CLASS 14-17 SIDES

H&R Block/TaxACT

Merger Antitrust Law

Fall 2018 Georgetown University Law Center

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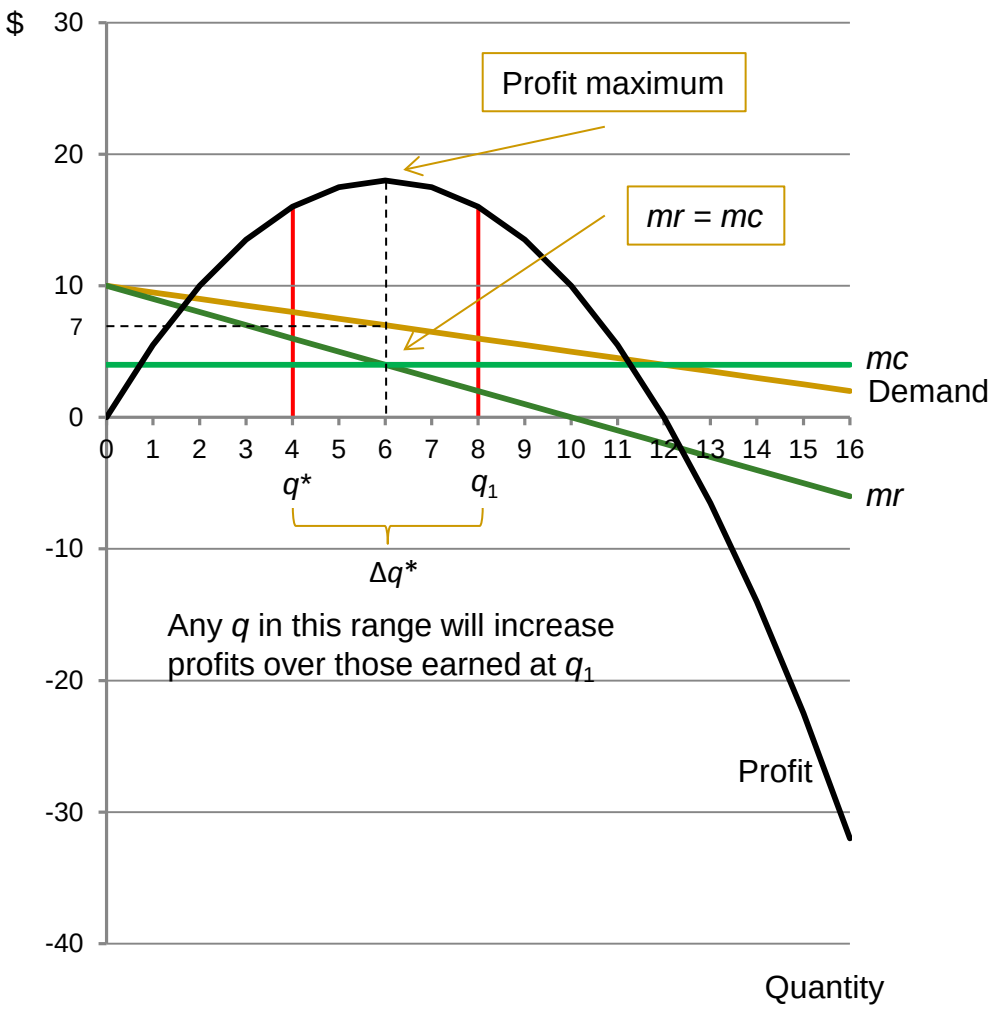
Baker Hughes Step 1

- The plaintiff's burden
  - The plaintiff has the burden of establishing a prima facie Section 7 case
  - This requires the plaintiff to produce evidence sufficient to allow the trier of fact to find the three essential elements of a Section 7 case:
    - Relevant product market
    - Relevant geographic market
    - Likely anticompetitive effect

Market Definition
(Critical Loss Analysis)

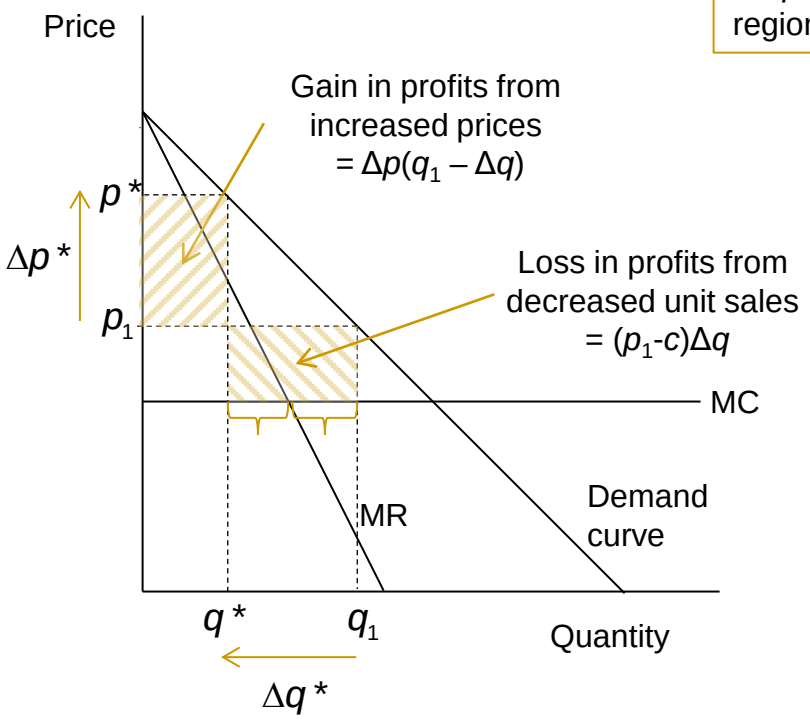
Critical loss

- The basic idea
  - A firms can raise prices profitably when
    - its gain in profits from the price increase from post-increase sales is greater than
    - its losses of the entire margin on decreased unit sales
  - The *critical loss* for a given SSNIP is the maximum number of units the firm can lose and still have the SSNIP be profitable
    - Can be expressed either in units or percentage



Critical loss

- Critical loss



Critical loss

- Formulas for critical loss
  - We can express the critical loss Δq^* algebraically in two equivalent ways:[1]
    - As an equality of total profits after and before the price increase:

$$(p + \Delta p - c)(q - \Delta q^*) = (p - c)q$$

Breakeven condition

    - As an equality of the gross gain in profits on retained sales and the gross loss in profits from lost sales:

Gain on retained sales

$$\Delta p\,(q - \Delta q^*) = (p - c)\,\Delta q^*$$

Loss of margin on lost sales

      - Note: Critical loss is a function of q, that is, the magnitude of q^* depends on the starting point q as well as on p and c
  - Solving for Δq^* provides a formula for the critical loss in absolute units:

$$\Delta q^* = \frac{q\Delta p}{(p + \Delta p) - c}$$

or in percentage terms:

$$\frac{\Delta q^*}{q} = \frac{\Delta p}{(p + \Delta p) - c} = \frac{\frac{\Delta p}{p}}{\frac{\Delta p}{p} + \frac{p - c}{p}} = \frac{\delta}{\delta + m}$$

Where δ is the percentage price increase and m is the percentage gross margin

[1] This assumes zero fixed costs and constant marginal costs.

Critical loss and market definition

- The basic idea
  - Recall that under the hypothetical monopolist test, a candidate market is a relevant market if a hypothetical monopolist could profitably raise prices in the candidate market by a SSNIP.
    - So for any candidate market with prevailing aggregate output q and price p and a SSNIP Δp, then if the change in output Δq is less than the critical loss Δq^* a hypothetical monopolist could profitably raise price by the SSNIP and the candidate market is a relevant market
  - Algorithm
    1. Start with a product of the merging firm
       - Or a product of the merging firm together with other closely related products (as in H&R Block/TaxACT)
    2. Assume a hypothetical monopolist over the group of products—the "candidate market"—and raise price by a SSNIP
    3. Compare actual loss Δq to critical loss Δq^*,
       - If the actual loss $\Delta q < \Delta q^*$, then a hypothetical monopolist could profitably raise prices by the SSNIP and the product grouping is a relevant market
         - Whether the SSNIP is profitable will be determined by the candidate market's *own-elasticity of demand*
       - If the actual loss $\Delta q \geq \Delta q^*$, then a hypothetical monopolist could not profitably raise prices the product grouping is not a relevant market → add to the product group another product with a high cross-elasticity of demand/diversion ratio and repeat Steps 2 and 3.
         - If the SSNIP is not profitable, the additional product to include the candidate market is determined by the *cross-elasticity of demand* between the products in the candidate market and the products outside the candidate market

Critical loss and market definition

- Example 1A
  - Products A and B are being tested as a candidate market. Each sells for $100, has an incremental cost of $60, and sells 1200 units. When the price for both products is increased by $5, each firm loses 100 units to outside the market. Do A and B constitute a relevant market under the 2010 Guidelines?

Parameters		
Price	p	100
Cost	c	60
Gross margin	m	40
Market output	Q	2400
SSNIP	Δp	5
Customer loss	ΔQ	-200

Method No. 1 Brute Force Critical loss calculations		
Gain = (Q+ΔQ)Δp		
	Q + ΔQ	2200
	Δp	5
	Gain	11000
Loss = mΔQ		
	ΔQ	-200
	m	40
	Loss	-8000
Net gain		3000
HMT satisfied		

Method No. 2 Critical loss (absolute units)

$$\Delta q^* = \frac{q\Delta p}{(p+\Delta p)-c}$$

qΔp	12000
(p+Δp)-c	45
CL	266.67
Actual loss	200
HMT satisfied	

From the breakeven condition (see earlier slide)

Critical loss and market definition

- Example 1B—Method No. 3 (percentage critical loss)
  - We can also analyze Example 1 in terms of the percentage critical loss:

Summary:

P=$100

C=$60

Margin = $40

Total market $Q = q_1 + q_2$ =2400

Percentage margin $m = \frac{p-c}{p} = \frac{100-60}{100} = 40.0\%$

SSNIP $\delta = 5\%$

Percentage critical loss $CL = \frac{\delta}{\delta + m} = \frac{5\%}{5\% + 40\%} = 11.1\%$

Percentage actual loss $L = \frac{100+100}{2400} = 8.3\%$

Percentage critical loss formula

$$CL = \frac{\Delta q^*}{q} = \frac{\frac{\Delta p}{p}}{\frac{\Delta p}{p} + \frac{p-c}{p}} = \frac{\delta}{\delta + m}$$

Conclusion: Since the percentage actual loss *L* does not exceed the percentage critical loss *CL*, a hypothetical monopolist of A and B could profitably raise price by 5% and so A and B are a relevant market

Critical loss and market definition

- Estimating actual loss
  - First-order approximation of actual loss:

$$\frac{\frac{\Delta q}{q}}{\frac{\Delta p}{p}} \equiv \varepsilon \Rightarrow \frac{\Delta q}{q} \cong \frac{\Delta p}{p}\varepsilon = \delta\varepsilon$$

where ε is the residual own-elasticity of demand of the monopolist

that is, the percentage actual loss is approximately equal to the percentage price change times the own-elasticity of demand

Critical loss and market definition

- Example 1C—Method No. 4 (using elasticity to estimated actual loss)
  - Products A and B are being tested as a candidate market. Each sells for $100, has an incremental cost of $60, and sells 1200 units. The residual demand elasticity ε for each if is -2.0. Do A and B constitute a relevant market under the 2010 Guidelines?

Summary:

P=$100

C=$60

Margin = $40

Total market $Q = q_1 + q_2 = 2400$

Percentage margin $m = \frac{p-c}{p} = \frac{100-60}{100} = 40.0\%$

SSNIP $\delta = 5\%$

Percentage critical loss $CL = \frac{\delta}{\delta + m} = \frac{5\%}{5\% + 40\%} = 11.1\%$

Compare

Estimated actual loss per firm: $L_A = L_B \cong \delta\varepsilon = \frac{5}{100} \times 2.0 \cong 100$

Estimated percentage total actual loss from the candidate market: $\frac{100+100}{1200} = 8.3\%$

Conclusion: Since percentage actual loss is less than critical loss, the candidate market is a relevant market

Critical loss and market definition

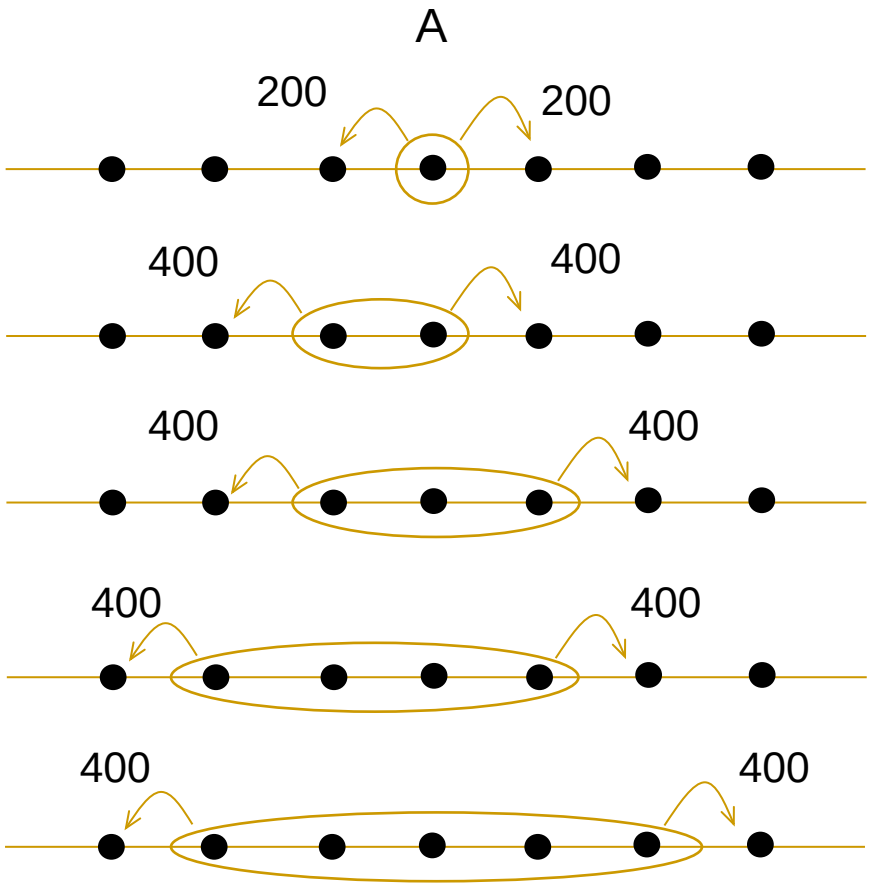
- Example 2: Gas stations on a road
  - Assume that there is an identical gas station every mile on a straight road. Each gas stations charges $3.25 per gallon, has an incremental costs of $2.50, and sells 1000 gallons. When the price at a station is increased by 5% (holding the price at all other gas stations constant), the station loses 400 customers. No customer will travel more than one mile, however, to avoid a 5% price increase. For a given station A, what is the relevant market?

Price	p	3.25
Cost	c	2.50
Gross margin	m	0.75
Percentage SSNIP		5.0%
Actual SSNIP		0.1625
Customers/station		1000
Customer loss		400

Stations in the market	Q	ΔQ	Gain	Loss	Net
1	1000	400	97.50	300.00	-202.50
2	2000	800	195.00	600.00	-405.00
3	3000	800	357.50	600.00	-242.50
4	4000	800	520.00	600.00	-80.00
5	5000	800	682.50	600.00	82.50

Critical loss and market definition

- Example 2: Gas stations on a road



"Aggregate diversion ratio"

- Some definitions
  - *Diversion from firm A to firm B*
    - The unit sales $\Delta q_{A \to B}$ (or just Δq_{AB}) firm A loses to firm B in response to a SSNIP in A's price
  - *Total diversion*
    - The total unit sales Δq firm A loses in response to a SSNIP
  - *Diversion ratio (from firm A to firm B)* ($D_{A \to B}$)
    - The percentage of total diverted unit sales firm A loses to firm B in response to a SSNIP

$$D_{A \to b} = \frac{\Delta q_{A \to B}}{\Delta q}$$

  - *"Outside option"*
    - Firms not included in the candidate relevant market
  - *Aggregate diversion ratio* (*D*)/*Recapture ratio* (R)
    - The percentage of aggregate (gross) sales lost by firms inside the candidate market diverted to other firms inside the candidate market in response to a uniform SSNIP across all products
    - This is a confusing name, since it could just as easily be mistaken for the total diversion of unit sales by all firms in the candidate market to the outside option
    - The more descriptive name is *recapture ratio* or *recapture rate*

"Aggregate diversion ratio"

- An example will help
  - Say Firms A, B and C are in the candidate market
  - All products in the candidate market are subject to a uniform SSNIP

Product	q	Δq		Recapture Units		Recapture Rate		
A	300	90	Diversion to B	$\Delta q_{A\to B}$	18	$d_{A\to B}$	20.0%	
			Diversion to C	$\Delta q_{A\to C}$	9	$d_{A\to C}$	10.0%	
			Diversion to B and C	$\Delta q_{A\to B+C}$	27	$d_{A\to B+C}$	30.0%	$= R_A$
B	400	125	Diversion to A	$\Delta q_{B\to A}$	25	$d_{A\to B}$	20.0%	
			Diversion to C	$\Delta q_{B\to C}$	15	$d_{A\to C}$	12.0%	
			Diversion to A and C	$\Delta q_{B\to A+C}$	40	$d_{A\to B+C}$	32.0%	$= R_B$
C	500	200	Diversion to A	$\Delta q_{C\to A}$	20	$d_{C\to A}$	10.0%	
			Diversion to A and B	$\Delta q_{C\to B}$	10	$d_{C\to B}$	5.0%	
			Diversion to A and B	$\Delta q_{C\to A+B}$	30	$d_{C\to A+B}$	15.0%	$= R_C$
Total	1200	415	Recapture		97		23.4%	$= R$

"Aggregate diversion ratio"

- An example will help
  - Simplified chart

Product	q	Δq	Recapture Units	Recapture Rate
A	300	90	27	30.0%
B	400	125	40	32.0%
C	500	200	30	15.0%
Total	1200	415	97	23.4%

- Note that

$$R = \sum_{i=1}^{N} \frac{\Delta q_i}{\Delta q} R_i$$

$$= \frac{90}{415}0.30 + \frac{125}{415}0.32 + \frac{200}{415}0.15 = 0.234$$

for N firms in the candidate market (i.e., R is a linear combination of the R_is)

"Aggregate diversion ratio"

- Propositions
  1. If the actual aggregate diversion ratio (recapture ratio) *R* is greater than or equal to the critical loss, the candidate market satisfies the hypothetical monopolist test:

$$R \equiv \frac{\Delta q^{inside}}{\Delta q} \geq \frac{\Delta q^{*}}{q} = \%CL \Rightarrow \text{ Hypothetical monopolist test is satisfied}$$

     - This makes sense since R is equal to one minus the actual percentage loss
  2. If the smallest R_i in the candidate market is greater than CL, then the hypothetical monopolist test is satisfied
     - Proof (optional): From the previous slide, we saw that *R* is a linear combination of the R_i. Without loss of generality, say that R_1 is the smallest R_i in the candidate market. Then:

$$R = \sum_{i=1}^{N} \frac{\Delta q_i}{\Delta q} R_i \geq \sum_{i=1}^{N} \frac{\Delta q_i}{\Delta q} R_1 = R_1$$

       So $R \geq R_1$ and $R_1 \geq$ %CL implies $R \geq \%CL$

"Aggregate diversion ratio"

- Warren-Boulton analysis in H&R Block/TaxACT
  - Question: Is DDIY a market?
  - Critical loss (*CL*): Use percentage critical loss formula
    - Starting point: Start with DDIY products (HRB, TaxACT, and TurboTax)
    - SSNIP (δ): 10%
    - Gross margin (*m*): 50% on each product

$$CL = \frac{\delta}{\delta + m} = \frac{10\%}{10\% + 50\%} = 16.7\%$$

  - Actual loss: Use "aggregate diversion ratio" method (recapture rate *R*)
    - Test: If min $R_i \geq CL$, then product grouping is a market
    - Using IRS switching data as a proxy for *R*, Warren-Boulton found:
      - HRB: $R_{HRB} = 57\%$
      - TaxACT: $R_{TaxACT} = 53\%$
      - TurboTax: $R_{TurboTax} = 39\%$

    } Each less than *CL* = 16.7%

  - *Conclusion*: Since each $R_i > CL$, a hypothetical monopolist of the DDIY product could profitably raise price by a SSNIP and therefore DDIY was a relevant product market (from Proposition No. 2 on prior slide)

Prima Facie Anticompetitive Effect (The *PNB* Presumption)

The *PNB* presumption

	Premerger Shares	HHI Contribution	
Intuit	62.2%	3869	The square of the firm's market share
HRB	15.6%	243	
TaxACT	12.8%	164	
Others (6)	9.4%	15	Residual share (9.4%) divided by 6 firms and added six times
	100.0%	4291	The sum of the squared shares of all of the firms in the market
Combined share	28.4%		
Premerger HHI		4291	
Delta		400	2 × HRB share × Intuit share
Postmerger HHI		4691	

"Violates" the 2010 Guidelines:
Postmerger HHI exceeds 2500 and delta exceeds 200

Note: Court appears to have assumed that six equal-sized firms are in the "other" category

HHIs in DOJ/FTC litigated challenges

- The DOJ and FTC have not brought "close" cases in alleged markets

Agency	Complaint	Defendant	Combined share[1]	PreHHI	PostHHI	Delta	Deal Status
FTC	2018	Wilhelmsen	84.7	3651	7214	3563	Preclosing
DOJ	2017	Energy Solutions	100	6040	10000	3960	Preclosing
DOJ	2016	Anthem	47	2463	3000	537	Preclosing
DOJ	2016	Aetna			>5000[2]		Preclosing
FTC	2016	Penn State Hershey	64	3402	5984	2582	Preclosing
FTC	2015	Advocate Heath	55	2094	3517	1423	Preclosing
FTC	2015	Staples	75[3]	3036	5836	2800	Preclosing
FTC	2015	Sysco	71[4]	3153	5519	1966	Preclosing
DOJ	2015	Electrolux		3350[5]	5100	1750	Preclosing
DOJ	2013	Bazaarvoice	68	2674	3915	1241	Consummated
FTC	2013	Saint Alphonsus	57	4612	6129	1607	Consummated

[1] When the complaint alleged multiple markets, the market with the most problematic highest HHIs is reported.
[2] The DOJ challenged Aetna's proposed acquisition of Humana in 17 geographic markets. The complaint did not provide HHI statistics for each market, although it noted that in 75% of the markets, the post-HHI would be greater than 5000.
[3] The FTC also challenged the transaction in 32 alleged relevant local geographic markets, with the smallest combined share being 51% and the largest being 100%.
[4] The complaint alleged multiple markets in food distribution. The numbers given are for national broadline distribution.
[5] The complaint alleged three markets. The numbers given are for ranges. Cooktops and wall ovens were similar.

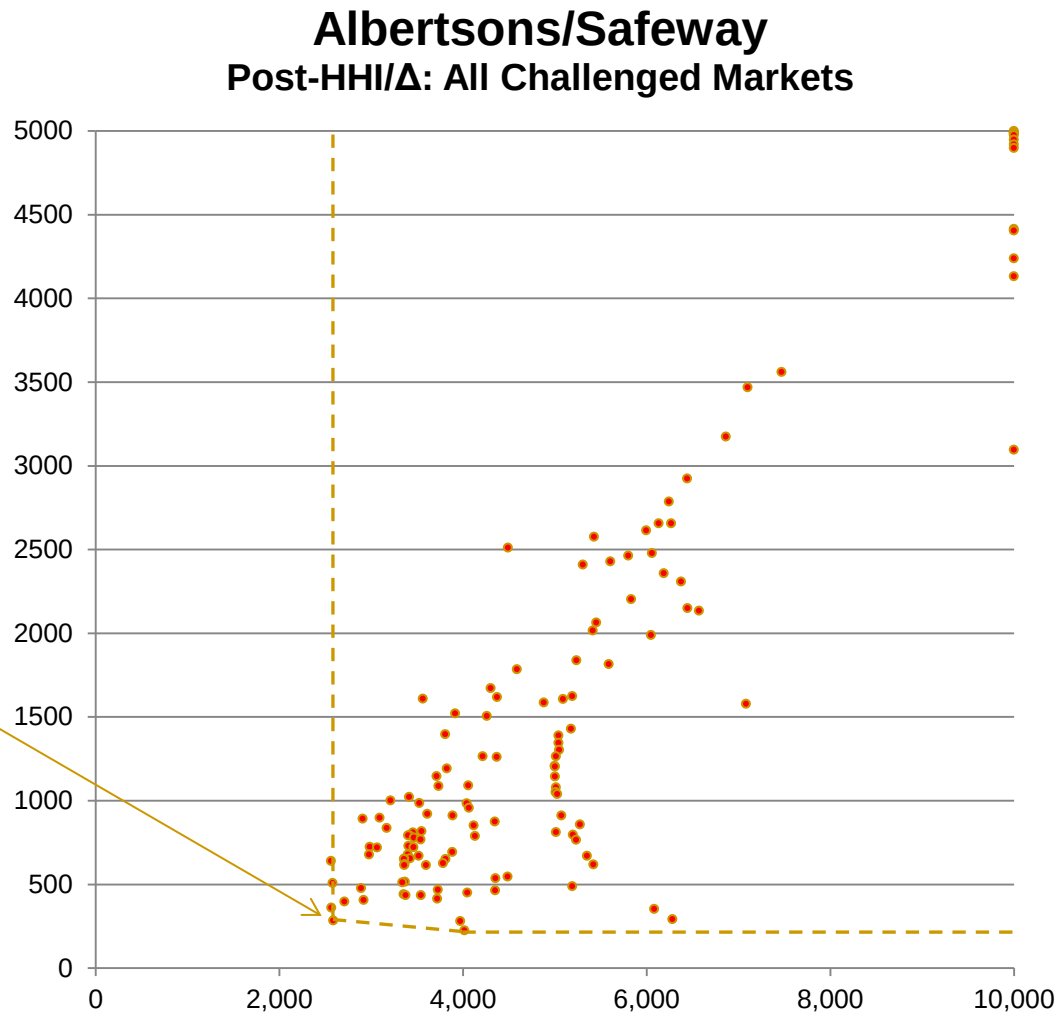
HHIs in DOJ/FTC litigated challenges

- The DOJ and FTC have not brought "close" cases in alleged markets

Agency	Complaint	Defendant	Combined Share[1]	PreHHI	PostHHI	Delta	Deal Status
DOJ	2013	US Airways	100[2]	5258	10000	4752	Preclosing
DOJ	2013	ABInbev	100	5114	10000	4886	Preclosing
FTC	2011	OSF Healthcare	59	3422	5179	1767	Preclosing
FTC	2011	ProMedica	58	3313	4391	1078	Preclosing
DOJ	2011	H&R Block	28	4291	4691	400	Preclosing
FTC	2009	CCC	65	4900	5460	545	Preclosing
FTC	2008	Polypore	100	8367	10000	1633	Consummated
FTC	2007	Whole Foods	100[3]		10000		Preclosing
FTC	2004	Evanston	35	2355	2739	384	Consummated
DOJ	2003	UPM-Kemmene	20	2800	2990	190	Preclosing
FTC	2002	Libbey	79	5251	6241	990	Preclosing
FTC	2001	Chicago Bridge	73	3210	5845	2635	Consummated
FTC	2000	Heinz	33	4775	5285	510	Preclosing
FTC	2000	Swedish Match	60	3219	4733	1514	Preclosing
DOJ	2000	Franklin Electric	100	5200	10000	4800	Preclosing

[1] When the complaint alleged multiple markets, the market with the most problematic highest HHIs is reported.
[2] The complaint alleged 1043 markets.
[3] In some local geographic markets, this was a merger to monopoly in the FTC's alleged product market of premium, natural, and organic supermarkets.

Example: Albertsons/Safeway



Post-HHI: 2586
Δ: 285

6 to 5	5
5 to 4	27
4 to 3	43
3 to 2	42
2 to 1	13
	130

Special case: Supply-side substitutability

- Ace/Benny pencil merger
  - Ace and Benny have announced their merger
    - Ace Pencil and Benny Pencil, along with others, manufacture No. 2 pencils.
    - Ace Pencil and Benny Pencil alone manufacture No. 4 pencils
  - No. 2 and No. 4 pencils do not substitute for one another
    - Each is a separate relevant market under the Merger Guidelines
  - Usual demand-side only HHI analysis:

	Current Production		No. 2 Pencils		No. 4 Pencils	
	No. 2	No. 4	Shares	HHI	Shares	HHI
Ace	3000	300	9.09%	83	60.0%	3600
Benny	4000	200	12.12%	147	40.0%	1600
Cavalier	7000		21.21%	450		
Delta	6000		18.18%	331		
Enterprise	3000		9.09%	83		
Funny	5000		15.15%	230		
Gabriel	5000		15.15%	230		
	33000	500	100.00%	1552	100.0%	5200
			Delta	220	Delta	4800
			Post-HHI	1772	Post-HHI	10000

This is a merger-to-monopoly in No. 4 pencils

Special case: Supply-side substitutability

- Ace/Benny pencil merger
  - Additional facts
    - Enterprise has a 5-year contract to supply No. 2 pencils to the American Accountants Association) that will use all of its capacity.
    - Each of the other three third-party manufacturers of No. 2 would expand their production of No. 4 pencils by 10% in the event of a 5% SSNIP in No. 4 pencils
  - The Merger Guidelines take supply-side substitutability in determining the identity and market shares of the firms in the relevant market

	Current Production		Merger Guidelines approach Post-SSNIP No. 4			Judical full consideration Post-SSNIP No. 4		
	No. 2	No. 4	Production	Shares	HHI	Production	Shares	HHI
Ace	3000	300	300	10.71%	115	300	1.28%	2
Benny	4000	200	200	7.14%	51	200	0.85%	1
Cavalier	7000		700	25.00%	625	7000	29.79%	887
Delta	6000		600	21.43%	459	6000	25.53%	652
Enterprise	3000							
Funny	5000		500	17.86%	319	5000	21.28%	453
Gabriel	5000		500	17.86%	319	5000	21.28%	453
	33000	500	2800	100.00%	1569	23500	100.00%	2447
				Delta	153			2
				Post-HHI	1722			2449

Unlikely to raise a serious concern

Baker Hughes Step 2: Defenses

Baker Hughes Step 2

- The defendants' burden
  - The merging parties have the burden of production on evidence that raises a genuine issue of fact as to whether the transaction has the requisite anticompetitive effect
  - In *H&R Block/TaxACT*, the merging parties advanced four lines of defense:
    - *Entry/expansion/repositioning* would restore competition and negate any price increase
    - The merger would not facilitate *coordinated effects*
    - The merger would not facilitate *unilateral effects*
    - *Efficiencies* created by the deal would offset any upward pricing pressure

NB: Most opinions address coordinated effects and unilateral effects in the Step 1 of *Baker Hughes.* The logic is that Step 1 addresses upward pricing pressure, while Step 2 addresses downward pricing pressure. Step 3 then balances the two.

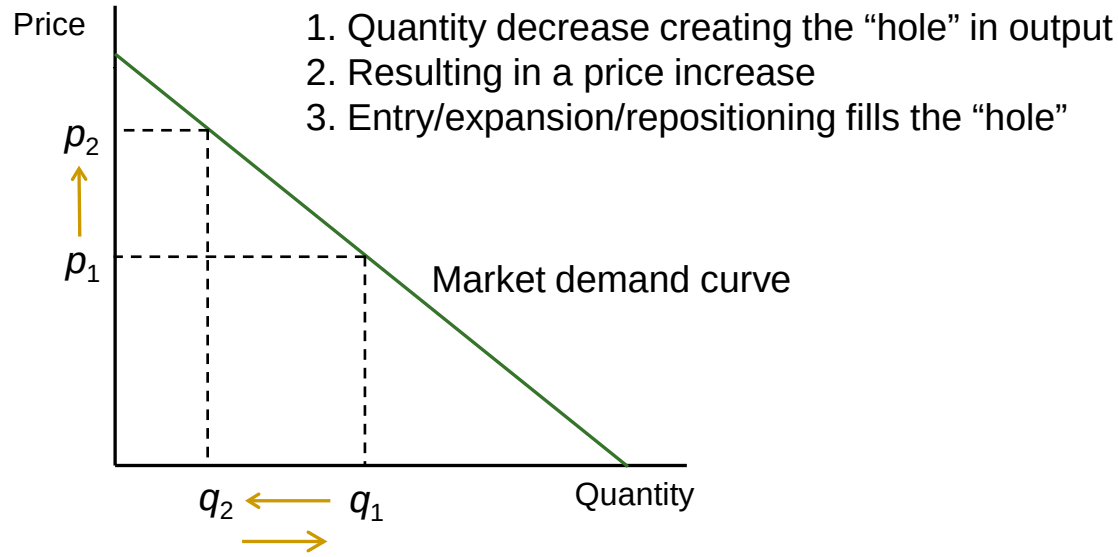
Entry/Expansion/Repositioning

Entry/Expansion/Reposition

- Defense No. 1
  - Expansion by existing DDIY companies besides Intuit, HRB, and TaxACT will offset any potential anticompetitive effects from the merger
  - This is known as an *expansion defense*
    - Analytical similar defenses are the *entry defense* and the *repositioning defense*
- General idea
  - Think of a merger's anticompetitive effect being achieved by a reduction in market output
  - The defense depends on showing that the "hole" in the output will be filled by—
    - New firms entering the market and adding new output (*entry*)
    - Incumbent firms expanding their output over premerger levels (*expansion*), or
    - Incumbent firms extending or repositioning their production in product or geographic space to replace output loses resulting from unilateral effects (*repositioning*)

Entry/Expansion/Repositioning

- General idea



  - Proof of actual postmerger entry/expansion/repositioning is not necessary to make out the defense
    - The mere *threat* of entry/expansion/repositioning may be enough to deter incumbent firms from acting less competitively for fear of inducing new competition

Entry/Expansion/Repositioning

- An example
  - Say that there are four firms in the market of equal size (each selling 100 units = 25% shares)
  - Two firms merge
  - Combined firm decreases output by 40 units to raise prices (anticompetitive effect)
  - A new firm (immediately) enters selling 40 units
  - Market returns to premerger prices

	Premerger		Postmerger w/price increase		Postmerger after entry	
	Quantity	Share	Quantity	Share	Quantity	Share
A	100	25%	160	44%	160	40%
B	100	25%				
C	100	25%	100	28%	100	25%
D	100	25%	100	28%	100	25%
Entrant					40	10%
	400	100%	360	100%	400	100%

Entry/Expansion/Reposition

- Two types of entrants[1]
  - Uncommitted
    - "Hit and run" entry with low sunk entry and exit costs
      - Sometimes call "rapid" entry
    - Included as participants in relevant market and (in theory) assigned market shares
      - See Supply-Side Substitutability slides earlier in the deck
  - Committed
    - Committed entry entails substantial sunk costs
    - Consequently, committed entry decision depends on—
      1. The entrant staying in the market for a considerable period of time, and
      2. An expected trajectory of longer-term prices in the market over this period sufficient to enable the entrant to make a normal profits and recoup its sunk costs
    - Committed entry under the Merger Guidelines is cognizable only if it occurs in response to the merger
      - Firms that have, prior to the merger, committed to entering the market but have not yet entered to also will normally be treated as market participants and assigned market shares based on their project sales in the market in the near-term[2]

[1] Introduced in the 1992 DOJ/FTC Horizontal Merger Guidelines § 3.
[2] 2010 DOJ/FTC Horizontal Merger Guidelines §§ 5.1, 9.

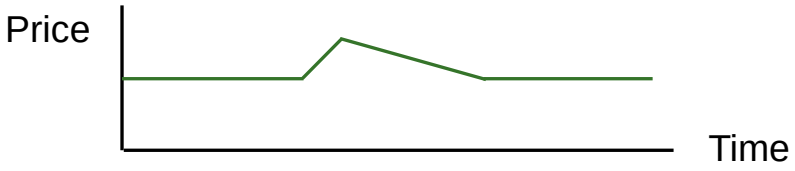
Entry/Expansion/Reposition

- Committed entry as a defense under the Merger Guidelines
  - Timeliness
    - "[E]ntry must be rapid enough to make unprofitable overall the actions causing those effects and thus leading to entry, even though those actions would be profitable until entry takes effect."[1]
  - Likelihood
    - Necessary condition: Entry must be profitable taking into account
      - "Sunk" (nonrecoverable) investment costs (including in facilities, equipment, and promotional activities)
      - The price likely to prevail in the post-merger market (accounting for the impact of entry on prices)
      - The entrant's production costs
    - Incentives
      - Even when entry is profitable, the potential entrant may have other, more attractive opportunities to invest its capital, management attention, and other resources
  - Sufficiency
    - Entry must be sufficient in scope and magnitude to deter or counteract any competitive effects of concern so the merger will not substantially harm customers
      - That is, the entry must "fill the hole" in market output that otherwise would occur in the wake of the merger
      - "Entry by a single firm that will replicate at least the scale and strength of one of the merging firms is sufficient. Entry by one or more firms operating at a smaller scale may be sufficient if such firms are not at a significant competitive disadvantage."[2]

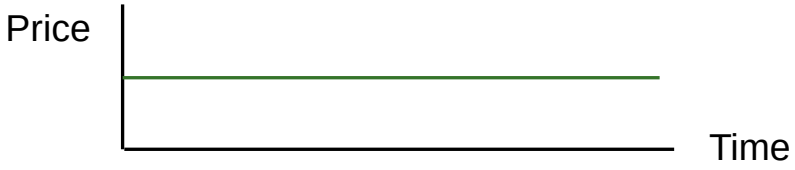
[1] 2010 DOJ/FTC Horizontal Merger Guidelines § 9.1.
[2] *Id*. § 9.3.

Entry/Expansion/Repositioning

- The Merger Guidelines: Committed entry
  - 1982 and 1992: Depended largely on actual entry having a significant impact within two years of the merger
    - This allowed for a short-run anticompetitive effect



  - 2010: Requires entry to "deter or counteract" any anticompetitive effects "so the merger will not substantially harm customers"
    - The Guidelines are unclear whether they will recognize an entry defense if there is any price increase resulting from the merger (say prior to entry)
    - If the Guidelines to permit some "grace period," it must be small in magnitude and very short in duration



Entry/Expansion/Repositioning

- Courts
  - Have adopted the requirements of timeliness, likelihood, and sufficiency[1]
    - Although not necessary interpreting them as strictly as the Merger Guidelines
    - Especially true on the element of timeliness, where judicial precedent had followed the two-year time period allowed by the 1992 Merger Guidelines[2]

[1] *See, e.g.*, FTC v. Wilh. Wilhelmsen Holding ASA, No. 18-CV-00414-TSC, 2018 WL 4705816, at *20 (D.D.C. Oct. 1, 2018); United States v. Energy Sols., Inc., 265 F. Supp. 3d 415, 443 (D. Del. 2017); Steves & Sons, Inc. v. Jeld-Wen, Inc., 252 F. Supp. 3d 537, 546 (E.D. Va. 2017); United States v. Anthem, Inc., 236 F. Supp. 3d 171, 222 (D.D.C. 2017); FTC v. Staples, Inc., 190 F. Supp. 3d 100, 133 (D.D.C. 2016); FTC v. Sysco Corp., 113 F. Supp. 3d 1, 80 (D.D.C. 2015); Saint Alphonsus Med. Ctr.–Nampa, Inc. v. St. Luke's Health Sys., Ltd., No. 1:12-CV-00560-BLW, 2014 WL 407446, at *22 (D. Idaho Jan. 24, 2014), *aff'd*, 778 F.3d 775 (9th Cir. 2015); United States v. Bazaarvoice, Inc., No. 13-CV-00133-WHO, 2014 WL 203966, at *39 (N.D. Cal. Jan. 8, 2014); United States v. H & R Block, Inc., 833 F. Supp. 2d 36, 73 (D.D.C. 2011).

[2] *See, e.g.*, Staples, 190 F. Supp. 3d at 133 ("The relevant time frame for consideration in this forward looking exercise is two to three years."); *accord Wilhelmsen*, 2018 WL 4705816, at *20.

Entry/Expansion/Repositioning

- Entry defense in practice
  - Two critical gating factors
    1. Barriers to entry
    2. Incentive to entry
  - Evidence: Some factors to consider—
    - History of entry and exit
      - Particularly entry in response to SSNIPs
      - Impact of past entry on prices
    - Entry requirements
      - Technology, intellectual property, and know-how
      - Workforce skills
      - Reputational barriers
      - Permitting and other regulatory barriers
      - Time to enter
    - Entry incentives: Is entry profitable?
      - Sunk entry and exit costs
      - Operational costs
      - Can the entrant achieve minimum efficient scale?
      - Are customers locked into long-term purchase agreements/other switching costs
      - Postmerger price trajectory (accounting for entry)/other strategic reactions by incumbent firms
    - Is there one or more identifiable firms that will say they will enter?

No Likelihood of Coordinated Effects

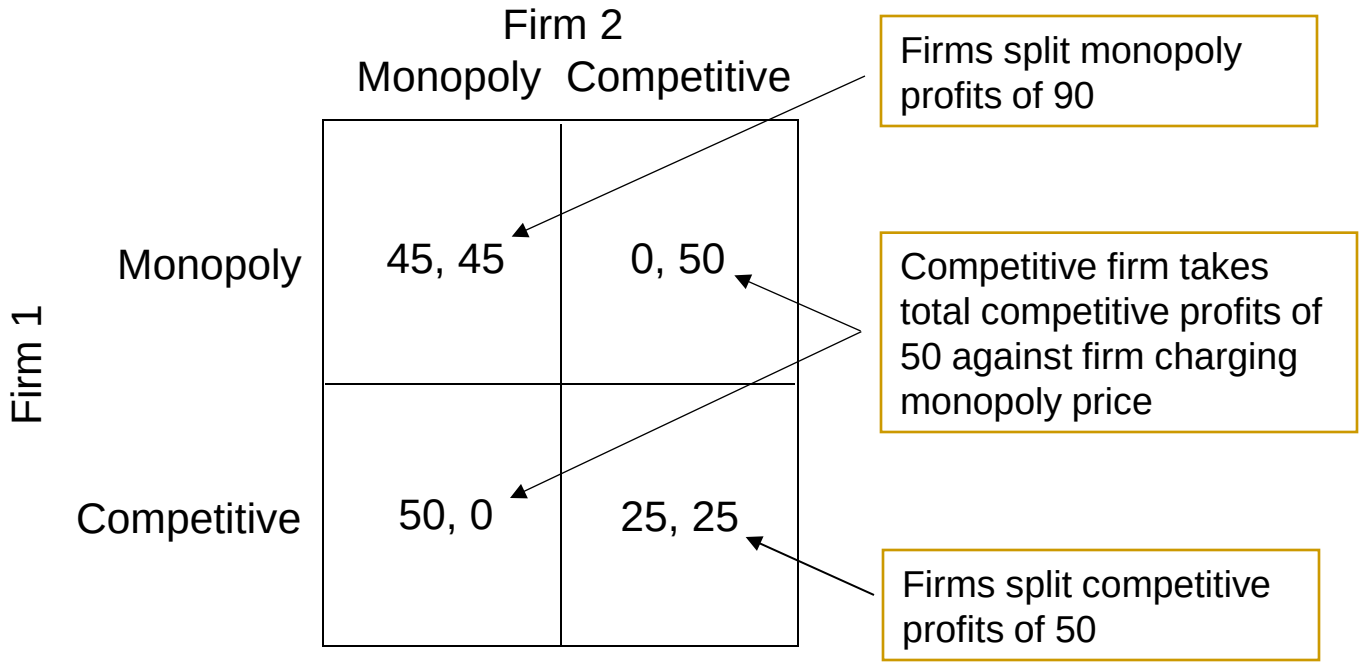
Coordinated effects

- The general idea
  - A merger may diminish competition by enabling or encouraging post-merger coordinated interaction among firms in the relevant market that harms customers
  - Coordinated interaction involves conduct by multiple firms that is profitable for each of them as a result of the *accommodating reactions* of the some or all of other firms in the market
    - May involve the explicit negotiation of a common understanding of how firms will compete or refrain from competing (explicit coordination), or
    - May involve a common understanding that is not explicitly negotiated (tacit coordination)
- Key elements of proof of likely coordinated effects
  - The relevant market must be *susceptible* to coordination, and
  - The merger must increase the *probability* or *effectiveness* of coordinated interaction

In *H&R Block/TaxACT*, the court addressed whether the defendants were able to produce evidence that would permit the trier of fact to find that either that (1) the market was not susceptible to coordination, or (2) the merger would not increase the probability or effectiveness of successful coordination

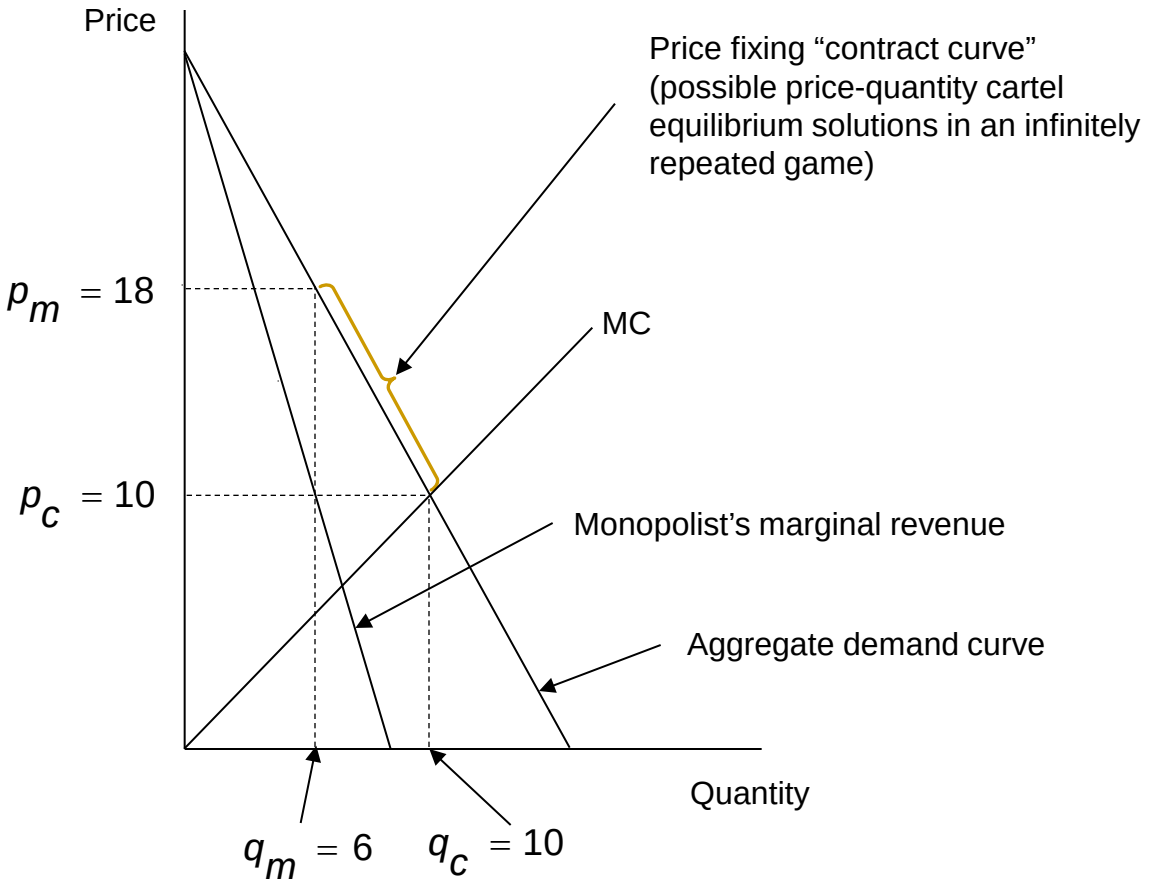
Coordinated effects

- Price fixing "prisoner's dilemma" in single period game
  - Two symmetrical firms



Key result: Charging the competitive price is the *dominant strategy* for each firms, regardless of what strategy the other firm chooses. But mutual monopoly strategies earn each firm higher profits.

Coordinated effects



The Merger Guidelines

- 1982 Guidelines
  - Accepted an unspecified theory of oligopoly as the underpinning of the *PNB* presumption
  - Did not require more for a prima facie case
- 1992 Guidelines
  - *Problem*: There are highly competitive markets with only a few firms (e.g., Coke and Pepsi)
  - *Solution*: Place an affirmative burden on staff to provide a theory with supporting evidence--Looked at the *Stigler requirements* for tacit collusion
    - Can the firms reach terms of coordination that are individually profitable to the firms involved?
    - Can the firms detect deviations from the coordination rule?
    - Can the firms punish deviations from the coordination rule?
- 2010 Guidelines
  - Eliminated the Stigler conditions as the starting point of the analysis
  - Emphasized more the premerger susceptibility
  - Essentially assumed increased susceptibility with the elimination of a market participation through the merger

1. Premerger susceptibility

- So what makes a market susceptible to coordinated effects?
  - Analyze with respect to a “collusive group”
  - External factors
    - Willingness of customers to switch to suppliers outside of the collusive group
    - Ease with which new competitors may enter
    - Ease with which incumbent competitors outside the collusive group may efficiently expand production
    - Capacity utilization outside the collusive group
  - Internal factors
    - Number of competitors in the collusive group
    - The availability of market information
    - The degree of firm and product heterogeneity
    - Capacity utilization inside the collusive group
    - Large buyers/long-term contracts
    - Lags in detection or punishment
    - Volatility of the market/predictability of demand
    - Prior actual or attempted collusion
    - Evidence of a willingness to collude
    - Acquisition of a “maverick”

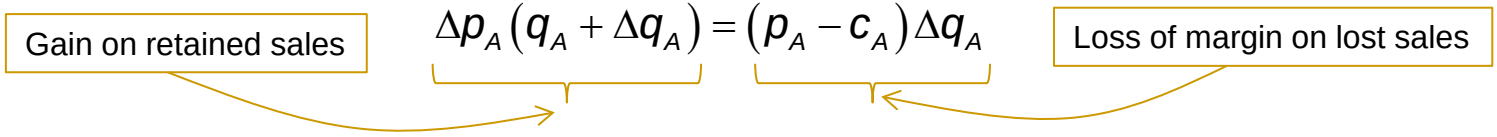
2. Merger facilitation

- How might the merger increase the likelihood or effectiveness of coordination?
  - Reduction of the number of competitors (especially inside the collusive group)
  - The magnitude of the HHI increase
  - Acquisition of a “maverick” (i.e., a disruptive firm)
  - Decrease in excess capacity inside the collusive group
- Factors that could cut the other way:
  - The creation of significant efficiencies in the merged firm
  - Vertical integration
    - Could increase the merged firm’s ability to cheat without detection
    - Could create more heterogeneity among firms in the collusive group and decrease the likelihood that they have a common interest in tacit coordination

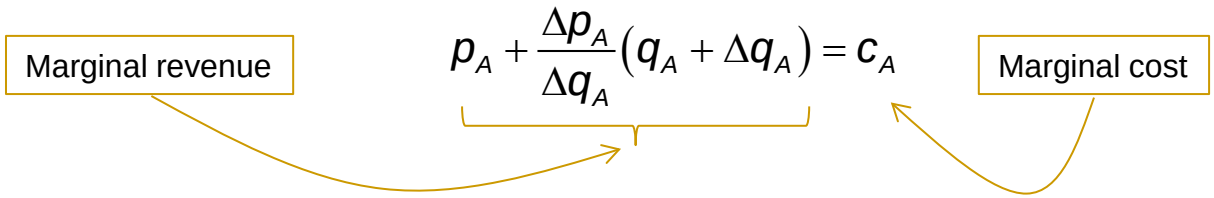
No Likelihood of Unilateral Effects

Unilateral effects

- Remember the breakeven condition for firm A:



Rearranging:



Now increase q by Δq (and so lower p by Δp). Some of the increased sales come from firm B. Call this $\Delta q_{B \to A}$. Firm B loses its margin on those sales:

Firm B's loss of margin: $\Delta q_{B \to A}(p_B - c_B)$

Suppose that A and B merge. Now A must take into account B's loss of margin when increasing A's sales volume. This reduces the combined firm's marginal revenue, and so requires the merged firm to reduce output and raise price to requilibrate marginal revenue and marginal cost

Unilateral effects

Firm 1
(producing Product 1)

Assume linear demand (p = price intercept minus quantity)

Price intercept	300	
Marginal cost	20	(constant)
Margin	140	

(price minus marginal cost at premerger profit-maximizing price)

Recapture of Products from Diverted Sales to Firm 2

Diversion ratio	0.3	
Firm 2 margin	140	(assume the same as Firm 1 at premerger price)

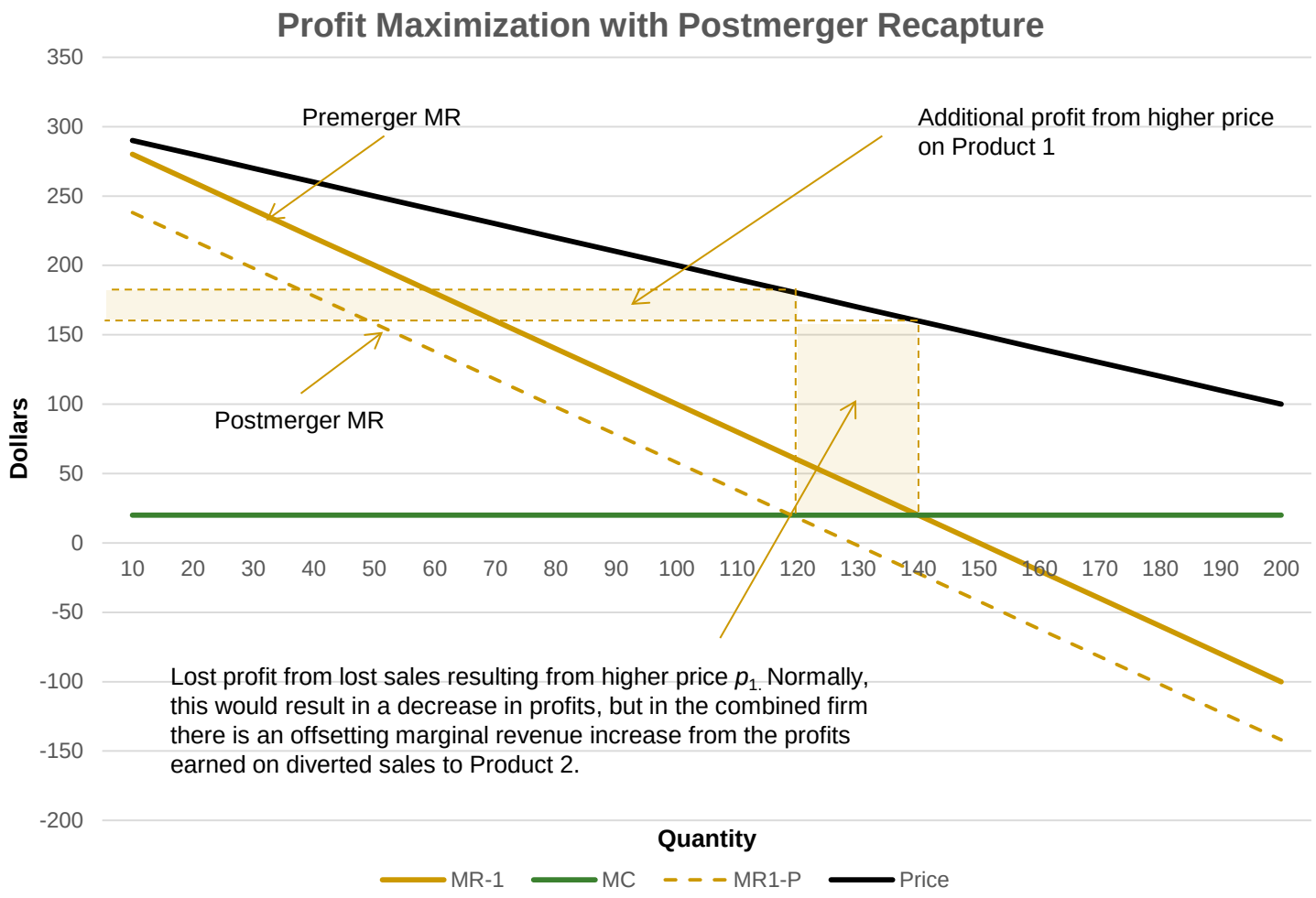
PREMERGER

Price	Quantity	Revenue	MR	Cost	MC	Profit	Margin (p - mc)
0	300	0	-300	6000	20	-6000	-20
10	290	2900	-280	5800	20	-2900	-10
20	280	5600	-260	5600	20	0	0
30	270	8100	-240	5400	20	2700	10
40	260	10400	-220	5200	20	5200	20
50	250	12500	-200	5000	20	7500	30
60	240	14400	-180	4800	20	9600	40
70	230	16100	-160	4600	20	11500	50
80	220	17600	-140	4400	20	13200	60
90	210	18900	-120	4200	20	14700	70
100	200	20000	-100	4000	20	16000	80
110	190	20900	-80	3800	20	17100	90
120	180	21600	-60	3600	20	18000	100
130	170	22100	-40	3400	20	18700	110
140	160	22400	-20	3200	20	19200	120
150	150	22500	0	3000	20	19500	130
160	140	22400	20	2800	20	19600	140
170	130	22100	40	2600	20	19500	150
180	120	21600	60	2400	20	19200	160
190	110	20900	80	2200	20	18700	170
200	100	20000	100	2000	20	18000	180
210	90	18900	120	1800	20	17100	190
220	80	17600	140	1600	20	16000	200
230	70	16100	160	1400	20	14700	210
240	60	14400	180	1200	20	13200	220
250	50	12500	200	1000	20	11500	230
260	40	10400	220	800	20	9600	240
270	30	8100	240	600	20	7500	250
280	20	5600	260	400	20	5200	260
290	10	2900	280	200	20	2700	270

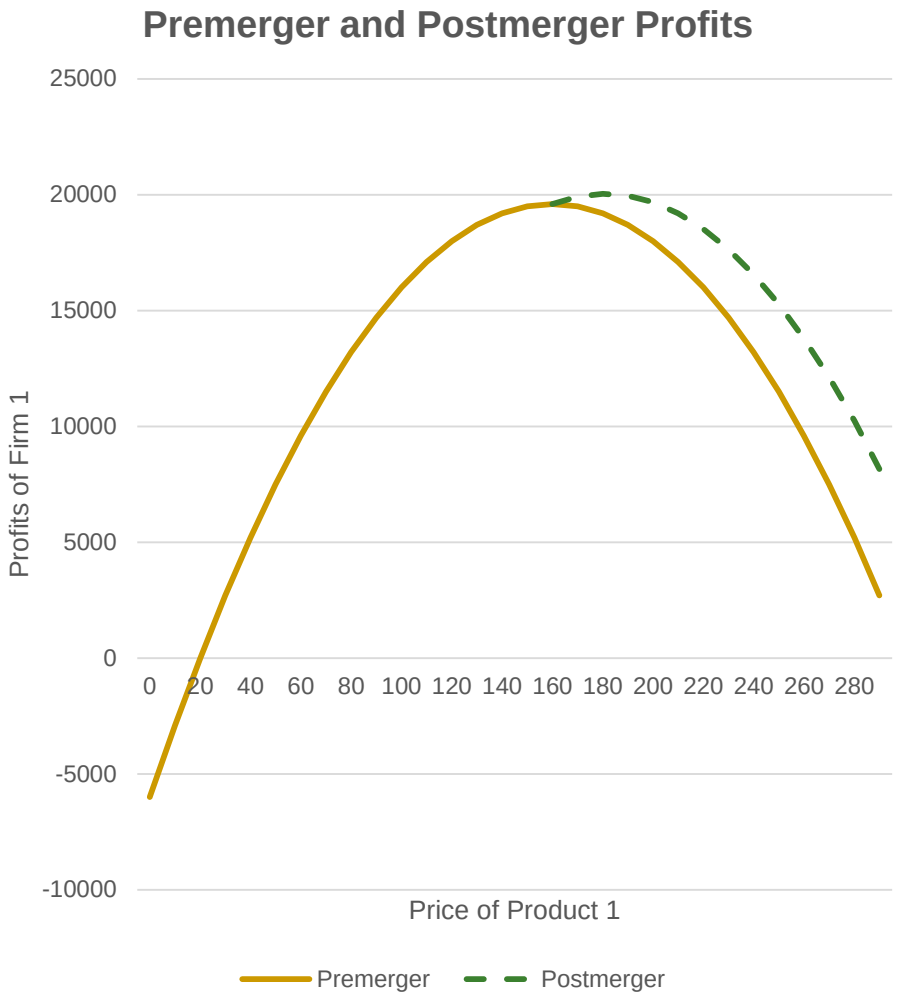
POSTMERGER RECAPTURE
(holding Firm 2's price constant at the premerger level)

Firm 1 Lost units	Firm 1 Lost profits	Diversion to Firm 2	Profit Recapture	Post-merger Profit	Difference
0	0	0	0	19600	0
10	100	3	420	19920	320
20	400	6	840	20040	440
30	900	9	1260	19960	360
40	1600	12	1680	19680	80
50	2500	15	2100	19200	-400
60	3600	18	2520	18520	-1080
70	4900	21	2940	17640	-1960
80	6400	24	3360	16560	-3040
90	8100	27	3780	15280	-4320
100	10000	30	4200	13800	-5800
110	12100	33	4620	12120	-7480
120	14400	36	5040	10240	-9360
130	16900	39	5460	8160	-11440

Unilateral effects



Unilateral effects



Unilateral effects

- General requirements
  - The products of the merging parties are close substitutes for one another
    - That is, they have high cross-elasticities of demand with one another
  - The products of (most) other firms are much more distant substitutes
    - That is, they have low cross-elasticities of demand with the products of the merging firms
  - Repositioning into the product of the merging firms is difficult
    - That is, other incumbent firms and new entrants in the market cannot easily change their product's attributes or introduce a new product that would be a close substitute to the products of the merging firm
- Specific Guidelines requirements
  - 1992: Merging companies had to be each other's closest competitors and the combined firm had to have a market share of at least 35%
    - *Problem*: Some cabining was necessary, since otherwise the unilateral effects theory applies too broadly to any merger where the combining firms have positive cross-elasticity with one another and a positive margin and the market exhibits barriers to entry and repositioning
  - 2010: Eliminated both the closest substitute and 35% share requirements

Unilateral effects

- Example
  - Nestlé-Dreyer's in the super-premium segment of an all ice cream market

Super-Premium Ice Cream (1)
(all channels)

	Sales	Share	HHI
Ben & Jerry's	$254.40	42.4%	1797.76
Nestlé	$219.00	36.5%	1332.25
Dreyer's	$114.60	19.1%	364.81
Others	$12.00	2.0%	4
	$600.00	100.0%	3498.82
Combined share		55.6%	
Premerger HHI			3,501
Delta			1,396
Postmerger HHI			4,897

All Ice Cream (2)
(supermarket sales in 2002)

	Sales	Share	HHI
Store brands (10)	$997.2	23.0%	53
Dreyer's	$795.4	18.4%	339
Breyer's	$686.8	15.9%	253
Blue Bell	$253.4	5.8%	34
Ben & Jerry's	$199.8	4.6%	21
Nestle	$192.7	4.4%	19
Wells Diary	$136.9	3.2%	10
Armour Swift	$106.7	2.5%	6
Turkey Hill	$105.2	2.4%	6
Marigold Foods	$88.2	2.0%	4
Others (10)	$769.1	17.8%	32
	$4,331.4	100.0%	776
Combined share		22.8%	
Premerger HHI			776
Delta			162
Post-merger			938

[1] Complaint, *In re* Nestlé Holdings, Inc., 136 F.T.C. 791 (2003) (settled by consent decree).
[2] Sherri Day, *Nestlé and Dreyer's to Merge in $2.4 Billion Deal, Creating Top U.S. Ice Cream Seller*, N.Y. Times, June 18, 2002.

Unilateral effects

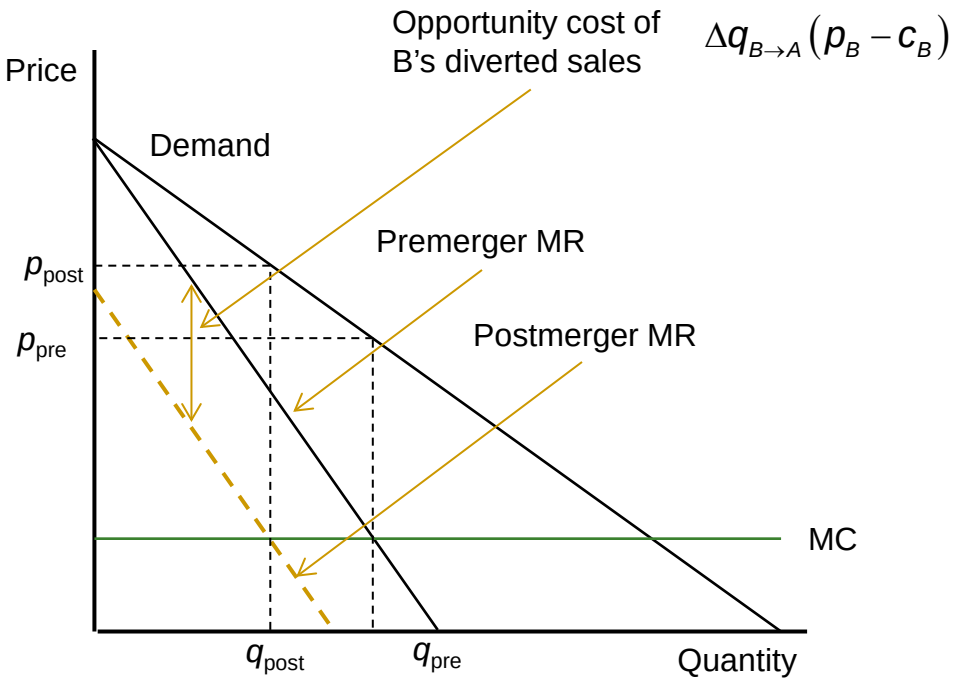
- Look at the merged firm breakeven condition (holding B's price constant and allocating all profits and losses to A):

$$\underset{+}{p_A} + \underset{-}{\frac{\Delta p_A}{\Delta q_A}}\underset{+}{\left(q_A + \Delta q_A\right)} + \underset{-}{\Delta q_{B\to A}}\underset{+}{\left(p_B - c_B\right)} = c_A$$

Opportunity cost re Firm B

  - The signs above the terms assume that A is *increasing* output
  - Note that the opportunity cost for Firm B is *negative*
    - This means that at Firm A's premerger levels of output and price, Firm A's postmerger marginal revenue is *less* than its marginal cost
    - Consequently, to achieve marginal revenue = marginal cost, firm A must decrease output and increase price
  - Note also that the magnitude of the opportunity cost—and hence the amount that Firm A must decrease output and increase price is directly related to:
    - The diversion of products from B to A ($\Delta q_{B\to A}$)
    - Firm B's margin ($p_B - c_B$)

Unilateral effects



Diversion ratios

- Diversion ratios
  - Definition (when firm A raises in price):

$$D_{A\to B} \equiv D_{AB} = \frac{\Delta q_B}{\Delta q_A}$$

    where firm A loses total sales of Δq_A, of which Δq_B go to firm B
    - *Careful*:
      - The story we told to motivate unilateral effects had A's price *decreasing*
      - The definition of diversion ratios is motivated by A's price *increasing*
  - How are diversion ratios estimated?
    - Data collected during the regular course of business
    - Indications in the company documents
    - Consumer surveys
    - Market shares as proxies
      - Assumes that customers divert in proportion to the market shares of the competitor firms:

$$D_{A\to B} = \frac{s_b}{1-s_A},$$

        where s_A and s_B are the markets shares of firms A and B, respectively, in the market
    - Demand system estimation/econometrics

Diversion ratios

- Warren-Boulton analysis in R&R Block/TaxACT
  - Used market shares to estimate diversion ratios
  - Recall
    - $s_{HRB} = 15.6\%$
    - $s_{TaxACT} = 12.8\%$
  - So

$$D_{HRB \to TaxACT} = \frac{12.8\%}{1 - 15.6\%} = 15.2\%$$

$$D_{TaxACT \to HRB} = \frac{15.6\%}{1 - 12.8\%} = 17.9\%$$

  - Interestingly, the court reported these diversion ratios as 14% and 12%
    - This makes no sense, since under the market share method the diversion ratios have to be greater than the market share of the company to which sales are being diverted

GUPPIs

- Gross Upward Pricing Pressure Index (GUPPI)
  - Definition:

$$GUPPI_A = \frac{\text{value of profits from sales diverted to product B}}{\text{value of all sales lost by product A}} = \frac{\Delta q_B \left(p_B - c_B \right)}{\Delta q_A p_{A1}}$$

GUPPIs

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  - Let $m_B = \frac{p_B - c_B}{p_B}$ the percentage gross margin of product B and DR_{AB} be the diversion ration between product A and product B. Then multiplying by p_B/p_B:

$$GUPPI_A == \frac{\Delta q_B}{\Delta q_A} \frac{\left(p_B - c_B\right)}{p_B} \frac{p_B}{p_A} = D_{AB} m_B \frac{p_B}{p_A},$$

    which is the usual form of the expression for a GUPPI
  - Section 6.1 of the 2010 DOJ/FTC Horizontal Merger Guidelines implicitly creates of measure of this type

GUPPIs

- Relation to profit-maximizing price increases
  - Assumptions
    - Linear residual demand curves
    - Equal diversion ratios ($D_{12} = D_{21} = D$)
    - Equal marginal costs, equal prices, and equal market shares
    - In a Bertrand competition model, the GUPPI gives the profit-maximizing price increase postmerger under the unilateral effects theory
  - Proposition:
    - The profit-maximizing price increase for product 1 leaving the price of product 2 at its premerger level:

$$\frac{\Delta p_1^*}{p_1} = \frac{GUPPI}{(1-D)} = \frac{Dm}{(1-D)}$$

    - The profit-maximizing price increase for both product 1 and product 2 when raising the price of both products:

$$\frac{\Delta p_1^*}{p_1} = \frac{\Delta p_2^*}{p_2} = \frac{GUPPI}{2(1-D)} = \frac{Dm}{2(1-D)}$$

GUPPIs

- Relation to profit-maximizing price increases
  - Example 5 of the 2010 DOJ/FTC Horizontal Merger Guidelines

> Products A and B are being tested as a candidate market. Each sells for $100, has an incremental cost of $60, and sells 1200 units. For every dollar increase in the price of Product A, for any given price of Product B, Product A loses twenty units of sales to products outside the candidate market and ten units of sales to Product B, and likewise for Product B. Under these conditions, economic analysis shows that a hypothetical profit-maximizing monopolist controlling Products A and B would raise both of their prices by ten percent, to $110.

  - How do the Guidelines predict that the profit-maximizing price will increase by $10?
    - Summary of parameters

$$p = \$100 \qquad c = \$60$$

$$D = 1/3 \qquad m = \frac{p-c}{p} = 0.6$$

    - The market exhibits linear demand and complete symmetry, so

$$\frac{\Delta p_1^*}{p_1} = \frac{\Delta p_2^*}{p_2} = \frac{Dm}{2(1-D)} = \frac{(1/3)(0.4)}{2(1-1/3)} = 0.10 \quad \text{or } 10\%$$

Efficiencies

Efficiencies

- Efficiencies as a merger defense: General idea
  1. Even if the merged firm has an incentive to increase prices postmerger (i.e., faces *upward pricing pressure*) under some theory of anticompetitive harm,
  2. the efficiencies that the merger will create will give the merged firm an incentive to expand output and reduce price (i.e., exerts *downward pricing pressure*), and
  3. the net effect of the these two cross-cutting pressures on price will be that the merged firm does not raise prices postmerger and may even decrease them

Upward pricing pressure
1. Unilateral effects
2. Coordinated effect
3. Elimination of a maverick

Downward pricing pressure
1. Entry/expansion/repositioning
2. Efficiencies
3. Power buyers

What is the net effect on prices?

More general question: What is the net effect on consumers?

Efficiencies

- Efficiencies are a *negative defense*
  - The formal legal nature of an efficiencies defense is a major source of confusion and bad law
  - Some courts appear to view the efficiencies defense as providing a justification for a merger that will in fact create anticompetitive harm (such as higher prices)
  - But properly framed, the defense says that the merger will *not* be anticompetitive in the first instance

Efficiencies

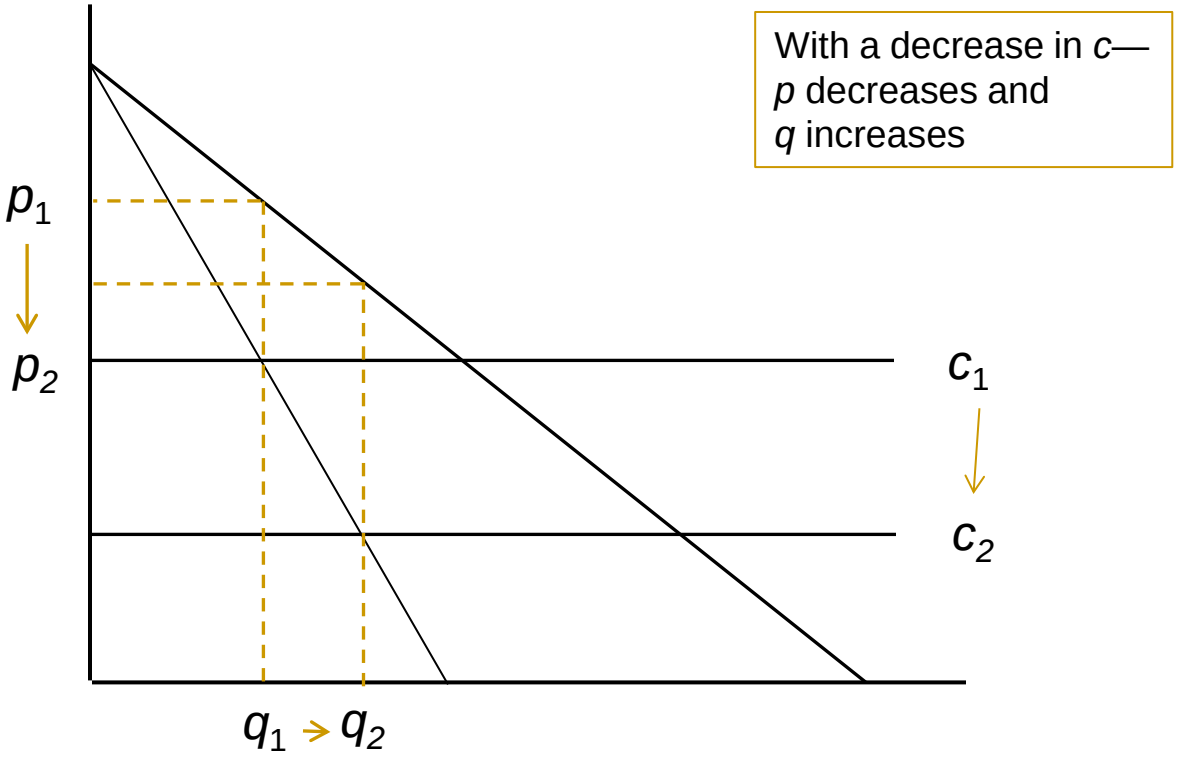
- Cognizable efficiencies
  - The negative defense nature of efficiencies means that only certain efficiencies are cognizable
  - That is, the only efficiencies that count are those that—
    1. Are specific to the merger, and
    2. Create downward pricing pressure (or otherwise enhance consumer value) to
    3. Offset any upward pricing pressure (or other consumer harm) the merger creates
- Two major classes of efficiencies
  - Reductions in marginal cost
  - Product creation or improvements that “shift the demand curve to the right” (i.e., for a given price, cause the postmerger demand for the product to be greater than the premerger demand)
- Out-of-market efficiencies
  - Finally, since there are no affirmative defenses to an anticompetitive merger, the efficiencies must negate the price increase in the relevant market—out-of-market efficiencies do not count

Cost efficiencies

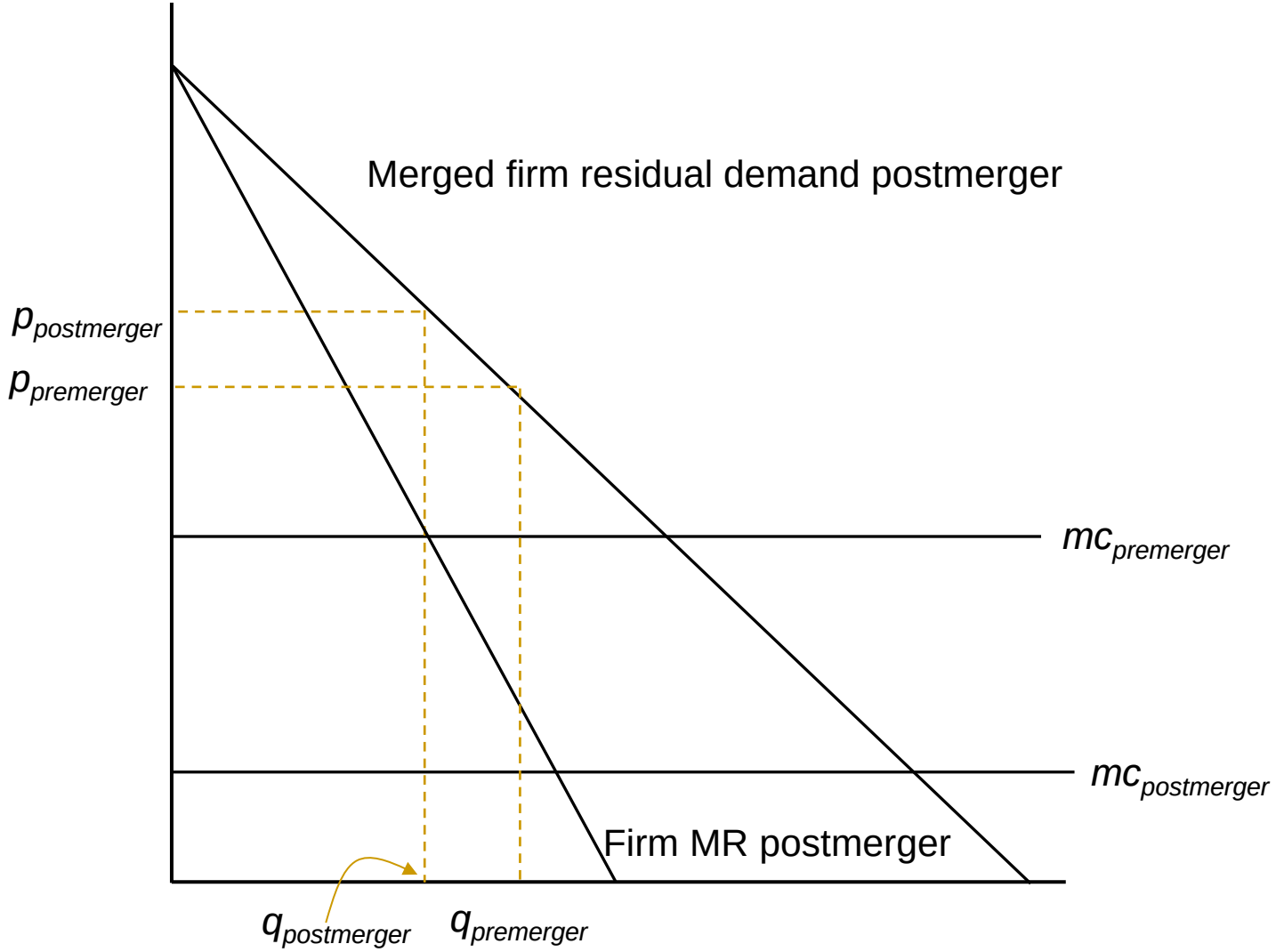
- Types of cost efficiencies
  - Reductions in fixed costs
  - Reductions in marginal costs
- Most common type of proffered efficiency defense in merger cases
- *Key result*: Only marginal cost reductions create downward pricing pressure

Cost efficiencies

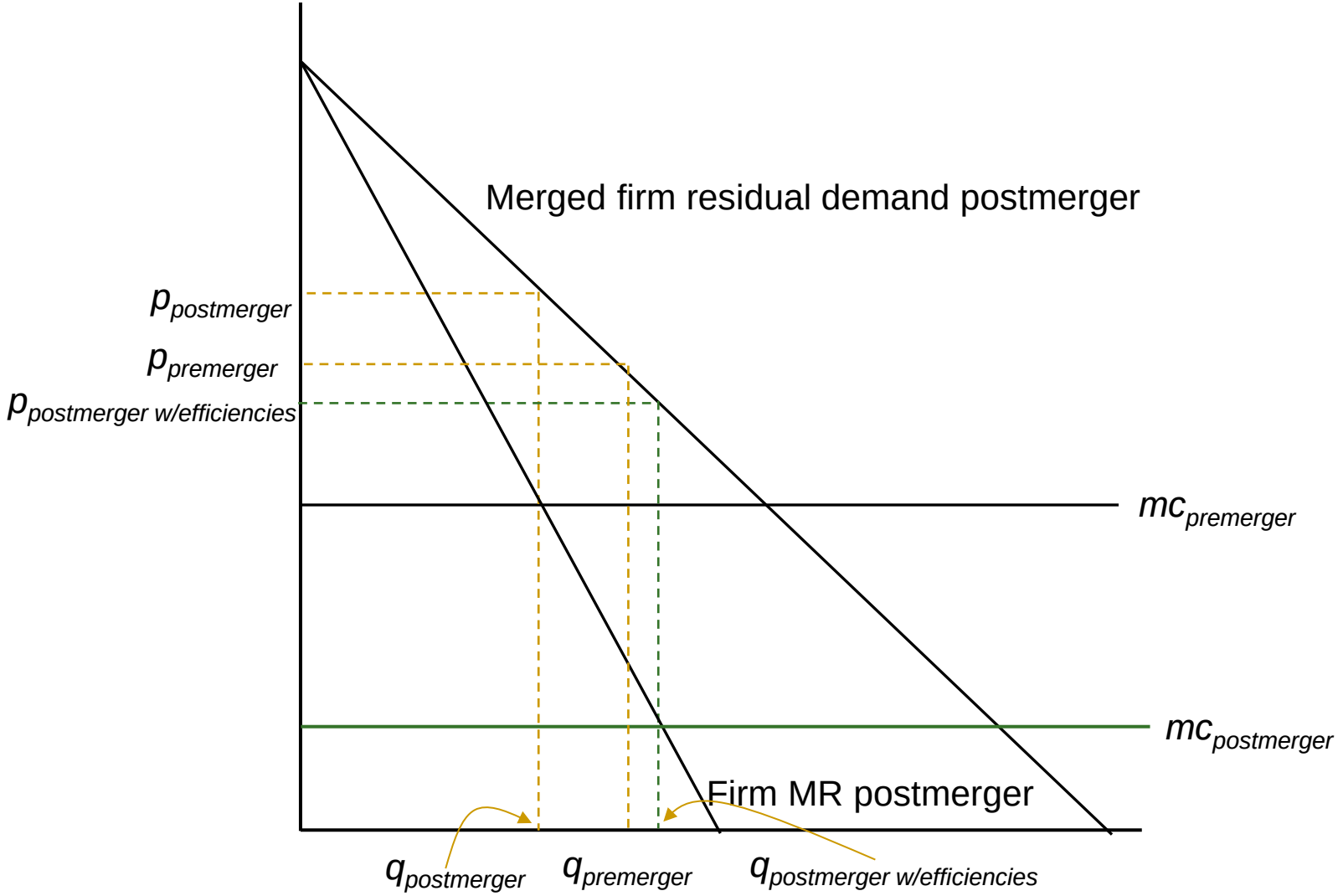
- *Illustration*: A reduction in marginal cost *c* creates downward pricing pressure.
  - Even a structural monopolist will lower its prices and increase its output in response to a reduction in its marginal costs.



Postmerger without marginal cost efficiencies



Postmerger with marginal cost efficiencies



Demand-shifting efficiencies

- The idea
  - New products or improvements to existing products that increase the value proposition to customers and so make customers demand more product postmerger than they did premerger while holding price constant
    - Called “shifting the demand curve to the right”
    - Think of the improvement as a reduction in price
- Examples
  - Accelerated R&D to create new products and product improvement
    - Greater combined R&D assets (researchers, patents, know-how)
    - Complementarities in R&D assets
    - Greater sales base over which to spread R&D costs
  - Better service and product support for existing products
    - More sales representatives
    - More convenient service support

Efficiencies

- "Shifting the demand curve to the right"
  - *Illustration*: A shift of demand to the right creates downward pricing pressure.
    - Even a structural monopolist will lower its prices and increase its output in response to a shift of demand to the right