Value Investing Lecture 3

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Based on: Value Investing: FROM GRAHAM TO BUFFETT AND BEYOND, Bruce C.N.Greenwald, Judd Kahn, Paul.D.Sonkin, & Michael Biema, and Notes by Bruce Greenwald.

Earning Power Value

- Basic Concept
  - Enterprise Value based on this year's "Earnings"
- Measurement
  - EP value = Earnings/cost of capital
- Second most reliable information
  - Earnings today
- Calculation
  - Earnings = Acct Income + Adj
  - Cost of Capital = WACC (Enterprise Value)
  - Equity Value = EP Value – Debt
- Assumption
  - Current profitability is sustainable

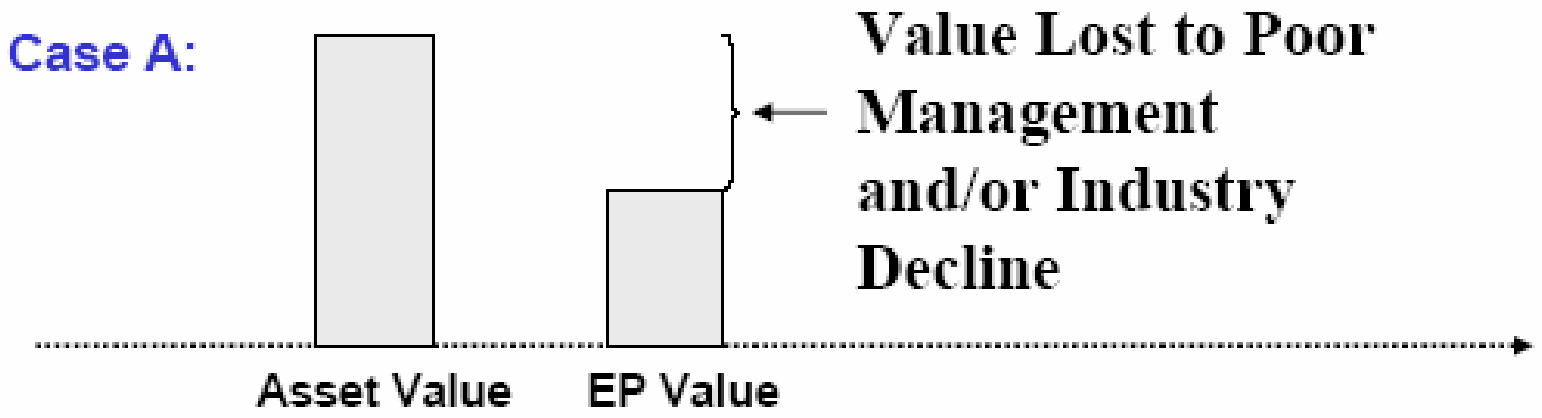
Earning Power Value Adjustments

- Earnings = EBIT (financial statements)
  - PLUS One time charge adjustment
    - If charges before tax average 20% of EBIT during past 5 years, then reduce EBIT by 20%
  - MINUS Cyclical adjustment
    - Calculate peak-to-trough EBIT variation – say Average is 80% of Peak, then if Peak, subtract 20%
  -

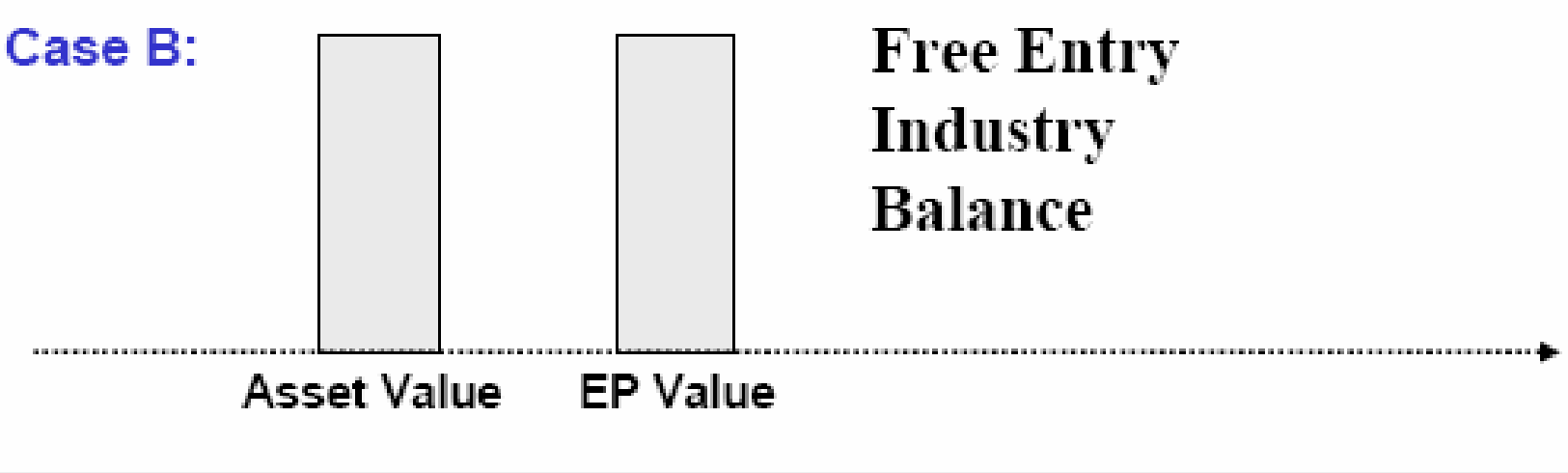
Earning Power Value Adjustments..

- Minus Tax adjustment
  - Apply average tax rate to EBIT – debt tax shield already in WACC
- Plus Depreciation adjustment
  - Depr + Amort – Zero growth CAPEX
- Plus Subsidiary Earnings Adjustments
- Plus Other Adjustments
  - Temporary problems, unused pricing power etc…

Earning Power and Entry/Exit



Earning Power and Entry/Exit…



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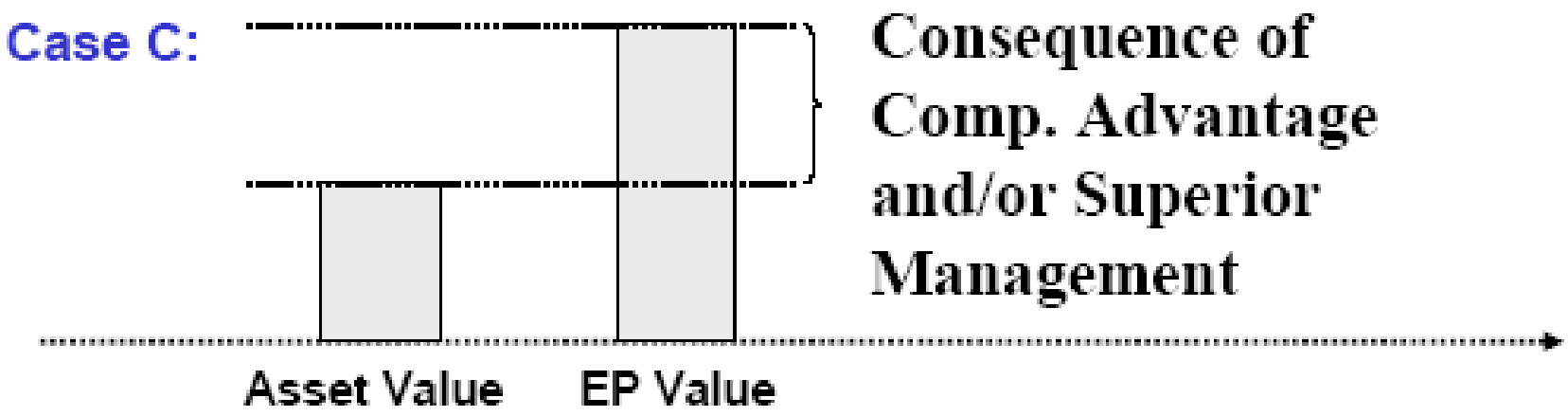


"Sustainability" depends on Continuing Barriers-to-Entry

Earning Power and Entry/Exit…

Franchise Value Calculation

(A1) Cost of Capital = 10%

(A2) Asset Value "AV" = 1200M

(A3) Earnings Power Value = 2400M = 240M X (1 / 10%)
"Earnings"

Earning Power and Entry/Exit…

- Competitive Free Entry Earnings
  - $120 M
    - = Cost of Capital × Asset Value
    - =10% × 1200
- Franchise Earnings
  - $120 M
  - = Earnings – Free Entry Earnings
  - = $240 M – $120 M
- Source of Franchise Earnings
  - Suppose Earnings = 10% of Sales
    - Franchise Earnings is another 10% of Sales
    - ➔ Requires Pricing or Cost Advantage!
    - Is it sustainable??

Earning Power Value Issues

- Nature and sustainability of barriers-to-entry
- Sustainable management quality
- Quality of reinvestment opportunities

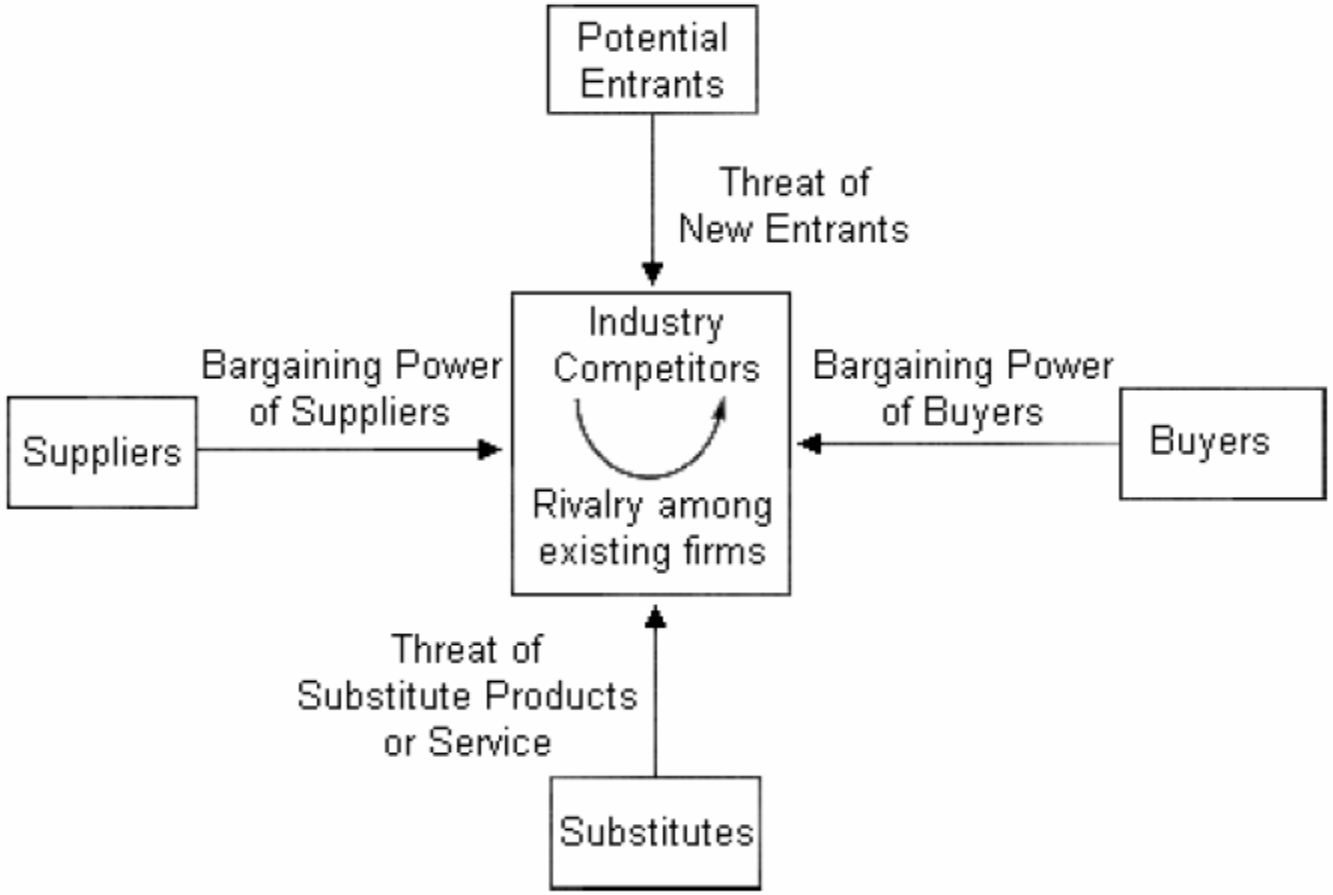
Summary – Basic Valuation

Compute: Asset Value (Most reliable)
EP Value (Second most reliable)

Case A:	Asset Value ≥ EP Value (500M) (300M)	Value = EP Value + Catalyst Value
Case B:	Asset Value = EP Value (500M) (500M)	Value = 500M
Case C:	Asset Value ≤ EP Value (500M) (1000M)	Value = Asset Value + Sustainable Fraction of Franchise Value (1000M-500M)

Value of a Franchise

- Basic Strategy Framework
  - Porter's Five Forces Model



Too many forces working to take away franchise value!

Strategic Forces

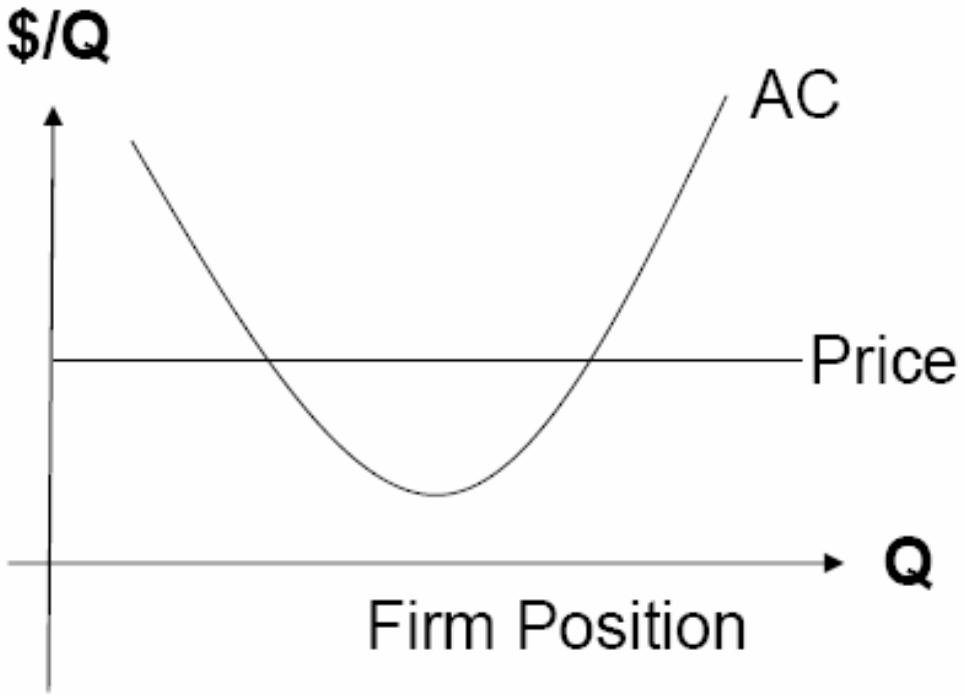
- Barriers to Entry
  - Government license to a few firms to engage in a type of business
    - Cable TV, Electric Utilities…
      - Technological change ➔ firms in some businesses have to learn to compete
      - Some businesses remain protected
    - Patents
  - Cost advantage
    - Larger market share enables larger expenditure in research and development
      - Difficult for competitors with a smaller share of the market
    - Access to cheaper labor
      - Other firms will eventually get that access!

Strategic Forces

- Customer loyalty
  - Addiction/Habit -- Soft drinks -- Coke!; Beer??
  - Switching costs – Microsoft,...
  - Search costs --
- Most barriers do erode over time
  - Why?

What happens with entry

Consequences of Free Entry
Commodity Markets (Steel)



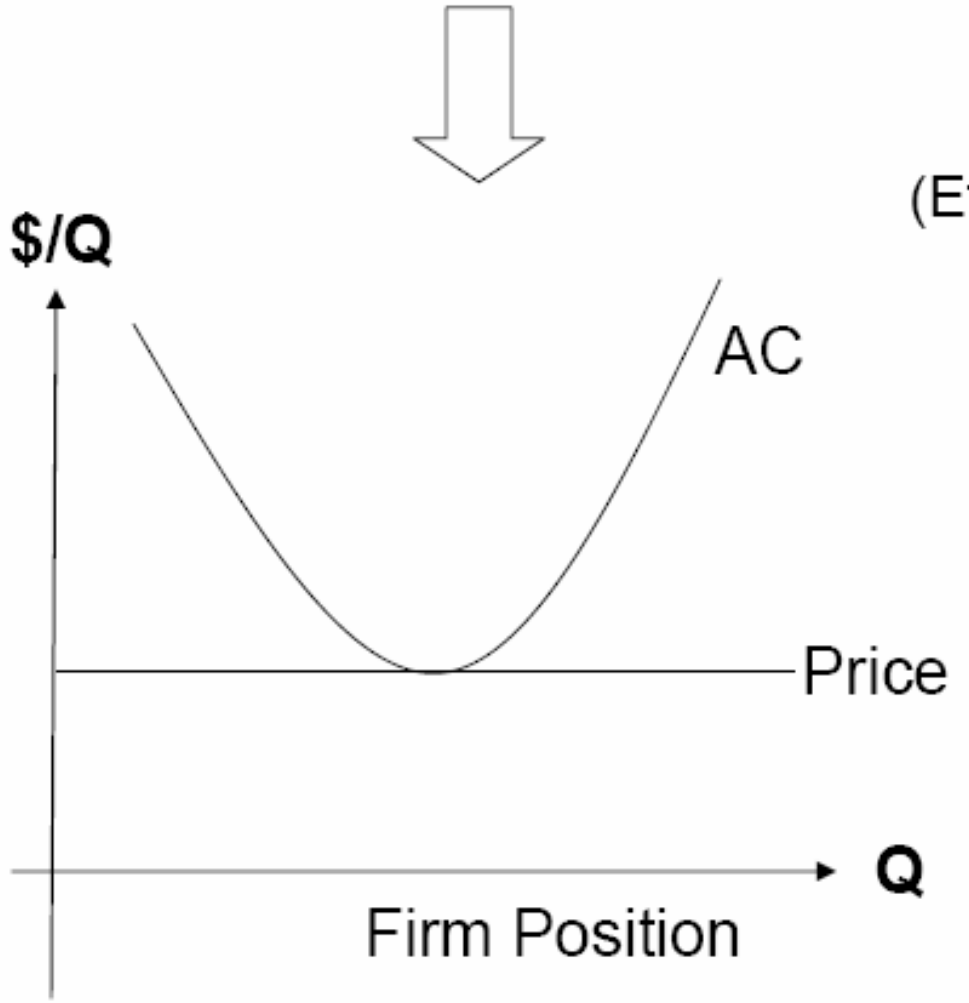
"Economic Profit"

ROE (20%) > Cost of Capital

Entry/Expansion

Supply Up, Price Down

What happens with entry…



(Efficient Producers)

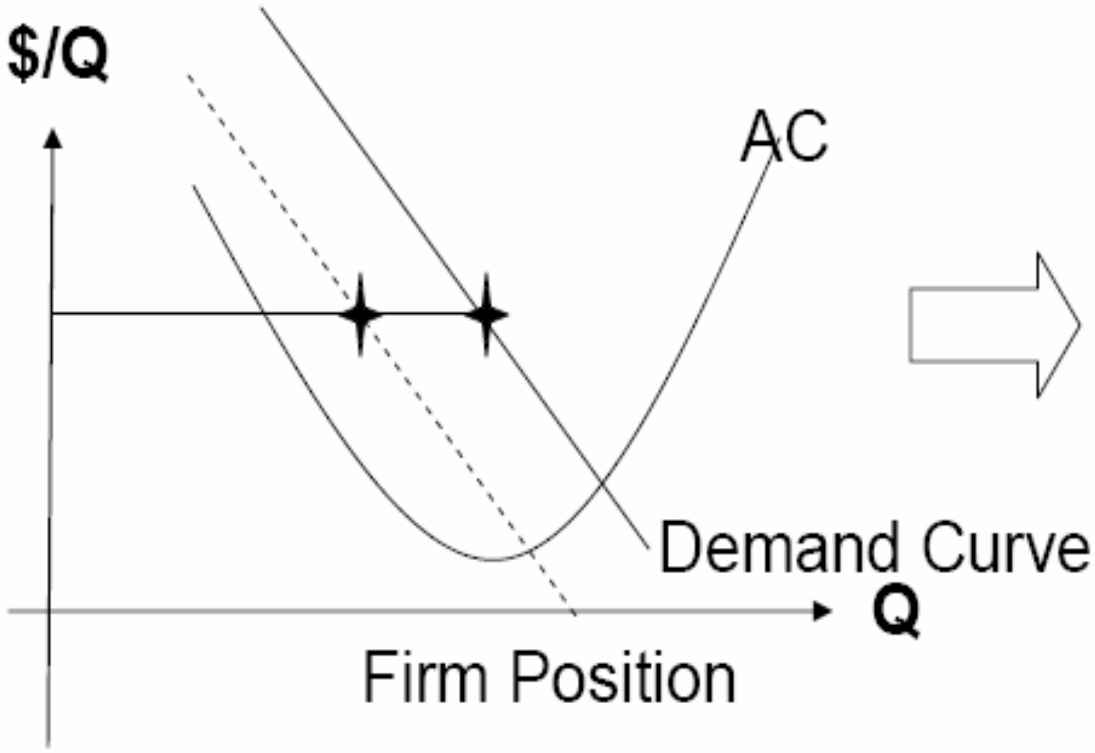
ROE = 12%

No Entry

No Profit

What happens with entry….

Consequences of Free Entry Differentiated Markets (Luxury Cars)



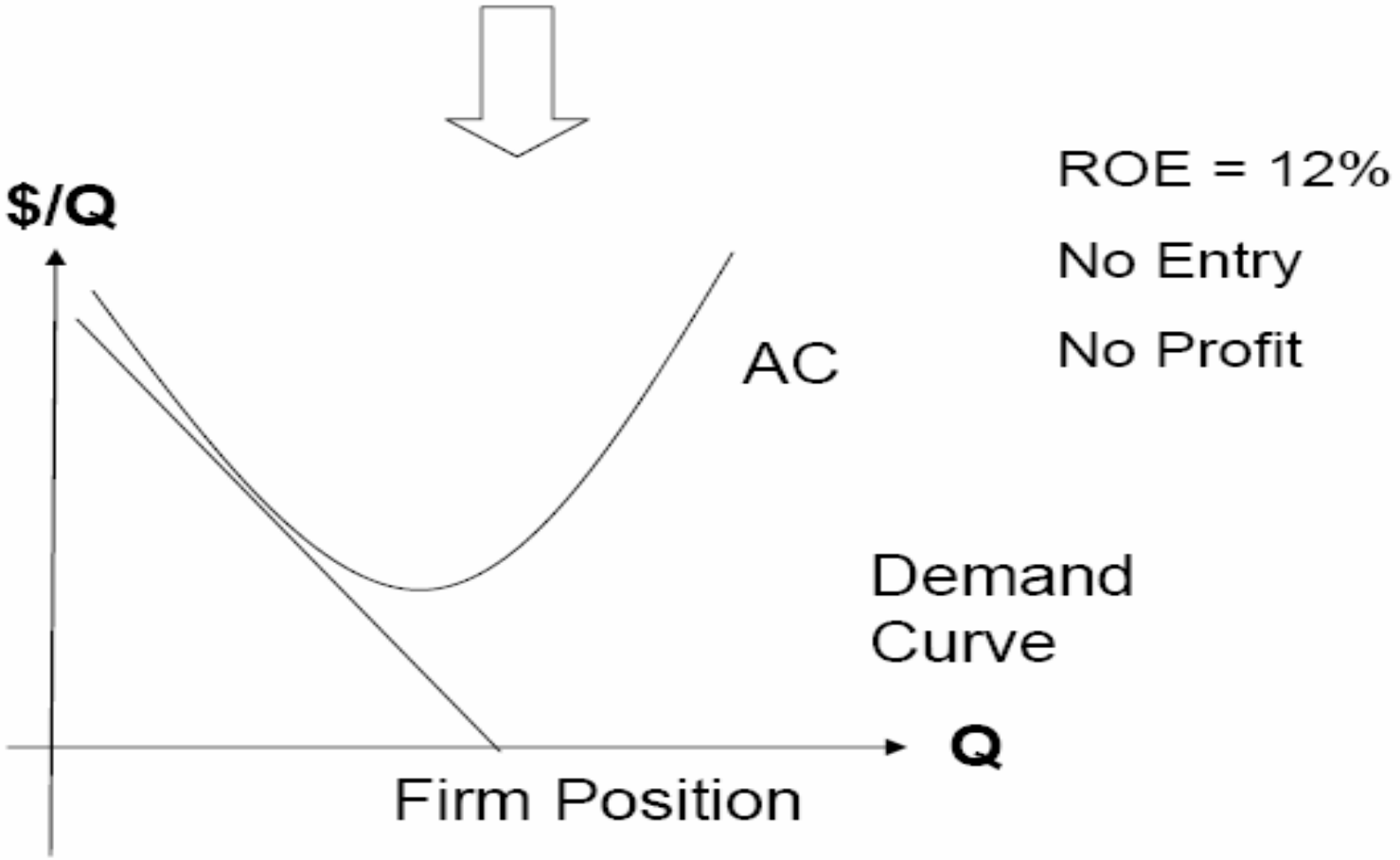
"Economic Profit"

ROE (20%) > Cost of Capital

Entry/Expansion

Demand for Firm shifts left (Fewer sales at each Price)

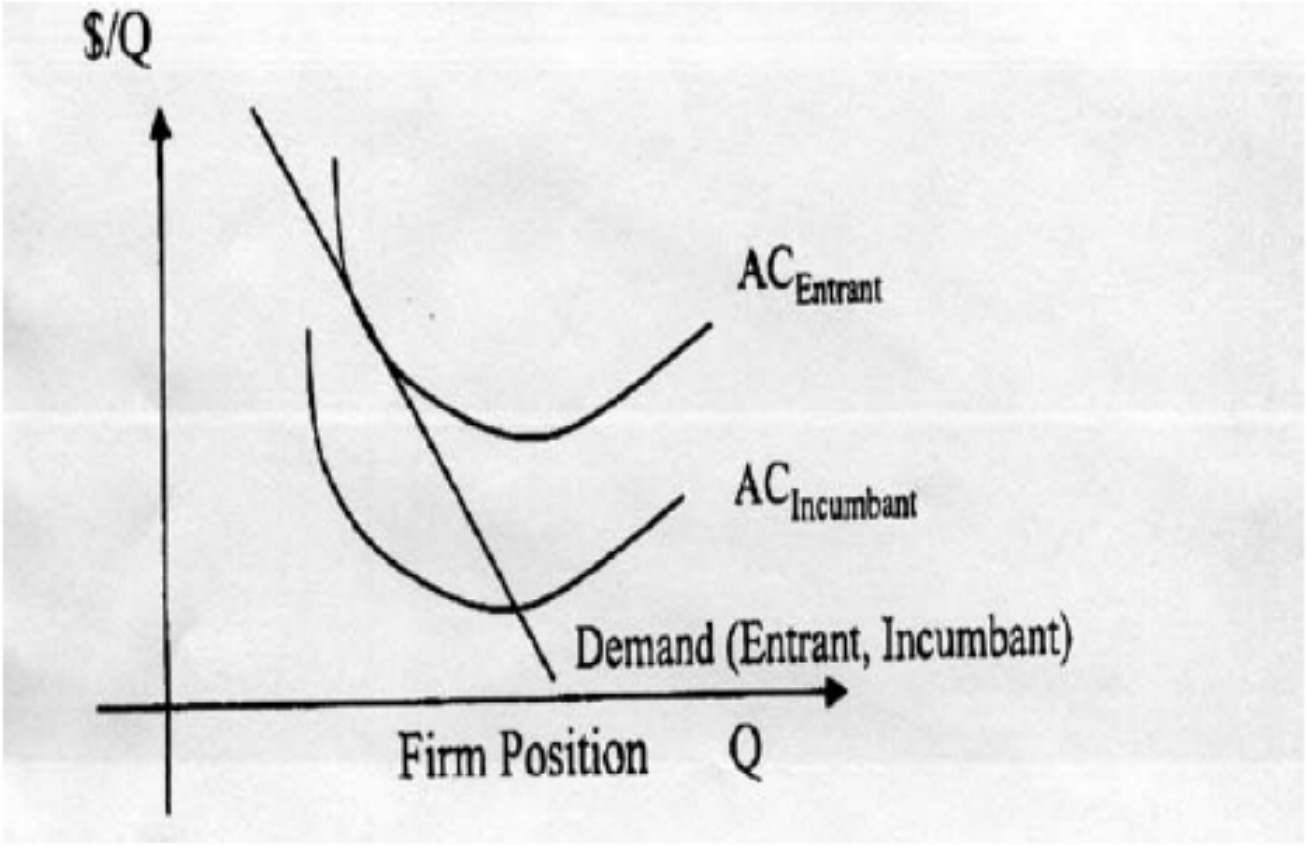
What happens with entry…..



What happens with entry…….

Barriers to Entry

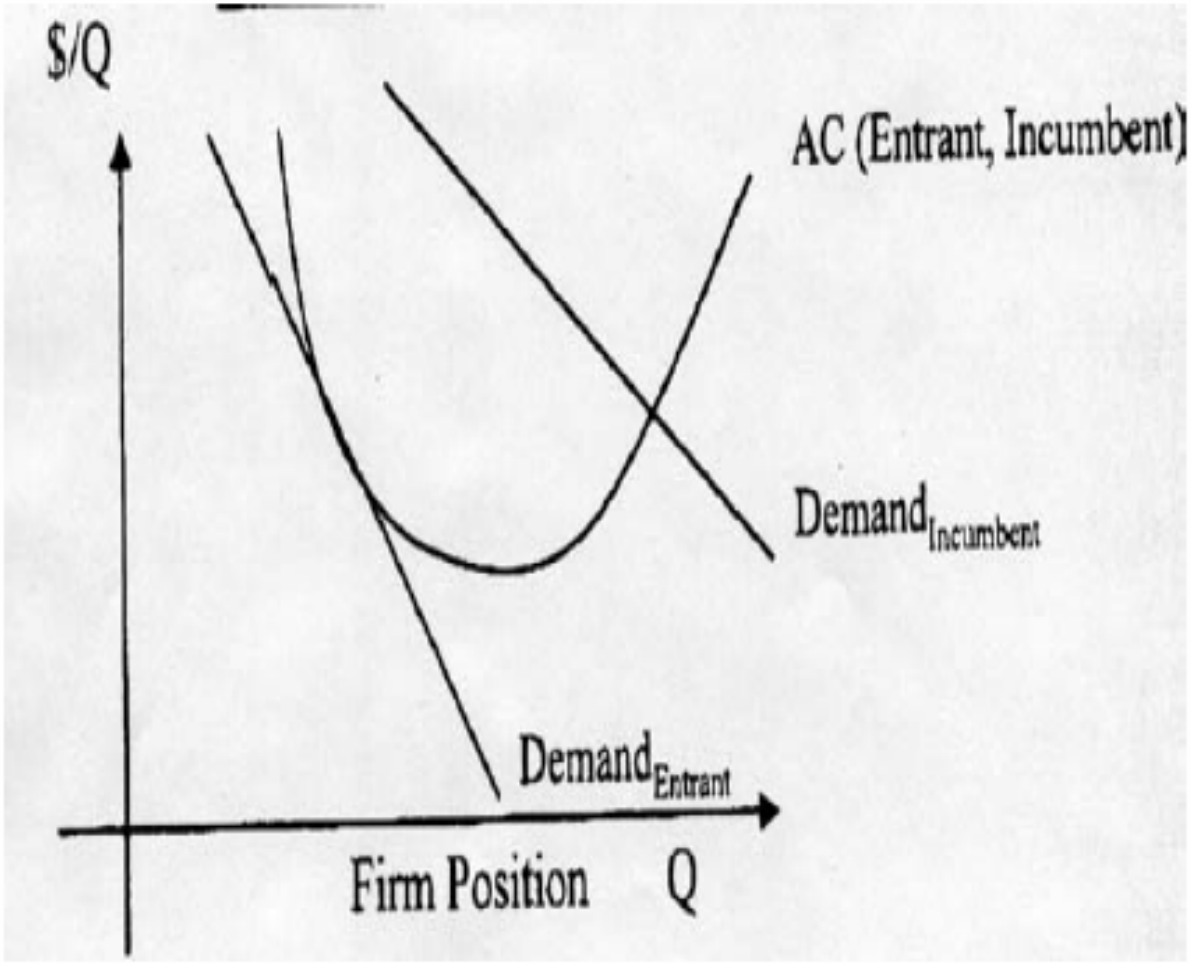
Incumbent Cost Advantage



Incumbent cost advantage

- Entrant
  - No “economic” profit
  - ROE = 12% = Cost of capital
  - No entry
- Incumbent
  - Earns “economic” profit
  - ROE = 20% >> Cost of capital
- Barriers to entry
  - Proprietary technology, patents, ..
  - Ahead in the learning curve
  - Access to special resources
    - Cheaper labor, electricity….

Incumbent Demand Advantage



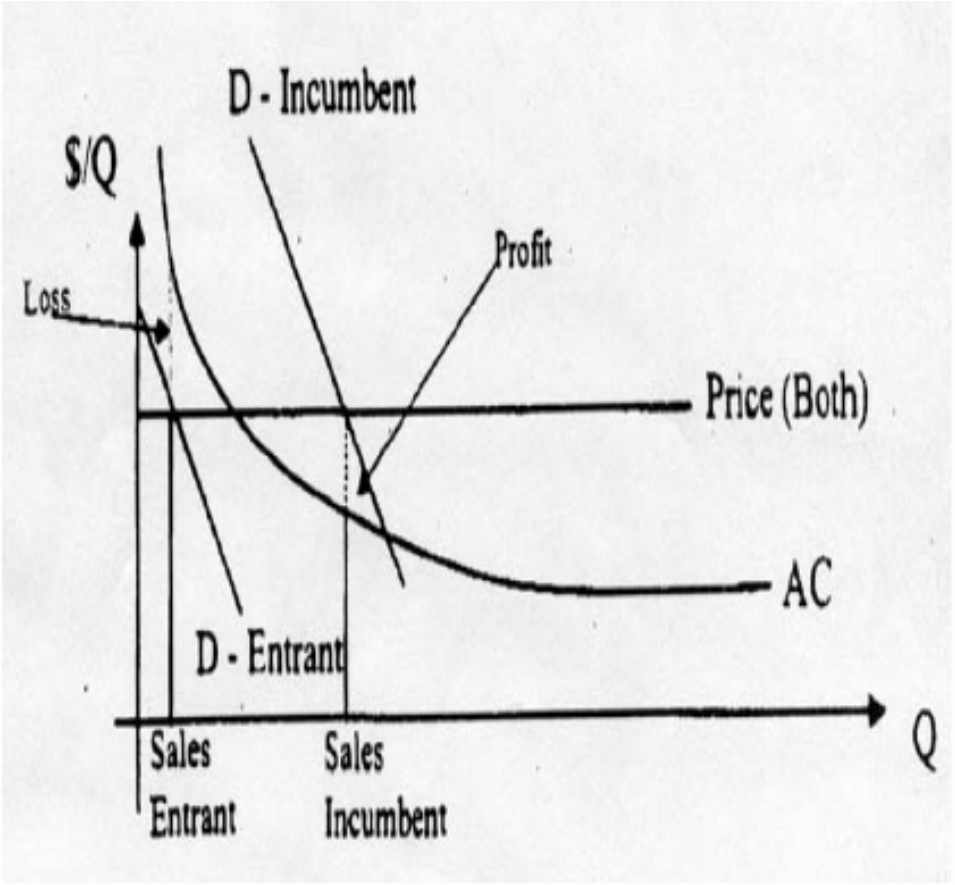
Incumbent demand advantage…

- Entrant
  - No “economic” profit
  - ROE = 12% = Cost of capital
  - No entry
- Incumbent
  - Earns “economic” profit
  - ROE = 20% >> Cost of capital
- Barriers to entry
  - Habit (Coca Cola)
    - Higher frequency of purchase
  - Search cost
    - Difficult to evaluate quality (physicians, ..)
  - Switching costs
    - Computers, software, banks,…

Economies of Scale

- Requires significant fixed cost
  - Internet provider
  - Results in temporary demand advantage
  - Not the same as large size
    - Healthcare, being large in the country is not the same as being large in a region
    - Advertisement is “regional” so regional scale helps, not national scale per se
  - Fixed costs by,
    - Geographic region (Walmart, North Carolina Furniture…)
    - National (Coke, Oreos, Nike, Toyota..)
    - Global (Microsoft, IBM, Boeing, Intel, ..

Economies of Scale..



- **Advantages are Dynamic and Must be Defended**

Sustainability of Barriers to Entry

- Static demand advantages
  - Tied customers (cable?)
    - Focus on own customers, pricing
    - No advantage with new customers
    - Customer base will shrink over time
      - Children grow up into adults
  - Static cost advantages (process patents..)
    - Cost efficiency in own technology,
    - No advantage with new technology
    - Technological innovation ➔ advantage vanishes over time
- Dynamic demand + scale advantages (Intel?)
  - Sustainable in principle
  - Requires vigilance
  - Technological innovation poses threat
    - PCs and Java Workstations threatening mainframe!!

Performing Strategic Analysis

- Industry Map
  - Identify Industry
- Do Barriers Exist?
  - Industry History
- What Competitive Advantage
  - Demand? Cost? Economies of scale?
- Future Strategy and Profitability

Example: Apple Computer

- Industry Map
  - Chips
    - Intel, AMD, Motorola, Apple
  - Hardware
    - Dell, HP, Gateway, IBM, Apple
  - Software
    - Microsoft, Oracle, Apple
  - Networks
    - AOL, Comcast
  - Components
    - Power supply companies,…

Example: Apple Computer….

- Industry Map
  - Identify segments
  - Identify firms in each segment
    - If firms are the same, treat segments as a single industry
    - Otherwise, treat as separate industry
  - For Apple
    - Chips
    - Hardware
    - Software

Performing strategic analysis....

- Do Barriers Advantages exist?
  - Profitability
    - Above cost of capital (12%) for sustained periods of time
    - Chips: Intel – (Yes)
    - Hardware: Dell, Gateway, IBM (May be)
    - Software: Microsoft (Yes)
  - Market share stability
    - Do market shares change hands?
    - Does dominant competitor change?
    - Is there significant entry?

Performing strategic analysis....

Year:	1990	Share	1998	Share	Change
Compaq	28	39	30	39	0
IBM	18	25	12	16	9
Apple	22	31	14	18	13
Dell	4	6	20	26	20
Total	**72**	**100**	**76**	**100**	**10.5**

Performing strategic analysis....

- Chips and Software
  - High stability, Low entry
- Hardware
  - Low barriers
- Software, Chips
  - High barriers

Performing strategic analysis....

Nature of barriers to entry

	Chips (Strong)	Hardware (Weak)	Software (Strong)
Demand	Yes	No	Yes (Very Strong)
Cost	Yes/Maybe	No	No
Economies-of-Scale	Yes	Maybe	Yes
Apple	**Disadvantage**	**Level (?)**	**Disadvantage (Some advantage)**

Performing strategic analysis....

- Where does Apple stand?
  - In the short run?
    - Another Ipod?
  - In the long run?

Summary of Strategic Advantage

- Franchise Value Requires competitive advantage
- Competitive Advantage
  - Must be identifiable
  - Are they sustainable? How will they erode over time?
  - When in doubt discount franchise value
- Look for “hidden” franchise value!
  - Poorly performing divisions, Poor management
  - Free cash flow that is wasted, Poor governance

Total Value including Growth

- Least reliable
- Highly sensitive to assumptions
- Data indicates that investors systematically overpay for growth
- Strict value investors
  - Want growth for “free”
  - Market value << earnings power value

Value of Growth – forces at work

- Growing stream of cash flows more valuable than steady stream

$$IV = CF_1/(r-g) \text{ vs. } CF_1/(r)$$

- Growth requires investment that reduces current distributable cash flow
  - CF that you gross up should be lower than no growth cash flow

Investing for growth -- algebra

- E_1= ROC*Capital_0
- Suppose growth is “g”
  - Then capital also must be growing at rate “g”
- CF_1 = E_1 – g*Capital_0
- IV = (E_1 – g*Capital_0)/(r-g)
  - = (ROC-g)*Capital_0/(r-g)
  - {(ROC-g)/(r-g)}*Capital_0
- IV of no growth firm
  - = (ROC/(r-g)}*Capital_0
- Critical Valuation Factor is
  - {(ROC-g)/(r-g)}

Case 1: Growth has no value

- ROC = r
- ➔ (ROC-g)/(r-g) = (r-g)/(r-g) = 1 for all g
- Example:
  - ROC = r = 10%
  - g = 0% (ROC-g)/(r-g) = (0.10-0)/(0.10-0) = 1
  - g = 2% (ROC-g)/(r-g)
    - = (0.10-0.20)/(0.10-0.20) = 1
- ROC = r ➔ No Barriers to Entry
- Growth has no value in that case

Case 2: Competitive Disadvantage to growth

- ROC < r
- ➔ (ROC-g)<(r-g)
- ➔ (ROC-g)/(r-g) < 1 & declining in g
- Example:
  - ROC = 8%; r = 10%
  - g = 0%: (ROC-g)/(r-g) = (.08-0)/(.10-0) = .8
  - g = 2%: (ROC-g)/(r-g)
    - = (.08-.02)/(.10-.02)= .75
- ROC < r ➔ Competitive disadvantage
- Growth destroys value

Case 3: Growth adds value

- ROC > r
- ➔ (ROC-g)>(r-g)
- ➔ (ROC-g)/(r-g) > 1 and increasing in g
- Example:
  - ROC = 15%
  - %; r = 10%
  - g = 0%: (ROC-g)/(r-g) = (.15-0)/(.10-0) = 1.5
  - g = 2%: (ROC-g)/(r-g)
    - = (.15-.02)/(.10-.02)= 1.625
- ROC > r ➔ Competitive advantage
- Growth adds value

Valuing Growth Basics

- Growth at a competitive disadvantage destroys value
  - Exxon in PC, AT&T in IT
- Growth in level playing field does not add or subtract value
  - Walmart in New England, or in Minnesota
- Only franchise growth (at industry rate) creates value

How much growth adds to value?

- Want to examine how the critical factor
  - {(ROC-g)/(r-g)}
  - ={(ROC/r – g/r)/(1-g/r)}
    - Changes
    - As we change ROC/r and g/r

How much growth adds to value?...

		ROC/r				
		1.00	1.50	2.00	2.50	3.00
g/r	0.25	1.00	1.11	1.17	1.20	1.22
	0.5	1.00	1.33	1.50	1.60	1.67
	0.75	1.00	2.00	2.50	2.80	3.00

- Entries: Value with growth / Value with no growth
- Suppose ROC = 15%, r = 10%, ROC/r = 1.5
  - E no growth = 0.15, P no growth = .15/.1 = 1.5
    - P/E = 1.5/0.15 = 10
  - g = 5% → E with growth = ROC-g = 0.10;
    - P with growth = .10/(.10-.05) = 2; P/E = 2/.1 = 20
  - (P, g/r=0.5) / P(g/r=0) = 2/1.5 = 1.33
- Takes a lot to go from P/E of 10 to P/E of 20!!

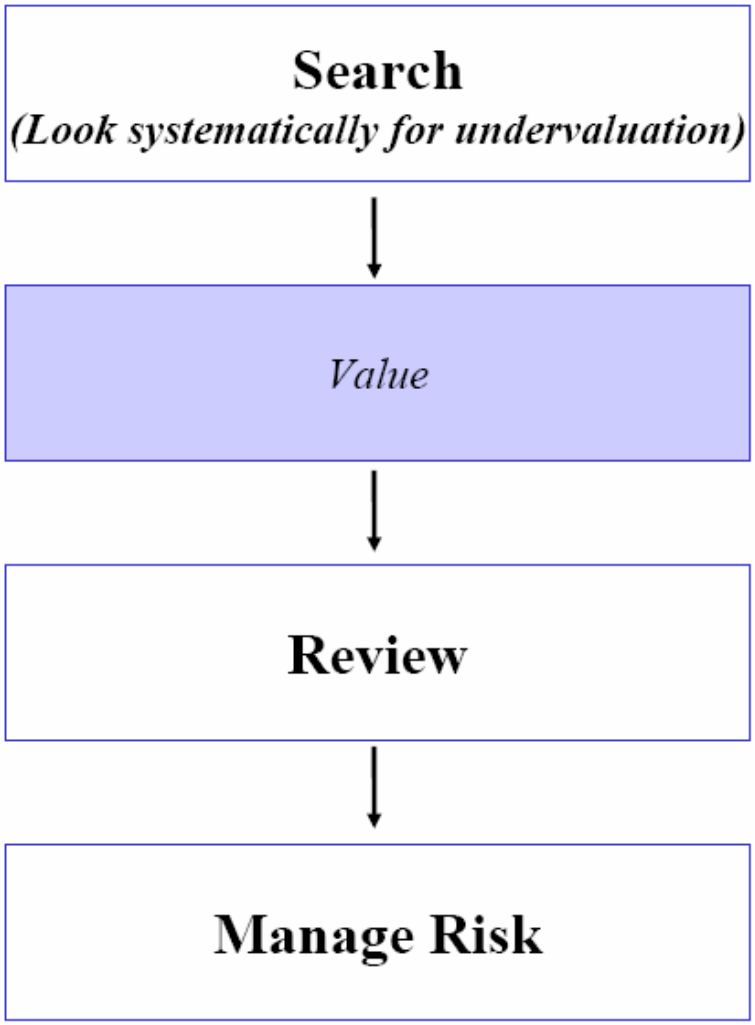
Breakeven growth rate?

- Calculate EPV today, e.g.,$75 Million
- Sustainable r = 10%; ROC = 15%
- Select a margin of safety, e.g., 50%
- Calculate the value required to get this margin of safety
  - =$75/0.50 = $150 Million
  - Value with growth/EPV = 2 with ROC/r = 1.5
  - ➔ g/r = 0.75 (from table)
  - ➔ g = 7.5%
  - US economy grows at less than 5% per year!!!
  - A firm that is now 1% of the economy will be 10% of the economy in 100 years
    - Unlikely…

Valuing growth

- Very difficult to do
  - Very difficult to determine the margin of safety
- Evidence that investors overpay for growth
- Best growth is hidden zero cost growth that comes from
  - Unused pricing power
  - Getting rid of temporary problems
  - Disposing of underperforming divisions
  - Cut wasteful expenditures

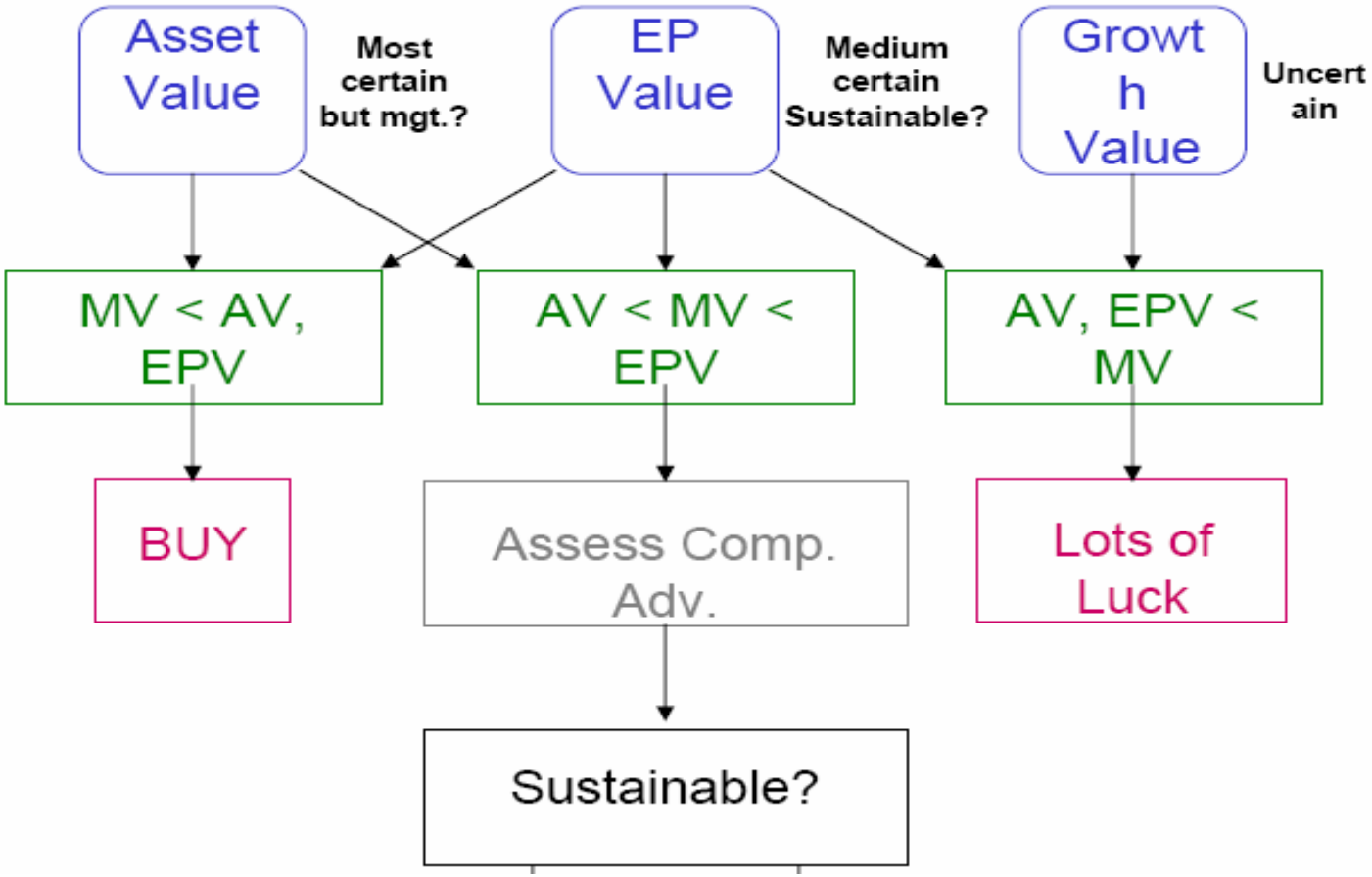
Summary


Search
(Look systematically for undervaluation)
Value
Review
Manage Risk

Managing Risk – Overall valuation

- Appropriate search methods
- Review all your biases
- Look for protecting asset value
- Provide for adequate margin of safety (1/3?)
- Identify catalysts that will enable realize value
- Default strategy
  - Index investing??

Recap -- Valuation



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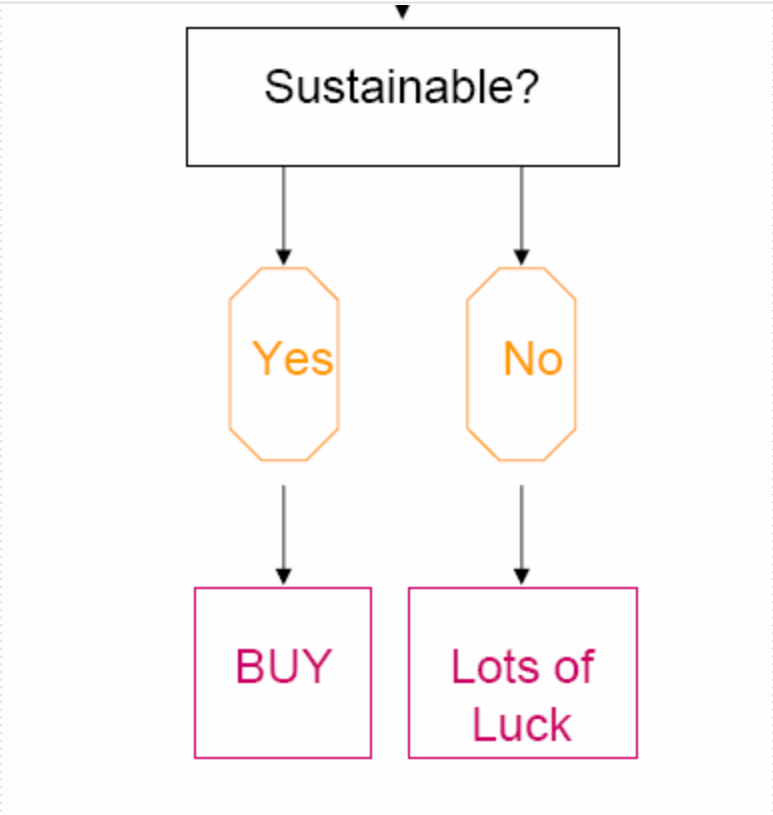

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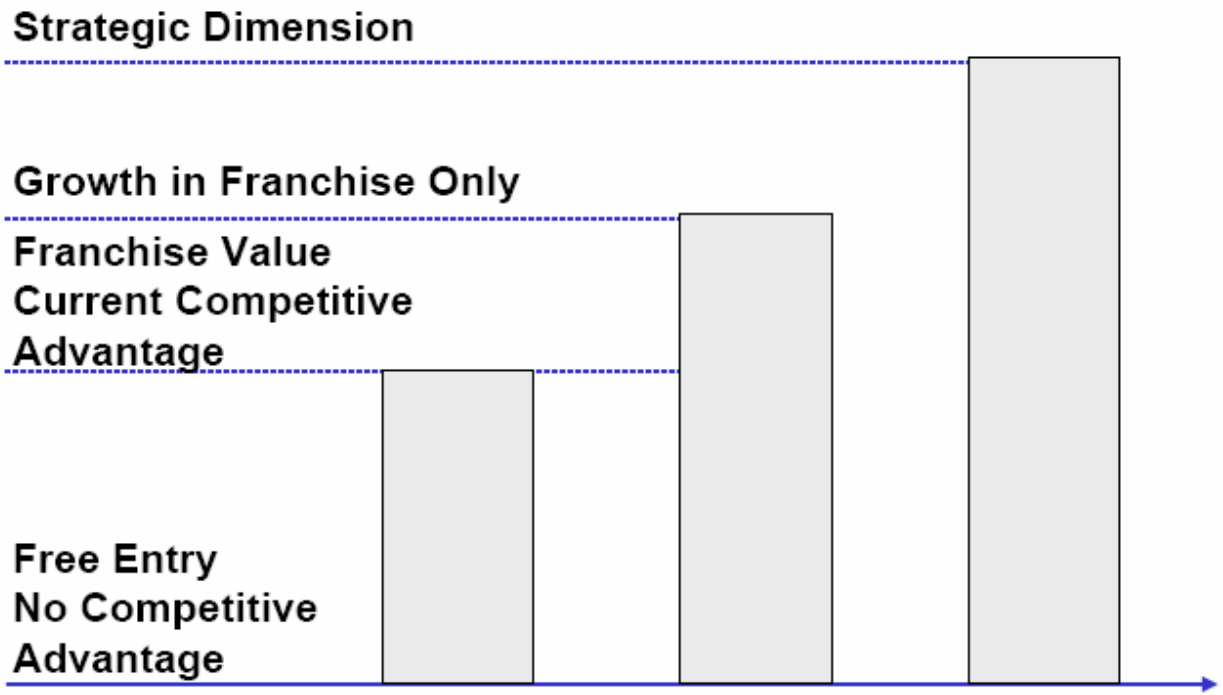

Reliability Dimension	Asset Value	Earnings Power Value	Total Value
	• Tangible • Balance Sheet Based • No Extrapolation	• Current Earnings • Extrapolation • No Forecast	• Includes Growth • Extrapolation • Forecast

Examples

- WD-40
- Intel