II. Expected Growth in Net Income from non-cash assets

- The limitation of the EPS fundamental growth equation is that it focuses on per share earnings and assumes that reinvested earnings are invested in projects earning the return on equity. To the extent that companies retain money in cash balances, the effect on net income can be muted.
- A more general version of expected growth in earnings can be obtained by substituting in the equity reinvestment into real investments (net capital expenditures and working capital) and modifying the return on equity definition to exclude cash:
  - Net Income from non-cash assets = Net income – Interest income from cash (1- t)
  - Equity Reinvestment Rate = (Net Capital Expenditures + Change in Working Capital) (1 - Debt Ratio)/ Net Income from non-cash assets
  - Non-cash ROE = Net Income from non-cash assets/ (BV of Equity – Cash)
  - Expected $\text{Growth}_{\text{Net Income}}$ = Equity Reinvestment Rate * Non-cash ROE

Estimating expected growth in net income from non-cash assets: Coca Cola in 2010

- In 2010, Coca Cola reported net income of $11,809 million. It had a total book value of equity of $25,346 million at the end of 2009.
- Coca Cola had a cash balance of $7,021 million at the end of 2009, on which it earned income of $105 million in 2010.
- Coca Cola had capital expenditures of $2,215 million, depreciation of $1,443 million and reported an increase in working capital of $335 million. Coca Cola's total debt increased by $150 million during 2010.
  - Equity Reinvestment = 2215- 1443 + 335-150 = $957 million
  - Non-cash Net Income = $11,809 - $105 = $ 11,704 million
  - Non-cash book equity = $25,346 - $7021 = $18,325 million
  - Reinvestment Rate = $957 million/ $11,704 million= 8.18%
  - Non-cash ROE = $11,704 million/ $18,325 million = 63.87%
  - Expected growth rate = 8.18% * 63.87% = 5.22%

III. Expected Growth in EBIT And Fundamentals: Stable ROC and Reinvestment Rate

- When looking at growth in operating income, the definitions are
  - Reinvestment Rate = (Net Capital Expenditures + Change in WC)/EBIT(1-t)
  - Return on Investment = ROC = EBIT(1-t)/(BV of Debt + BV of Equity-Cash)
- Reinvestment Rate and Return on Capital

  Expected Growth rate in Operating Income

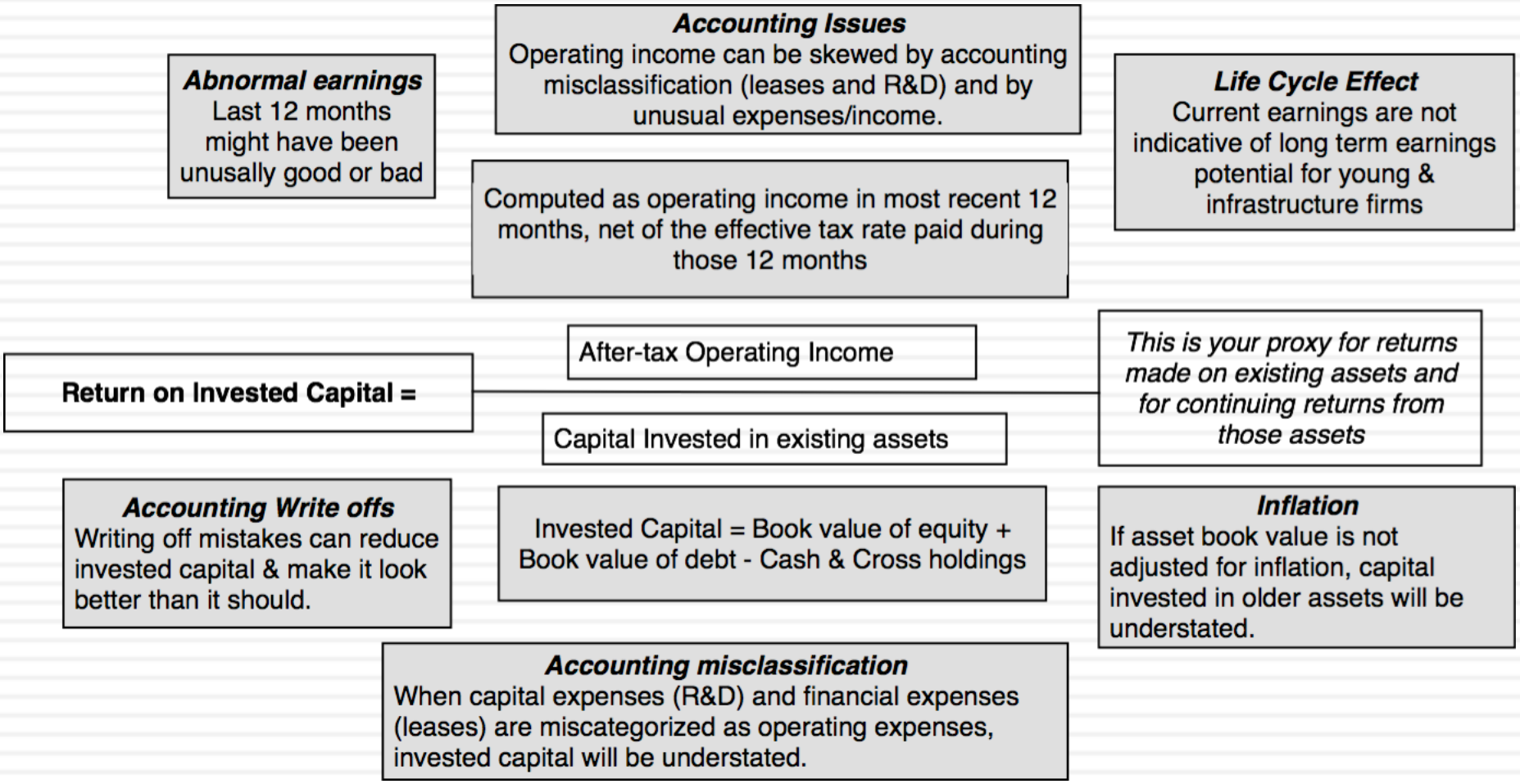
  = (Net Capital Expenditures + Change in WC)/EBIT(1-t) * ROC

  = Reinvestment Rate * ROC
- Proposition: The net capital expenditure needs of a firm, for a given growth rate, should be inversely proportional to the quality of its investments.

Estimating Growth in Operating Income, if fundamentals stay unchanged

- Cisco's Fundamentals
  - Reinvestment Rate = 106.81%
  - Return on Capital =34.07%
  - Expected Growth in EBIT =(1.0681)(.3407) = 36.39%
- Motorola's Fundamentals
  - Reinvestment Rate = 52.99%
  - Return on Capital = 12.18%
  - Expected Growth in EBIT = (.5299)(.1218) = 6.45%
- Cisco's expected growth rate is clearly much higher than Motorola's sustainable growth rate. As a potential investor in Cisco, what would worry you the most about this forecast?
  a. That Cisco's return on capital may be overstated (why?)
  b. That Cisco's reinvestment comes mostly from acquisitions (why?)
  c. That Cisco is getting bigger as a firm (why?)
  d. That Cisco is viewed as a star (why?)
  e. All of the above

The Magical Number: ROIC (or any accounting return) and its limits



IV. Operating Income Growth when Return on Capital is Changing

- When the return on capital is changing, there will be a second component to growth, positive if the return on capital is increasing and negative if the return on capital is decreasing.
- If ROC_t is the return on capital in period t and ROC_{t+1} is the return on capital in period t+1, the expected growth rate in operating income will be:

$$\text{Expected Growth Rate} = ROC_{t+1} * \text{Reinvestment rate} + (ROC_{t+1} - ROC_t) / ROC_t$$

- If the change is over multiple periods, the second component should be spread out over each period.

Motorola's Growth Rate

- Motorola's current return on capital is 12.18% and its reinvestment rate is 52.99%.
- We expect Motorola's return on capital to rise to 17.22% over the next 5 years (which is half way towards the industry average)

  Expected Growth Rate

  = $ROC_{\text{New Investments}}$*Reinvestment Rate $_{\text{Current}}$+ {[1+($ROC_{\text{In 5 years}}$-ROC_{Current})/ROC_{Current}]$^{1/5}$-1}

  = .1722*.5299 +{ [1+(.1722-.1218)/.1218]1/5-1}

  = .1629 or 16.29%
- One way to think about this is to decompose Motorola's expected growth into
  - Growth from new investments: .1722*5299= 9.12%
  - Growth from more efficiently using existing investments: 16.29%-9.12%= 7.17%

Note that I am assuming that the new investments start making 17.22% immediately, while allowing for existing assets to improve returns gradually

The Value of Growth

	Firm 1	Firm 2	Firm 3	Firm 4	Firm 5
Reinvestment Rate	20.00%	100.00%	200.00%	20.00%	0.00%
ROIC on new investment	50.00%	10.00%	5.00%	10.00%	10.00%
ROIC on existing investments before	10.00%	10.00%	10.00%	10.00%	10.00%
ROIC on existing investments after	10.00%	10.00%	10.00%	10.80%	11.00%
Expected growth rate	**10.00%**	**10.00%**	**10.00%**	**10.00%**	**10.00%**

Expected growth = Growth from new investments + Efficiency growth

= Reinv Rate * ROC + $(ROC_t - ROC_{t-1})/ROC_{t-1}$

Assume that your cost of capital is 10%. As an investor, rank these firms in the order of most value growth to least value growth.

Growth IV

Top Down Growth

Estimating Growth when Operating Income is Negative or Margins are changing

- All of the fundamental growth equations assume that the firm has a return on equity or return on capital it can sustain in the long term.
- When operating income is negative or margins are expected to change over time, we use a three step process to estimate growth:
  - Estimate growth rates in revenues over time
    - Determine the total market (given your business model) and estimate the market share that you think your company will earn.
    - Decrease the growth rate as the firm becomes larger
    - Keep track of absolute revenues to make sure that the growth is feasible
  - Estimate expected operating margins each year
    - Set a target margin that the firm will move towards
    - Adjust the current margin towards the target margin
  - Estimate the capital that needs to be invested to generate revenue growth and expected margins
    - Estimate a sales to capital ratio that you will use to generate reinvestment needs each year.

Airbnb in November 2020: Growth and Profitability

	Gross Bookings	Revenues	Revenue Growth	Operating Margin
LTM	*$ 26,491,803.00*	*$ 3,625,731*		
1	$ 37,088,524.20	$ 4,691,698	40.00%	-10.00%
2	$ 46,360,655.25	$ 5,989,797	25.00%	-3.00%
3	$ 57,950,819.06	$ 7,565,479	25.00%	0.50%
4	$ 72,438,523.83	$ 9,554,641	25.00%	4.00%
5	$ 90,548,154.79	$ 12,065,542	25.00%	7.50%
6	$ 109,019,978.36	$ 14,674,089	20.40%	9.52%
7	$ 126,245,134.94	$ 17,163,026	15.80%	13.39%
8	$ 140,384,590.06	$ 19,274,804	11.20%	17.26%
9	$ 149,649,973.00	$ 20,748,969	6.60%	21.13%
10	$ 152,642,972.46	$ 21,370,016	2.00%	25.00%
Terminal year	$ 155,695,831.91	$ 21,797,416	2.00%	25.00%

	Expedia			Booking.com		
	2019	LTM	% Change (Annualized)	2019	LTM	% Change (Annualized)
Gross Bookings	$ 107,870.00	$ 52,470.00	-61.75%	$ 96,400.00	$ 48,752.00	-59.71%
Revenues	$ 12,067.00	$ 7,026.00	-51.38%	$ 15,066.00	$ 8,897.00	-50.46%
Operating Income	$ 961.00	$ (892.00)	NA	$ 5,345.00	$ 1,831.00	-76.03%
Revenues/Gross Bookings	11.19%	13.39%		15.63%	18.25%	
Operating Margin	7.96%	-12.70%		35.48%	20.58%	

Airbnb: Reinvestment and Profitability

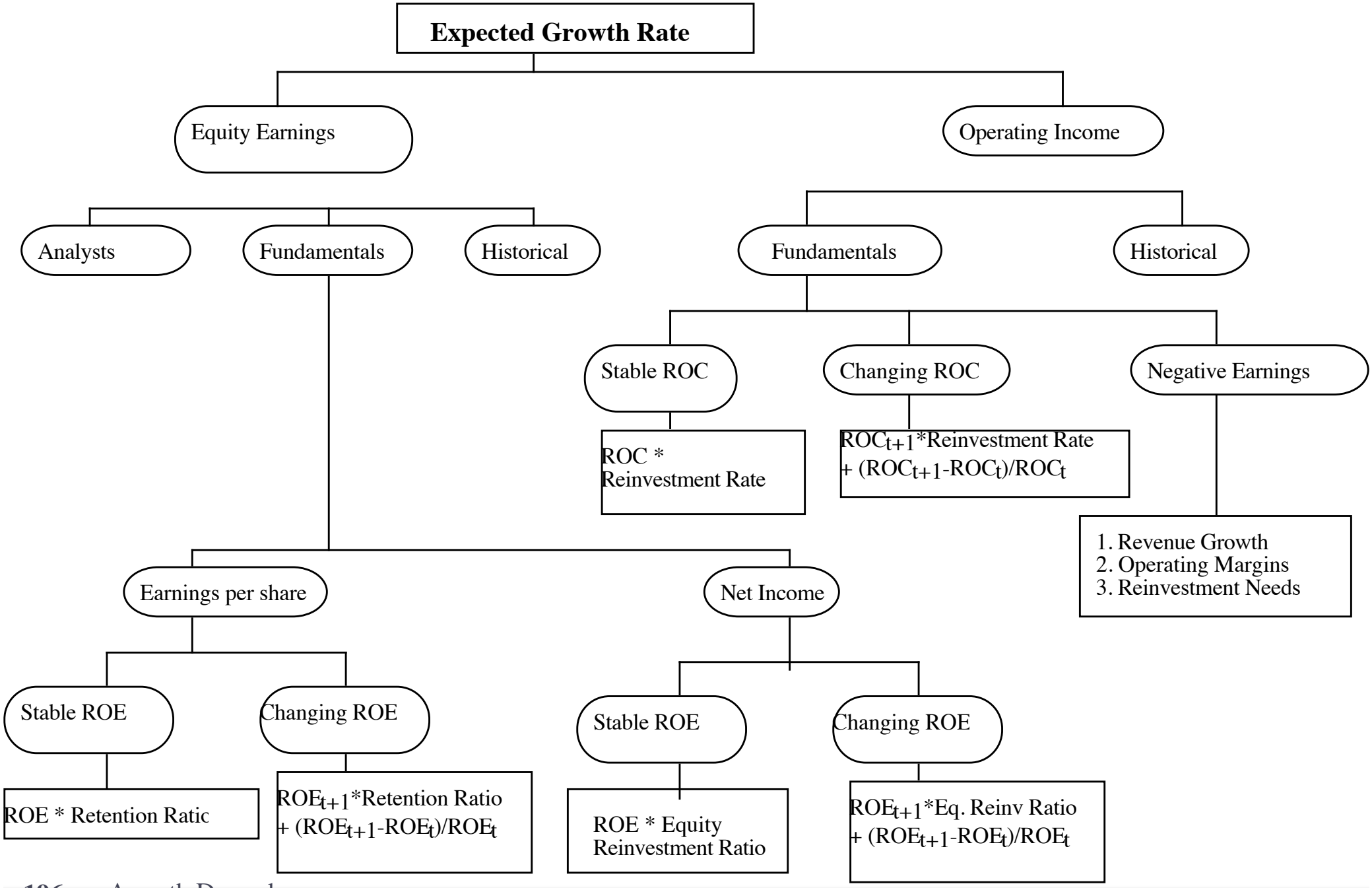
Taxes
Note that losses are carried forward and the company starts paying taxes only in year 5. Target tax rate is 25%.

Reinvestment
Reinvestment = Net Cap Ex + Acquisitions + Capitalized R&D + Chg in Working Capital)
To estimate the reinvestment, I divide the change in sales in that year by the sales to invested capital ratio.

Year	Revenues	Operating Margin	EBIT	EBIT (1-t)	Change in Sales	Sales to Capital	Reinvestment	FCFF	Invested Capital	ROIC
	$ 3,625,731	*-13.69%*	*$ (496,542)*	*$ (496,542)*		*1.92*			$ 1,370,158	-36.24%
1	$ 4,691,698	-10.00%	$ (469,170)	$ (469,170)	$ 1,065,967	2.00	$ 532,984	$ (1,002,153)	$ 1,903,142	-24.65%
2	$ 5,989,797	-3.00%	$ (179,694)	$ (179,694)	$ 1,298,098	2.00	$ 649,049	$ (828,743)	$ 2,552,191	-7.04%
3	$ 7,565,479	0.50%	$ 37,827	$ 37,827	$ 1,575,683	2.00	$ 787,841	$ (750,014)	$ 3,340,033	1.13%
4	$ 9,554,641	4.00%	$ 382,186	$ 382,186	$ 1,989,162	2.00	$ 994,581	$ (612,395)	$ 4,334,613	8.82%
5	$ 12,065,542	7.50%	$ 904,916	$ 777,799	$ 2,510,900	2.00	$ 1,255,450	$ (477,651)	$ 5,590,064	13.91%
6	$ 14,674,089	9.52%	$ 1,397,269	$ 1,047,952	$ 2,608,547	2.00	$ 1,304,274	$ (256,322)	$ 6,894,337	15.20%
7	$ 17,163,026	13.39%	$ 2,298,389	$ 1,723,792	$ 2,488,937	2.00	$ 1,244,469	$ 479,323	$ 8,138,806	21.18%
8	$ 19,274,804	17.26%	$ 3,327,026	$ 2,495,269	$ 2,111,778	2.00	$ 1,055,889	$ 1,439,380	$ 9,194,695	27.14%
9	$ 20,748,969	21.13%	$ 4,384,362	$ 3,288,271	$ 1,474,165	2.00	$ 737,082	$ 2,551,189	$ 9,931,777	33.11%
10	$ 21,370,016	25.00%	$ 5,342,504	$ 4,006,878	$ 621,047	2.00	$ 310,524	$ 3,696,354	$ 10,242,301	39.12%

Invested Capital
Invested Capital in year t = Invested Capital in year t- + Reinvestment

Investment Returns
ROIC = EBIT (1-t)/ Invested Capital in year t


Expected Growth Rate
Equity Earnings
Operating Income
Analysts
Fundamentals
Historical
Fundamentals
Historical
Stable ROC
Changing ROC
Negative Earnings
ROC * Reinvestment Rate
ROCt+1*Reinvestment Rate + (ROCt+1-ROCt)/ROCt
1. Revenue Growth
2. Operating Margins
3. Reinvestment Needs
Earnings per share
Net Income
Stable ROE
Changing ROE
Stable ROE
Changing ROE
ROE * Retention Ratio
ROEt+1*Retention Ratio + (ROEt+1-ROEt)/ROEt
ROE * Equity Reinvestment Ratio
ROEt+1*Eq. Reinv Ratio + (ROEt+1-ROEt)/ROEt

CLOSURE IN VALUATION

The Big Enchilada

Getting Closure in Valuation

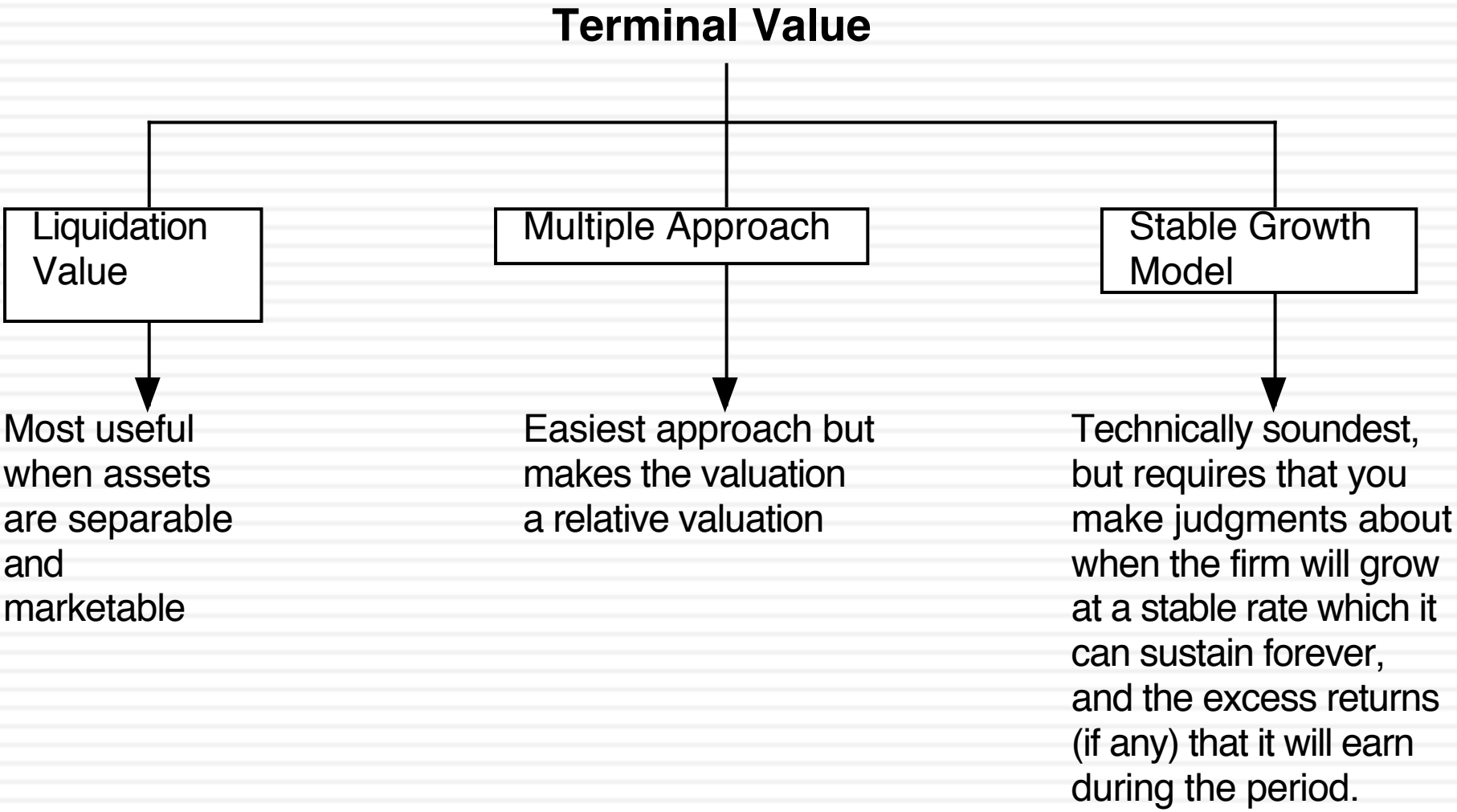
- A publicly traded firm potentially has an infinite life. The value is therefore the present value of cash flows forever.

$$\text{Value} = \sum_{t=1}^{t=\infty} \frac{CF_t}{(1+r)^t}$$

- Since we cannot estimate cash flows forever, we estimate cash flows for a "growth period" and then estimate a terminal value, to capture the value at the end of the period:

$$\text{Value} = \sum_{t=1}^{t=N} \frac{CF_t}{(1+r)^t} + \frac{\text{Terminal Value}}{(1+r)^N}$$

Ways of Estimating Terminal Value



1. Obey the growth cap

- When a firm's cash flows grow at a "constant" rate forever, the present value of those cash flows can be written as:

  Value = Expected Cash Flow Next Period / (r - g)

  where,

  r = Discount rate (Cost of Equity or Cost of Capital)

  g = Expected growth rate

- The stable growth rate cannot exceed the growth rate of the economy but it can be set lower.
  - If you assume that the economy is composed of high growth and stable growth firms, the growth rate of the latter will probably be lower than the growth rate of the economy.
  - The stable growth rate can be negative. The terminal value will be lower and you are assuming that your firm will disappear over time.
  - If you use nominal cashflows and discount rates, the growth rate should be nominal in the currency in which the valuation is denominated.
- One simple proxy for the nominal growth rate of the economy is the riskfree rate.

Risk free Rates and Nominal GDP Growth

- **Risk free Rate** = Expected Inflation + Expected Real Interest Rate
- The real interest rate is what borrowers agree to return to lenders in real goods/services.

- **Nominal GDP Growth** = Expected Inflation + Expected Real Growth
- The real growth rate in the economy measures the expected growth in the production of goods and services.

The argument for Risk free rate = Nominal GDP growth

1. In the long term, the real growth rate cannot be lower than the real interest rate, since the growth in goods/services has to be enough to cover the promised rate.
2. In the long term, the real growth rate can be higher than the real interest rate, to compensate risk taking. However, as economies mature, the difference should get smaller and since there will be growth companies in the economy, it is prudent to assume that the extra growth comes from these companies.

Period	*10-Year T.Bond Rate*	*Inflation Rate*	*Real GDP Growth*	*Nominal GDP growth rate*	*Nominal GDP - T.Bond Rate*
1954-2015	5.93%	3.61%	3.06%	6.67%	0.74%
1954-1980	5.83%	4.49%	3.50%	7.98%	2.15%
1981-2008	6.88%	3.26%	3.04%	6.30%	-0.58%
2009-2015	2.57%	1.66%	1.47%	3.14%	0.57%

A Practical Reason for using the Risk free Rate Cap – Preserve Consistency

- You are implicitly making assumptions about nominal growth in the economy, with your risk free rate. Thus, with a low risk free rate, you are assuming low nominal growth in the economy (with low inflation and low real growth) and with a high risk free rate, a high nominal growth rate in the economy.
- If you make an explicit assumption about nominal growth in cash flows that is at odds with your implicit growth assumption in the denominator, you are being inconsistent and bias your valuations:
  - If you assume high nominal growth in the economy, with a low risk free rate, you will over value businesses.
  - If you assume low nominal growth rate in the economy, with a high risk free rate, you will under value businesses.

Heineken: September 2019 (in Euros)

Cash flows from existing assets

	LTM	2013-2018
Revenues	€ 23,119	Growth rate = 3.22%
Operating Margin	14.86%	14.44%
Sales/Invested Capital	0.71	0.79
ROIC	7.46%	8.32%
Effective Tax Rate	29.70%	27.00%

The Payoff from growth

Revenues will grow 3.22% a year for next 5 years, tapering down to -0.5% growth in year 10

Operatng margin (per-tax) will drop to 14.00%

Sales/Invested Capital will stay at five-year average of 0.79.

Maturty and Closure

Stable Growth
g = -0.5%;
Cost of capital = 5%
ROC= 5%;
Reinvestment Rate=-.5%/5% = -10%

Terminal Value = 2972/(.05-..-(.005)) = 54,034

Euro Cashflows

	1	2	3	4	5	6	7	8	9	10	Terminal year
Revenue growth rate	3.22%	3.22%	3.22%	3.22%	3.22%	2.48%	1.73%	0.99%	0.24%	-0.50%	-0.50%
Revenues	€ 23,863	€ 24,632	€ 25,425	€ 26,244	€ 27,089	€ 27,759	€ 28,240	€ 28,519	€ 28,589	€ 28,446	€ 28,304
EBIT (Operating) margin	14.38%	14.34%	14.30%	14.26%	14.21%	14.17%	14.13%	14.09%	14.04%	14.00%	14.00%
EBIT (Operating income)	€ 3,432	€ 3,532	€ 3,635	€ 3,741	€ 3,850	€ 3,934	€ 3,990	€ 4,017	€ 4,015	€ 3,982	$ 3,963
Tax rate	29.70%	29.70%	29.70%	29.70%	29.70%	28.76%	27.82%	26.88%	25.94%	25.00%	$ 0
EBIT(1-t)	€ 2,413	€ 2,483	€ 2,556	€ 2,630	€ 2,707	€ 2,802	€ 2,880	€ 2,937	€ 2,973	€ 2,987	$ 2,972
- Reinvestment	€ 942	€ 973	€ 1,004	€ 1,036	€ 1,070	€ 849	€ 609	€ 353	€ 88	€ (181)	$ (297)
FCFF	€ 1,471	€ 1,511	€ 1,552	€ 1,594	€ 1,637	€ 1,953	€ 2,271	€ 2,584	€ 2,885	€ 3,168	$ 3,269

PV(Terminal value)	€ 36,390.85
PV (CF over next 10 years)	€ 15,300.34
Value of operating assets =	€ 51,691.19
- Debt	€ 19,709.52
- Minority interests	€ 1,069.00
+ Cash	€ 1,751.60
+ Non-operating assets	€ 1,401.00
Value of equity	€ 34,065.26
Number of shares	571.10
Estimated value /share	€ 59.65
Price	€ 93.25
Price as % of value	56.33%

Discount at Euro Cost of Capital (WACC) = 7.66% (.599) + 1.13% (0.401) = 5.04%

The Risk in the Cash flows

On September 1, 2019, Heineken was trading at 93.25 Euros/share

Cost of Equity 7.66%

Cost of Debt (-0.5%+2%)(1-.25) = 1.13%

Weights E = 59.9% D = 40.1%

Riskfree Rate: Euro Risk free rate = -0.50%

\+

Beta = 1.20

X

Firm's D/E Ratio: 66.98%

Unlevered beta of alcoholic beverage business = 0.80

ERP = 6.83%

Region	Revenues	Weight	ERP
Europe	10348	50.24%	6.90%
North America	5920	28.74%	5.75%
Asia	2919	14.17%	7.22%
Latin America & Caribbean	781	3.79%	10.53%
Africa & Mid East	631	3.06%	9.30%
Total	**20599**	**100.00%**	**6.83%**

2. Don't wait too long…

- Assume that you are valuing a young, high growth firm with great potential, just after its initial public offering. How long would you set your high growth period?
  a. < 5 years
  b. 5 years
  c. 10 years
  d. >10 years
- While analysts routinely assume very long high growth periods (with substantial excess returns during the periods), the evidence suggests that they are much too optimistic. Most growth firms have difficulty sustaining their growth for long periods, especially while earning excess returns.

And tie to competitive advantages

- It is not growth per se that creates value but growth with excess returns.
- For growth firms to continue to generate value creating growth, they have to be able to keep the competition at bay.
  - Proposition 1: The stronger and more sustainable the competitive advantages, the longer a growth company can sustain "value creating" growth.
  - Proposition 2: Growth companies with strong and sustainable competitive advantages are rare.

3. Do not forget that growth has to be earned..

- In the section on expected growth, we laid out the fundamental equation for growth:

  Growth rate = Reinvestment Rate * Return on invested capital

  + Growth rate from improved efficiency

- In stable growth, you cannot count on efficiency delivering growth and you have to reinvest to deliver the growth rate that you have forecast.
- Consequently, your reinvestment rate in stable growth will be a function of your stable growth rate and what you believe the firm will earn as a return on capital in perpetuity:
  - Reinvestment Rate = Stable growth rate/ Stable period ROC = g/ ROC
- Your terminal value equation can then be rewritten as:

$$\text{Terminal Value in year n} = \frac{\text{EBIT}_{n+1}\ (1-t)(1-\frac{g}{ROC})}{(\text{Cost of Capital}-g)}$$

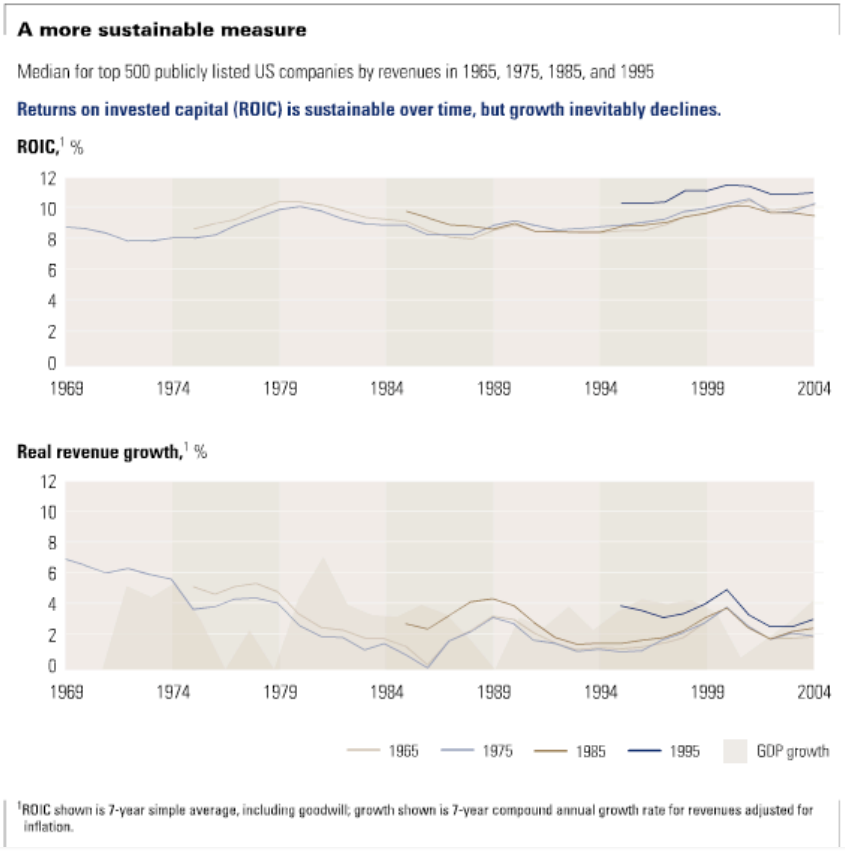
The Big Assumption

		Return on capital in perpetuity				
		6%	8%	10%	12%	14%
Growth rate forever	0.0%	$1,000	$1,000	$1,000	$1,000	$1,000
	0.5%	$965	$987	$1,000	$1,009	$1,015
	1.0%	$926	$972	$1,000	$1,019	$1,032
	1.5%	$882	$956	$1,000	$1,029	$1,050
	2.0%	$833	$938	$1,000	$1,042	$1,071
	2.5%	$778	$917	$1,000	$1,056	$1,095
	3.0%	$714	$893	$1,000	$1,071	$1,122

Terminal value for a firm with expected after-tax operating income of $100 million in year n+1 and a cost of capital of 10%.

Excess Returns to Zero?

- There are some (McKinsey, for instance) who argue that the return on capital should always be equal to cost of capital in stable growth.
- But excess returns seem to persist for very long time periods.



And don't fall for sleight of hand…

- A typical assumption in many DCF valuations, when it comes to stable growth, is that capital expenditures offset depreciation and there are no working capital needs. Stable growth firms, we are told, just have to make maintenance cap ex (replacing existing assets) to deliver growth. If you make this assumption, what expected growth rate can you use in your terminal value computation?

- What if the stable growth rate = inflation rate? Is it okay to make this assumption then?

4. Be internally consistent

- Risk and costs of equity and capital: Stable growth firms tend to
  - Have betas closer to one
  - Have debt ratios closer to industry averages (or mature company averages)
  - Country risk premiums (especially in emerging markets should evolve over time)
- The excess returns at stable growth firms should approach (or become) zero. ROC -> Cost of capital and ROE -> Cost of equity
- The reinvestment needs and dividend payout ratios should reflect the lower growth and excess returns:
  - Stable period payout ratio = 1 - g/ ROE
  - Stable period reinvestment rate = g/ ROC

BEYOND INPUTS: CHOOSING AND USING THE RIGHT MODEL

Choosing the right model

Summarizing the Inputs

- In summary, at this stage in the process, we should have an estimate of the
  - the current cash flows on the investment, either to equity investors (dividends or free cash flows to equity) or to the firm (cash flow to the firm)
  - the current cost of equity and/or capital on the investment
  - the expected growth rate in earnings, based upon historical growth, analysts forecasts and/or fundamentals
- The next step in the process is deciding
  - which cash flow to discount, which should indicate
  - which discount rate needs to be estimated and
  - what pattern we will assume growth to follow

Which cash flow should I discount?

- Use Equity Valuation

  (a) for firms which have stable leverage, whether high or not, and

  (b) if equity (stock) is being valued

- Use Firm Valuation

  (a) for firms which have leverage which is too high or too low, and expect to change the leverage over time, because debt payments and issues do not have to be factored in the cash flows and the discount rate (cost of capital) does not change dramatically over time.

  (b) for firms for which you have partial information on leverage (eg: interest expenses are missing..)

  (c) in all other cases, where you are more interested in valuing the firm than the equity. (Value Consulting?)

Given cash flows to equity, should I discount dividends or FCFE?

- Use the Dividend Discount Model

  (a) For firms which pay dividends (and repurchase stock) which are close to the Free Cash Flow to Equity (over a extended period)

  (b)For firms where FCFE are difficult to estimate (Example: Banks and Financial Service companies)

- Use the FCFE Model

  (a) For firms which pay dividends which are significantly higher or lower than the Free Cash Flow to Equity. (What is significant? ... As a rule of thumb, if dividends are less than 80% of FCFE or dividends are greater than 110% of FCFE over a 5-year period, use the FCFE model)

  (b) For firms where dividends are not available (Example: Private Companies, IPOs)

What discount rate should I use?

- Cost of Equity versus Cost of Capital
  - If discounting cash flows to equity -> Cost of Equity
  - If discounting cash flows to the firm -> Cost of Capital
- What currency should the discount rate (risk free rate) be in?
  - Match the currency in which you estimate the risk free rate to the currency of your cash flows
- Should I use real or nominal cash flows?
  - If discounting real cash flows -> real cost of capital
  - If nominal cash flows -> nominal cost of capital
  - If inflation is low (<10%), stick with nominal cash flows since taxes are based upon nominal income
  - If inflation is high (>10%) switch to real cash flows

Which Growth Pattern Should I use?

- If your firm is
  - large and growing at a rate close to or less than growth rate of the economy, or
  - constrained by regulation from growing at rate faster than the economy
  - has the characteristics of a stable firm (average risk & reinvestment rates)

Use a Stable Growth Model

- If your firm
  - is large & growing at a moderate rate (≤ Overall growth rate + 10%) or
  - has a single product & barriers to entry with a finite life (e.g. patents)

Use a 2-Stage Growth Model

- If your firm
  - is small and growing at a very high rate (> Overall growth rate + 10%) or
  - has significant barriers to entry into the business
  - has firm characteristics that are very different from the norm

Use a 3-Stage or n-stage Model

The Building Blocks of Valuation

Choose a			
Cash Flow	*Dividends* Expected Dividends to Stockholders	*Cashflows to Equity* Net Income - (1- δ) (Capital Exp. - Deprec'n) - (1- δ) Change in Work. Capital = Free Cash flow to Equity (FCFE) [δ = Debt Ratio]	*Cashflows to Firm* EBIT (1- tax rate) - (Capital Exp. - Deprec'n) - Change in Work. Capital = Free Cash flow to Firm (FCFF)
& A Discount Rate	*Cost of Equity* • *Basis*: The riskier the investment, the greater is the cost of equity. • *Models:* CAPM: Riskfree Rate + Beta (Risk Premium) APM: Riskfree Rate + Σ $Beta_j$ ($Risk\ Premium_j$): *n factors*		*Cost of Capital* WACC = k_e (E/ (D+E)) + k_d (D/(D+E)) k_d = Current Borrowing Rate (1-t) E,D: Mkt Val of Equity and Debt
& a growth pattern