



VALUATIONS I

Financial Metrics, Ratios, & Comparables Analysis

Fall 2019 Comp
Week 6

Outline for Today

I. A Quick Recap

- 1) Linking the 3 Statements
- 2) Accounting: The Big Picture

II. Financial Metrics

- 1) Income Statement Metrics
- 2) Capital Structure

III. Financial Ratios

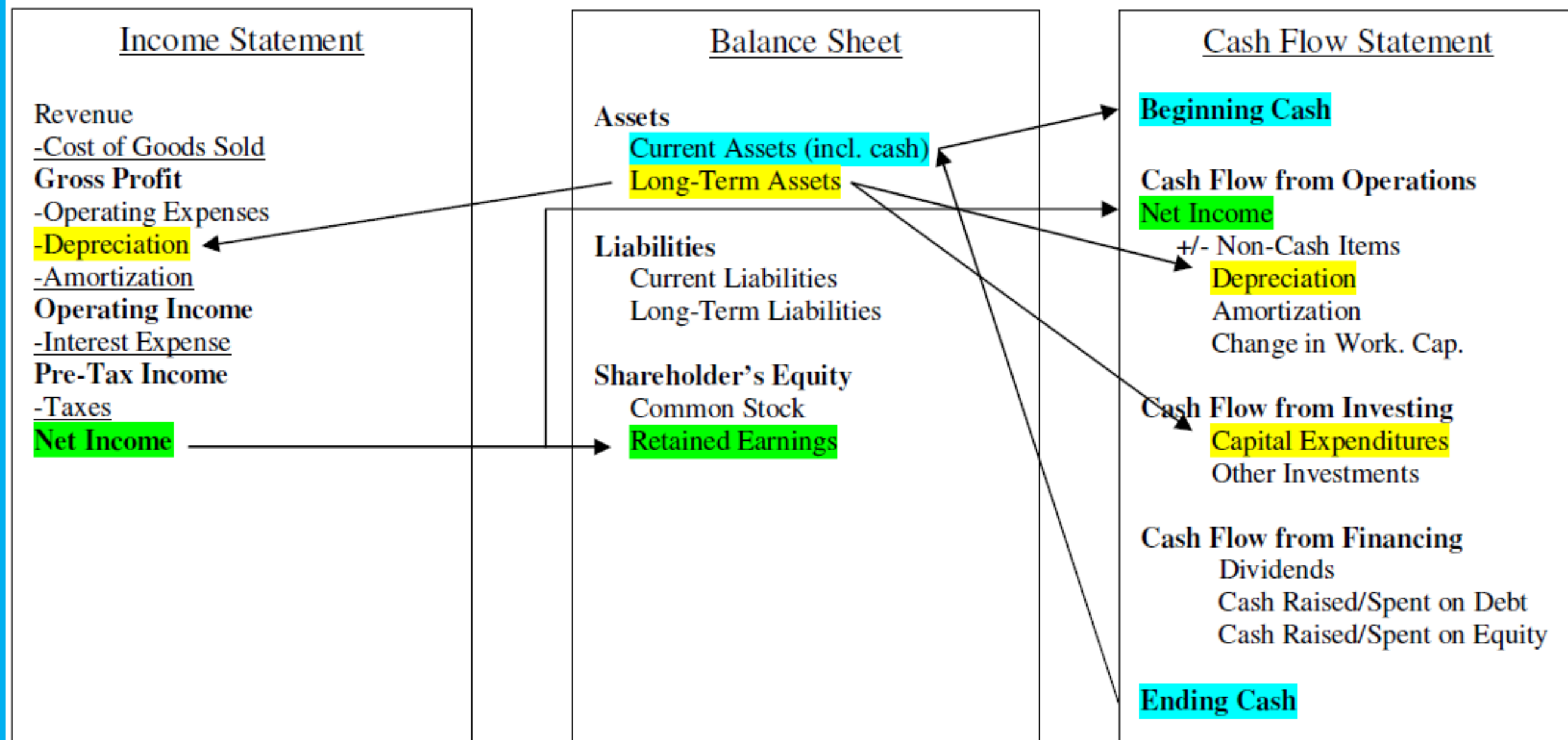
- 1) Why ratios?
- 2) Balance Sheet ratios
- 3) Working Capital ratios
- 4) Income Statement ratios

IV. Comparables Analysis

- 1) Multiples
- 2) HFAC Case Study: NROM

Linking the Financial Statements

LINK BETWEEN FINANCIAL STATEMENTS



Linking the Financial Statements

1) Income Statement

1. Revenues minus expenses to get Net Income

2) Cash Flow Statement

1. Net Income becomes top line of the Cash Flow Statement
2. Add back non-cash charges like D&A, and make adjustments for changes in working capital to get Cash Flow from Operations
3. Take into account all Investing and Financing activities, and end up with Net Change in Cash

3) Balance Sheet

1. Assets: Cash equals beginning cash balance plus Net Change in Cash, any changes to PP&E from CapEx
2. Liabilities: Any changes from Investing/Financing Activities
3. Equity: Net Income enters as Retained Earnings
4. Make sure you're balanced! ($\text{Assets} = \text{Liabilities} + \text{Equity}$)

Accounting: The Big Picture

The financial statements are the way a business communicates to us:

- 1) How it operates
- 2) Its financial health
- 3) and ultimately helps us determine whether or not the business can sustainably make money

FINANCIAL METRICS

TL;DR

- Financial metrics tell us how much companies are worth relative to a set of peers
- The most important financial metrics for companies you'll look at in the course of the comp are
 - Price/Earnings
 - Enterprise Value/EBITDA
- Think about financial metrics as a backhand or “quick and dirty” way of valuing companies

X

Name	Last Close Price	Shares Outstanding	Market Cap - Consolidated	Cash	Debt	Enterprise Value	Revenue	EPS	EBITDA LTM	EV/EBITDA LTM	P/Sales LTM
DXLG	\$ 1.95	48.8	95	7	68	157	450	-0.17	23.9	7x	0.21x
TLRD	\$ 13.51	49.1	663	71	1,582	2,174	3,378	0.52	132.8	16x	0.20x
GPS	\$ 28.00	392.0	10,976	1,783	1,248	10,441	15,516	1.69	1,191.0	9x	0.71x
KSS	\$ 45.00	170.5	7,672	1,074	4,480	11,078	18,686	3.45	1,183.0	9x	0.41x
MEDIAN			7,672			10,441		2	1,183.0	9x	0.41x

Implied share price:	Upside %	
EV/EBITDA	4.59	136%
P/Sales	3.79	94%

Income Statement Metrics

- 1) (+) Revenues
- 2) (-) Cost of Goods Sold (COGS)
- 3) = **Gross Profit**
- 4) (-) Operating Expenses
 - a. Research & Development
 - b. Selling, General, & Administrative
- 5) = **EBITDA (Earnings before interest, taxes, and D&A)**
 - a. Depreciation & Amortization
- 6) = **EBIT (Earnings before interest and taxes)**
- 7) (-) Other
 - a. Non-recurring
 - b. Interest
- 8) (-) Taxes
- 9) = **Net Income**

Income Statement Metrics

- 1) Gross Profit
- 2) EBITDA (Earnings before interest, taxes, D&A)
- 3) EBIT (Earnings before interest, taxes)
- 4) Net Income

Why might each of these be important?

Income Statement Metrics

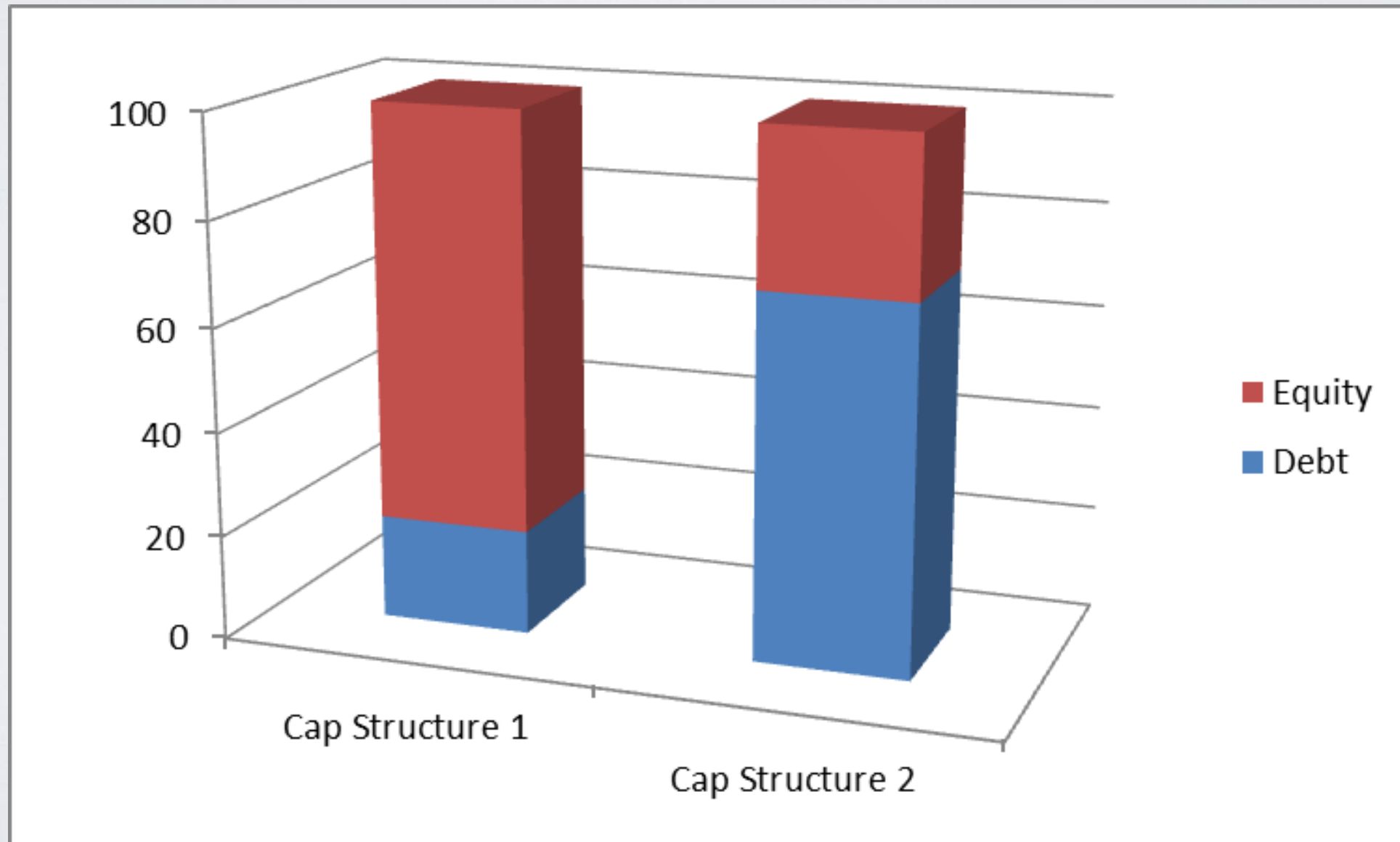
- 1) Gross Profit
- 2) EBITDA (Earnings before interest, taxes, D&A)
- 3) EBIT (Earnings before interest, taxes)
- 4) Net Income

Why might each of these be important?

Answer: They allow us to evaluate a company in different ways. In particular, EBITDA and EBIT give us a way to compare the performance of companies with different **capital structures** (i.e. proportion of debt vs. equity)

Capital Structures

The capital structure is how a firm finances its overall operations and growth by using different sources of funds.



Unlevered Free Cash Flow

- 1) EBITDA
- 2) (-) CapEx
- 3) (-) Increase in Net Working Capital
- 4) (-) Taxes
- 5) = **Unlevered Free Cash Flow (FCF)**

- 1) EBITDA is earnings *assuming no debt financing (i.e. no interest expenses)* and before taxes and non-cash D&A
- 2) Increase in NWC
 - a. E.g. if current assets increased more than current liabilities, cash is needed to fund that, and vice versa
- 3) Taxes are a cash expense and subtracted last
- 4) **Unlevered FCF** because we act as though there is no debt or interest payments

FINANCIAL RATIOS

Why Financial Ratios?

- We've learned about the income statement, balance sheet, and cash flow statement
- But each of these statements contain a lot of information
- We want a way to **summarize** some important take-aways from each statement with a few numbers
- We also want a way to **compare companies** of different sizes or with different characteristics, and **ratios allow us to normalize** for this.
- **Key Point:** Financial ratios often don't tell you much when viewed on their own. You either need:
 - (a) comparable companies to compare to
 - (b) historical data on the company
 - or (c) an understanding of the business that tells you what the ratios should be

A First Example: Debt / Equity

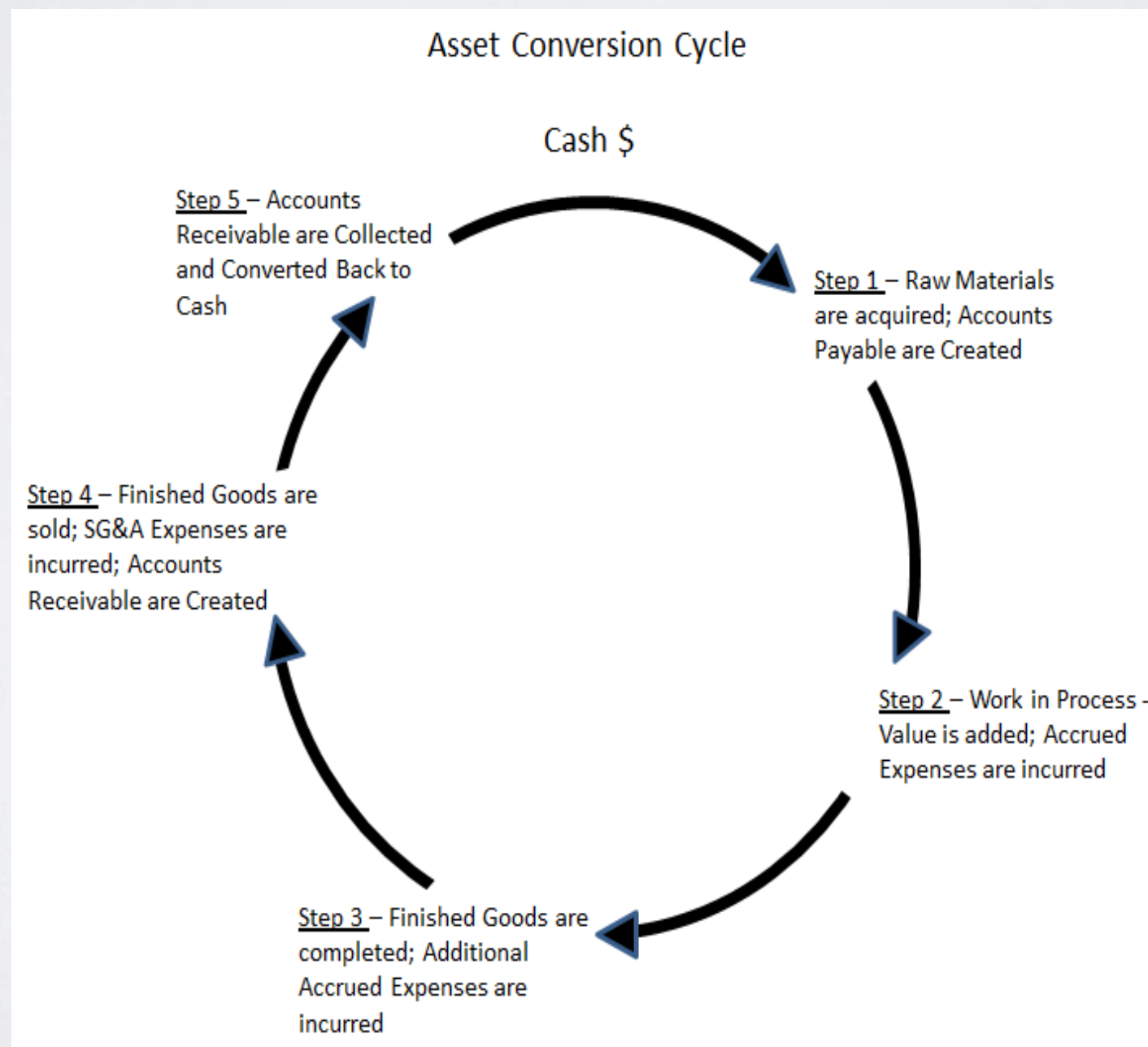
- This is fairly straightforward
 - Calculate the total amount of debt a company has
 - Subtract debt from assets to get equity
 - Divide
- A close analogue of this is Debt / Total Capitalization, which is just Debt divided by total Assets
- **Back to key point:** Company A's Debt/Equity is 4x.
Interpretation? Think back to the capital structure diagram

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 - Calculate the total amount of debt a company has
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- **Back to key point:** Company A's Debt/Equity is 4x.
Interpretation? Think back to the capital structure diagram
- A low debt/equity ratio is typically more attractive to banks since there is less risk for them to be repaid. However, the company is potentially missing out on better returns via more leverage.
- A high debt/equity ratio may signal there is “over-leveraging”, and a company may not be able to pay down its debts.

Starting with the Balance Sheet

An understanding of ratios involving current assets requires an understanding of the cash conversion cycle of a company.



Balance Sheet Metrics

- Recall that Working Capital = Current Assets – Current Liabilities
- A useful ratio is the “Current Ratio”
 - Current Ratio = Current Assets / Current Liabilities
 - Do you want a business that requires more or less working capital? (Hint: think back to your free cash flow formula)
 - But how do we determine how much working capital a business “requires”, i.e. the optimal amount of working capital for the business?
- Can someone think of a “Working Capital-light” business?
- How about a “Working Capital-intensive” business?
- Let’s see how some other ratios help us to analyze this.

Digression: The Cash Conversion Cycle

Cash Conversion Cycle

- How to project/think about Net Working Capital?
 - 1. Days Sales Outstanding (DSO)—tells us about Accounts Receivables
 - 2. Days Inventory Outstanding (DIO)—tells us about Inventory
 - 3. Days Payables Outstanding (DPO)—tells us about Accounts Payable

Days Sales Outstanding

- $(\text{Accounts Receivable} / \text{Annual Sales}) \times 365$
- Interpretation: A company sells something on credit right now. It takes “Days Sales Outstanding” number of days on average until they actually collect the cash associated with the sale.
- Note that this is irrespective of the size of the company – larger companies will have more accounts receivable but also more sales!
- Company A has DSO of 60
- Is this good or bad?

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- Note that this is irrespective of the size of the company – larger companies will have more accounts receivable but also more sales!
- Company A has DSO of 60
- Is this good or bad? **Answer: We don't know. We have to look at the peer group to determine how this compares to the “required” DSO.**

Days Sales Outstanding

- Company A has DSO of 60
- Peer group (comparables) has DSO of 30
- Why might we be concerned about this?
- **Another Key Point:** You can't look at financial ratios or even compare them to the peer group in a vacuum. You have to know the business well enough to tell why the financial ratios are the way they are.

Inventory Days

- $(\text{Inventory} / \text{Annual } \underline{\text{COGS}}) \times 365$ (COGS, not sales)
- Interpretation: A company buys a piece of inventory right now. It is sold, on average, in “Inventory Days” days.
- Note again that this is irrespective of the size of the company – larger companies will have more inventory but also more COGS!
- Company A has Inventory Days of 60
- Is this good or bad?

Inventory Days

- Company A has Inventory Days of 60
- Peer group (comparables) has Inventory Days of 30
- Why might we be concerned about this?
- **Another Key Point (repeated):** You can't look at financial ratios or even compare them to the peer group in a vacuum. You have to know the business well enough to tell why the financial ratios are the way they are.

Days Payables Outstanding

- $(\text{Accounts Payable} / \text{Annual } \underline{\text{COGS}}) \times 365$ (COGS, not sales)
- Interpretation: A company buys a good or service on credit right now, which generates an “account payable.” On average, they will pay for this good or service in “days payable outstanding” days.
- Note again that this is irrespective of the size of the company – larger companies will have more payables but also more COGS!
- Company A has Days Payables Outstanding of 60
- Is this good or bad?

Days Payables Outstanding

- Company A has Days Payables Outstanding of 60
- Peer group (comparables) has Days Payables Outstanding of 90
- Why might we be concerned about this?
- **Another Key Point (repeated again):** You can't look at financial ratios or even compare them to the peer group in a vacuum. You have to know the business well enough to tell why the financial ratios are the way they are.

Income Statement: Margins

- Gross Margin: $\text{Gross Profit} / \text{Sales}$
- EBITDA Margin: $\text{EBITDA} / \text{Sales}$
- EBIT Margin (aka Operating Margin) = $\text{EBIT} / \text{Sales}$
- Net Margin (aka Profit Margin) = $\text{Net Income} / \text{Sales}$
- Margins give us a way to normalize the performance for companies of different sizes
- E.g. we can't say that a company with an EBIT of \$50 million is performing 10x better than a company with an EBIT of \$5 million
 - But we can say that a company with an EBIT margin of 50% is operating far more efficiently than a company with an EBIT margin of 5%

Income Statement: Coverage Ratios

- EBITDA Coverage: $\text{EBITDA} / \text{Interest Payments}$
- EBIT Coverage: $\text{EBIT} / \text{Interest Payments}$
- Interpretation?
- What does it mean if this ratio is <1 ?
- Exception to our general rule of interpretation
 - You want this to be high, *always*, without reference to the peer group or any historical stats
 - A company must be able to service its interest/debt payments

Income Statement: Other

- Return On Equity (ROE) & Return on Assets (ROA)
 - $ROE = \text{Net Income} / \text{Equity}$
 - $ROA = \text{Net Income} / \text{Average Total Assets}$
 - These sound better than they actually are. In most cases, they actually tell you nothing and you should ignore them (the exception is with banks and insurance companies).
- Return on Invested Capital (ROIC) is a related interesting metric. This is a better version of the Return on Equity / Return on Assets metric
 - $ROIC = (\text{EBIT} - \text{taxes}) / \text{Total Capital}$
- To be clear, none of these metrics tell you about the return you get by investing in the stock!
- They tell you at what rates the company can reinvest capital in its operations. If this doesn't make sense, don't worry about it.

Cash Flow

- The only thing we really care about is what's called "Free Cash Flow Conversion"
- You can calculate this relative to Sales, EBITDA, EBIT, or Net Income
- Most often is calculated relative to EBITDA
- $\text{FCF Conversion} = \text{FCF} / \text{Selected Metric}$
- May want to average this over a few years, since FCF can be very volatile from year to year and you want a general picture of how much of the selected metric is converted to FCF.
- Interpretation?

COMPARABLES ANALYSIS

Price to Book (P/B)

- $P/B = \text{Market Capitalization} / \text{Book Equity}$ (i.e. equity account on BS)
- Tells you how much you are paying for each \$1 that was invested in the business initially or retained by / reinvested in the business (via earnings that were not paid out as dividends)
- Example of a company that you think should have a low P/B?
- Example of a company that you think should have a high P/B?
- HFAC typically tries to buy stocks with $P/B < 1$, i.e. getting the stock for less than it would take to recreate the company.

Enterprise Value

- Suppose we aren't only interested in the equity portion of the business, but instead with the *business as a whole* (think of the cap structure diagram)
- Then we need to think of **Enterprise Value (EV)**
 - $EV = \text{Market Capitalization} + \text{Debt} - \text{Cash}$
 - Note: cash is not included since we wouldn't pay for cash with cash
- Think of EV as the amount of money it would take to acquire an entire business (i.e. pay of shareholders and pay down all of its debts)
- Most important thing to remember is that EV is **capital structure independent**, meaning that the proportion of debt and equity does not affect its value

Income Statement-Based Multiples

- These include EV/EBITDA, EV/EBIT, EV/Sales, Price/Earnings
- Reminder: Enterprise Value = Market Cap + Debt – Cash
 - It's how much the operating business of the company is worth.
- EV/EBITDA
 - This is the best and most commonly used metric. It is independent of the capital structure and EBITDA cannot really be manipulated by management
 - Think: If the business stays the same size (constant EV), how many years does it take me to get paid back with earnings?
- EV/EBIT – also fairly common
- EV/Sales – only typically used for companies that have negative EBITDA
- Price/Earnings = Market Cap / Net Income
 - Can be very volatile / subject to one-time items. Also

Income Statement-Based Multiples

- Remember, we don't care about what these multiples are historically. We care about what they are in the future. We don't get earnings from previous years.
- **There are only 3 things that determine these multiples.**
 - 1) Growth
 - Higher growth = Higher multiple
 - 2) Business Risk (or alternatively required return if you think in terms of risk-reward)
 - Lower business risk = Higher multiple
 - 3) Free Cash Flow Conversion
 - Higher FCF conversion = Higher multiple

Multiples are largely determined by the market's perception of the business, since this will affect the Market Cap (and thus EV)

Comparables Analysis

- I keep referencing this “Peer group” or “comparable companies”: what does this mean?
- What makes a comparable company:
 - Must be publicly traded!
 - Same industry
 - Similar business / operations
 - Similar “drivers”
 - Same geography
 - Similar size
 - Similar growth rate
 - Similar business risk profile (often comes with the industry)
 - Similar FCF conversion rates
- You may have to go broader / relax the constraints if you don't find anything.

Comparables Analysis

- The key is finding companies that are similar to your company in the relevant respect – similar business, growth, business risk, and free cash flow conversion.
- Sometimes no such publicly traded companies exist. Don't use comps that aren't similar in this case, as you will just be wrong. Only use comps when there are actually good comps for your company.
 - Ex: What is a good comp for Apple? HP? Microsoft?
 - You have to know the businesses that you are comping well enough to know that they are similar.
 - Sometimes when no great comps, just think about how your business compares to the others on **Growth, Business Risk, and Free Cash Flow Conversion** and adjust
- *Potential issue: perhaps everything (the whole market, the industry, etc.) is overvalued. This is a relative valuation technique!

HFAC Case Study: Noble Roman's

- Noble Roman's is a small (\$20M Enterprise Value) pizza restaurant franchising company.
- Its stores are basically 100% franchises (i.e. they just pay a royalty to Noble Roman's, so FCF conversion is basically 100%)
- It has positive EBITDA that reflects the earnings of the business
- Can you give some specific examples about companies (or categories of companies) that you would use as comps for Noble Romans?

HFAC Case Study: Noble Roman's

- Our comp categories are as follows:
 - Best: Small pizza restaurant franchising companies
 - Next Best: Small restaurant franchising companies
 - 3rd Best: Pizza companies
 - 4th Best: Quick service restaurant companies, i.e. fast food
- So let's try to determine what a reasonable EV/EBITDA multiple for this company is.

Comparables Overview

Company Name	Ticker	Price	Equity Value	Debt	Firm Value	% Franchised	2012 EBITDA	Debt/ EBITDA	FV / EBITDA	FV / EBITDA - CAPEX	Revenue Growth			EBITDA Margin		
											2010	2011	2012	2010	2011	2012
Direct Comparable																
Pizza Pizza Royalty Corp.	TSX:PZA	\$10.96	\$328.1	\$48.4	\$372.3	100.0%	\$30.6	1.6x	12.1x	12.1x	50.6%	2.5%	3.0%	97.6%	98.0%	98.0%
Pizza Inn Holdings, Inc.	PZZI	\$5.19	\$41.6	\$2.8	\$43.9	96.5%	\$1.4	2.1x	32.4x	NM	(0.3%)	5.0%	(2.4%)	7.1%	6.6%	3.2%
Median						98.2%	\$16.0	1.8x	22.3x	12.1x	25.1%	3.8%	0.3%	52.4%	52.3%	50.6%
Non-Pizza, High % Franchised																
MTY Food Group Inc.	TSX:MTY	\$23.50	\$449.3	\$7.4	\$421.5	99.1%	\$34.9	0.2x	12.1x	12.4x	29.8%	17.2%	22.8%	38.6%	33.7%	36.3%
Nathan's Famous Inc.	NATH	\$42.95	\$190.3	\$0.0	\$163.6	98.4%	\$12.5	0.0x	13.0x	14.2x	10.6%	16.1%	11.2%	16.8%	16.0%	17.8%
Median						98.7%	\$23.7	0.1x	12.6x	13.3x	20.2%	16.6%	17.0%	27.7%	24.8%	27.0%
Large-Cap Pizza																
Domino's Pizza, Inc.	DPZ	\$49.75	\$2,808.0	\$1,560.8	\$4,314.0	96.2%	\$306.3	5.1x	14.1x	15.6x	11.9%	5.2%	1.6%	16.2%	17.3%	18.2%
Papa John's International Inc.	PZZA	\$60.38	\$1,356.0	\$88.3	\$1,446.1	83.3%	\$132.9	0.7x	10.9x	16.0x	4.4%	8.1%	10.2%	10.6%	9.8%	9.9%
Median						89.7%	\$219.6	2.9x	12.5x	15.8x	8.2%	6.6%	5.9%	13.4%	13.6%	14.1%
Large-Cap QSR																
McDonald's Corp.	MCD	\$102.54	\$102,826.2	\$13,632.5	\$114,118.4	80.9%	\$9,849.6	1.4x	11.6x	16.8x	5.8%	12.2%	2.1%	35.6%	35.9%	35.7%
Yum! Brands, Inc.	YUM	\$66.23	\$29,795.0	\$2,942.0	\$32,119.0	80.6%	\$2,872.0	1.0x	11.2x	18.1x	4.7%	11.3%	8.0%	21.5%	20.7%	21.1%
Chipotle Mexican Grill, Inc.	CMG	\$339.94	\$10,519.7	\$0.0	\$10,012.2	0.0%	\$545.0	0.0x	18.4x	28.8x	20.9%	23.6%	20.3%	19.8%	19.0%	20.0%
Burger King Worldwide, Inc.	BKW	\$18.22	\$6,391.0	\$3,049.3	\$8,893.6	97.6%	\$639.0	4.8x	13.9x	15.6x	(4.3%)	(2.9%)	(15.8%)	17.8%	24.5%	32.5%
The Wendy's Company	WEN	\$5.34	\$2,099.7	\$1,457.6	\$3,103.9	76.9%	\$328.4	4.4x	9.5x	23.7x	(2.5%)	2.4%	3.0%	14.8%	13.7%	13.1%
Jack in the Box Inc.	JACK	\$35.38	\$1,539.8	\$395.9	\$1,926.2	70.0%	\$222.4	1.8x	8.7x	17.6x	(4.0%)	(36.2%)	6.7%	7.9%	12.6%	14.3%
Median ⁽¹⁾						78.8%	\$592.0	1.6x	11.4x	17.9x	5.3%	11.7%	5.5%	20.6%	19.9%	20.5%
Median (Excl. Large-Cap QSR)						97.4%	\$32.8	1.1x	12.6x	14.2x	11.2%	6.6%	6.6%	16.5%	16.6%	18.0%
Median (Incl. Large-Cap QSR)						89.7%	\$264.3	1.5x	12.1x	16.0x	5.3%	6.6%	4.9%	17.3%	18.2%	19.1%
Noble Roman's	NROM	\$0.78	\$15.4	\$4.3	\$20.3	100.0%	\$3.0	1.5x	6.9x	7.0x	(3.7%)	1.4%	(1.0%)	42.6%	43.7%	40.2%

(1) Median revenue growth excludes Burger King and Jack in the Box because they have been aggressively adjusting their company-owned/franchise mix.

Valuation

- All signs point to the fact that an EV/EBITDA multiple of 12x is appropriate based on the comps.
- A multiple range of 10-13x seems appropriate if you look back at the last slide.
- Last year's EBITDA was \$3M.
- So the enterprise value of this business should be $12 \times \$3\text{M} = \36M . Converting EV to equity value, we see that the equity is worth \$31M (since there is \$5M of Debt – Cash), vs current Market Cap of \$15M
- An EV range would be \$30M to \$39M (depending upon 10x or 13x EV/EBITDA multiple).

TL;DR

- Financial metrics tell us how much companies are worth relative to a set of peers
- The most important financial metrics for companies you'll look at in the course of the comp are
 - Price/Earnings
 - Enterprise Value/EBITDA
- Think about financial metrics as a backhand or “quick and dirty” way of valuing companies

Importance of Comps

- This is probably the most important thing you will learn in the HFAC comp.
- It is easy to do a comps model. It is hard to do a good one.
 - The most difficult aspect is picking the right comp set
- Once you know can nail down a multiple (or a small range of multiples), you can value a company using the basic algebra you saw on the previous slide
- Remember, always be thinking about **growth, business risk, and free cash flow conversion** when you are thinking about multiples / comps.

Extensions of the Comps Model

- Instead of using comparable publicly traded companies, we can use other “comps”
- **Historical comps** – compare the company to itself historically
- **Precedent transactions** – compare the company’s multiples to the multiples that were paid for similar companies that were bought out.



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CODE: COMPS

Thank you!

See you next Thursday!