

Introduction to Finance



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Lecture 3

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Financial Statement Analysis

Learning Objectives

Help yourself grow as a stock analyst by knowing:

1. How to obtain financial information about companies.
2. How to read basic financial statements.
3. How to use performance and price ratios.

Framework of Analysis

- Top-down approach (“Three-Step” Approach)

Step 1: Domestic and global economic analysis

- **Market timing:** Should you try to buy and sell in anticipation of the future direction of the market?

Step 2: Industry analysis

- **Asset allocation:** How should you distribute your investment funds across the different classes of assets? For example, it is a decision of allocating your money into stocks, fixed income securities, and cash.

Step 3: Company analysis

- **Security selection:** Within each class, which specific securities should you buy?

Security Analysis

- Two different approaches
 - Fundamental analysis
 - Technical analysis
- **Fundamental analysis**
 - A term for studying a company's accounting statements and other financial and economic information to estimate the economic value of a company's stock.
 - The basic idea: to identify both “**undervalued**” or “cheap” stocks to buy and “**overvalued**” or “rich” stocks to sell.
 - Simply, it is a process of finding an “intrinsic value” of a stock.
 - Fundamental analysis is often the most demanding and most time-consuming phase of stock selection

Steps in Valuing a Company

- Three steps are necessary to project key financial variables into the future:

Step 1: Analyze financial statements and ratios

Step 2: Forecast future sales, dividends, EPS, and P/E ratios.

Step 3: Forecast future stock price.

Security Selection

- Once we have an estimated future stock price, we can compare it to the current market price to see if it may be a good investment candidate:

current price < estimated price undervalued

current price = estimated price fairly valued

current price > estimated price overvalued

Step 1:

ANALYZE FINANCIAL STATEMENTS AND RATIOS

Three Important Financial Statements

- **The Balance Sheet:**
 - Provides a snapshot view of a company's assets and liabilities.
 - The Balance Sheet is as of a particular date.
- **The Income Statement:**
 - Provides a summary of a firm's revenues and expenses.
 - The Income Statement is over a specific accounting period, usually a quarter or a year.
- **The Cash Flow Statement:**
 - Is an analysis of the sources and uses of cash by the firm over an accounting period.
 - Summarizes operating, investing, and financing cash flows.

Financial Statements: The Balance Sheet

- Summary of a company's assets, liabilities, and shareholders' equity at a point in time
 - **Assets:** what the company owns (i.e. cash, inventory, accounts receivable, equipment, buildings, land)
 - **Liabilities:** what the company owes (i.e. bills, debt)
 - **Equity:** capital the stockholders have invested in the company
- What are we looking for on the balance sheet?
 - Relative amounts (large vs. small)
 - Trends (improving vs. decreasing)

$$\text{Assets} = \text{Liabilities} + \text{Equity}$$

Corporate Balance Sheet

Universal Office Furnishings, Inc. Comparative Balance Sheets December 31 (\$ in millions)

	2010	2009
Assets		
<i>Current assets</i>		
Cash and equivalents	\$ 95.8	\$ 80.0
Receivables	227.2	192.4
Inventories	103.7	107.5
Other current assets	73.6	45.2
Total current assets	500.3	425.1
<i>Noncurrent assets</i>		
Property, plant, & equipment, gross	771.2	696.6
Accumulated depreciation	(372.5)	
Property, plant, & equipment, net	398.7	316.7
Other noncurrent assets	42.2	19.7
Total noncurrent assets	440.9	336.4
Total assets	<u>\$941.2</u>	<u>\$761.5</u>
Liabilities and stockholders' equity		
<i>Current liabilities</i>		
Accounts payable	\$ 114.2	\$ 82.4
Short-term debt	174.3	79.3
Other current liabilities	85.5	89.6
Total current liabilities	374.0	251.3
<i>Noncurrent liabilities</i>		
Long-term debt	177.8	190.9
Other noncurrent liabilities	94.9	110.2
Total noncurrent liabilities	272.7	301.1
Total liabilities	<u>\$646.7</u>	<u>\$552.4</u>
<i>Stockholders' equity</i>		
Common shares	92.6	137.6
Retained earnings	201.9	71.5
Total stockholders' equity	<u>\$294.5</u>	<u>\$209.1</u>
Total liabilities and stockholders' equity	<u>\$941.2</u>	<u>\$761.5</u>

Financial Statements:

The Income Statement

- Summary of a company's operating results over a specific period of time, usually one year
 - **Revenues:** funds received for providing products and/or services
 - **Expenses:** funds used to pay for materials, labor, and other business costs
 - **Profit/Loss:** revenues less expenses
- What are we looking for on the income statement?
 - Relative amounts (large vs. small)
 - Relationships (Are expenses growing faster or slower than revenues?)
 - Trends (improving vs. decreasing)

Net income = Revenues – Expenses

= Dividends + Addition to Retained earnings

Corporate Income Statement

Universal Office Furnishings, Inc. Income Statements Fiscal Year Ended December 31
(\$ in millions)

	2010	2009
Net sales	\$1,938.0	\$1,766.2
Cost of goods sold	1,128.5	1,034.5
Gross profit	\$ 809.5	\$ 731.7
Selling, general, and administrative, and other operating expenses	\$ 496.7	\$ 419.5
Depreciation & amortization	77.1	62.1
Other expenses	0.5	12.9
Total operating expenses	\$ 574.3	\$ 494.5
Earnings before interest & taxes (EBIT)	<u>\$ 235.2</u>	<u>\$ 237.2</u>
Interest expense	\$ 13.4	\$ 7.3
Earnings before taxes	221.8	229.9
Income taxes	82.1	88.1
Net profit after taxes	<u>\$ 139.7</u>	<u>\$ 141.8</u>
Dividends paid per share	\$ 0.15	\$ 0.13
Earnings per share (EPS)	\$ 2.26	\$ 2.17
Number of common shares outstanding (in millions)	61.8	65.3

Financial Statements:

The Statement of Cash Flows

- **Summary of a company's cash flows and other events that caused changes in company's cash**
 - Sources of Cash: proceeds from sale of products/ services, sales of equipment, borrowing money, sale of stock
 - Use of Cash: payment of wages and/or materials, payment of operating expenses, purchases of equipment, payment of debt, payment of dividends
- **Net Income does not equal cash flow.**
 - Net income contains **non-cash** items.
 - **Non-cash** items are income and expenses not realized in cash form.
 - **Depreciation** can be a significant **non-cash** item.
- **Cash flow** represents all income realized in cash form.
 - Adjusting net income for non-cash items yields **Operating Cash Flow**.
 - **Investment Cash Flow** includes any purchases or sales of fixed assets and investments.
 - **Financing Cash Flow** includes funds raised by issuing securities or expended by repurchasing outstanding securities.
- **What are we looking for on the cash flow statement?**
 - Relative amounts (more cash or less cash)
 - Liquidity
 - Trends (improving vs. decreasing)

Statement of Cash Flows

Universal Office Furnishings, Inc. Statements of Cash Flows Fiscal Year Ended December 31
(\$ in millions)

	2010	2009
Cash from operating activities		
Net earnings	\$139.7	\$141.8
Depreciation and amortization	77.1	62.1
Other noncash charges	5.2	16.7
Increase (decrease) in current assets	(41.7)	14.1
Increase (decrease) in current liabilities	21.8	29.1
Net cash flow from operating activities	\$202.1	\$205.6
Cash from investing activities		
Acquisitions of property, plant, and equipment—net	(\$150.9)	(\$ 90.6)
Net cash flow from investing activities	(\$150.9)	(\$ 90.6)
Cash from financing activities		
Proceeds from long-term borrowing	\$749.8	\$ 79.1
Reduction in long-term debt, including current maturities and early retirements	(728.7)	(211.1)
Net repurchase of capital stock	(47.2)	(9.8)
Payment of dividends on common stock	(9.3)	(8.5)
Net cash flow from financing activities	(\$ 35.4)	(\$150.3)
Net increase (decrease) in cash	<u>\$ 15.8</u>	<u>(\$ 35.3)</u>
Cash and equivalents at beginning of period	\$ 80.0	\$ 115.3
Cash and equivalents at end of period	<u>\$ 95.8</u>	<u>\$ 80.3</u>

Key Financial Ratios

- Study of the relationships between financial statement accounts
- Purpose is to develop information about the past that can be used to get a handle on the future
 - “X-rays” of the financial statements to look for meaningful relationships between numbers
 - Looks at company’s **historical trends** to see if improving or declining
 - Looks at **industry standards** to see how company compares to competitors

Major Groups of Financial Ratios

- **Liquidity Ratios:** the company's ability to meet day-to-day operating expenses and satisfy short-term obligations as they become due
- **Activity Ratios:** how well the company is managing its assets
- **Leverage Ratios:** amount of debt used by the company
- **Profitability Ratios:** measures how successful the company is at creating profits
- **Price Ratios:** converts key financial information into per-share basis to simplify financial analysis

Liquidity Ratios

- **Current Ratio:** how many dollars of short-term assets are available for every dollar of short-term liabilities owed
 - Higher ratio: more liquidity
 - Lower ratio: less liquidity

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

- **Net Working Capital:** how many dollars of working capital are available to pay bills and grow the business
 - Higher amounts: firm makes large investments in working capital
 - Lower amounts: firms operates with less working capital

$$\text{Net working capital} = \text{Current assets} - \text{Current liabilities}$$

Activity Ratios

- **Accounts Receivable Turnover:** how quickly the company is collecting its accounts receivable (sales to customers on credit)
 - Higher ratio: better
 - Lower ratio: worse
$$\text{Accounts receivable turnover} = \frac{\text{Annual sales}}{\text{Accounts receivable}}$$
- **Inventory Turnover:** how quickly the company is selling its inventory
 - Higher ratio: better
 - Lower ratio: worse
$$\text{Inventory turnover} = \frac{\text{Annual sales}}{\text{Inventory}}$$
- **Total Asset Turnover:** how efficiently the company is using its assets to support sales
 - Higher ratio: better
 - Lower ratio: worse
$$\text{Total asset turnover} = \frac{\text{Annual sales}}{\text{Total assets}}$$

Leverage Ratios

- **Debt-Equity Ratio:** how much debt the company is using to support its business compared to how much stockholders' equity it is using to support its business

- Higher ratio: worse
- Lower ratio: better

$$\text{Debt-equity ratio} = \frac{\text{Long-term debt}}{\text{Stockholders' equity}}$$

- **Time Interest Earned:** measures the ability of the firm to meet its fixed interest payments

- Higher ratio: better
- Lower ratio: worse

$$\text{Times interest earned} = \frac{\text{Earnings before interest and taxes}}{\text{Interest expense}}$$

Profitability Ratios

- **Net Profit Margin:** amount of profit earned from sales and other operations
 - Higher ratio: better
 - Lower ratio: worse

$$\text{Net profit margin} = \frac{\text{Net profit after taxes}}{\text{Total revenues}}$$

- **Return on Assets:** amount of profit earned on each dollar invested in assets; measures management's efficiency at using assets
 - Higher ratio: better
 - Lower ratio: worse

$$\text{ROA} = \frac{\text{Net profit after taxes}}{\text{Total assets}}$$

- **Return on Equity:** amount of profit earned on each dollar invested by stockholders; measures management's efficiency at using stockholders' funds
 - Higher ratio: better
 - Lower ratio: worse

$$\text{ROE} = \frac{\text{Net profit after taxes}}{\text{Stockholders' equity}}$$

Breaking Down Return on Assets (ROA)

- Breaking down ROA allows investors to identify the components that are driving company profits.

$$\text{ROA} = \text{Net profit margin} \times \text{Total asset turnover}$$

- Investors want to know if ROA is moving up (or down) because of improvement (or deterioration) in the company's profit margin and/or its total asset turnover.

Breaking Down Return on Equity (ROE)

- Breaking down ROE allows investors to identify the impact of financial leverage on company return.

$$\text{Equity multiplier} = \frac{\text{Total assets}}{\text{Total stockholders' equity}}$$

$$\text{ROE} = \text{ROA} \times \text{Equity multiplier}$$

- Investors want to know if ROE is moving up (or down) because of how much debt the company is using or because of how the firm is managing its assets and operations.

Price Ratios

- **Price/Earnings Ratio:** shows how the stock market is pricing the company's common stock
 - One of the most widely used ratios in common stock selection
 - Often used in stock valuation models

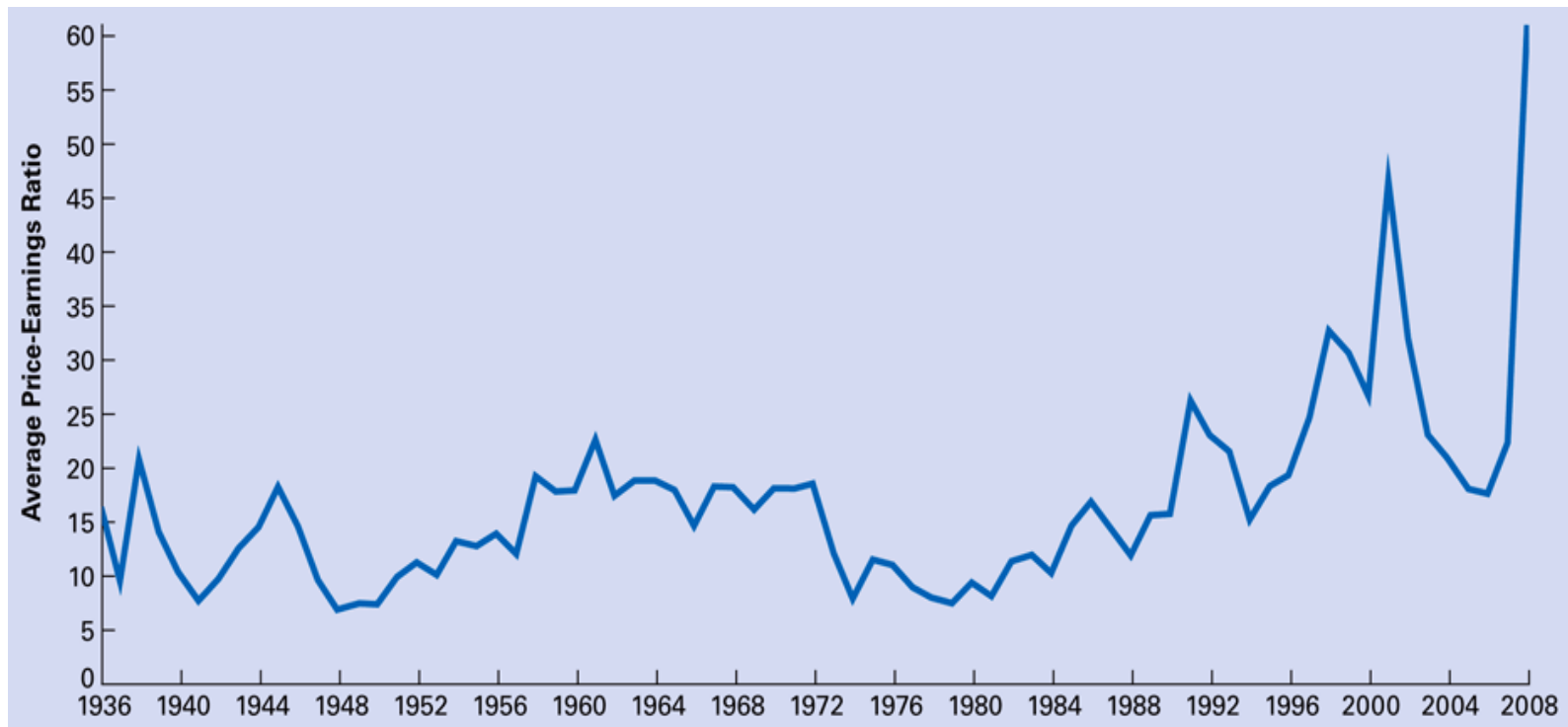
$$P/E = \frac{\text{Net price of common stock}}{\text{EPS}}$$

- Higher ratio: more expensive
- Lower ratio: less expensive

$$\text{EPS} = \frac{\text{Net profit after taxes} - \text{Preferred dividends}}{\text{Number of common shares outstanding}}$$

Chapter 3

Average P/E Ratio of S&P 500 Stocks



Price Ratios (cont'd)

- What is the P/E ratio for a company with profits of \$139.7 million, 61,815,000 outstanding shares of common stock and a current market price of \$41.50 per share?

$$\text{EPS} = \frac{\$139,700,000}{61,815,000 \text{ shares}} \text{ or } \$2.26$$

$$\text{Price/Earnings ratio} = \frac{\$41.50}{\$2.26} \text{ or } 18.4$$

Price Ratios (cont'd)

- **Price/Earnings Growth Ratio (PEG):** compares company's P/E ratio to the rate of growth in earnings

$$\text{PEG ratio} = \frac{\text{Stock's P/E ratio}}{\text{3- to 5-year growth rate in earnings}}$$

- Ratio > 1: stock may be fully valued
- PEG = 1: stock price in line with earnings growth
- Ratio < 1: stock may be undervalued

Price Ratios (cont'd)

- **Dividends per share:** the amount of dividends paid out to common stockholders

$$\text{Dividends per share} = \frac{\text{Annual dividends paid to common stock}}{\text{Number of common shares outstanding}}$$

- **Payout Ratio:** how much of its earnings a company pays out to stockholders in the form of dividends
 - Traditional payout ratios have been 40% to 60%
 - Recent trends have been lower payout ratios, with more tax efficient stock buyback programs used frequently
 - High payout ratios may be difficult to maintain and the stock market does not like cuts in dividends

$$\text{Payout ratio} = \frac{\text{Dividends per share}}{\text{Earnings per share}}$$

Price Ratios (cont'd)

- **Book Value per Share:** difference between assets and liabilities (equity) per share
 - A company should be worth more than its book value.

$$\text{Book value per share} = \frac{\text{Common stockholders' equity}}{\text{Number of common shares outstanding}}$$

- **Price-to-Book Ratio:** compares stock price to book value to see how aggressively the stock is being priced
 - Higher ratio: stock is fully-priced or overpriced
 - Lower ratio: stock may be fairly priced or underpriced

$$\text{Price-to-book-value} = \frac{\text{Market price of common stock}}{\text{Book value per share}}$$

Three Price Multiples

- Annual reports will often report per-share calculations of book value, earnings, and operating cash flow.
 - Per share calculations require the number of shares outstanding.
 - Cash flow per share uses **operating cash flow**!

$$\text{Book Value per Share (BVPS)} = \frac{\text{Stockholder Equity}}{\text{Shares Outstanding}}$$

$$\text{Earnings per Share (EPS)} = \frac{\text{Net Income}}{\text{Shares Outstanding}}$$

$$\text{Cash Flow per Share (CFPS)} = \frac{\text{Operating Cash Flow}}{\text{Shares Outstanding}}$$

$$\text{Price to Book Ratio (P/B)} = \frac{\text{Stock Price}}{\text{BVPS}}$$

$$\text{Price Earnings Ratio (P/E)} = \frac{\text{Stock Price}}{\text{EPS}}$$

$$\text{Price to Cash Flow Ratio (P/CF)} = \frac{\text{Stock Price}}{\text{CFPS}}$$

Interpreting Financial Ratios

- Sources of Ratio Analysis
 - *Standard & Poor's Stock Reports*
 - Brokerage firm reports
 - *Value Line Reports*

Chapter 3



Example of Published Report with Financial Statistics

Interpreting Financial Ratios

- Look at **historical ratio** trends for the company
- Look at **ratios for the industry**
- Evaluate the firm relative to **two or three major competitors**
- Try to determine if the financial information is telling you a good story about the company or a bad story
- Use the story to decide if you think the stock has intrinsic value for you as an investor

Could There Be Trouble Brewing?

- The following financial statement developments could indicate a company **heading for financial problems**:
 - Inventories and receivables growing faster than sales
 - A falling current ratio, caused by current liabilities increasing faster than current assets
 - A high and rapidly increasing debt-to-equity ratio, suggesting problems with servicing debt in future
 - Cash flow from operations dropping below net income
 - Presence of lots of indecipherable off-balance sheet accounts and extraordinary income entries

Comparative Historical and Industry Ratios

	Historical Figures for Universal Office Furnishings Inc.				Industry Averages for the Office Equipment Industry in 2010
	2007	2008	2009	2010	
<i>Liquidity measures</i>					
Current ratio	1.55	1.29	1.69	1.34	1.45
<i>Activity measures</i>					
Receivables turnover	9.22	8.87	9.18	8.53	5.70
Inventory turnover	15.25	17.17	16.43	18.69	7.80
Total asset turnover	1.96	2.12	2.32	2.06	0.85
<i>Leverage measures</i>					
Debt-equity ratio	0.70	0.79	0.91	0.60	1.58
Times interest earned	15.37	26.22	32.49	17.55	5.60
<i>Profitability measures</i>					
Net profit margin	6.6%	7.5%	8.0%	7.2%	4.6%
Return on assets	9.8%	16.4%	18.6%	14.8%	3.9%
Return on equity	25.9%	55.5%	67.8%	47.4%	17.3%
<i>Common stock measures</i>					
Earnings per share	\$1.92	\$2.00	\$2.17	\$2.26	N/A
Price/earnings ratio	16.2	13.9	15.8	18.4	16.2
Dividend yield	0.3%	0.4%	0.4%	0.4%	1.1%
Payout ratio	5.2%	5.5%	6.0%	6.6%	24.8%
Price-to-book-value ratio	7.73	10.73	10.71	8.72	3.54

Comparative Financial Statistics: Universal Office Furnishings and Its Major Competitors (All figures are for year-end 2010 or for the five-year period ending in 2010; \$ in millions)

Financial Measure	Universal Office Furnishings	Cascade Industries	Colwyn Furniture	High Design, Inc.
Total assets	\$ 941.2	\$ 906.7	\$342.7	\$3,037.6
Long-term debt	\$ 177.8	\$ 124.2	\$ 73.9	\$ 257.8
Stockholders' equity	\$ 294.5	\$ 501.3	\$183.9	\$1,562.2
Stockholders' equity as a % of total assets	31.3%	55.3%	53.7%	51.4%
Total revenues	\$1,938.0	\$1,789.3	\$642.2	\$3,316.1
Net earnings	\$ 139.7	\$ 87.4	\$ 38.5	\$ 184.2
Net profit margin	7.2%	4.9%	6.0%	5.5%
5-year growth rates in:				
Total assets	14.36%	19.44%	17.25%	17.73%
Total revenues	18.84%	17.76%	15.91%	15.84%
EPS	56.75%	38.90%	21.10%	24.66%
Dividends	1.48%	11.12%	N/A	12.02%
Total asset turnover	2.063	1.973	1.883	1.093
Debt-equity ratio	0.60	0.43	1.46	0.17
Times interest earned	17.553	13.383	8.353	14.363
ROA	14.8%	9.5%	6.7%	6.7%
ROE	47.4%	18.8%	21.8%	13.0%
P/E ratio	18.43	14.43	13.33	12.43
PEG ratio	1.21	2.42	1.98	1.09
Payout ratio	6.6%	26.2%	N/A	32.4%
Dividend yield	0.4%	1.8%	N/A	2.6%
Price-to-book-value ratio	8.72	2.71	2.93	1.59