



UF | IFAS
UNIVERSITY *of* FLORIDA

FOOD & RESOURCE
ECONOMICS
DEPARTMENT

FINANCIAL STATEMENTS

Dr. Derek Farnsworth | Assistant Professor

Financial Statements



Financial Statements



Key Concepts

- The two primary financial statements
 - **Balance Sheet**
 - **Income Statement**
- *Debt vs equity*
- *Book vs market value*
- *Income vs cash flow*
- *Average vs marginal tax rate*

Key Terms Review

- Asset – something you have
- Liability – something you owe (debt)
- Equity – net value of the business
 - $\text{Equity} = \text{Assets} - \text{Liabilities}$

New Terms

- **Liquidity** – Speed and ease of conversion to cash without significant loss of value
 - Valuable in avoiding financial distress
- Current vs fixed or long term
 - An **asset** or **liability** is “current” if it *converts to cash within a year*

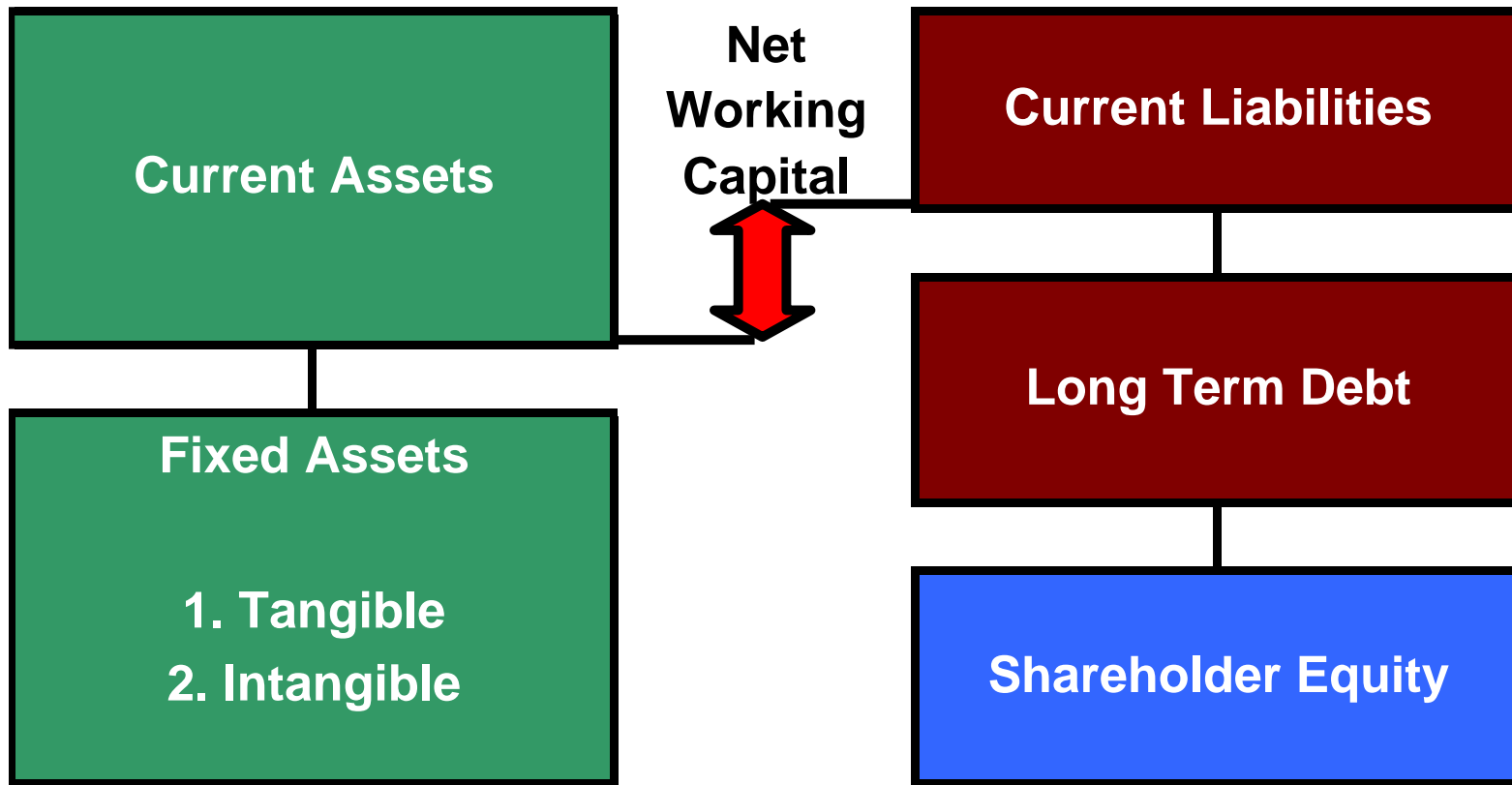
The Balance Sheet

- A snapshot of the firm's assets and liabilities at a given point in time (“as of ...”)
- **Assets**
 - Left-hand side (or upper portion)
 - In order of decreasing liquidity
- **Liabilities and Owners' Equity**
 - Right-hand side (or lower portion)
 - In ascending order of when due to be paid
- Balance Sheet Identity
 - Assets = Liabilitys + Owners' Equity (ALOE)

The Balance Sheet

Total Value of Assets

Total Value of Liabilities
and Shareholders' Equity



The Balance Sheet

U.S. CORPORATION
Balance Sheets as of December 31, 2013 and 2014
(\$ in Millions)

	2013	2014		2013	2014
Assets			Liabilities and Owners' Equity		
Current assets			Current liabilities		
Cash	\$ 104	\$ 160	Accounts payable	\$ 232	\$ 266
Accounts receivable	455	688	Notes payable	196	123
Inventory	553	555	Total	<u>\$ 428</u>	<u>\$ 389</u>
Total	<u>\$1,112</u>	<u>\$1,403</u>			
Fixed assets			Long-term debt	\$ 408	\$ 454
Net fixed assets	<u>\$1,644</u>	<u>\$1,709</u>	Owners' equity		
			Common stock and		
			paid-in surplus	600	640
			Retained earnings	1,320	1,629
			Total	<u>\$1,920</u>	<u>\$2,269</u>
Total assets	<u>\$2,756</u>	<u>\$3,112</u>	Total liabilities and	<u>\$2,756</u>	<u>\$3,112</u>
			owners' equity		

Balance Sheet Examples

- Let's examine some balance sheets!
- [SCORE Balance Sheet](#)
- [FSA Balance Sheet](#)

Accrued Interest?

- Let's get Investopedia to help!
- <http://www.investopedia.com/terms/a/accruedinterest.asp>

Balance Sheet Activity

- **Balance Sheets** have a particular structure, but let's think more broadly...
- Let's come up with a **balance sheet** *for your life*
 - What do you have going for you?
 - What's working against you?
 - Keep things broad, no need to get too detailed

The Balance Sheet

- **Net Working Capital**

- Current Assets - Current Liabilities
- Usually positive for a healthy firm

- **Solvency**

- The ability to pay off your liabilities (debt)

- **Liabilities versus Equity**

- Liabilities (debt) – borrowing money to buy assets
- Equity – using your own money to buy assets

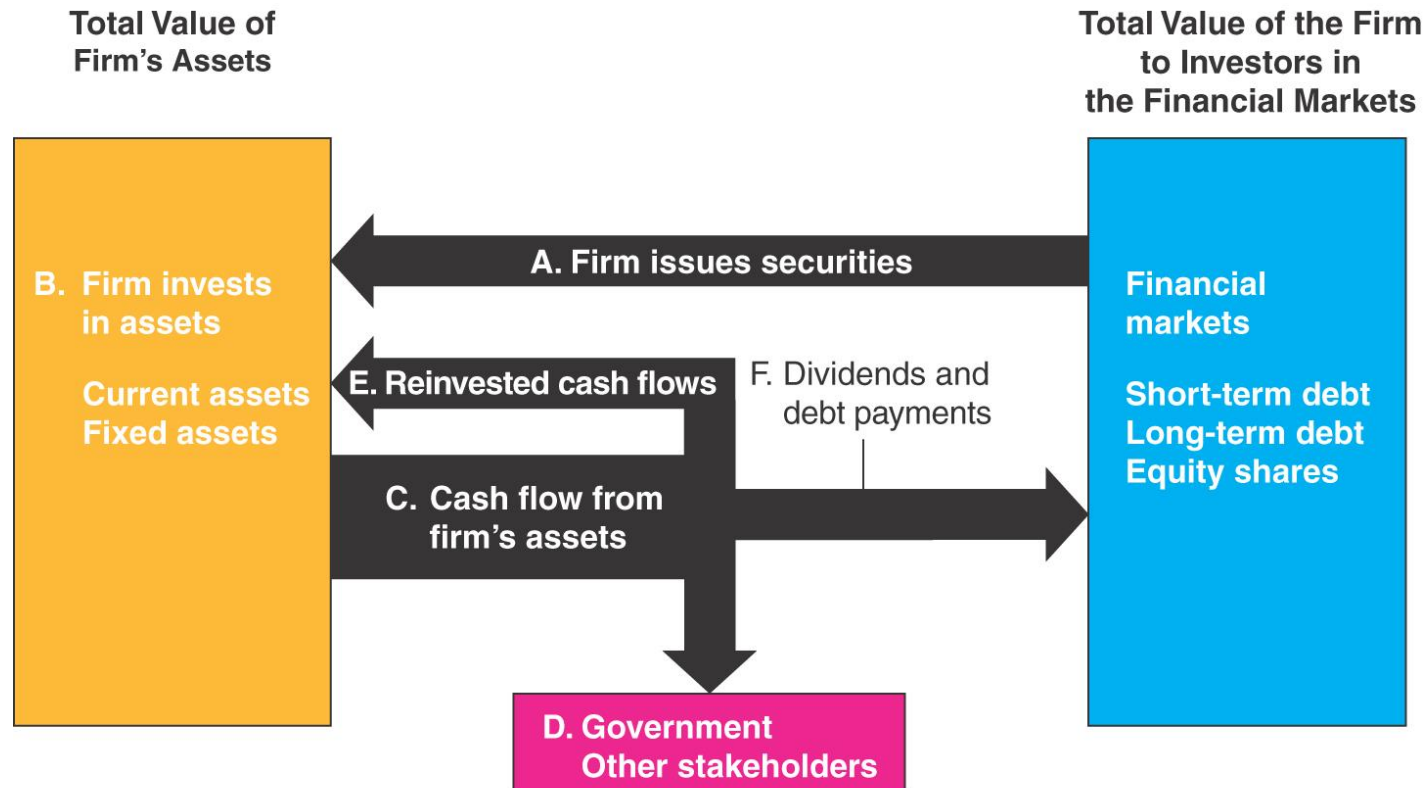
Leverage

- **Financial Leverage** – the use of debt in a firm's capital structure
 - The more **debt** a firm has relative to its **assets**, the greater its degree of **leverage**
 - Increases the risk of bankruptcy/distress
 - Can also increase profitability
- *Who is paid first in the case of bankruptcy?*

Book vs Market Value

- **Book value** = the balance sheet value of the assets, liabilities, and equity
- **Market value** = *true value*; the price at which the assets, liabilities, or equity can actually be bought or sold
 - Market value and book value are often very different. Why?
 - Which is more important to the decision-making process?

The Circle of Financing



- A. Firm issues securities to raise cash.
- B. Firm invests in assets.
- C. Firm's operations generate cash flow.
- D. Cash is paid to government as taxes. Other stakeholders may receive cash.

- E. Reinvested cash flows are plowed back into firm.
- F. Cash is paid out to investors in the form of interest and dividends.

On to the Income Statement!

- The **balance sheet** paints a picture of your business
- The **income statement** tells us how your business makes money

Income Statement

- The **income statement** measures performance over a specific time period (quarter, year, etc.)
- Report revenues first and then deduct any expenses for the period
- End result = **Net Income** = “Bottom Line”
 - Dividends paid to shareholders (you in most cases)
 - Addition to retained earnings (reinvest)
- **Income Statement Equation:**
 - Net Income = Revenue - Expenses

Basic Income Statement

U.S. CORPORATION 2014 Income Statement (\$ in Millions)

Net sales		\$1,509
Cost of goods sold (<u>COGS</u>)		750
Depreciation		65
Earnings before interest and taxes (<u>EBIT</u> and <u>EBITA</u>)		\$ 694
Interest paid		70
Taxable income		\$ 624
Taxes		212
Net income		<u>\$ 412</u>
Dividends	\$103	
Addition to retained earnings	309	

Income Statement Example

- [SCORE Income Statement](#)
- [FSA Income Statement](#)
 - Also known as “Profit and Loss Statement”

Discussion

- *Why do **Income Statements** often look so different?*
- *How does the **Income Statement** affect the **Balance Sheet**?*

Two Major Categories

- **Operating Revenues and Expenses**
 - Sales (revenue)
 - The day-to-day or “regular” costs of producing your product (or service)
- **Non-operating or “Overhead”**
 - Transactions that are not directly associated with your product, but necessary for the business

Financial Statements

- **GAAP** Matching Principle:
 - **Generally Accepted Accounting Principles**
 - Recognize revenue when it is “fully earned”
 - Match expenses required to generate revenue to the period of recognition
 - First-in, first-out (**FIFO**) and **LIFO** with **COGS**
- **Noncash Items**
 - Expenses charged against revenue that don't affect cash flow
 - **Depreciation** = most important

Depreciation

- How do you value assets that depreciate in value over time?
 - **Book value** = Cost – Accumulated depreciation
 - **Straight-line depreciation** – the reduction in value is identical in each period
 - Several alternative depreciation methods
 - **Salvage value** – the value of an asset after it has been fully depreciated

Taxes

- Marginal vs. Average tax rates
 - **Marginal** – % tax paid on the next dollar earned
 - **Average** – total tax bill / taxable income
- *Which tax rate should you use for decision-making?*

Individual Tax Rates

Attention: 2018 Tax Year Individual Income Tax Rate Schedule

Important: You should only use the information below for your 2018 Tax Return filed in 2019.

Tax Rate	Single	Married/Joint & Widow(er)	Married/Separate	Head of Household
10%	\$1 to \$9,525	\$1 to \$19,050	\$1 to \$9,525	\$1 to \$13,600
12%	\$9,526 to \$38,700	\$19,051 to \$77,400	\$9,526 to \$38,700	\$13,601 to \$51,800
22%	\$38,701 to \$82,500	\$77,401 to \$165,000	\$38,701 to \$82,500	\$51,801 to \$82,500
24%	\$82,501 to \$157,500	\$165,001 to \$315,000	\$82,501 to \$157,500	\$82,501 to \$157,500
32%	\$157,501 to \$200,000	\$315,001 to \$400,000	\$157,501 to \$200,000	\$157,500 to \$200,000
35%	\$200,001 to \$500,000	\$400,001 to \$600,000	\$200,001 to \$300,000	\$200,001 to \$500,000
37%	over \$500,000	over \$600,000	over \$300,000	over \$500,000

Old Corporate Tax Rates

Taxable Income		Tax Rate
\$	0– 50,000	15%
	50,001– 75,000	25
	75,001– 100,000	34
	100,001– 335,000	39
	335,001–10,000,000	34
	10,000,001–15,000,000	35
	15,000,001–18,333,333	38
	18,333,334+	35

New Corporate Tax Rates

21%!

Tax Rates with Exemptions

Industry	Number of Companies	Average Tax Rate
Electric utilities (Eastern U.S.)	24	33.8%
Trucking	33	32.7
Railroad	15	27.4
Securities brokerage	30	20.5
Banking	481	17.5
Medical supplies	264	11.2
Internet	239	5.9
Pharmaceutical	337	5.6
Biotechnology	121	4.5

Discussion

- *How can decisions about depreciation affect taxes?*
- More on this later when we talk about cash flow...

Financial Statement Analysis

GLASBERGEN

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“According to my itemized cost analysis and fiduciary forecast, if expenditures continue to outpace earnings, insolvency is a foregone conclusion. My advice is, sell the cats.”

Key Concepts

- Standardizing financial statements
- Calculating and interpreting **financial ratios**
- Understanding *issues with financial statement analysis*

Standardized Financial Statements

- **Common-Size Balance Sheets**
 - All accounts = percent of total assets
- **Common-Size Income Statements**
 - All line items = percent of sales or revenue
- Standardized statements are useful for:
 - Comparing financial information year-to-year
 - Comparing companies of different sizes, particularly within the same industry

Standardized Financial Statements

PRUFROCK CORPORATION
Balance Sheets as of December 31, 2013 and 2014
(\$ in millions)

	2013	2014
Assets		
Current assets		
Cash	\$ 84	\$ 98
Accounts receivable	165	188
Inventory	393	422
Total	<u>\$ 642</u>	<u>\$ 708</u>
Fixed assets		
Net plant and equipment	\$2,731	\$2,880
Total assets	<u><u>\$3,373</u></u>	<u><u>\$3,588</u></u>
Liabilities and Owners' Equity		
Current liabilities		
Accounts payable	\$ 312	\$ 344
Notes payable	231	196
Total	<u>\$ 543</u>	<u>\$ 540</u>
Long-term debt	<u>\$ 531</u>	<u>\$ 457</u>
Owners' equity		
Common stock and paid-in surplus	\$ 500	\$ 550
Retained earnings	1,799	2,041
Total	<u>\$2,299</u>	<u>\$2,591</u>
Total liabilities and owners' equity	<u><u>\$3,373</u></u>	<u><u>\$3,588</u></u>

Standardized Financial Statements

PRUFROCK CORPORATION
Common-Size Balance Sheets
December 31, 2013 and 2014

	2013	2014	Change
Assets			
Current assets			
Cash	2.5%	2.7%	+ .2%
Accounts receivable	4.9	5.2	+ .3
Inventory	11.7	11.8	+ .1
Total	<u>19.1</u>	<u>19.7</u>	<u>+ .7</u>
Fixed assets			
Net plant and equipment	<u>80.9</u>	<u>80.3</u>	- .7
Total assets	<u>100.0%</u>	<u>100.0%</u>	<u>0%</u>
Liabilities and Owners' Equity			
Current liabilities			
Accounts payable	9.2%	9.6%	+ .3%
Notes payable	<u>6.8</u>	<u>5.5</u>	- 1.4
Total	<u>16.0</u>	<u>15.1</u>	- 1.0
Long-term debt	<u>15.7</u>	<u>12.7</u>	- 3.0
Owners' equity			
Common stock and paid-in surplus	14.8	15.3	+ .5
Retained earnings	<u>53.3</u>	<u>56.9</u>	+ 3.5
Total	<u>68.1</u>	<u>72.2</u>	+ 4.1
Total liabilities and owners' equity	<u>100.0%</u>	<u>100.0%</u>	<u>0%</u>

Standardized Financial Statements

PRUFROCK CORPORATION
2014 Income Statement
(\$ in millions)

Sales		\$2,311
Cost of goods sold		1,344
Depreciation		<u>276</u>
Earnings before interest and taxes		\$ 691
Interest paid		<u>141</u>
Taxable income		\$ 550
Taxes (34%)		<u>187</u>
Net income		<u><u>\$ 363</u></u>
Dividends	\$121	
Addition to retained earnings	242	

Standardized Financial Statements

PRUFROCK CORPORATION Common-Size Income Statement 2014

Sales		100.0%
Cost of goods sold		58.2
Depreciation		11.9
Earnings before interest and taxes		29.9
Interest paid		6.1
Taxable income		23.8
Taxes (34%)		8.1
Net income		15.7%
Dividends	5.2%	
Addition to retained earnings	10.5	

Ratio Analysis

- Allow for better **comparison** through time or between companies
- Used both internally and externally
- For each ratio, ask yourself:
 - What the ratio is trying to measure
 - Why that information is important
- Remember, ratios reflect book values

Categories of Financial Ratios

- Liquidity ratios or Short-term solvency
- Financial leverage ratios or Long-term solvency ratios
- Asset management or Turnover ratios
- Profitability ratios
- Market value ratios

All the Major Ratios

I. Short-term solvency, or liquidity, ratios

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

$$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$$

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

II. Long-term solvency, or financial leverage, ratios

$$\text{Total debt ratio} = \frac{\text{Total assets} - \text{Total equity}}{\text{Total assets}}$$

$$\text{Debt-equity ratio} = \text{Total debt} / \text{Total equity}$$

$$\text{Equity multiplier} = \text{Total assets} / \text{Total equity}$$

$$\text{Times interest earned ratio} = \frac{\text{EBIT}}{\text{Interest}}$$

$$\text{Cash coverage ratio} = \frac{\text{EBIT} + \text{Depreciation}}{\text{Interest}}$$

III. Asset utilization, or turnover, ratios

$$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventory}}$$

$$\text{Days' sales in inventory} = \frac{365 \text{ days}}{\text{Inventory turnover}}$$

$$\text{Receivables turnover} = \frac{\text{Sales}}{\text{Accounts receivable}}$$

$$\text{Payables turnover} = \frac{\text{Cost of goods sold}}{\text{Accounts payable}}$$

$$\text{Days' sales in receivables} = \frac{365 \text{ days}}{\text{Receivables turnover}}$$

$$\text{Days' costs in payables} = \frac{365 \text{ days}}{\text{Payables turnover}}$$

$$\text{Total asset turnover} = \frac{\text{Sales}}{\text{Total assets}}$$

$$\text{Capital intensity} = \frac{\text{Total assets}}{\text{Sales}}$$

IV. Profitability ratios

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

$$\text{Return on assets (ROA)} = \frac{\text{Net income}}{\text{Total assets}}$$

$$\text{Return on equity (ROE)} = \frac{\text{Net income}}{\text{Total equity}}$$

$$\text{ROE} = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$$

V. Market value ratios

$$\text{Price-earnings ratio} = \frac{\text{Price per share}}{\text{Earnings per share}}$$

$$\text{Price-sales ratio} = \frac{\text{Price per share}}{\text{Sales per share}}$$

$$\text{Market-to-book ratio} = \frac{\text{Market value per share}}{\text{Book value per share}}$$

$$\text{EBITDA ratio} = \frac{\text{Enterprise value}}{\text{EBITDA}}$$

Financial Ratio Calculator

- [SCORE Financial Ratios](#)

Liquidity Ratios

- **Current Ratio** = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$
 - Current accounts converted to cash within a year
 - Measures short-term liquidity
 - Want to be able to pay off debts
- **Quick Ratio** = $\frac{\text{CA} - \text{Inventory}}{\text{CL}}$
 - “Acid Test”
 - Inventory often the least liquid current asset
 - Inventory book values often inaccurate
 - Large inventories potentially a sign of trouble
- **Cash Ratio** = $\frac{\text{Cash}}{\text{CL}}$
 - Immediate cash available to pay off short-term debt

Liquidity Ratios

PRUFROCK Balance Sheet - 2014			
ASSETS			Liabilities & Owners Equity
Current Assets			Current Liabilities
Cash	\$ 98		Accounts Payable \$ 344
Accounts Receivable	\$ 188		Notes Payable \$ 196
Inventory	\$ 422		Total \$ 540
Total	\$ 708		Long term debt \$ 457
			Owners' Equity
			Common Stock and paid in surplus \$ 550
Fixed Assets			Retained Earnings \$ 2,041
Net Plant & Equipment	\$ 2,880		Total \$ 2,591
Total Assets	\$ 3,588		Total Liabilities & Owners' Equity \$ 3,588

- **Current Ratio** = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$
 - $708 / 540 = 1.31$ times
- **Quick Ratio** = $\frac{\text{CA} - \text{Inventory}}{\text{CL}}$
 - “Acid Test”
 - $(708 - 422) / 540 = 0.53$ times
- **Cash Ratio** = $\frac{\text{Cash}}{\text{CL}}$
 - $98 / 540 = .18$ times

Financial Leverage Ratios

- **Total Debt Ratio** = $(\underline{\text{Total Assets}} - \underline{\text{Total Equity}}) / \text{TA}$
 - Multiple ways to calculate
 - All debts of all maturities vs. assets
 - Importance depends on capital structure (future topic)
- **Debt/Equity** = Total Debt / TE
 - Variation on total debt ratio
 - Is the business more reliant on debt or equity for financing?
- **Equity Multiplier** = $\text{TA} / \text{TE} = 1 + \text{D} / \text{E}$
 - All of these ratios represent long-term solvency
 - Can you derive this relationship (remember ALOE)?

Financial Leverage Ratios

PRUFROCK Balance Sheet - 2014					
ASSETS			Liabilities & Owners Equity		
Current Assets			Current Liabilities		
Cash	\$	98	Accounts Payable	\$	344
Accounts Receivable	\$	188	Notes Payable	\$	196
Inventory	\$	422	Total	\$	540
Total	\$	708	Long term debt	\$	457
			Owners' Equity		
			Common Stock and paid in surplus	\$	550
Fixed Assets			Retained Earnings	\$	2,041
Net Plant & Equipment	\$	2,880	Total	\$	2,591
Total Assets	\$	3,588	Total Liabilities & Owners' Equity	\$	3,588

- **Total Debt Ratio** = $(\underline{\text{Total Assets}} - \underline{\text{Total Equity}}) / \text{TA}$
 – $(3,588 - 2,591) / 3,588 = 0.28$ times
- **Debt/Equity** = $\text{Total Debt} / \text{TE}$
 – $(0.28 / 0.72) = 0.38$ times
- **Equity Multiplier** = $\text{TA} / \text{TE} = 1 + \text{D} / \text{E}$
 – $(\$1 / 0.72) = (1 + 0.38) = 1.38$

Financial Leverage Ratios

- **Times Interest Earned** = $\text{EBIT} / \text{Interest}$
 - *Can a company pay off its interest expenses?*
 - If you can't cover the interest you probably can't pay off the loan
 - Higher generally better
- **Cash Coverage** = $(\text{EBIT} + \text{Depreciation}) / \text{Interest}$
 - Depreciation not actually a cash outflow, but interest is paid in cash
 - Ratio sometimes includes amortization (like depreciation but with intangible assets)
 - Amortization can also refer to paying off debt with a fixed repayment schedule (future topic)

Financial Leverage Ratios

Cost of Goods Sold
Earnings Before Interest and Taxes

PRUFROCK	
Income Statement - 2014	
Sales	\$ 2,311
COGS	\$ 1,344
Depreciation	\$ 276
EBIT	\$ 691
Interest	\$ 141
Taxable Income	\$ 550
Taxes	\$ 187
Net Income	\$ 363
Dividends	\$ 121
Addition to RE	\$ 242

- **Times Interest Earned** = $\text{EBIT} / \text{Interest}$
 - $691 / 141 = 4.9$ times
- **Cash Coverage** = $(\text{EBIT} + \text{Depreciation}) / \text{Interest}$
 - $(691 + 276) / 141 = 6.9$ times

Current Events: Caesars

- Caesars Entertainment Operating Unit Plans Chapter 11 Bankruptcy
- https://www.youtube.com/watch?v=BT44zAs_GHA

Asset Management: Inventory Ratios

- **Inventory Turnover** = $\text{COGS} / \text{Inventory}$
 - *How efficiently is inventory used?*
 - Storage costs
 - Higher generally better
- **Days' Sales in Inventory** = $365 / \text{Inventory Turnover}$
 - *How long does it take for inventory to be sold?*
 - Indicates the liquidity of current inventory
 - The same information in both ratios

Asset Management: Inventory Ratios

PRUFROCK Balance Sheet - 2014				PRUFROCK Income Statement - 2014	
ASSETS		Liabilities & Owners Equity		Sales	\$ 2,311
Current Assets		Current Liabilities		COGS	\$ 1,344
Cash	\$ 98	Accounts Payable	\$ 344	Depreciation	\$ 276
Accounts Receivable	\$ 188	Notes Payable	\$ 196	EBIT	\$ 691
Inventory	\$ 422	Total	\$ 540	Interest	\$ 141
Total	\$ 708	Long term debt	\$ 457	Taxable Income	\$ 550
Fixed Assets		Owners' Equity		Taxes	\$ 187
Net Plant & Equipment	\$ 2,880	Common Stock and paid in surplus	\$ 550	Net Income	\$ 363
Total Assets	\$ 3,588	Retained Earnings	\$ 2,041		
		Total	\$ 2,591	Dividends	\$ 121
		Total Liabilities & Owners' Equity	\$ 3,588	Addition to RE	\$ 242

- **Inventory Turnover** = $\text{COGS} / \text{Inventory}$
 - $1,344 / 422 = 3.2$ times
- **Days' Sales in Inventory** = $365 / \text{Inventory Turnover}$
 - $365 / 3.2 = 114$ days

Asset Management: Receivables Ratios

- **Receivables Turnover** = Sales / Accounts Receivable
 - *How quickly can the business collect on sales?*
 - Higher generally better
- **Days' Sales in Receivables** = 365 / Receivables Turnover
 - Indicates the liquidity of accounts receivable
 - The same information in both ratios

Asset Management: Receivables Ratios

PRUFROCK Balance Sheet - 2014				PRUFROCK Income Statement - 2014	
ASSETS		Liabilities & Owners Equity		Sales	\$ 2,311
Current Assets		Current Liabilities		COGS	\$ 1,344
Cash	\$ 98	Accounts Payable	\$ 344	Depreciation	\$ 276
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		Total	\$ 2,591	Dividends	\$ 121
		Total Liabilities & Owners' Equity	\$ 3,588	Addition to RE	\$ 242

- **Receivables Turnover** = Sales / Accounts Receivable
 - 2,311 / 188 = 12.3 times
- **Days' Sales in Receivables** = 365 / Receivables Turnover
 - 365 / 12.3 = 30 days

Asset Management: Payables Ratios

- **Payables Turnover** = $\text{COGS} / \text{Accounts Payable}$
 - *How long does it take the company to pay its bills?*
 - Lower generally better
- **Days' Costs in Payables** = $365 / \text{Payables Turnover}$
 - Represents the liquidity of accounts payable
 - The same information in both ratios

Asset Management: Payables Ratios

PRUFROCK Balance Sheet - 2014				PRUFROCK Income Statement - 2014	
ASSETS		Liabilities & Owners Equity		Sales	\$ 2,311
Current Assets		Current Liabilities		COGS	\$ 1,344
Cash	\$ 98	Accounts Payable	\$ 344	Depreciation	\$ 276
Accounts Receivable	\$ 188	Notes Payable	\$ 196	EBIT	\$ 691
Inventory	\$ 422	Total	\$ 540	Interest	\$ 141
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		Owners' Equity		Taxes	\$ 187
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Net Plant & Equipment	\$ 2,880	Total	\$ 2,591	Dividends	\$ 121
Total Assets	\$ 3,588	Total Liabilities & Owners' Equity	\$ 3,588	Addition to RE	\$ 242

- **Payables Turnover** = $\text{COGS} / \text{Accounts Payable}$
 - $1,344 / 344 = 3.9$ times
- **Days' Costs in Payables** = $365 / \text{Payables Turnover}$
 - $365 / 3.9 = 94$ days

Asset Management: Asset Turnover Ratios

- **Total Asset Turnover** = Sales / Total Assets
 - *How much does a business generate in sales compared to its assets?*
 - Higher generally better
- **Capital Intensity Ratio** = 1 / TAT
 - Same information as TAT

Asset Management: Asset Turnover Ratios

PRUFROCK Balance Sheet - 2014				PRUFROCK Income Statement - 2014	
ASSETS		Liabilities & Owners Equity		Sales	\$ 2,311
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		Total	\$ 2,591	Dividends	\$ 121
		Total Liabilities & Owners' Equity	\$ 3,588	Addition to RE	\$ 242

- **Total Asset Turnover** = Sales / Total Assets
 - 2,311 / 3,588 = 0.64 times
- **Capital Intensity Ratio** = 1 / TAT
 - 1 / 0.64 = 1.56

Profitability Measures

- **Profit Margin** = $\frac{\text{Net Income}}{\text{Sales}}$
 - *How much money does a business actually make on a sale?*
 - Concept review: demand elasticity
 - Very important
- **Return on Assets (ROA)** = NI / TA
 - Profit per dollar on assets
- **Return on Equity (ROE)** = NI / TE
 - Purpose of the business is to benefit shareholders (you)
 - Bottom-line measure of performance

Profitability Measures

PRUFROCK Balance Sheet - 2014				PRUFROCK Income Statement - 2014	
ASSETS		Liabilities & Owners Equity		Sales	\$ 2,311
Current Assets		Current Liabilities		COGS	\$ 1,344
Cash	\$ 98	Accounts Payable	\$ 344	Depreciation	\$ 276
Accounts Receivable	\$ 188	Notes Payable	\$ 196	EBIT	\$ 691
Inventory	\$ 422	Total	\$ 540	Interest	\$ 141
Total	\$ 708	Long term debt	\$ 457	Taxable Income	\$ 550
		Owners' Equity		Taxes	\$ 187
		Common Stock and paid in surplus	\$ 550	Net Income	\$ 363
Fixed Assets		Retained Earnings	\$ 2,041		
Net Plant & Equipment	\$ 2,880	Total	\$ 2,591	Dividends	\$ 121
Total Assets	\$ 3,588	Total Liabilities & Owners' Equity	\$ 3,588	Addition to RE	\$ 242

- **Profit Margin** = $\frac{\text{Net Income}}{\text{Sales}}$
 - $363 / 2,311 = 15.70\%$
- **Return on Assets (ROA)** = $\frac{\text{NI}}{\text{TA}}$
 - $363 / 3,588 = 10.12\%$
- **Return on Equity (ROE)** = $\frac{\text{NI}}{\text{TE}}$
 - $363 / 2,591 = 14.01\%$

Market Value Measures

- These only apply if you issue stock...

Market Value Measures

- **Price-Earnings (PE) ratio** = $\frac{\text{Price per share}}{\text{Earnings per share}}$
 - *How much are investors willing to pay per dollar of current earnings?*
 - Higher may indicate potential for future growth
- **Price/Sales ratio** = $\frac{\text{PPS}}{\text{Sales per share}}$
 - Similar to PE ratio
 - Useful when companies have negative earnings
- **Market-to-book ratio** = $\frac{\text{PPS}}{\text{Book value per share}}$
 - *How much has the business grown?*
 - Higher generally better

Market Value Measures

- Market Price = \$88 per share = Price per share (PPS)
- Shares outstanding = 33 million
- **Earnings per Share (EPS)** = NI / shares outstanding
 - $\$363 / 33 = \11
- **Price-Earnings (PE) ratio** = PPS / EPS
 - $\$88 / \$11 = 8$ times
- **Price/Sales ratio** = PPS / Sales per share
 - $\$88 / (\$2,311 / 33) = 1.26$ times
- **Market-to-book ratio** = PPS / Book value per share
 - Book value per share = Total Equity / shares outstanding
 - = $\$2,591 / 33 = \78.52
 - Market-to-book = $\$88 / 78.52 = 1.12$ times

Market Value Measures

- **Enterprise value** = Total market value of the stock
+ Book value of all liabilities – Cash
 - Estimates the market value of the company's operating assets
 - Used because it is often difficult to calculate the market value of each asset and liability on the balance sheet
 - Represents a theoretical takeover price
- **EBITDA ratio** = Enterprise value / EBITDA
 - Relates the market value of operating assets to cash flow
 - Similar to the PE ratio

Market Value Measures

PRUFROCK Balance Sheet - 2014				PRUFROCK Income Statement - 2014	
ASSETS				Liabilities & Owners Equity	
Current Assets				Current Liabilities	
Cash	\$ 98		Accounts Payable	\$ 344	
Accounts Receivable	\$ 188		Notes Payable	\$ 196	
Inventory	\$ 422		Total	\$ 540	
Total	\$ 708		Long term debt	\$ 457	
			Owners' Equity		
			Common Stock and paid in surplus	\$ 550	
Fixed Assets			Retained Earnings	\$ 2,041	
Net Plant & Equipment	\$ 2,880		Total	\$ 2,591	
Total Assets	\$ 3,588		Total Liabilities & Owners' Equity	\$ 3,588	
					Sales
					\$ 2,311
					COGS
					\$ 1,344
					Depreciation
					\$ 276
					EBIT
					\$ 691
					Interest
					\$ 141
					Taxable Income
					\$ 550
					Taxes
					\$ 187
					Net Income
					\$ 363
					Dividends
					\$ 121
					Addition to RE
					\$ 242

- **Enterprise value** = Total market value of the stock + Book value of all liabilities – Cash
 - Enterprise value = $(\$88 \times 33) + (3,588 - 2,591) - (98) = 3,803$
- **EBITDA ratio** = Enterprise value / EBITDA
 - EBITDA = EBIT + Depreciation & Amortization
= $(691 + 276) = 967$
 - EBITDA ratio = $(3,803 / 967) = 3.93$ times

Table 3.6

	Lowe's	Home Depot
Sales	\$50,208	\$70,395
Net income	1,839	3,883
Current assets	10,072	14,520
Current liabilities	7,891	9,376
Total assets	33,559	40,518
Total debt	17,026	22,620
Total equity	16,533	17,898
Price per share	27.20	44.50
Book value per share	13.78	11.78
Earnings per share	1.53	2.55
Current ratio	1.28	1.55
Debt-equity ratio	1.03	1.26
Total asset turnover	1.50	1.74
Profit margin	3.66%	5.52%
ROE	11.12%	21.70%
ROA	5.48%	9.58%
Market-to-book ratio	1.97	3.78
Price-earnings ratio	17.75	17.42

Ratio Analysis

- <https://www.youtube.com/watch?v=TZZFBkbC2IA>

Discussion

- *So why do we analyze financial statements?*
- *Why do creditors care?*

Why Evaluate Financial Statements?

- Internal uses
 - Performance evaluation – compensation and comparison between divisions
 - Planning for the future – guide in estimating future cash flows
- External uses
 - Creditors
 - Suppliers
 - Customers
 - Stockholders

Benchmarking

- Ratios need to be compared to something
- **Time-Trend Analysis**
 - How the firm's performance is changing through time
 - Internal and external uses
- **Peer Group Analysis**
 - Compare to similar companies or within industries
 - Standard Industrial Classification (SIC) and North American Industry Classification System (NAICS)

Problems with Financial Analysis

- Conglomerates / diversified operations
 - *No readily available comparable*
- Global competitors
- Different accounting procedures
- Book vs. market value
- Different fiscal year ends
- Differences in capital structure
- Seasonal variations and one-time events

Activity

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