

Principles of Accounting

Prepared by
Dr. Hoda Metwally

MGM 227

Lecture 4



Financial Statements Analysis and its interpretation (Part two)

Ratio Analysis

Building Blocks of Analysis



Financial Statements Analysis and Interpretation

Information for Analysis

• **Income Statement** •

• **Balance Sheet** •

• **Statement of
Changes in Stockholders' Equity** •

• **Statement of Cash
Flows** •

Notes



Interpretation

Ratio Analysis

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

Tools of Analysis

Using key relations
among financial
statement items

Ratio Analysis

Liquidity and efficiency Ratios

Analyze the ability to meet short-term obligations and to efficiently generate revenues

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.**

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

Working Capital

reflects the short-term resources a company has available to cover its short term liabilities.

	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.



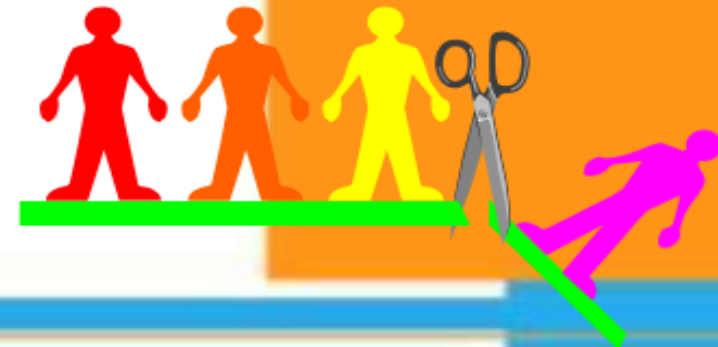
$$\text{Acid-Test Ratio} = \frac{\text{Quick Assets}}{\text{Current Liabilities}}$$

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.

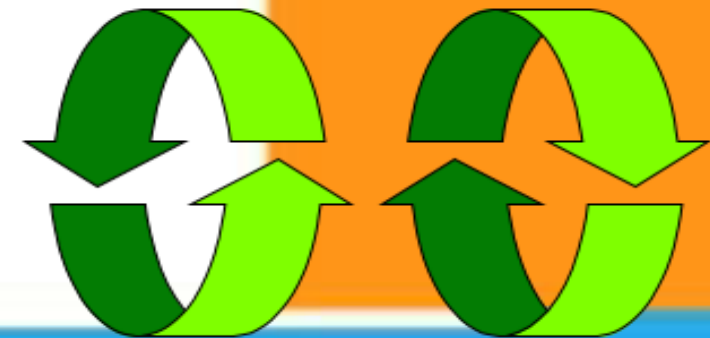


Accounts Receivable Turnover

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

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

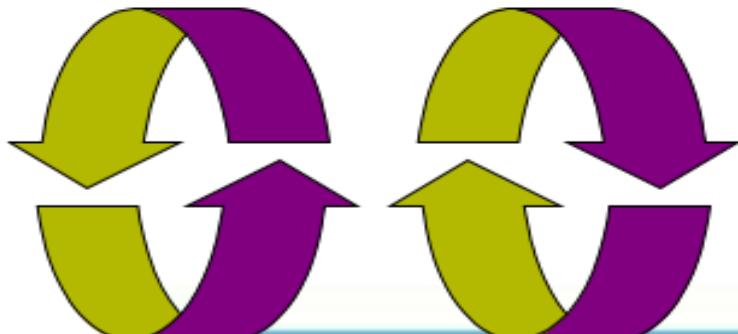
This ratio measures how many times a company converts its receivables into cash each year.



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.



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

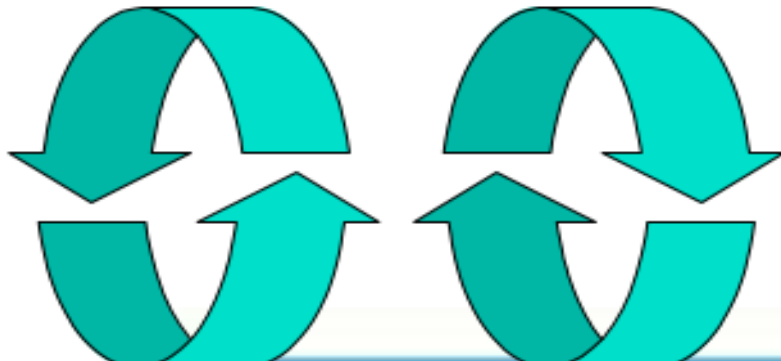
$$\text{Days' Sales in Inventory} = \frac{\$12,000}{\$140,000} \times 365 = 31.29 \text{ days}$$

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.

Solvency Ratios

Analyze the ability to generate future revenues and meet long-term obligations

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

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

Debt Ratio

**Debt
Ratio**

=

$$\frac{\text{Total Liabilities}}{\text{Total Assets}} \times 100$$

**Debt
Ratio**

=

$$\frac{\$112,000}{\$346,390} \times 100 = 32.3\%$$

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



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



$$\text{Equity Ratio} = \frac{\$234,390}{\$346,390} \times 100 = 67.7\%$$

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



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 Ratios

**Ability to provide financial rewards
sufficient to attract and retain financing**

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.

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

Profit Margin

$$\text{Profit Margin} = \frac{\text{Net Income}}{\text{Net Sales}} \times 100$$

$$\text{Profit Margin} = \frac{\$53,690}{\$494,000} \times 100 = 10.87\%$$

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



Gross Margin

$$\text{Gross Margin} = \frac{\text{Net Sales} - \text{Cost of Sales}}{\text{Net Sales}} \times 100$$

$$\text{Gross Margin} = \frac{\$494,000 - \$140,000}{\$494,000} \times 100 = 71.66\%$$



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

$$\text{Return on Total Assets} = \frac{\text{Net Income}}{\text{Average Total Assets}} \times 100$$

$$\text{Return on Total Assets} = \frac{\$53,690}{(\$300,000 + \$346,390) \div 2} \times 100 = 16.61\%$$



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

$$\text{Return on Common Stockholders' Equity} = \frac{\text{Net Income} - \text{Preferred Dividends}}{\text{Average Common Stockholders' Equity}} \times 100$$

$$\text{Return on Common Stockholders' Equity} = \frac{\$53,690 - 0}{(\$180,000 + \$234,390) \div 2} \times 100 = 25.9\%$$

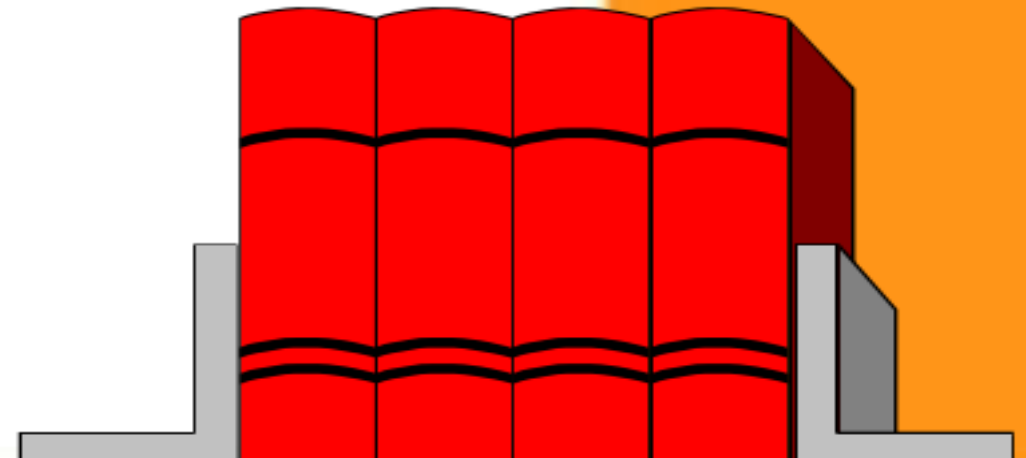


This measure indicates how well the company employed the owners' investments to earn income.

Book Value per Common Share

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

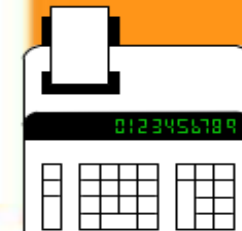
This ratio measures liquidation at reported amounts.



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

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

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



Market Ratios

Ability to generate positive market expectations

Market

Price-
Earnings
Ratio

Dividend
Yield



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

NORTON CORPORATION

December 31, 2002

Earnings per Share	\$ 1.96
Market Price	15.00
Annual Dividend per Share	2.00

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

$$\text{Dividend Yield} = \frac{\text{Annual Dividends Per Share}}{\text{Market Price Per Share}} \times 100$$

$$\text{Dividend Yield} = \frac{\$2.00}{\$15.00} \times 100 = 13.3\%$$



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



Thank You