>      | <b>2001</b>      | <b>2002</b>                      | <b>2001</b>   |
| <b>Revenues</b>             | <b>\$520,000</b> | <b>\$480,000</b> | <b>100.0%</b>                    | <b>100.0%</b> |
| <b>Costs and expenses:</b>  |                  |                  |                                  |               |
| <b>Cost of sales</b>        | <b>360,000</b>   | <b>315,000</b>   | <b>69.2%</b>                     | <b>65.6%</b>  |
| <b>Selling and admin.</b>   | <b>128,600</b>   | <b>126,000</b>   | <b>24.7%</b>                     | <b>26.3%</b>  |
| <b>Interest expense</b>     | <b>6,400</b>     | <b>7,000</b>     | <b>1.2%</b>                      | <b>1.5%</b>   |
| <b>Income before taxes</b>  | <b>\$ 25,000</b> | <b>\$ 32,000</b> | <b>4.8%</b>                      | <b>6.7%</b>   |
| <b>Income taxes (30%)</b>   | <b>7,500</b>     | <b>9,600</b>     | <b>1.4%</b>                      | <b>2.0%</b>   |
| <b>Net income</b>           | <b>\$ 17,500</b> | <b>\$ 22,400</b> | <b>3.4%</b>                      | <b>4.7%</b>   |
| <b>Net income per share</b> | <b>\$ 0.79</b>   | <b>\$ 1.01</b>   |                                  |               |
| <b>Avg. # common shares</b> | <b>22,200</b>    | <b>22,200</b>    |                                  |               |

**\* Rounded to first decimal point.**

# Common-Size Graphics

This is a graphical analysis of Clover Corporation's common-size income statement for 2002.





# Ratio Analysis

**Let's use the following financial statements for Norton Corporation for our ratio analysis.**

**NORTON CORPORATION**  
**Balance Sheet**  
**December 31,**

|                                     | 2002              | 2001              |
|-------------------------------------|-------------------|-------------------|
| <b>Assets</b>                       |                   |                   |
| <b>Current assets:</b>              |                   |                   |
| <b>Cash</b>                         | <b>\$ 30,000</b>  | <b>\$ 20,000</b>  |
| <b>Accounts receivable, net</b>     | <b>20,000</b>     | <b>17,000</b>     |
| <b>Inventory</b>                    | <b>12,000</b>     | <b>10,000</b>     |
| <b>Prepaid expenses</b>             | <b>3,000</b>      | <b>2,000</b>      |
| <b>Total current assets</b>         | <b>\$ 65,000</b>  | <b>\$ 49,000</b>  |
| <b>Property and equipment:</b>      |                   |                   |
| <b>Land</b>                         | <b>165,000</b>    | <b>123,000</b>    |
| <b>Buildings and equipment, net</b> | <b>116,390</b>    | <b>128,000</b>    |
| <b>Total property and equipment</b> | <b>\$ 281,390</b> | <b>\$ 251,000</b> |
| <b>Total assets</b>                 | <b>\$ 346,390</b> | <b>\$ 300,000</b> |

**NORTON CORPORATION**  
**Balance Sheet**  
**December 31,**

|                                                   | 2002              | 2001              |
|---------------------------------------------------|-------------------|-------------------|
| <b>Liabilities and Shareholders' Equity</b>       |                   |                   |
| <b>Current liabilities:</b>                       |                   |                   |
| <b>Accounts payable</b>                           | <b>\$ 39,000</b>  | <b>\$ 40,000</b>  |
| <b>Notes payable, short-term</b>                  | <b>3,000</b>      | <b>2,000</b>      |
| <b>Total current liabilities</b>                  | <b>\$ 42,000</b>  | <b>\$ 42,000</b>  |
| <b>Long-term liabilities:</b>                     |                   |                   |
| <b>Notes payable, long-term</b>                   | <b>70,000</b>     | <b>78,000</b>     |
| <b>Total liabilities</b>                          | <b>\$ 112,000</b> | <b>\$ 120,000</b> |
| <b>Shareholders' equity:</b>                      |                   |                   |
| <b>Common stock, \$1 par value</b>                | <b>27,400</b>     | <b>17,000</b>     |
| <b>Additional paid-in capital</b>                 | <b>158,100</b>    | <b>113,000</b>    |
| <b>Total paid-in capital</b>                      | <b>\$ 185,500</b> | <b>\$ 130,000</b> |
| <b>Retained earnings</b>                          | <b>48,890</b>     | <b>50,000</b>     |
| <b>Total shareholders' equity</b>                 | <b>\$ 234,390</b> | <b>\$ 180,000</b> |
| <b>Total liabilities and shareholders' equity</b> | <b>\$ 346,390</b> | <b>\$ 300,000</b> |

**NORTON CORPORATION**  
**Income Statement**  
**For the Years Ended December 31,**

|                                | 2002              | 2001              |
|--------------------------------|-------------------|-------------------|
| <b>Revenues</b>                | <b>\$ 494,000</b> | <b>\$ 450,000</b> |
| <b>Cost of sales</b>           | <b>140,000</b>    | <b>127,000</b>    |
| <b>Gross margin</b>            | <b>\$ 354,000</b> | <b>\$ 323,000</b> |
| <b>Operating expenses</b>      | <b>270,000</b>    | <b>249,000</b>    |
| <b>Net operating income</b>    | <b>\$ 84,000</b>  | <b>\$ 74,000</b>  |
| <b>Interest expense</b>        | <b>7,300</b>      | <b>8,000</b>      |
| <b>Net income before taxes</b> | <b>\$ 76,700</b>  | <b>\$ 66,000</b>  |
| <b>Less income taxes (30%)</b> | <b>23,010</b>     | <b>19,800</b>     |
| <b>Net income</b>              | <b>\$ 53,690</b>  | <b>\$ 46,200</b>  |

# Liquidity and Efficiency

Current  
Ratio

Acid-test  
Ratio

Accounts Receivable  
Turnover

Total Asset Turnover

Inventory Turnover

Days' Sales  
Uncollected

Days' Sales in  
Inventory



Use this information to calculate the liquidity and efficiency ratios for Norton Corporation.

| <b>NORTON CORPORATION</b>        |                  |
|----------------------------------|------------------|
| <b>2002</b>                      |                  |
| <b>Cash</b>                      | <b>\$ 30,000</b> |
| <b>Accounts receivable, net</b>  |                  |
| Beginning of year                | 17,000           |
| End of year                      | 20,000           |
| <b>Inventory</b>                 |                  |
| Beginning of year                | 10,000           |
| End of year                      | 12,000           |
| <b>Total current assets</b>      | <b>65,000</b>    |
| <b>Total current liabilities</b> | <b>42,000</b>    |
| <b>Total assets</b>              |                  |
| Beginning of year                | 300,000          |
| End of year                      | 346,390          |
| <b>Revenues</b>                  | <b>494,000</b>   |
| <b>Cost of sales</b>             | <b>140,000</b>   |

# Working Capital

**Working capital** represents current assets financed from long-term capital sources that do not require near-term repayment.

|                     | Dec. 31, 2002 |
|---------------------|---------------|
| Current assets      | \$ 65,000     |
| Current liabilities | (42,000)      |
| Working capital     | \$ 23,000     |

# Current Ratio

$$\text{Current Ratio} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$$

$$\text{Current Ratio} = \frac{\$65,000}{\$42,000} = 1.55 : 1$$

This ratio measures the short-term debt-paying ability of the company.



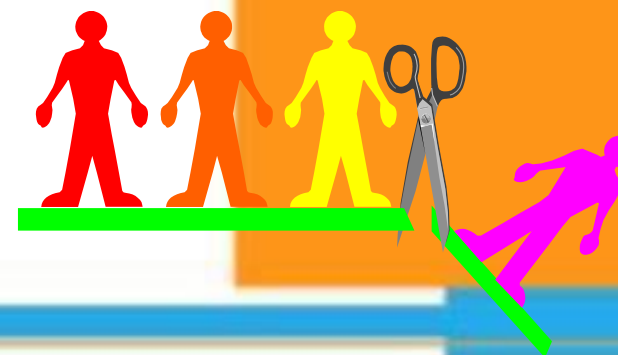
$$\text{Acid-Test Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

# Acid-Test Ratio

Quick assets are Cash, Short-Term Investments, Accounts Receivable and Notes Receivable.

$$\text{Acid-Test Ratio} = \frac{\$50,000}{\$42,000} = 1.19 : 1$$

This ratio is like the current ratio but **excludes** current assets such as inventories and prepaid expenses that may be difficult to quickly convert into cash.

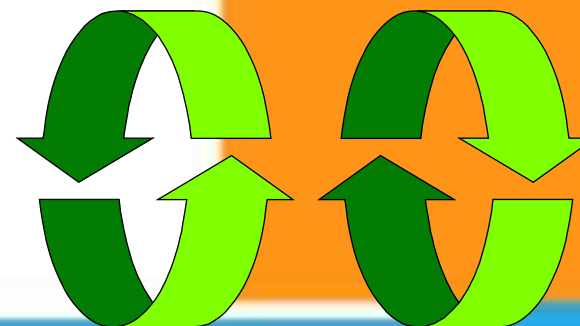


# Accounts Receivable Turnover

$$\text{Accounts Receivable Turnover} = \frac{\text{Sales on Account}}{\text{Average Accounts Receivable}}$$

$$\text{Accounts Receivable Turnover} = \frac{\$494,000}{(\$17,000 + \$20,000) \div 2} = 26.7 \text{ times}$$

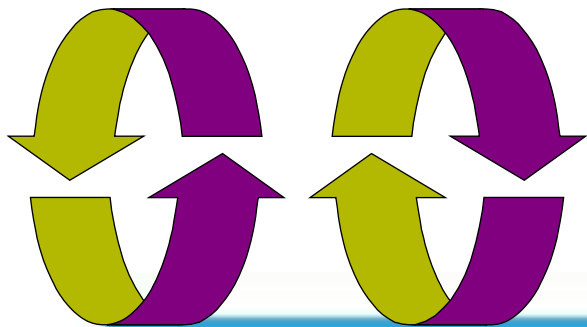
This ratio measures how many times a company converts its receivables into cash each year.



# Inventory Turnover

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Average Inventory}}$$

$$\text{Inventory Turnover} = \frac{\$140,000}{(\$10,000 + \$12,000) \div 2} = 12.73 \text{ times}$$



This ratio measures the number of times merchandise is sold and replaced during the year.

## Days' Sales Uncollected

$$\text{Days' Sales Uncollected} = \frac{\text{Accounts Receivable}}{\text{Net Sales}} \times 365$$

$$\text{Days' Sales Uncollected} = \frac{\$20,000}{\$494,000} \times 365 = 14.8 \text{ days}$$

This ratio measures the liquidity of receivables.



$$\text{Days' Sales in Inventory} = \frac{\text{Ending Inventory}}{\text{Cost of Goods Sold}} \times 365$$

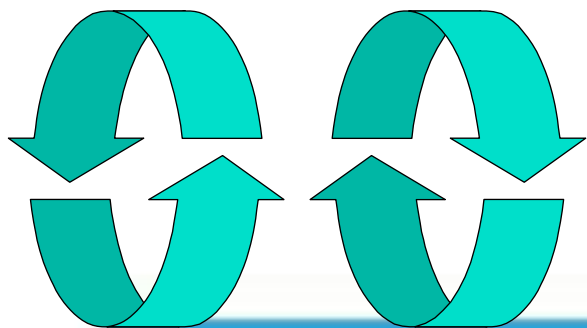
$$\text{Days' Sales in Inventory} = \frac{\$12,000}{\$140,000} \times 365 = 31.29 \text{ days}$$

This ratio measures the liquidity of inventory.



$$\text{Total Asset Turnover} = \frac{\text{Net Sales}}{\text{Average Total Assets}}$$

$$\text{Total Asset Turnover} = \frac{\$494,000}{(\$300,000 + \$346,390) \div 2} = 1.53 \text{ times}$$



This ratio measures the efficiency of assets in producing sales.

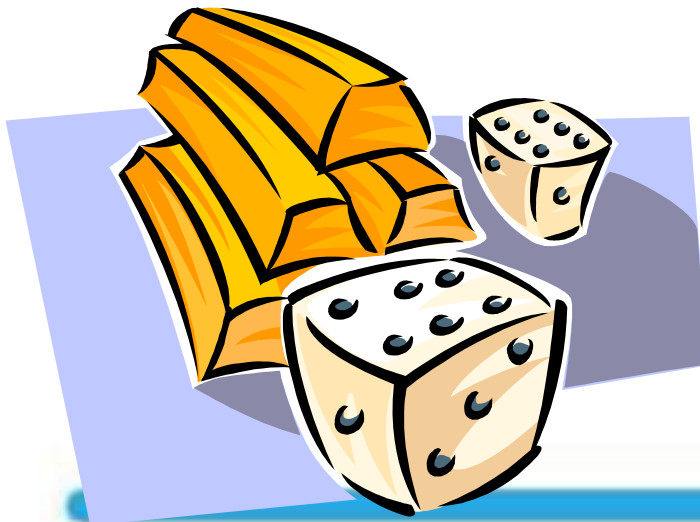
Debt  
Ratio

# Solvency



Equity  
Ratio

Pledged Assets to Secured  
Liabilities



Times Interest Earned

Use this information to calculate the solvency ratios for Norton Corporation.

**NORTON CORPORATION****2002**

|                                                            |           |                |
|------------------------------------------------------------|-----------|----------------|
| <b>Net income before interest expense and income taxes</b> | <b>\$</b> | <b>84,000</b>  |
| <b>Interest expense</b>                                    |           | <b>7,300</b>   |
| <b>Total shareholders' equity</b>                          |           | <b>234,390</b> |
| <b>Total liabilities</b>                                   |           | <b>112,000</b> |
| <b>Total assets</b>                                        |           | <b>346,390</b> |

# Debt Ratio

$$\text{Debt Ratio} = \frac{\text{Total Liabilities}}{\text{Total Assets}}$$

$$\text{Debt Ratio} = \frac{\$112,000}{\$346,390} = 32.3\%$$

This ratio measures what portion of a company's assets are contributed by **creditors**.



$$\text{Equity Ratio} = \frac{\text{Total Equity}}{\text{Total Assets}}$$

$$\text{Equity Ratio} = \frac{\$234,390}{\$346,390} = 67.7\%$$

This ratio measures what portion of a company's assets are contributed by **owners**.

# Equity Ratio



# Pledged Assets to Secured Liabilities

$$\text{Pledged Assets to Secured Liabilities} = \frac{\text{Book Value of Pledged Assets}}{\text{Book Value of Secured Liabilities}}$$

This ratio measures the protection to secured creditors.



# Times Interest Earned

$$\text{Times Interest Earned} = \frac{\text{Net Income before Interest Expense and Income Taxes}}{\text{Interest Expense}}$$

$$\text{Times Interest Earned} = \frac{\$84,000}{\$7,300} = 11.51$$

This is the most common measure of the ability of a firm's operations to provide protection to the long-term creditor.



# Profitability

Profit  
Margin

Gross Margin

Return on Total  
Assets

Return on Common  
Stockholders' Equity

Basic Earnings per  
Share

Book Value per  
Common Share



Use this information to calculate the profitability ratios for Norton Corporation.

| <b>NORTON CORPORATION</b>                           |                  |
|-----------------------------------------------------|------------------|
| <b>2002</b>                                         |                  |
| <b>Number of common shares outstanding all year</b> | <b>27,400</b>    |
| <b>Net income</b>                                   | <b>\$ 53,690</b> |
| <b>Shareholders' equity</b>                         |                  |
| <b>Beginning of year</b>                            | <b>180,000</b>   |
| <b>End of year</b>                                  | <b>234,390</b>   |
| <b>Revenues</b>                                     | <b>494,000</b>   |
| <b>Cost of sales</b>                                | <b>140,000</b>   |
| <b>Total assets</b>                                 |                  |
| <b>Beginning of year</b>                            | <b>300,000</b>   |
| <b>End of year</b>                                  | <b>346,390</b>   |

# Profit Margin

$$\text{Profit Margin} = \frac{\text{Net Income}}{\text{Net Sales}}$$

$$\text{Profit Margin} = \frac{\$53,690}{\$494,000} = 10.87\%$$

This ratio describes a company's ability to earn a net income from sales.



# Gross Margin

$$\text{Gross Margin} = \frac{\text{Net Sales} - \text{Cost of Sales}}{\text{Net Sales}}$$

$$\text{Gross Margin} = \frac{\$494,000 - \$140,000}{\$494,000} = 71.66\%$$



This ratio measures the amount remaining from \$1 in sales that is left to cover operating expenses and a profit after considering cost of sales.

# Return on Total Assets

$$\text{Return on Total Assets} = \frac{\text{Net Income}}{\text{Average Total Assets}}$$

$$\text{Return on Total Assets} = \frac{\$53,690}{(\$300,000 + \$346,390) \div 2} = 16.61\%$$



This ratio is generally considered the best overall measure of a company's profitability.

$$\text{Return on Common Stockholders' Equity} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Common Stockholders' Equity}}$$

$$\text{Return on Common Stockholders' Equity} = \frac{\$53,690 - 0}{(\$180,000 + \$234,390) \div 2} = 25.9\%$$

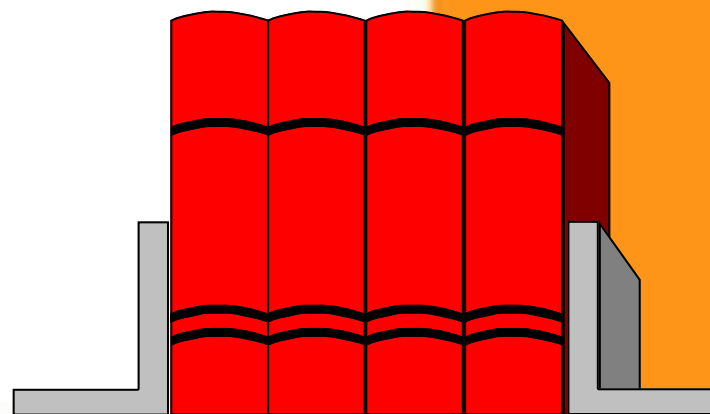


This measure indicates how well the company employed the owners' investments to earn income.

# Book Value per Common Share

$$\text{Book Value per Common Share} = \frac{\text{Shareholders' Equity Applicable to Common Shares}}{\text{Number of Common Shares Outstanding}}$$

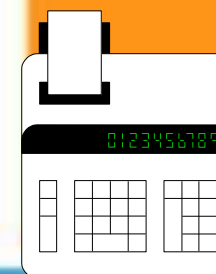
This ratio measures liquidation at reported amounts.



$$\begin{array}{l} \text{Basic} \\ \text{Earnings} \\ \text{per} \\ \text{Share} \end{array} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Weighted-Average Common Shares Outstanding}}$$

$$\begin{array}{l} \text{Basic} \\ \text{Earnings} \\ \text{per} \\ \text{Share} \end{array} = \frac{\$53,690 - 0}{27,400} = \$1.96 \text{ per share}$$

This measure indicates how much income was earned for each share of common stock outstanding.



# Market

Price-Earnings Ratio

Dividend Yield



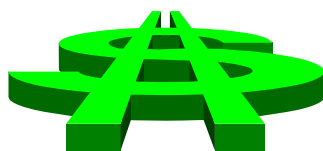
Use this information to calculate the market ratios for Norton Corporation.

| <b>NORTON CORPORATION</b>        |           |              |
|----------------------------------|-----------|--------------|
| <b>December 31, 2002</b>         |           |              |
| <b>Earnings per Share</b>        | <b>\$</b> | <b>1.96</b>  |
| <b>Market Price</b>              |           | <b>15.00</b> |
| <b>Annual Dividend per Share</b> |           | <b>2.00</b>  |

# Price-Earnings Ratio

$$\text{Price-Earnings Ratio} = \frac{\text{Market Price Per Share}}{\text{Earnings Per Share}}$$

$$\text{Price-Earnings Ratio} = \frac{\$15.00}{\$1.96} = 7.65 \text{ times}$$



This measure is often used by investors as a general guideline in gauging stock values. Generally, the higher the price-earnings ratio, the more opportunity a company has for growth.

## Dividend Yield

$$\text{Dividend Yield} = \frac{\text{Annual Dividends Per Share}}{\text{Market Price Per Share}}$$

$$\text{Dividend Yield} = \frac{\$2.00}{\$15.00} = 13.3\%$$



This ratio identifies the return, in terms of cash dividends, on the current market price of the stock.

