



School of Business,  
Economics and Law  
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# Mergers

Emphasis on horizontal mergers

# Importance of mergers

# Notable recent deals

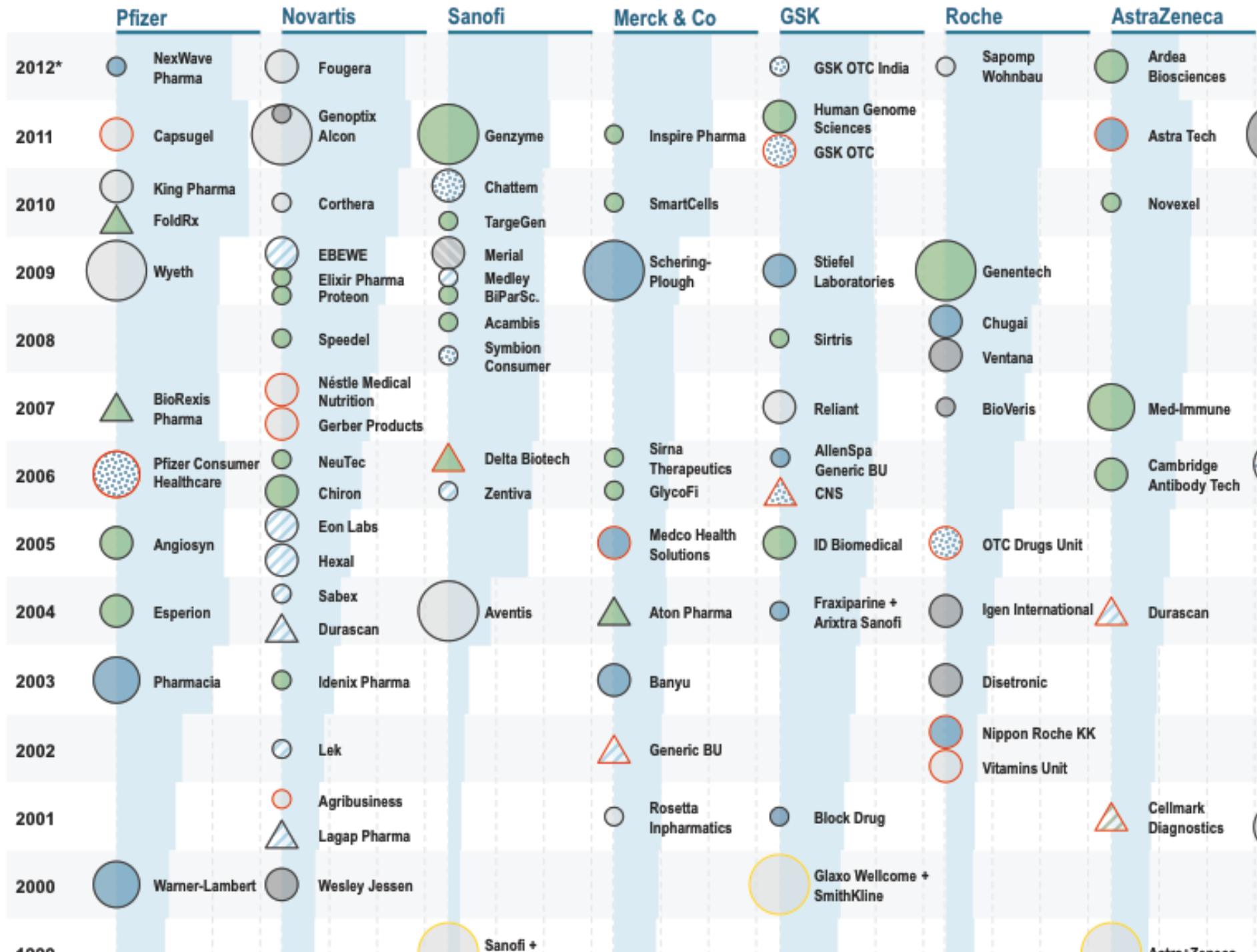
Top 10 M&A deals worldwide by value from 2011 to 2020 (correct as of 31 December 2015):

Rank	Year	Purchaser	Purchased	Transaction value (in billions USD)	Inflation adjusted (in billions 2016 USD)
1	2013	 <a href="#">Verizon Communications</a> <sup>[13]</sup> <sup>[N 1]</sup>	 Verizon Wireless	130	134
2	2015	 <a href="#">Dow Chemical</a> <sup>[14]</sup> <sup>[N 2]</sup>	 DuPont	130	131
3	2015	 <a href="#">Anheuser-Busch InBev</a> <sup>[N 3]</sup>	 SAB Miller	117.4	119
4	2016	 AT&T Inc.	 Time Warner	108.7	109
5	2015	 <a href="#">Heinz</a> <sup>[15]</sup> <sup>[N 4]</sup>	 Kraft	100	101
6	2015	 <a href="#">Charter Communications</a> <sup>[16]</sup> <sup>[N 5]</sup>	 Time Warner Cable	78.7	80
7	2015	 Actavis	 Allergan, Inc	70.5	71
8	2015	  <a href="#">Royal Dutch Shell</a> <sup>[17]</sup>	 BG Group	70	71
9	2015	 <a href="#">Dell</a> <sup>[N 6]</sup>	 EMC Corporation	67	68
10	2016	 Bayer	 Monsanto	66	66

Source: Wikipedia

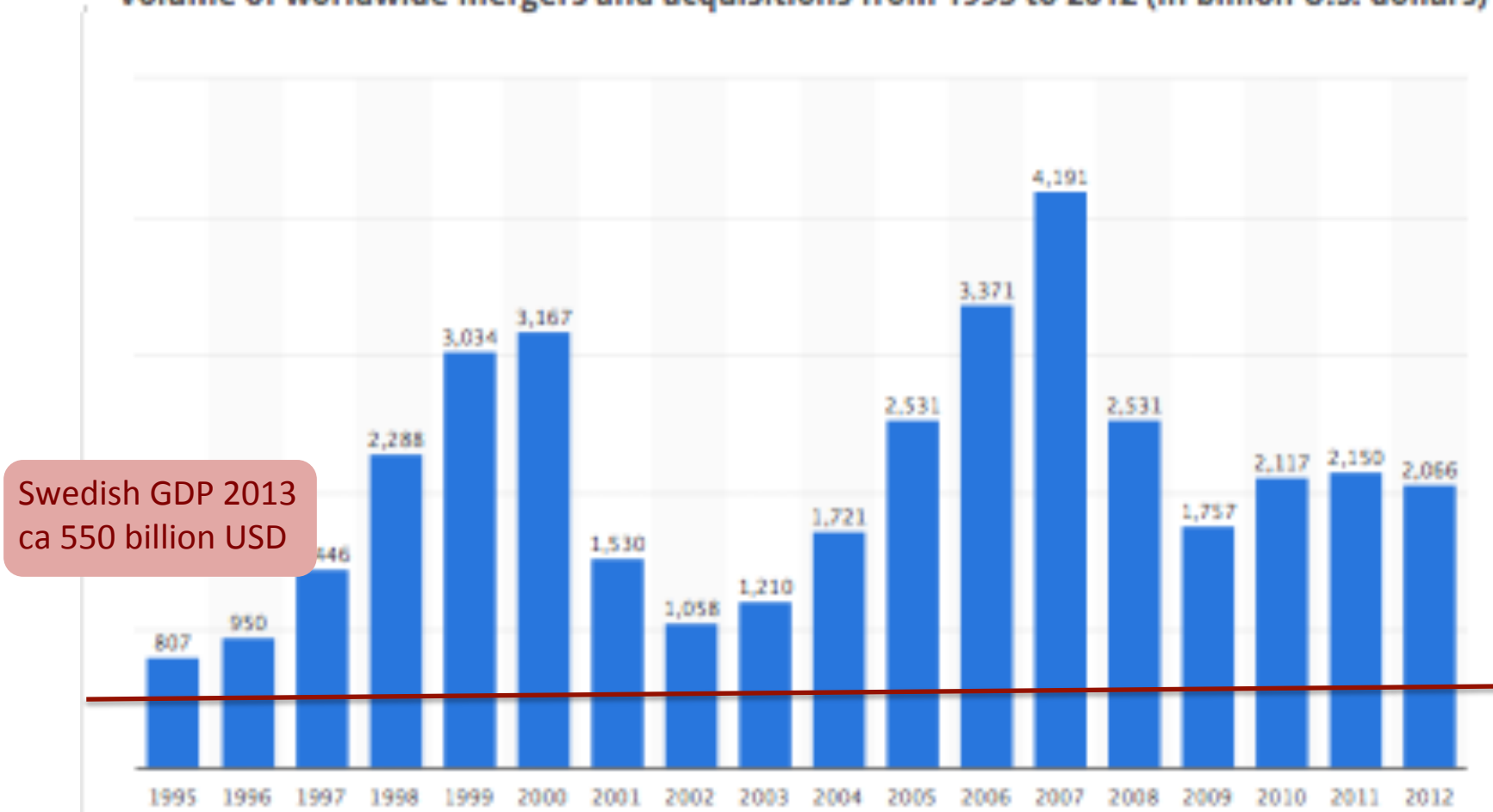
# Industries are reshaped

- Big Pharma in troubles
  - Patents expire
  - Low R&D productivity
- M&A pattern 1998-2012 (top 20 companies)
  - 991 transactions between 1998 and 2012  
(Source: CEPTON Strategies)



# Aggregate activity

Volume of worldwide mergers and acquisitions from 1995 to 2012 (in billion U.S. dollars)



# Conclusion

- Merger activity
  - Individual deals are substantial
  - Entire industries are reshaped
  - Aggregate volume is huge
- In sum
  - Mergers reshape/adapt economy

# Motives for mergers



# Motive 1: Efficiencies

- Horizontal coordination
  - Economies of scale and scope: e.g. central purchasing
  - Rationalization: produce parts where cheapest
- Vertical coordination
  - Avoid holdup of investments
- Take over of underutilized assets

# Motive 1: Efficiencies

- An efficiency “externality”
  - Market for corporate control
  - Take over of underutilized assets
  - Threat of takeover important disciplining force on managements

# Motive 2: Market power

- **Horizontal effects**
  - Definition: Between competitors
  - Problem: Unilateral or coordinated
- **Vertical effects**
  - Definition: Between buyer and seller
  - Problem: Foreclosure
- **Conglomerate effects**
  - Definition: Between “unrelated” firms
  - Problem: probably none

# Other motives for mergers

- Management driven
  - Management prestige (empire building)
  - Hubris
- Industrial policy
  - “National champions” – prestige
  - Employment

# Basic Elements of Mergers Policy

Richard Whish & David Bailey: Competition Law, Seventh Edition,  
Oxford University Press, 2012.

# Goals

- Consumer welfare
  - Anticompetitive effects
  - Cost efficiency, but only if beneficial to consumers
- Disregard
  - Employment
  - National security?

# Meaning of “merger”

- Definition of “concentration”
  - Previously independent businesses come under common control
- Examples
  - Acquisition of **minority shareholding** may be sufficient, if it gives “decisive influence”
  - Acquisition of **assets** (ex: plants, brands, patents)
  - Merger of parts of businesses into **joint venture**

# Notification

- Mergers with Community dimension pre-notified to Commission
  - Combined worldwide turnover > €5000 mn
  - EU-wide turnover > €250 mn of each company
- Other big mergers pre-notified to Member State



# Notification

- **Extra-territorial**
  - Does not matter if all companies are e.g. American
- **One-stop-shop**
  - Mergers with Community dimension cannot be tried by Member States
  - Still, many big mergers have to be notified to 10 – 20 different competition authorities

# Notification

- Notification contains information on e.g.
  - Affected markets  
(preliminary market definitions by the parties)
  - Parties market shares
  - HHI

# Decision rights

- EU
  - Commission decides
  - Firms can appeal to courts
- Sweden
  - KKV = “prosecutor”
  - Courts decide

# Time limits

- Phase I
  - 25 working days
- Phase II (3 % of cases)
  - 90 working days

# Competition test

- Now: “Significant impediment of competition”
  - Typically: creates or strengthens dominant position (= high level of market power)
  - Includes:
    - Single firm dominance = “similar to monopoly”
    - Joint dominance = “similar to cartel”
    - But also regular oligopoly
- Previously: Dominance
  - Unclear if regular oligopoly was included

# Competition test

- Define markets
  - Product market/geographical markets
- Estimate effect on competition
  - Market shares and concentration (very important)
  - Diversion ratios (= measure of substitutability)
  - Strength of brand (a well-known brand is more likely to be people's second choice)

# Competition test

- **Presumption: No problem if**
  - Parties market share < 25%
  - Post-merger HHI < 1000
  - Post-merger HHI < 2000 &  $\Delta\text{HHI} < 250$
  - $\Delta\text{HHI} < 150$
- **Recall**
  - HHI max = 10 000 (=  $100^2$ )
  - 1000 = ten symmetric firms (=  $10 \times 10^2$ )

# Entry and Buyer Power

- **Entry**
  - Likely = assessment of entry barriers
  - Timely = normally within 2 years
  - Sufficient = eliminate price increase
- **Buyer power**
  - Size of buyer
  - Ability to integrate
  - Sponsor upstream entry



# Efficiencies

- **Benefit consumers**
  - Lower prices
    - Large reductions in marginal cost
    - Incentive to pass on
  - New or improved products
- **Merger specific**
  - Cannot be achieved without reduction in competition
- **Verifiability**
  - Firms must be able to ensure Commission

# Failing firm defense

- No impediment to competition if
  - One firm would become bankrupt
  - Assets would exit the market
  - No less anti-competitive alternative to the merger

# Remedies

- Usual solution solution if problems
- Types of remedies
  - Divestiture of overlapping businesses
  - Access to an essential facility
  - Licensing of technology

# Evidence

- Burden of proof
  - Commission has burden to prove
    - Anti-competitive effects
    - No buyer power
    - No entry
  - Firms have burden to prove
    - Efficiencies
    - Failing firm defense

# Evidence

- Different standards of proof
  - “On the balance of probabilities” or
  - “Beyond reasonable doubt”
- Merger policy
  - Convincing evidence (= balance of probabilities, if I understand it right)

# Statistics

1990 - 2017

- Notifications: 6522
- OK
  - Phase I: 5803
  - Phase II: 62
- Interventions
  - Withdrawn: 177
  - OK with commitments: 121
  - Prohibitions: 26

# Use of economics in merger policy

# Theory of competitive harm

- Fundamental difficulty
  - Assessing notified mergers = predicting the future
  - Must build on economic theory
  - Competition authorities must present a theory of competitive harm in every case



# Theory of competitive harm

- Theory of competitive harm
  - Unilateral effects
  - Coordinated effects
  - Vertical effects

# Counterfactual

- Effect = Difference between
  - Market outcome with merger
  - Market outcome without merger = Counterfactual
- Possible counterfactuals
  - Most often: Status Quo
  - Sometimes: Failing firm
  - Possible: Alternative mergers (Volvo/Scania)

# Economic evidence

- Competition authority must present evidence in support of its “theory of harm”
- Examples of sophisticated economics
  - Estimation of cross-price elasticities
  - Price correlations
  - Merger simulations

# Welfare Tradeoff

(some details)

# Unilateral effects

# Two aspects

- “Internalization”
  - Merging firms’ initial incentive to increase prices
  - To study this incentive assume that competitors keep their prices fixed
- Outsider response
  - Competitors’ reaction to initial price change

# Internalization

# Internalization

- Increased price before merger
    - + Increased markup ( $p_A - c_A$ )
    - Some customers leave the market
    - Some customers buy product B instead
  - Increased price after merger
    - + Increased markup ( $p_A - c_A$ )
    - Some customers leave the market
    - 0 Some customers buy product B instead
- More beneficial to increase price



# Internalization

**Before merger**

$$\pi_A = (p_A - c_A) \cdot D_A(p_A, p_B)$$

**FOC**

$$\frac{\partial \pi_A}{\partial p_A} = D_A(p_A, p_B) + (p_A - c_A) \frac{\partial D_A}{\partial p_A} = 0$$

# Internalization

After merger

$$\pi_A + \pi_B = (p_A - c_A) \cdot D_A(p_A, p_B) + (p_B - c_B) \cdot D_B(p_A, p_B)$$

FOC

$$\frac{\partial \pi_A + \pi_B}{\partial p_A} = D_A(p_A, p_B) + (p_A - c_A) \frac{\partial D_A}{\partial p_A} + (p_B - c_B) \frac{\partial D_B}{\partial p_A} = 0$$

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**After merger**

$$\frac{\partial \pi_A + \pi_B}{\partial p_A} = D_A(p_A, p_B) + (p_A - c_A) \frac{\partial D_A}{\partial p_A} + (p_B - c_B) \frac{\partial D_B}{\partial p_A} = 0$$

Q: What is the effect of merger on  $p_A$ ?

Explain how you can deduce this from FOC

# Internalization

**Before merger**

$$\frac{\partial \pi_A}{\partial p_A} = D_A(p_A, p_B) + (p_A - c_A) \frac{\partial D_A}{\partial p_A} = 0$$

**After merger**

$$\frac{\partial \pi_A + \pi_B}{\partial p_A} = D_A(p_A, p_B) + (p_A - c_A) \frac{\partial D_A}{\partial p_A} + (p_B - c_B) \frac{\partial D_B}{\partial p_A} = 0$$

**At old equilibrium price:**

$$\frac{\partial \pi_A + \pi_B}{\partial p_A} = (p_B - c_B) \frac{\partial D_B}{\partial p_A} > 0$$

# Internalization

**At old equilibrium price:**

$$\frac{\partial \pi_A + \pi_B}{\partial p_A} = (p_B - c_B) \frac{\partial D_B}{\partial p_A} > 0$$

**Strength of effect**

Market power before merger :

$$(p_B - c_B)$$

How close competitors are A and B :

$$\frac{\partial D_B}{\partial p_A}$$

# Internalization

- Diversion Ratio (from A to B)
  - Definition: How much of the displaced demand for product A switches to product B, when the price of A is increased

$$\delta_{AB} \equiv -\frac{p_B \cdot \frac{\partial D_B}{\partial p_A}}{p_A \cdot \frac{\partial D_A}{\partial p_A}} \in [0,1]$$

- Intuitive: Fraction of product A:s consumers who have product B as a second choice

# Internalization

**After merger**

$$\frac{\partial \pi_A + \pi_B}{\partial p_A} = D_A(p_A, p_B) + (p_A - c_A) \frac{\partial D_A}{\partial p_A} + (p_B - c_B) \frac{\partial D_B}{\partial p_A} = 0$$

$$\left( \frac{p_A - c_A}{p_A} \right) - \left( \frac{p_B - c_B}{p_B} \right) \delta_{AB} = -\frac{1}{\epsilon_{AA}}$$

**Symmetry**

$$\frac{p_A - c_A}{p_A} = -\frac{1}{\epsilon_{AA}} \frac{1}{1 - \delta_{AB}}$$

**Hence**

$$\Delta \frac{p_A - c_A}{p_A} = \left( -\frac{1}{\epsilon_{AA}} \right) \left( \frac{\delta_{AB}}{1 - \delta_{AB}} \right)$$

# Internalization

After merger

$$\frac{\partial \pi_A}{\partial c_A}$$

**Market power increases much if**

- **Demand elasticity low**  
(high market power already before merger)
- **Diversion ratio high**  
(products close substitutes compared to other products)

Symmetric

$$\frac{p_A - c_A}{p_A}$$

$$\frac{1}{\epsilon_{AA} (1 - \delta_{AB})}$$

Hence

$$\Delta \frac{p_A - c_A}{p_A} = \left( -\frac{1}{\epsilon_{AA}} \right) \left( \frac{\delta_{AB}}{1 - \delta_{AB}} \right)$$



# Outsiders' Response

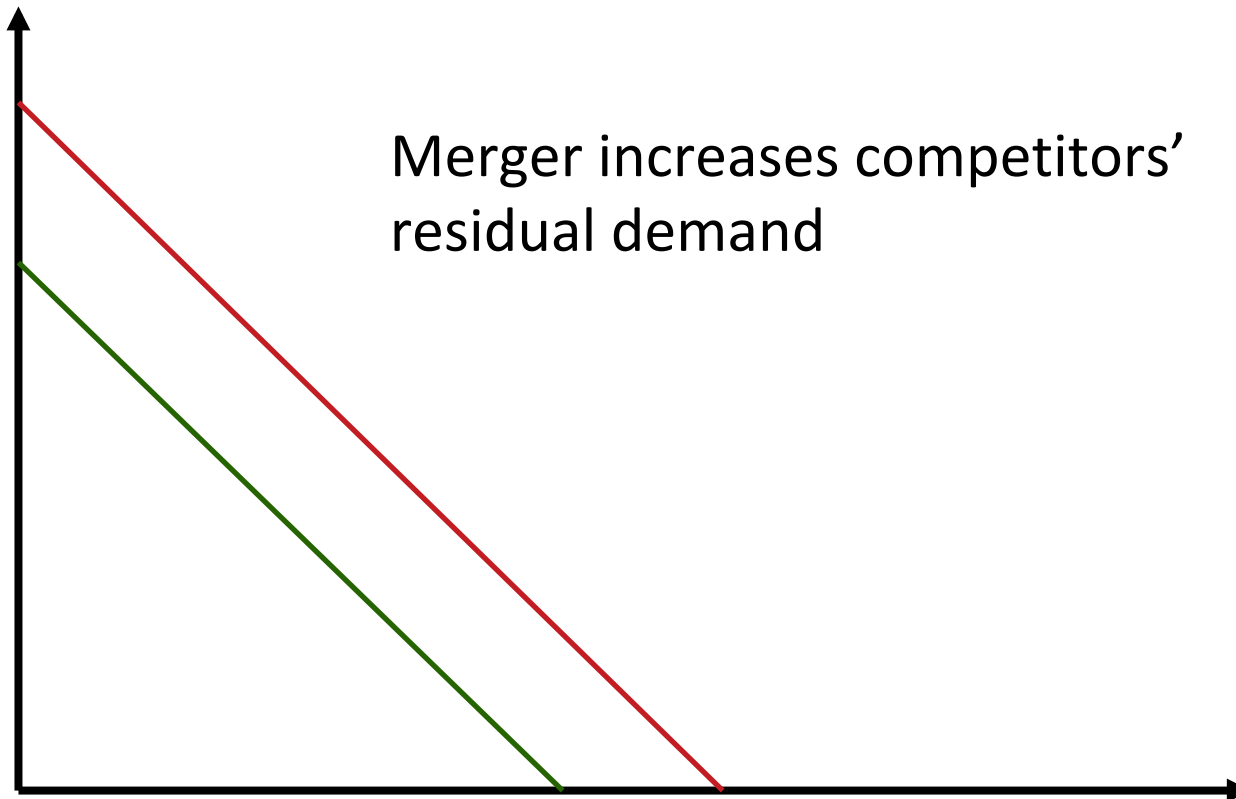
# Outsiders' Response

- Response
  - Insiders increase price and reduce output
  - Outsiders' residual demand increase
  - Outsiders respond by
    - Increasing price
    - Increasing output
- Key issue
  - Will outsiders mainly increase price or output?

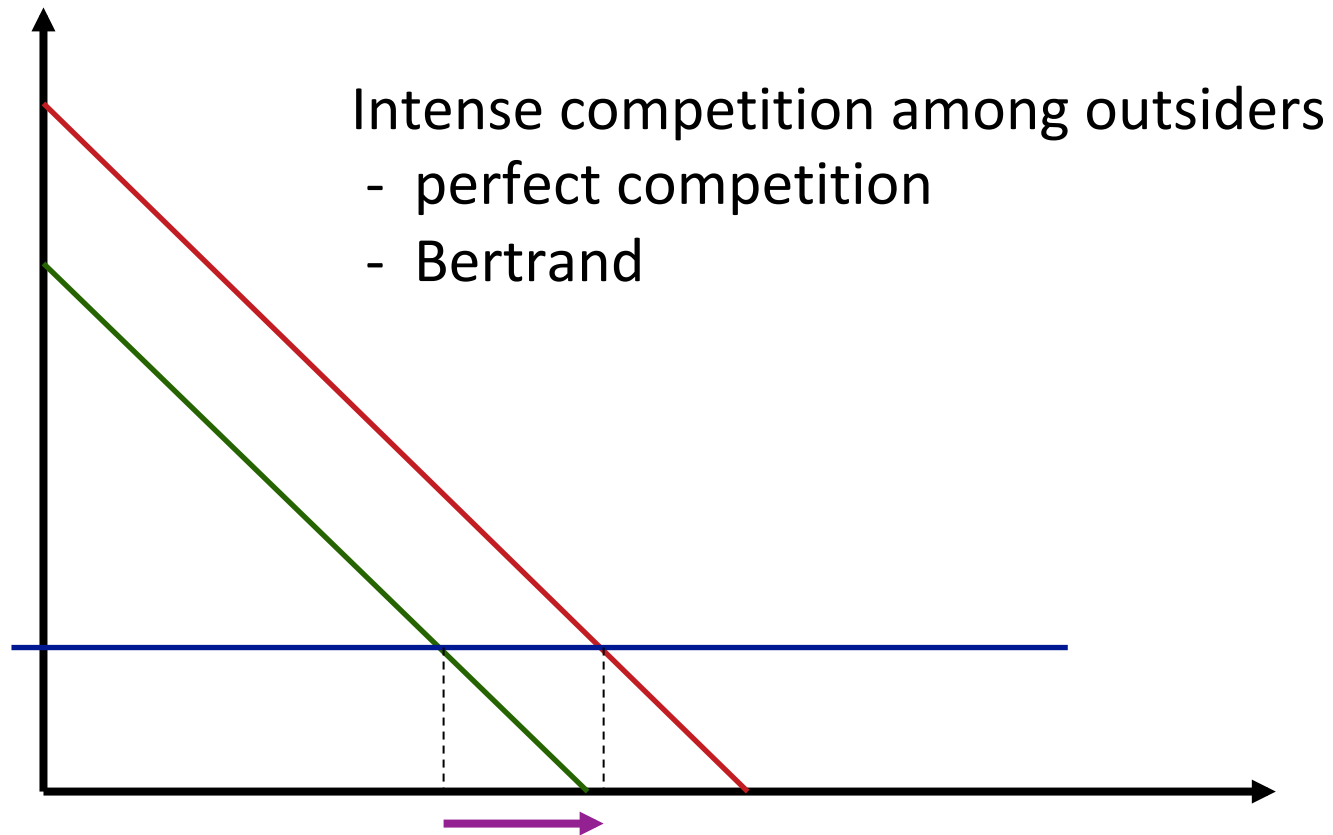
# Outsiders' Response

- Outsiders increase output much if
  - Outsiders' conduct competitive

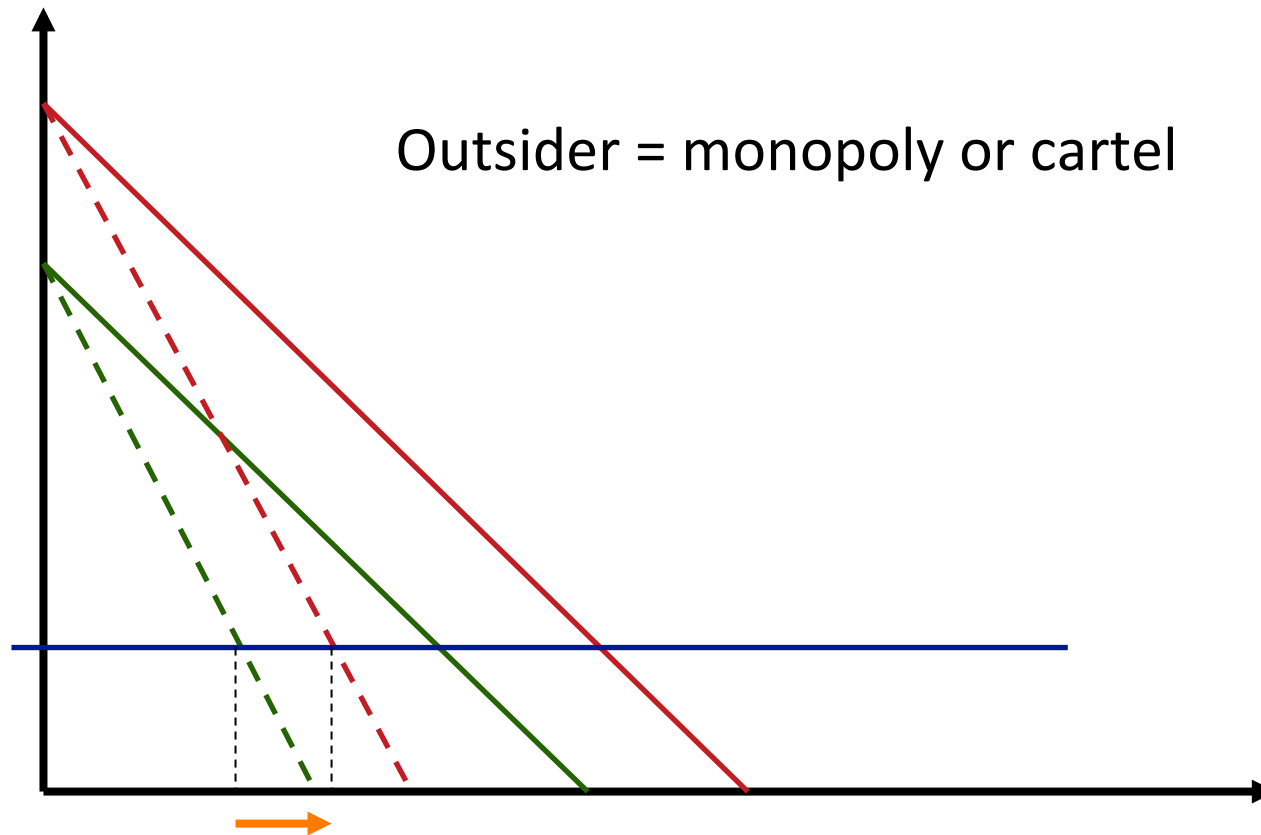
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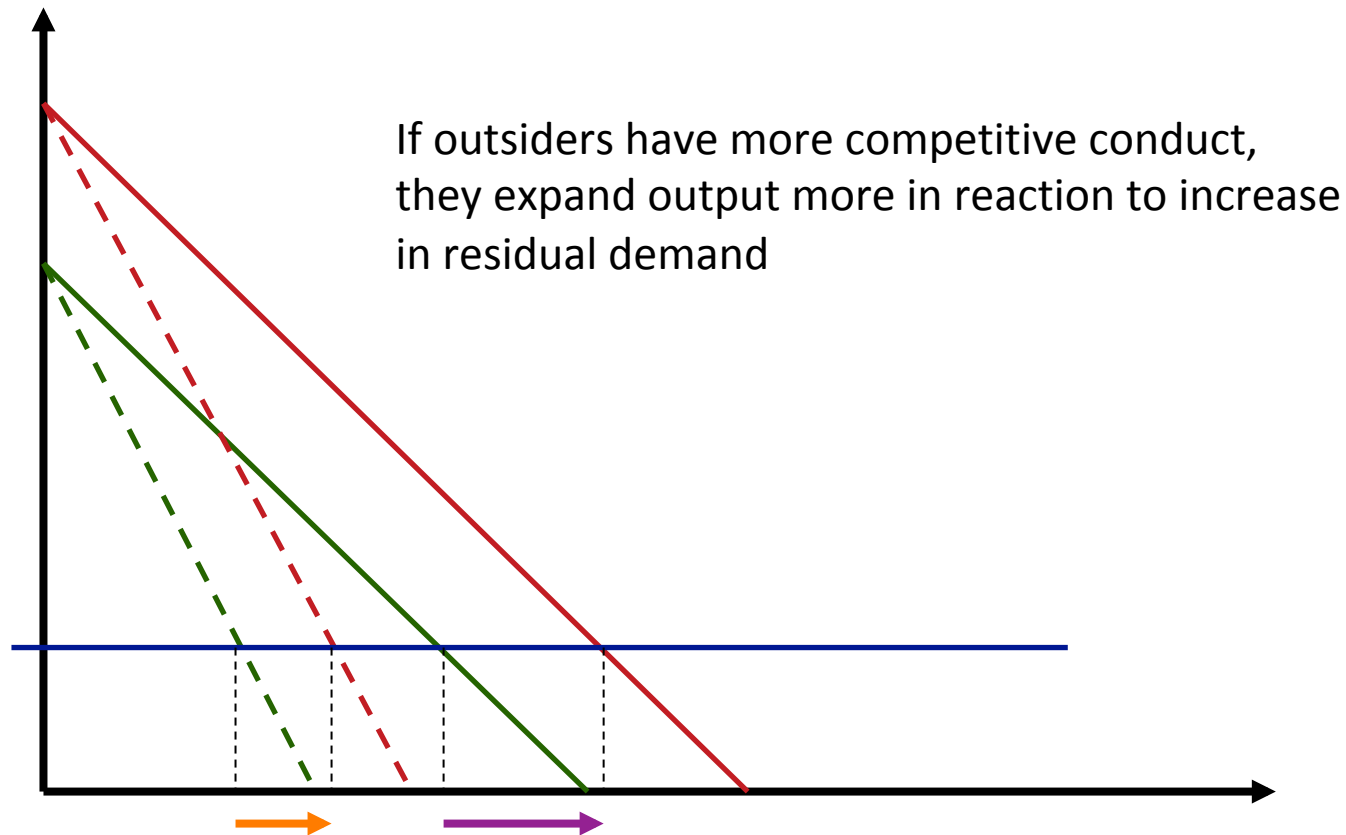
# Outsiders' Response



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# Outsiders' Response



# Outsiders' Response

- Outsiders increase output much if
  - Outsiders' conduct competitive
  - Outsiders' costs low
  - Outsiders have no capacity constraints
  - Easy to switch between geographical markets
  - Entry costs low



# Unilateral Effect

- Two aspects
  - Internalization
    - Increase price & reduce output
  - Outsiders' response
    - Increase price & increase output
  - Need formal model to study both at the same time

# Efficiencies

# Efficiencies

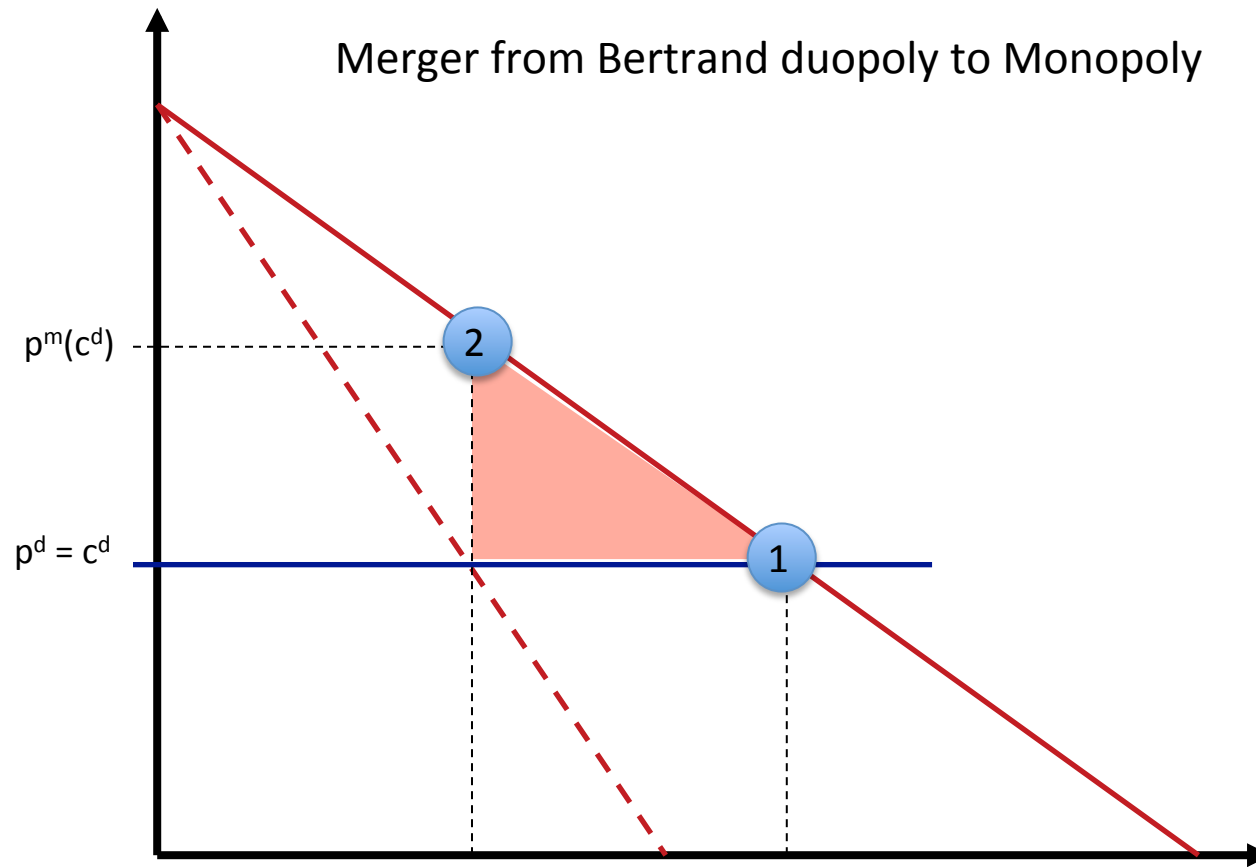
- Rationalization
  - Reallocate production to efficient plants
- Economies of scale
  - Avoid duplication of various activities
  - Coordination of new investments
  - Specialization - lengthen production runs
- Technological progress
  - Pooling existing know-how
  - Coordinate R&D
- Reducing slack
  - Replace inefficient management

# Efficiencies

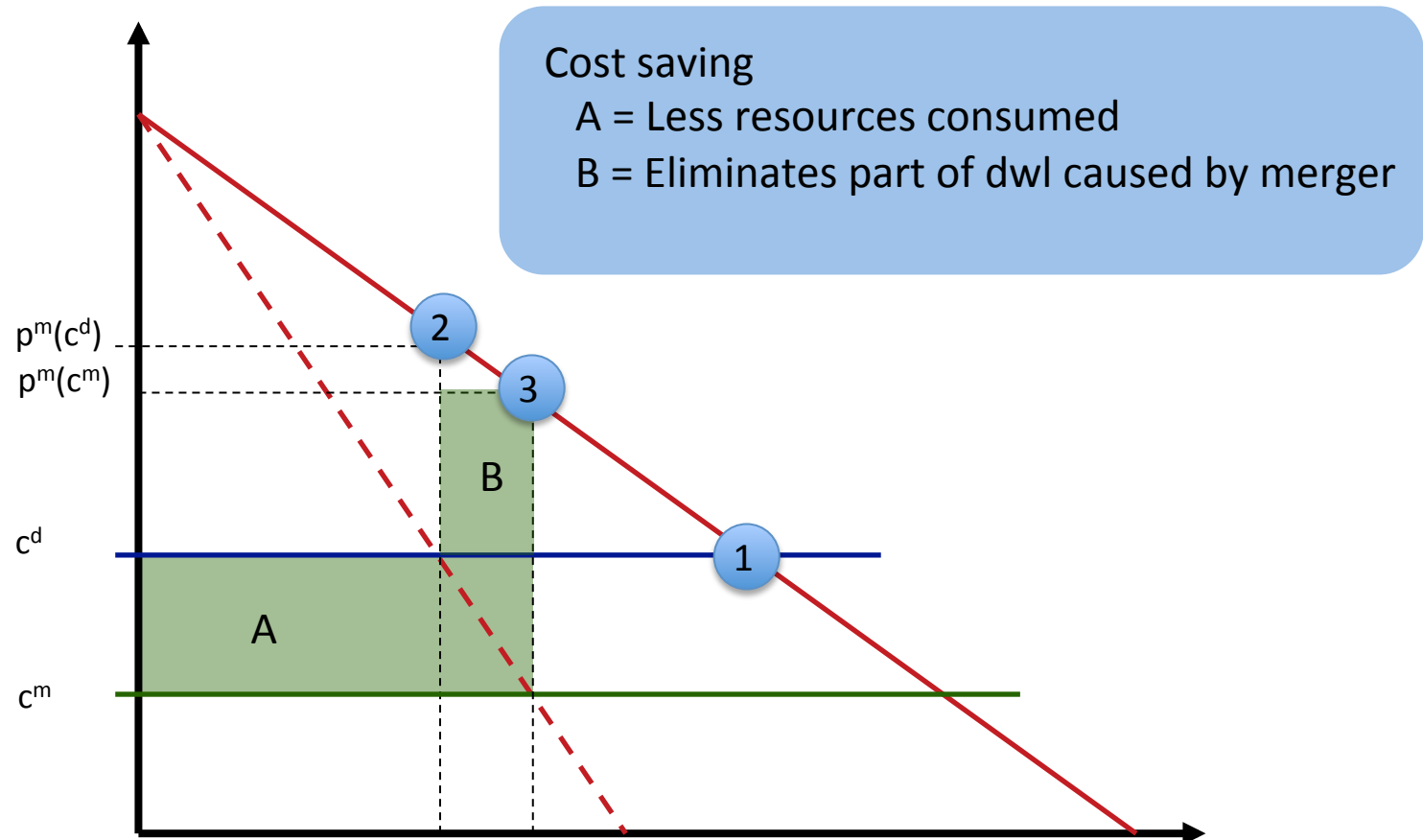
- But mergers may also cause inefficiencies
  - Less competition may lead to more slack
  - Larger organization may be more difficult to control
  - Problems melting cultures together

Total welfare and consumer welfare

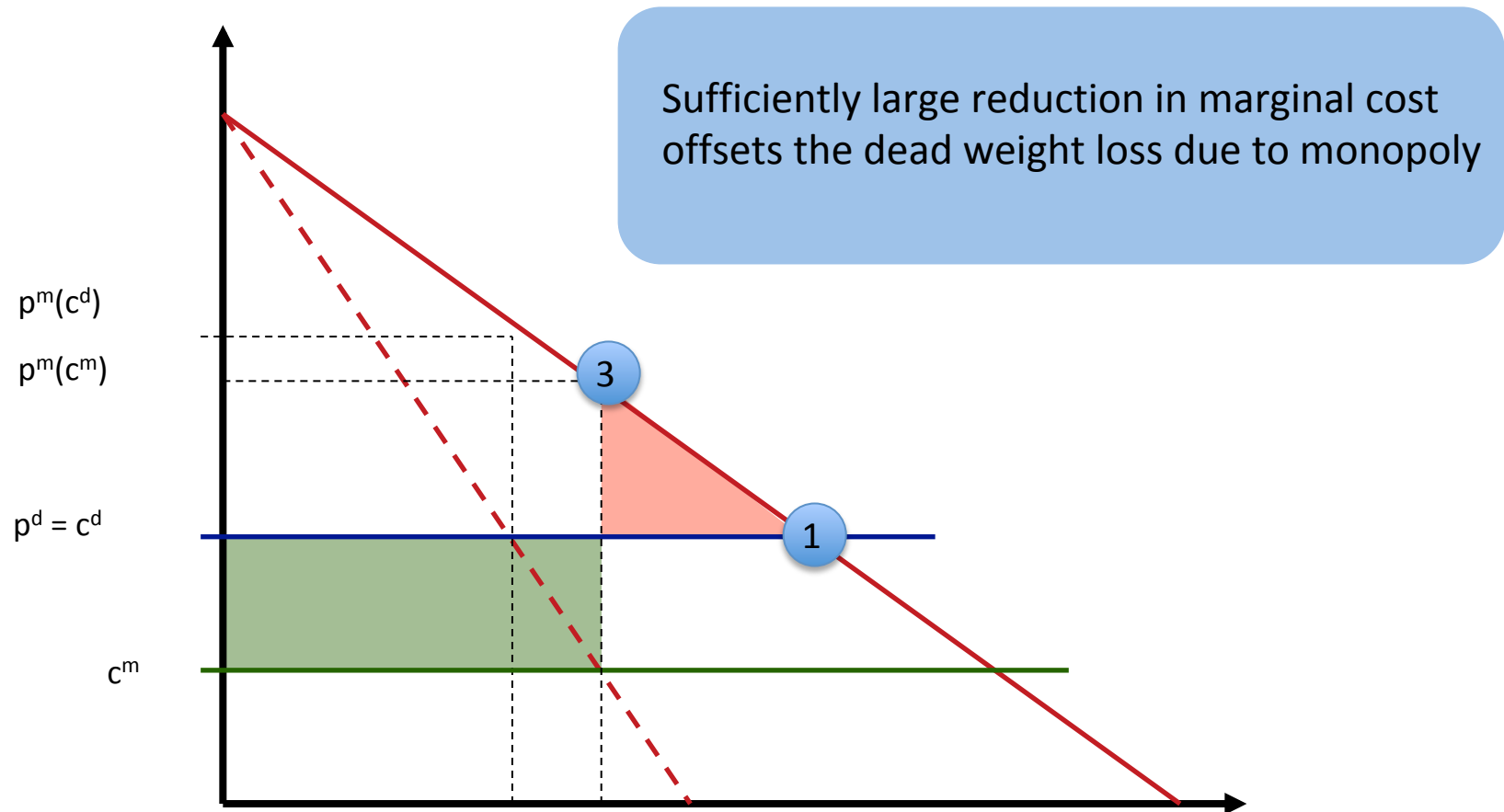
# Total welfare



# Total welfare

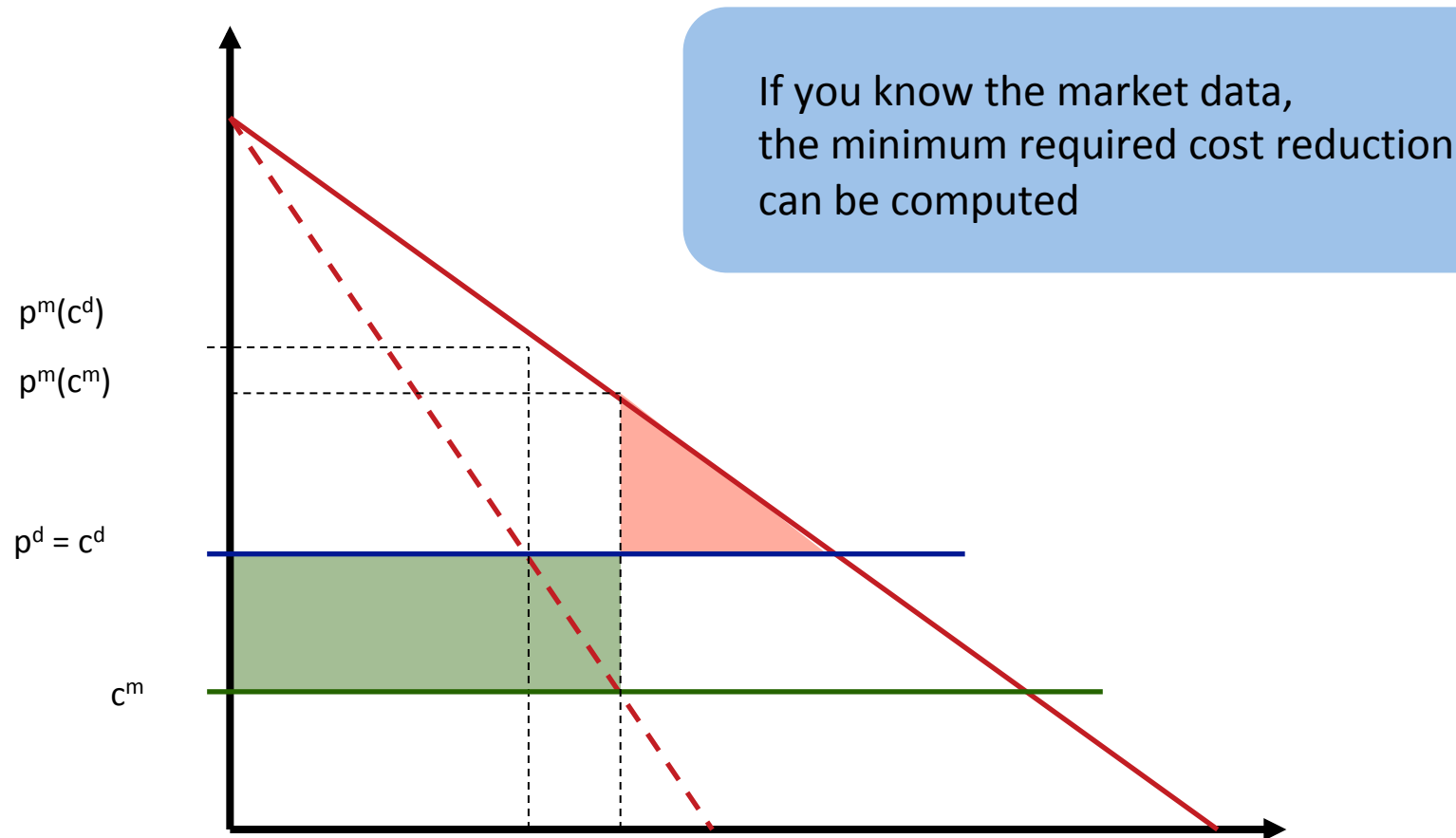


# Total welfare

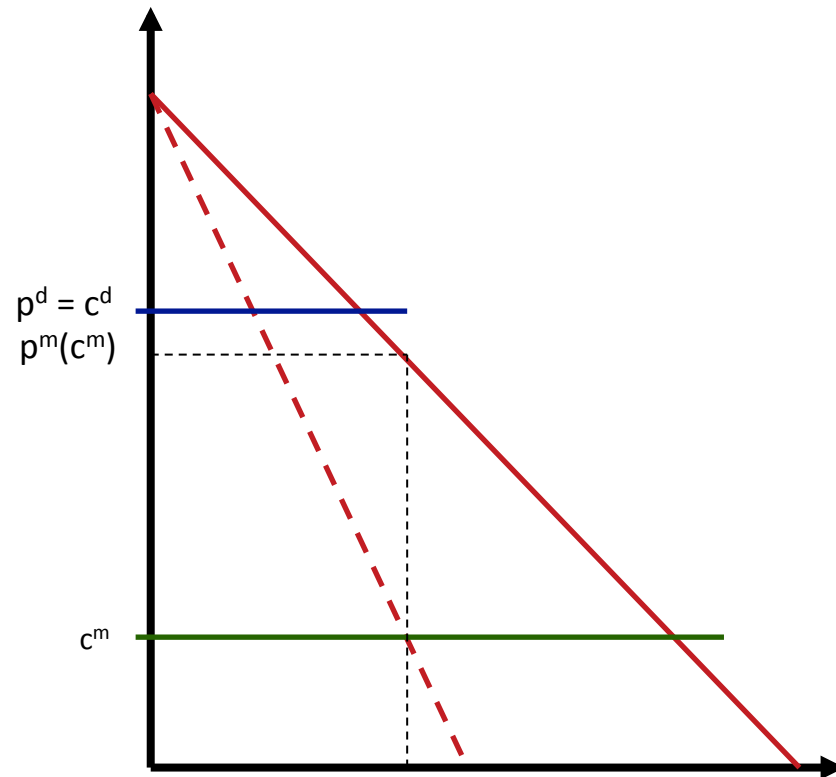




# Total welfare



# Consumer welfare



- Price may go down
- $\Delta MC$  must be large
- Marginal cost, not fixed
- Can be computed, if we know demand

# Economic issues in merger policy

# Issues

- **Appropriate goal**
  - Consumer welfare standard
  - Total welfare
- **Is merger control necessary?**
  - Anticompetitive mergers often unprofitable
  - Better to be outsider
  - Other policies: abuse of dominance; fight cartels
- **Can merger policy be evaluated, I**
  - Deterrence of anticompetitive mergers => only good or “marginally bad” mergers proposed
  - Deterrence cannot be observed
- **Can merger policy be evaluated, II**
  - Cannot observe the effects of blocked mergers
  - Counter-argument: event studies