Anticompetitive Effect in Horizontal Mergers

Class 15 class notes

Merger Antitrust Law

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Dale Collins

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Topics

- Refresher: Anticompetitive effect under Section 7—Class 15

- The *PNB* presumption—Class 15

- Entry/Expansion/Repositioning Defenses—Class 15

- Coordinated effects—Class 15

- Eliminating "mavericks"—Class 15

- Unilateral effects—Class 16

- Other defenses—Class 16
  - "Power buyer"
  - Efficiencies
  - Failing firm

Refresher:
Anticompetitive Effect under Section 7

Section 7 of the Clayton Act

- Section 7 supplies the antitrust standard to test acquisitions:

> No person engaged in commerce or in any activity affecting commerce shall acquire, directly or indirectly, the whole or any part of the stock or other share capital and no person subject to the jurisdiction of the Federal Trade Commission shall acquire the whole or any part of the assets of another person engaged also in commerce or in any activity affecting commerce, where in any line of commerce or in any activity affecting commerce in any section of the country, *the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly.*[1]

- Test of anticompetitive effect under Section 7

  - Whether "the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly" in any relevant market

  - *Incipiency standard*: The Supreme Court has interpreted the "may be" and "tend to" language in the anticompetitive effects test to:

    - Require proof only of a reasonable probability that the proscribed anticompetitive effect will occur as a result of the challenged acquisition

    - Does *not* require proof that an actual anticompetitive effect will occur

[1] 15 U.S.C. § 18.

"May be to substantially lessen competition"

- **No operational content in the statutory language itself**
  - What does in mean to "substantially lessen competition"?
  - Judicial interpretation has varied enormously over the years

- *Modern view*:[1] Transaction threatens—with a reasonable probability—to hurt some identifiable set of customers through:
  - Increased prices
  - Reduced market output
  - Reduced product or service quality
  - Reduced rate of technological innovation or product improvement
  - (Maybe) reduced product diversity[2]

  > These are called *anticompetitive effects*
  >
  > A firm that has the power to produce or strengthen an anticompetitive effect is said to have *market power*

- **Forward-looking analysis**
  - Compare the postmerger outcomes with and without the deal
  - Can view potential competitors today as future competitors tomorrow

[1] The modern view dates from the late 1980s or early 1990s, after the agencies and the courts had assimilated the 1982 DOJ Merger Guidelines.

[2] The idea that reduced product diversity may be a cognizable customer harm was formally introduced in the 2010 DOJ/FTC Horizontal Merger Guidelines.

"May be to substantially lessen competition"

- *Key focus*: Price increases
  - Anticompetitive effect occurs whenever prices, *going forward*, likely would be higher with the transaction than without it[1]
    - A decrease in the rate of a price decline is regarded as a price increase, even if price levels continue to decline
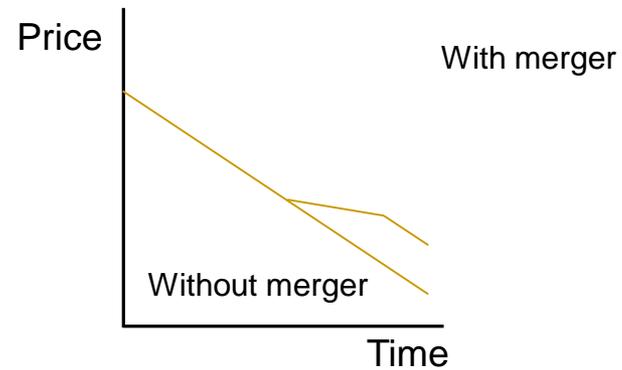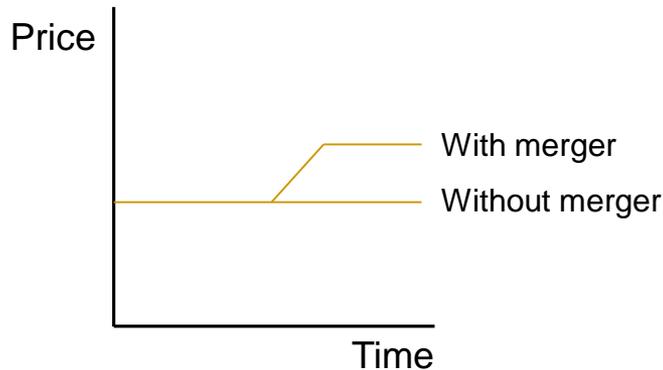
  - *Note*: The agencies consider a reduction in market output to be effectively a price increase
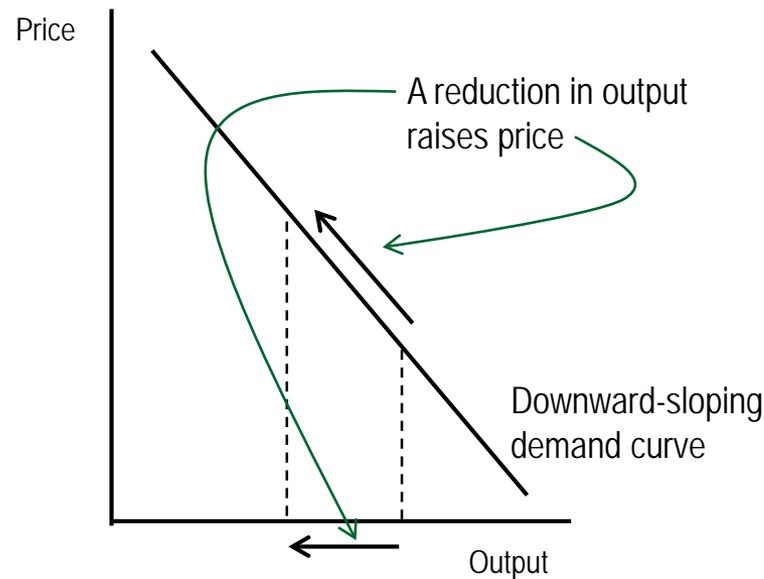
[1] "Likely" in the Section 7 context means "reasonably probable." *See* United States v. E.I. duPont de Nemours & Co., 353 U.S. 586, 589 (1957).

"May be to substantially lessen competition"

- **Output reductions**
  - The agencies consider a reduction in market output to be effectively a price increase

A Reduction in Output Implies a Price Increase

- The idea is that when supply becomes limited the customers who value the product the most bid up the prices

"May be to substantially lessen competition"

- **Other dimensions of possible anticompetitive effect**
  - Historically, there have not been challenges on other dimensions (quality, rate of technological innovation, or product diversity) when there is no alleged price effect
    - Economic theory not well-developed in predicting—
      - Consequences of transaction for nonprice market variables
      - Consequences of changes in nonprice market variables for consumer welfare
    - But adverse effect on other dimensions is sometimes mentioned in complaints that also allege an anticompetitive price effect
  - *Implication*: Agencies will demand strong direct evidence to proceed on a theory other than a price increase—Most likely will require:
    1. An "admission against interest" by the acquiring company that:
       - The merging companies compete significantly in product quality or innovation,
       - This competition is costly and is materially reducing profits, and
       - A benefit of the transaction will be to eliminate this competition and increase profits by saving costs;
    2. Evidence that the merging companies vigorously compete in the nonprice dimension and that other companies will not replace the nonprice competition lost due to the merger; *and*
    3. Evidence that customers will be significantly harmed by the loss of this nonprice competition
       - Customer harm could be reflected in future increased prices (e.g., as a consequence of reduced competition of reduced cost-reducing innovation)

Theories of anticompetitive harm

- **Horizontal transactions**
  - Coordinated effects
    - Merger of significant competitors where customers have few realistic alternatives
    - Anticompetitive effect occurs when merger facilitates pricing or other harmful coordination among a group of firms in the market
  - Unilateral effects
    - Merger of uniquely close competitors
      - The 1992 DOJ/FTC Horizontal Merger Guidelines were commonly interpreted to require that the merging parties were each other's closest competitors. This requirement was dropped in the 2010 revision.
    - Anticompetitive effect depends only on the elimination of "local" competition between the merging firms
    - Anticompetitive effect does not depend on changes in the behavior of other firms in the market
  - Elimination of a "maverick" firm
    - A maverick is a firm that is disruptive in the marketplace and tends to drive market prices down, even through it may have a small market share
    - This is a very ill-defined concept, and may be entirely dependent on the business strategy of the current management

The *PNB* Presumption

REVIEW 2010 DOJ/FTC HORIZONTAL MERGER GUIDELINES § 5

The *PNB* presumption

- *Philadelphia National Bank*:

> Specifically, we think that a merger which produces a firm controlling an undue percentage of the relevant market, and results in a significant increase in the concentration of firms in that market, is so inherently likely to lessen competition substantially that it is must be enjoined in the absence of evidence clearly showing that the merger is not likely to have such anticompetitive effects.[1]

- Created in 1963 as the Court was becoming increasingly restrictive on business
  - Next merger antitrust case after *Brown Shoe*
- Originally created as a *rebuttable* presumption of the requisite anticompetitive effect where the combined firm passed some (undefined) thresholds of
  - Combined market share, and
  - The increase in market concentration caused by the transaction
- But soon treated by lower courts as a *conclusive* presumption—essentially no defenses
- Returned to a rebuttable presumption by the Supreme Court in *General Dynamics*[2] in 1974

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[1] United States v. Philadelphia National Bank, 374 U.S. 321, 363 (1963).
[2] United States v. General Dynamics Corp., 415 U.S. 486 (1974).

The *PNB* presumption

- **Two ways to think about the *PNB* presumption**
  1. **As a presumption grounded in industrial organization economics**
     - The citations to the economic literature in *PNB* itself indicate that the majority thought it was grounding the presumption in economics
     - The idea is that as firms become larger and the market becomes more concentrated, there is an increasingly likelihood that the market will exhibit more successful oligopolistic interdependence and higher resulting prices
       - This is sometimes called the *price-concentration hypothesis* or the *profit-concentration hypothesis*
       - This hypothesis was popular among the structure-conduct-performance adherents in the 1950s and 1960s
     - Queries:
       - Is there meaningful support for the price/profit-concentration hypothesis?
       - If so, at what levels of combined share and increased market concentration does oligopolistic interdependence become significantly more successful?
  2. **As a burden-shifting device in litigation**
     - If the presumption is triggered, it shifts the burden of proof of showing that the presumption is not reliable in the circumstances of the case to the defendants
     - Presumably, the likelihood that the defendants will fail to discharge their burden increases as the case becomes a closer call
     - The effect of the burden shift then is to accept overinclusiveness errors over underinclusiveness errors in close cases

The *PNB* presumption

- **Bottom line**
  - However viewed, the *PNB* presumption remains the point of departure in the litigation of horizontal mergers in the analysis of competitive effects
  - Curiously, the thresholds for triggering the *PNB* presumption have not been litigated
    - Since the early 1980s, the DOJ and FTC—regardless of administration—have only brought actions where the alleged combined market shares and market concentration have been very high.
    - However, conventional wisdom holds that the market shares and market concentration shown in *Rome (Alcoa)/Von's/Pabst* are much too low today to trigger the *PNB* presumption
    - Of course, these shares and market concentration depend on the definition of the relevant market, and the agencies have not always been successful in proving their alleged markets to the satisfaction of the courts

The 2010 Merger Guidelines

- **"HHI thresholds"[1]**
  - Not really *PNB* thresholds, but courts tend to use them that way[1]

Postmerger HHI	ΔHHI	Guidelines
--	< 100	"unlikely to have adverse competitive consequences and ordinarily require no further analysis"
< 1500	--	"unlikely to have adverse competitive consequences and ordinarily require no further analysis"
Between 1500 and 2500	≥ 100	"potentially raise significant competitive concerns and often warrant scrutiny"
> 2500	100-200	"potentially raise significant competitive concerns and often warrant scrutiny"
	≥ 200	"will be presumed to be likely to enhance market power. The presumption may be rebutted by persuasive evidence showing that the merger is unlikely to enhance market power."

[1] The "HHI" is a market concentration statistic. To calculate it, take the square of the market share of each firm in the relevant market and square it, and then add up all of the squared market shares. The "ΔHHI" is the difference between the HHI after the merger and the HHI before the merger.

[2] "The purpose of these thresholds is not to provide a rigid screen to separate competitively benign mergers from anticompetitive ones, although high levels of concentration do raise concerns. Rather, they provide one way to identify some mergers unlikely to raise competitive concerns and some others for which it is particularly important to examine whether other competitive factors confirm, reinforce, or counteract the potentially harmful effects of increased concentration." 2010 Merger Guidelines § 5.3.

The 2010 Merger Guidelines

- *Application*: H&R Block/TaxACT

	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: The court appears to have assumed that six equal-sized firms are in the "other" category
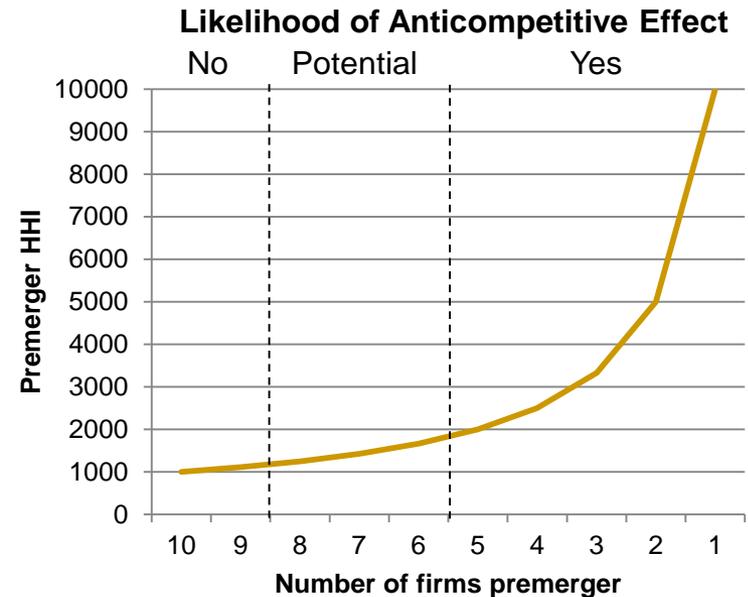
The 2010 Merger Guidelines

- **Math notes**
    - Calculation of the HHI with *n* firms in the market, with firm *i* having a market share of s_i:

$$HHI = \sum_{i=1}^{n} s_i^2$$

    - Shares and HHIs in symmetrical markets with *n* identical firms

n	S_i	Premerger HHI	Delta	Postmerger HHI	Exceeds 2010 Guidelines
10	10.0	1000	200	1200	No
9	11.1	1111	247	1358	No
8	12.5	1250	313	1563	Potential
7	14.3	1429	408	1837	Potential
6	16.7	1667	556	2222	Potential
5	20.0	2000	800	2800	Yes
4	25.0	2500	1250	3750	Yes
3	33.3	3333	2222	5556	Yes
2	50.0	5000	5000	10000	Yes
1	100.0	10000			

Likelihood of Anticompetitive Effect

The 2010 Merger Guidelines

- **Observations**

  - *Calculating the delta*: Let *a* and *b* be the market shares of the merging companies.

    Premerger contribution to the HHI: $a^2 + b^2$

    Postmerger contribution to the HHI: $(a + b)^2 = a^2 + 2ab + b^2$

    Difference (= HHI delta): $2ab$

  - *Dealing with the "other firms" category*: Market share lists often contain an "other firms" category with an aggregate share for these firms. In TaxACT, for example, "others" had an aggregate share of 9.4%. If the number of other firms is two or greater, simply squaring this number in the HHI calculation will overstate the HHI. To get a better estimate of the contribution of the other firms to the HHI, analysts typically assume that there *n* equally sized firms that account collectively for a share *s*. The contribution of the other firms to the HHI is then:

    Share of each "other" firm: $\dfrac{s}{n}$ Each "other" firm's HHI contribution: $\left(\dfrac{s}{n}\right)^2$

    Total HHI contribution of all *n* firms: $n\left(\dfrac{s}{n}\right)^2 = \dfrac{s^2}{n}$

    In TaxAct, the court appeared to assume six equally sized firm. So the contribution to the HHI from the other firms was $\dfrac{9.4^2}{6} = 14.7$.

HHIs in Successful DOJ/FTC 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 Successful DOJ/FTC 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

- Challenged markets with the highest Δs (130 markets)

| Area Number (See Para. 16 of Complaint)	City	State	Merger Result	HHI (pre)	HHI (post)	Delta
72	Deer Lodge	MT	2 to 1	5000	10,000	5000
83	Happy Valley/ Clackamas	OR	2 to 1	5006	10,000	4994
19	Carpinteria	CA	2 to 1	5012	10,000	4988
78	Ashland	OR	2 to 1	5013	10,000	4987
22	Coronado Island	CA	2 to 1	5025	10,000	4975
74	Boulder City	NV	2 to 1	5051	10,000	4949
29	Ladera Ranch	CA	2 to 1	5081	10,000	4919
79	Baker County	OR	2 to 1	5102	10,000	4898
53	San Diego, CA (Tierrasanta)	CA	2 to 1	5586	10,000	4414
122	Snohomish	WA	2 to 1	5595	10,000	4405
119	Sammamish	WA	2 to 1	5761	10,000	4239
26	Imperial Beach	CA	2 to 1	5869	10,000	4131
58	Santa Barbara/ Goleta	CA	3 to 2	3909	7469	3560
62	Simi Valley	CA	5 to 4	3633	7101	3468
11	Arroyo Grande/ Grover Beach	CA	3 to 2	3690	6864	3174

Example: Albertsons/Safeway

- Challenged markets with the lowest Δs (130 markets)

Area Number (See Para. 16 of Complaint)	City	State	Merger Result	HHI (pre)	HHI (post)	Delta
32	Lakewood	CA	6 to 5	2073	2581	508
71	Butte	MT	3 to 2	4701	5189	488
93	Dallas (Far North)	TX	5 to 4	2413	2891	478
123	Tacoma (Eastside)	WA	4 to 3	3260	3727	467
106	Lake Forest Park	WA	5 to 4	3889	4352	463
21	Chino Hills	CA	4 to 3	3596	4047	451
111	Monroe	WA	4 to 3	2911	3352	441
44	Oxnard	CA	4 to 3	2939	3375	436
98	Plano	TX	4 to 3	3105	3541	436
117	Renton (East Hill- Meridian)	WA	4 to 3	3304	3719	415
85	Klamath Falls	OR	5 to 4	2511	2917	406
104	Federal Way	WA	5 to 4	2312	2709	397
113	Olympia (East)	WA	6 to 5	2205	2566	361
87	Milwaukie	OR	3 to 2	5729	6082	353
55	San Marcos	CA	3 to 2	5991	6282	291
103	Everett	WA	5 to 4	2301	2586	285
65	Tujunga	CA	3 to 2	3688	3969	281
120	Shoreline	WA	4 to 3	3792	4017	225

Example: Albertsons/Safeway

Albertsons/Safeway
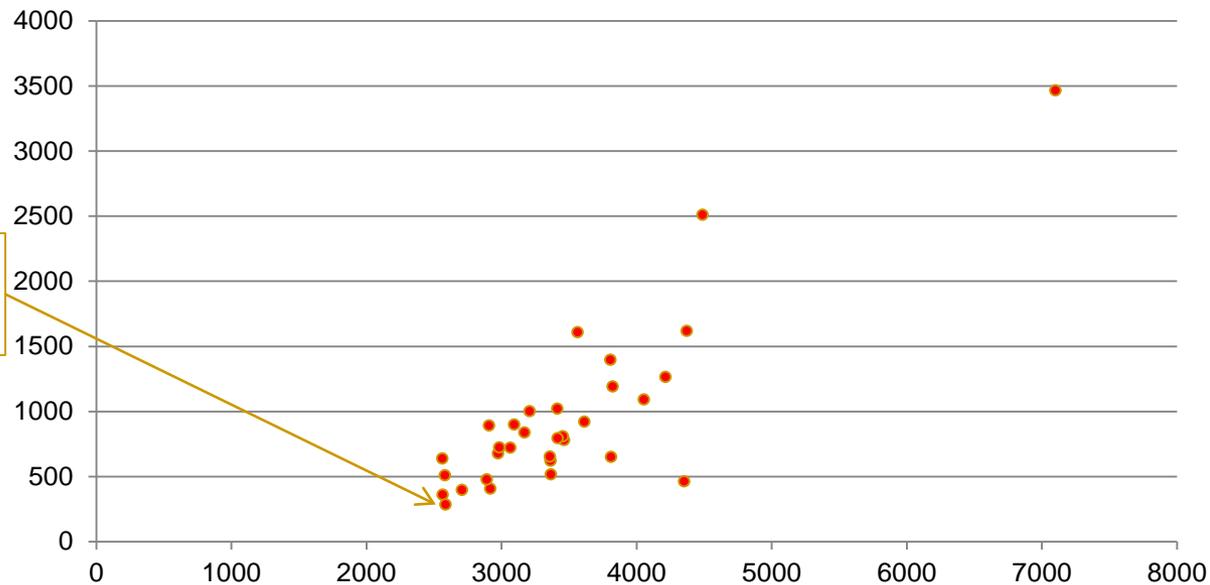**Post-HHI/Δ: All Challenged Markets**
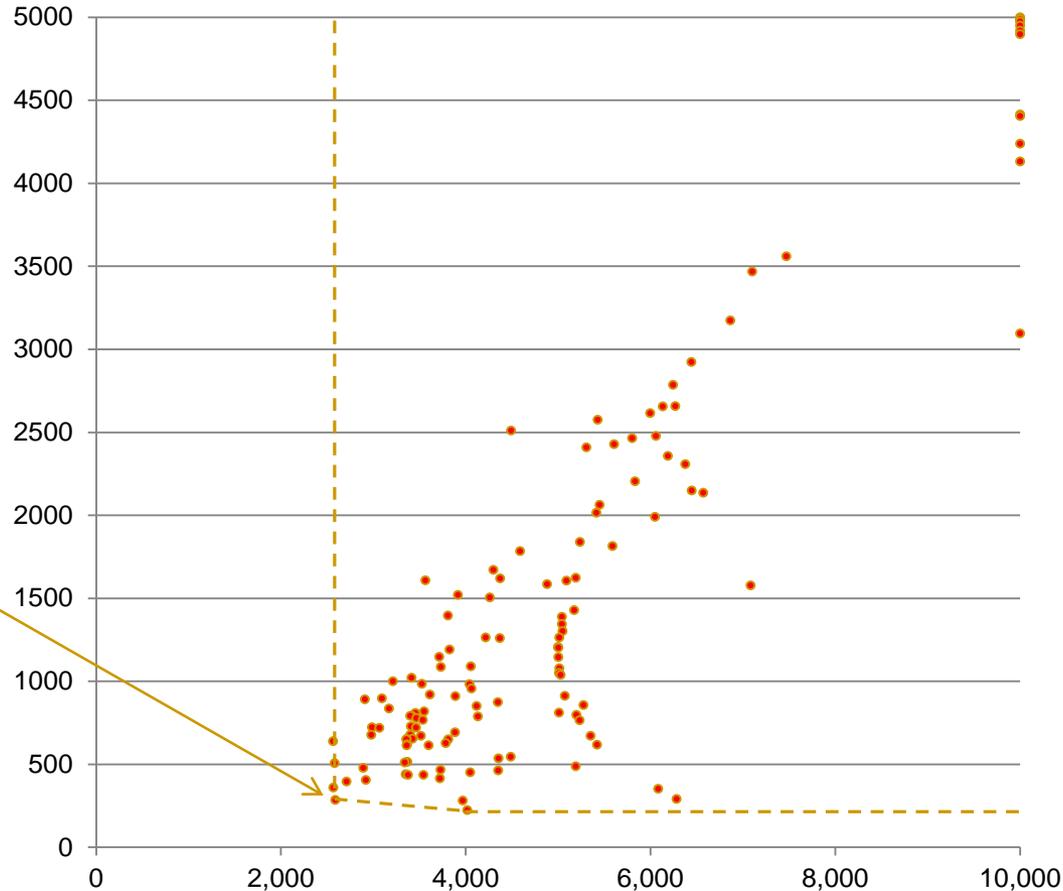
Post-HHI: 2586
Δ: 285

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

Example: Albertsons/Safeway

Albertsons/Safeway
**Post-HHI/Δ: 6→5 & 5→4**

Post-HHI: 2586
Δ: 285

Example: AT&T/T-Mobile

■ Challenged markets with the lowest Δs (100 markets)

CMA Number and Name	Post-merger share	Post-HHI	Increase in HHI	Share 1	Share 2
079-Knoxville, TN	27.0%	2812	123	24.5	2.5
048-Toledo, OH-MI	17.4%	3822	127	12.2	5.2
078-Lansing-East Lansing, MI	21.5%	3689	155	16.9	4.6
068-Flint, MI	25.7%	3168	163	22.0	3.7
064-Grand Rapids, MI	24.5%	3370	174	20.2	4.3
100-Shreveport, LA	48.9%	3618	197	46.8	2.1
044-Albany-Schenectady-Troy, NY	30.8%	3607	205	27.0	3.8
023-Cincinnati, OH-KY-IN	22.6%	2575	215	15.8	6.8
053-Syracuse, NY	35.9%	3905	227	32.4	3.5
034-Rochester, NY	26.5%	4330	228	21.1	5.4
085-Johnson City-Kingsport-Bristol, TN-VA	24.7%	4323	241	18.0	6.7
047-Greensboro-Winston-Salem-High Point, NC	28.2%	3358	250	22.7	5.5
088-Chattanooga, TN-GA	27.6%	3799	262	21.5	6.1
087-Canton, OH	27.5%	4242	267	21.2	6.3
059-Richmond, VA	24.6%	3472	267	16.5	8.1
092-Little Rock-North Little Rock, AR	53.9%	3867	276	51.2	2.7
071-Raleigh-Durham, NC	32.0%	3236	279	26.8	5.2
040-Dayton, OH	29.2%	2814	298	22.6	6.6

Example: AT&T/T-Mobile

AT&T/T-Mobile
Post-HHI/Δ: All Challenged Markets

Post-HHI: 2812
Δ: 123
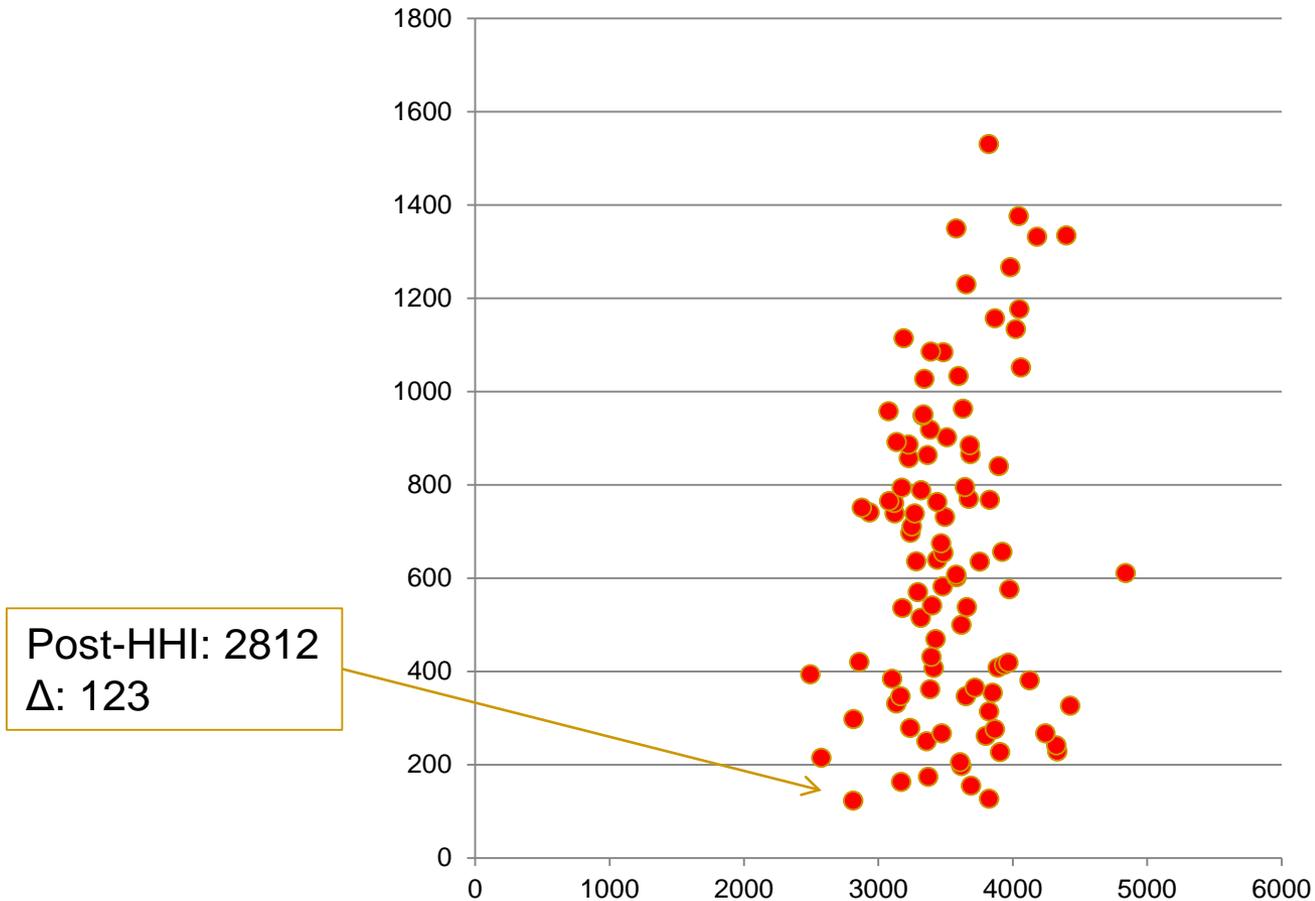
Example: AT&T/T-Mobile

AT&T/T-Mobile
Market Share Scatter of
Challenged Markets

Shares: 12.2, 5.2

Shares: 24.5, 2.5
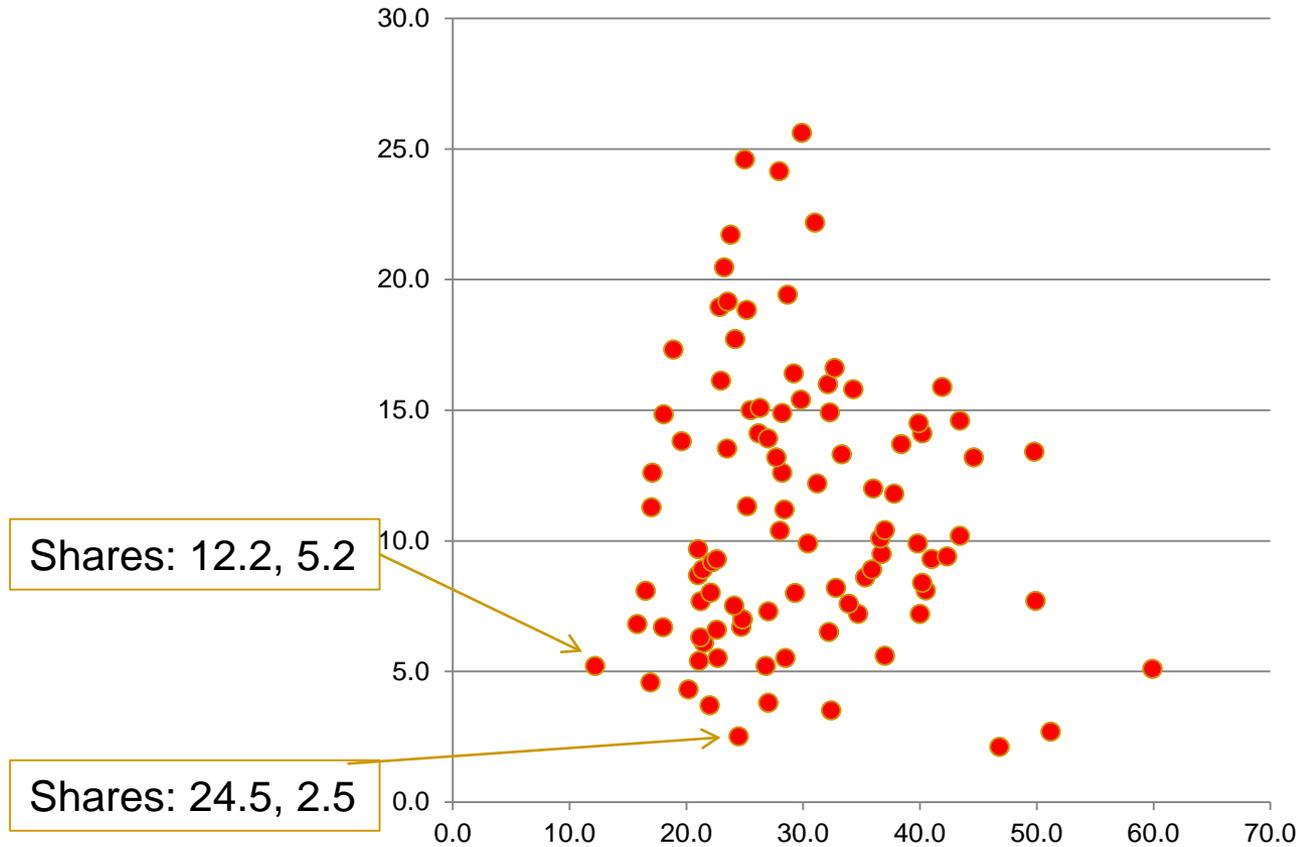
Special case: Supply-side substitutability

- ## The general idea[1]

  - Market definition under the Merger Guidelines—is determined solely by demand-side considerations

  - *Query*: How is the analysis conducted when two products that are not demand-side substitutes are made on the same production equipment (perhaps with some minor modifications or retooling) and firms rapidly switch their mix of production from one product to the other in response to small changes in relative prices?

    - For example, multiple grades of paper can and are made on paper-making machines. Customers may not regard the different grades of paper substitutable for one another, but paper mills continuously change their production mix among the different grades in response to changes in relative prices

    - Are all grades of paper made on the same machine in the same relevant product market? If not, how do the Merger Guidelines take into account the clear competitive effects created by this supply-side competition?

  - Answer

    - The Merger Guidelines do *not* include products that are not demand-side substitutes in the same relevant market even if the products exhibit a high degree of supply-side substitutability

    - Instead, the Merger Guidelines will consider the firm making the supply-side substitute a participant in the relevant market and will assign it a share based on the level of production the firm would make of the relevant product in the event of a SSNIP

[1] *See* 2010 DOJ/FTC Horizontal Merger Guidelines §§ 5.1-5.2.

Special case: Supply-side substitutability

- Example[1]
    - Pencil-making firms can make both No. 2 pencils (the common type) and No. 4 pencils (used by architects in architectural drawings) on the same machine by just changing the mixture of graphite that goes into pencil's lead core. Changes the production mix on a given machine involves relatively low switching costs. No. 2 and N. 4 pencils are not demand-side substitutes.
    - Ace Pencil and Benny Pencil, currently the only two manufacturers of No. 4 pencils, have announced their merger.
    - Using the demand-side considerations of the Merger Guidelines, the relevant product market in which to analyze the merger is No. 4 pencils
    - The following chart gives the production levels of No. 2 and No 4 pencils:

	Current Production	
	No. 2	No. 4
Ace	3000	300
Benny	4000	200
Cavalier	7000	
Delta	6000	
Enterprise	3000	
Funny	5000	
Gabriel	5000	

[1] Thanks to Professor Salop for this example. I have modified it slightly.

Special case: Supply-side substitutability

- **Example (con't)**
  - 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
  - Under the Merger Guidelines, who are the firms in the No. 4 pencil market and what are their respective market shares?

	Current Production		Post-SSNIP No. 4		
	No. 2	No. 4	Production	Shares	HHI
Ace	3000	300	300	10.71%	115
Benny	4000	200	200	7.14%	51
Cavalier	7000		700	25.00%	625
Delta	6000		600	21.43%	459
Enterprise	3000				
Funny	5000		500	17.86%	319
Gabriel	5000		500	17.86%	319
			2800	100.00%	1569
				Delta	153
				Post-HHI	1722

Notes: In the event of a 5% SSNIP in No. 4 pencils—
1. The merging firms are not assigned any additional production, since the MG anticipate that they would contradict production of No. 4 pencils and not expand it.
2. Cavalier, Delta, Funny, and Gabriel would each shift 10% of their production of No. 2 pencils into the production of No. 4 pencils (facts in the hypothetical).
3. Enterprise would not shift production into No. 4 pencils, since all of its capacity is committed under contract to the production of No. 2 pencils for the next five years.

Special case: Supply-side substitutability

- **Conclusion**
    - So although current production indicates that the Ace/Benny merger is a merger to monopoly in the relevant market, under the Merger Guidelines supply-side considerations make the merger a 6-to-5 transaction in a moderately concentrated market with a relatively small delta. If we take the numbers as given, the deal is unlikely to face any antitrust problem.

Special case: Supply-side substitutability

- **The judicial approach**
  - The Merger Guidelines approach has not yet been fully adopted by the courts
  - Although the question has not arisen frequently, modern courts are split on whether to include supply-side substitutability as a factor in market definition
    - Some courts follow the Merger Guidelines approach
      - Or at least hold that defining the boundaries of relevant markets using demand-side considerations only and using supply-side to determine the participants in the market and their respective markets shares is an acceptable legal alternative[1]
    - Other courts allow supply-side considerations to be taken into account when defining the boundaries of the relevant market[2]
      - *Brown Shoe* suggested that supply-side substitutability should be consider in defining a relevant market[3]

[1] *See* United States v. Bazaarvoice, Inc., No. 13-CV-00133-WHO, 2014 WL 203966, at *31-*32, *37, *67 (N.D. Cal. Jan. 8, 2014).

[2] IFTC v. Lab. Corp. of Am., No. SACV 10-1873 AG MLGX, 2011 WL 3100372, at *17 (C.D. Cal. Feb. 22, 2011) ("Courts place products in the same product market where there is either effective demand-side substitution or effective supply-side substitution.").

[3] *See* Brown Shoe Co. v. United States, 370 U.S. 294, 325 (1962) (including "unique production facilities" as a practical indicium of market definition).

Special case: Supply-side substitutability

- **The judicial approach**
  - The economic criticism
    - When courts take supply-side considerations into account in defining the boundaries of the market, they include 100% of the production of the supply-side substitute in the relevant market. This can lead to lead to seriously incorrect inferences.
    - Example:
      - Use the same pencil hypothetical, but make the current production levels of No. 2 and No. 4 pencils be somewhat less lopsided by reducing current production of No. 2 pencils

	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	300	300	300	41.10%	1689	600	17.14%	294
Benny	400	200	200	27.40%	751	600	17.14%	294
Cavalier	700		70	9.59%	92	700	20.00%	400
Delta	600		60	8.22%	68	600	17.14%	294
Enterprise	300							
Funny	500		50	6.85%	47	500	14.29%	204
Gabriel	500		50	6.85%	47	500	14.29%	204
	3300	500	730	100.00%	2646	3500	100.00%	1690
				Delta	2252			588
				Post-HHI	4898			2278

      - Here, the Merger Guidelines approach indicate that the merger is 2-to-1 with a fringe and the HHI statistics indicate that the merger is strongly presumptive anticompetitive. When the full production of No. 2 pencils are added to that of No. 4 pencils under the judicial approach, the merger is 6-to-5 and the HHIs do not suggest a serious competitive problem.

Special case: Supply-side substitutability

- ## The judicial approach
    - ### The economic criticism (con't)
        - #### In practice, however, the problem unlikely to arise frequently
            - First, in most cases supply-side substitutability is not a factor that arises, so courts usually do not have to deal with the issue
            - Second, courts are increasingly sophisticated in the competitive analysis of mergers. Even if the production facilities of two products are identical and switching production between the two products is easy and can take place rapidly as a technical matter, the courts are likely to include the full production of the supply-side substitute in the relevant market only if the supply-side response to a SSNIP in the products of interest would "flood" the market and so defeat the profitability of the SSNIP.
                - This is what would have happened in the original pencil hypothetical. While original production of No. 4 pencils was 500 units, a 5% SSNIP would have precipitated a supply-side response of adding 2300 units—more than four times the original level of production.
                - On the other hand, in the second version of the hypothetical the supply-side response would have added only an additional 230 units. In this case, the court likely would have rejected the argument that the supply-side substitute should be included in the relevant market and instead examine whether entry of new firms or expansion of small incumbent firms already in the relevant market would be sufficient under an ease of entry/expansion/repositioning defense to prevent a postmerger price increase as part of the competitive effects analysis rather than market definition.

Special case: Supply-side substitutability

- **Cross-elasticity of supply**
  - A firm's switch increase in production of product 1 in response to an increase in the price of product 1 can be measured by the firm's elasticity of supply:

$$\varepsilon_{11}^S = \frac{\text{\%change in the production of product 1}}{\text{\%change in the price of product 1}} = \frac{\dfrac{\Delta q_1^S}{q_1}}{\dfrac{\Delta p_1}{p_1}} = \frac{\Delta q_1^S}{\Delta p_1}\frac{p_1}{q_1}$$

> This will be a positive number

  - The firm's cross-elasticity of supply is defined as:

$$\varepsilon_{12}^S = \frac{\text{\%change in the production of product 2}}{\text{\%change in the price of product 1}} = \frac{\dfrac{\Delta q_2^S}{q_2}}{\dfrac{\Delta p_1}{p_1}} = \frac{\Delta q_2^S}{\Delta p_1}\frac{p_1}{q_2}$$

> This will be a negative number number

  - Aggregate own- and cross-elasticities of supply can be defined analogously.

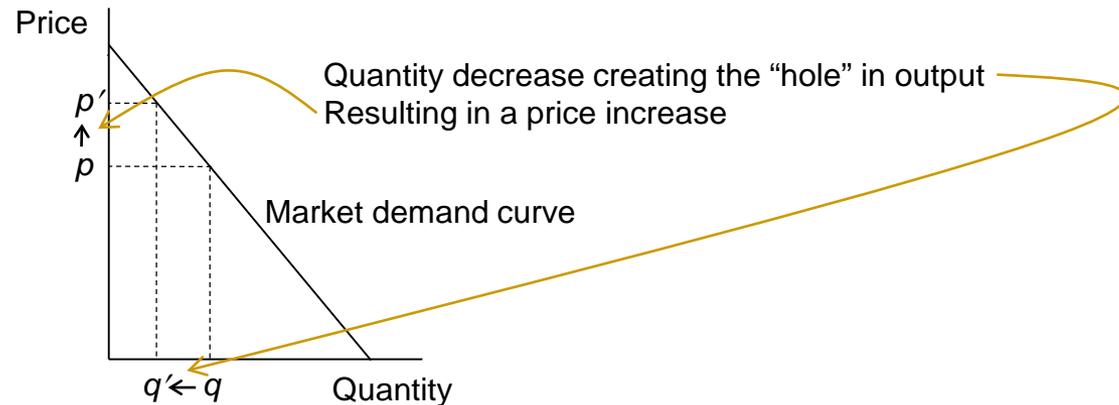# Entry/Expansion/Repositioning Defenses

REVIEW 2010 DOJ/FTC HORIZONTAL MERGER GUIDELINES § 9

Entry/Expansion/Repositioning

- **The story**
  - General idea
    - Think of a merger's anticompetitive effect being achieved by a reduction in market output

Price

p'

↑

p

Quantity decrease creating the "hole" in output
Resulting in a price increase

Market demand curve

$q' ← q$ Quantity

  - The defense depends on showing that the "hole" in the output will be filled by—
    - New firms entering the market and adding new output
    - Incumbent firms expanding their output over premerger levels, or
    - Incumbent firms extending or repositioning their production in product or geographic space to replace output loses resulting from unilateral effects
  - 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

- **The Merger Guidelines[1]**
  - The formalities
    - 1982 and 1992: Depended largely on actual entry having a significant impact within two years of the merger
      - This allows for a short-run anticompetitive effect
    - 2010: Requires entry to "deter or counteract" any anticompetitive effects "so the merger will not substantially harm customers"
      - Does not allow any grace period
  - Guidelines requirements—Entry must be:
    - Timely
    - Likely
    - Sufficient
  - Courts have adopted these requirements

[1] References to entry in this section also include expansion and repositioning.

Entry/Expansion/Repositioning

- **The Merger Guidelines[1]**
  - Timely
    - "In order to deter the competitive effects of concern, entry must be rapid enough to make unprofitable overall the actions causing those effects . . . ."
    - "Even if the prospect of entry does not deter the competitive effects of concern, post-merger entry may counteract them. This requires that the impact of entrants in the relevant market be rapid enough that customers are not significantly harmed by the merger, despite any anticompetitive harm that occurs prior to the entry."
    - "The Agencies will not presume that an entrant can have a significant impact on prices before that entrant is ready to provide the relevant product to customers unless there is reliable evidence that anticipated future entry would have such an effect on prices."
  - Likely
    - "Entry is likely if it would be profitable, accounting for the assets, capabilities, and capital needed and the risks involved, including the need for the entrant to incur costs that would not be recovered if the entrant later exits."
    - "Profitability depends upon (a) the output level the entrant is likely to obtain, accounting for the obstacles facing new entrants; (b) the price the entrant would likely obtain in the post-merger market, accounting for the impact of that entry itself on prices; and (c) the cost per unit the entrant would likely incur, which may depend upon the scale at which the entrant would operate. "

[1] All quotations are from 2010 DOJ/FTC Horizontal Merger Guidelines § 9.

Entry/Expansion/Repositioning

- **The Merger Guidelines[1]**
  - Sufficient
    - Even where timely and likely, entry must be sufficient to deter or counteract the competitive effects of concern
      - "For example, in a differentiated product industry, entry may be insufficient because the products offered by entrants are not close enough substitutes to the products offered by the merged firm to render a price increase by the merged firm unprofitable."
      - "Entry may also be insufficient due to constraints that limit entrants' competitive effectiveness, such as limitations on the capabilities of the firms best placed to enter or reputational barriers to rapid expansion by new entrants."
    - Sufficient condition for sufficiency
      - "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."

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[1] All quotations are from 2010 DOJ/FTC Horizontal Merger Guidelines § 9.

Entry/Expansion/Repositioning

- **Likelihood of a successful defense**
  - Almost impossible to make out in an agency investigation
    - The agency starts by insisting that the potential entrants be identified by name
    - It then calls them and asks: "Would you entry this market if prices increased by 5% to 10%?"
    - The answer is almost always "no"
      - Can be a kneejerk reaction—Firm has not considered entry and does not know what it would do
      - Can be a "go away staff" reaction—Firm may appreciate that if it answer "yes" the staff will then begin a much more detailed investigation of the firm to determine whether the firm is in fact likely to enter. This will not be pleasant for the firm.
      - Can be an informed "no": If the firm has not already entered or is not actively considering entry, the likelihood is that a relatively small increase in margin will not cause it to enter, especially since its entry is likely to increase postmerger competition and decrease postmerger margins below the SSNIP
        - *Note*: As a general rule, firms do not enter existing markets just for margin. They almost always require some nonprice competitive advantage against incumbent firms to cause them to entry
  - Barriers to entry: Examples

Capital requirements	Patents/other IP	Skilled employees
Development time	Reputation	Skilled sales reps
Regulatory barriers	Skilled management	

Entry/Expansion/Repositioning

- **Burden of proof/likelihood of a successful defense**
  - When is the defense successful?
    - When the market is operating premerger close of competitively and a significant firm is already planning on entering
    - When there has been a significant history of entry and the market has continued to operate competitively even with variations in concentration levels

- **A cautionary note**
  - In some cases, the merging parties will argue that the pending entry of a new firm—that is, a firm that decided to entry the market independently of the merger—will be sufficient to prevent any anticompetitive effects from occurring
  - But in highly concentrated markets this may not make sense
    - Suppose that there are two incumbent firms, which are merging, and a third firm in the process of entering with the prospect of gaining significant market share. The merging parties are likely to argue that, in light of the pending entry, the transaction is a 2-to-2 merger and therefore should not be challenged[1]
    - But if the third firm had already entered some time ago and actually gained significant share, then the transaction would be a 3-to-2 merger, which would likely be challenged. Why the should the pending entry of a new firm serve as a defense to a 2-to-1 merger?

[1] FTC v. Staples, Inc., No. CV 15-2115 (EGS), 2016 WL 2899222, at 22 (D.D.C. May 17, 2016).(making defense, but which the court rejected for lack of sufficient evidence that Amazon Business would restore lost competition).

Coordinated Effects

REVIEW 2010 DOJ/FTC HORIZONTAL MERGER GUIDELINES § 7

Introduction

- **Definition**

    - Coordinated effects (or coordinated interaction) is a theory of anticompetitive harm that depends on the merger making oligopolistic interdependence more effective:

        > Merger law "rests upon the theory that, where rivals are few, firms will be able to coordinate their behavior, either by overt collusion or implicit understanding in order to restrict output and achieve profits above competitive levels."[1]

        - Remember, oligopolistic behavior becomes stronger and more effective the more firms in the market *accommodate* each other

            - That is, the more they are willing to pull their short-term competitive punches against each other, say by not undercutting a competitor's price in order to win market share or not invading a competitor's territory to win its customers

            - The better way to think about this is that firms, recognizing their interdependence in a multi-period game and their ability to earn higher profits in the long run, elect unilaterally to forego increasing their short-run profits by simply not competing as aggressively with one another as they might otherwise

    - Key question:

        > Will the merger increase the probability of effective coordinated interaction/ accommodating conduct among some or all of the firms in the market, thereby facilitating the exercise of market power to the harm of consumers?

        - Must find a causal relationship between the merger and the increased probability of coordination

[1] FTC v. CCC Holdings Inc., 605 F. Supp. 2d 26, 60 (D.D.C. 2009); *accord* United States v. H&R Block, Inc., 833 F. Supp. 2d 36, 77 (D.D.C. 2011).

Introduction

- **Application in horizontal merger analysis**
  - Three stages of development: Overview
    - The *PNB* presumption and the structure-conduct-performance paradigm
      - Relied on the structure-conduct-performance paradigm in industrial organization economics for support
        - Foundation proposition: Increasing firm size and market concentration results in more effective oligopolistic interdependence and poorer market performance (i.e., more market power being exercised)
        - This is sometimes called the *price-concentration hypothesis* or *the profit-concentration hypothesis*
      - Assumed that the price-concentration relationship was invariant across industries ("one size fits all")
      - *Principal question*: What are the right thresholds to trigger the presumption?
      - Adopted implicitly in the 1968 and 1982 DOJ Merger Guidelines
    - The 1992 Guidelines refinements
      - Recognized that the relationship between market performance and structure varies widely across industries
      - Sought to reduce overinclusivess errors by requiring a showing that—
        - Certain market share and concentration thresholds were passed (i.e., creating "safe harbors" for transaction that did not pass these thresholds), *and*
        - Certain conditions in the market are present that result in the merger making the market more conducive to oligopolistic interdependence (the "Stigler conditions")
    - The 2010 Guidelines refinements
      - Softened the language to eliminate the Stigler conditions on detection and punishment and focused more on market characteristics

Structure-conduct-performance hypothesis

- **Introduction**
  - Posits a stable causal relationship between the structure of an industry, firm conduct, and market performance
  - *Fundamental proposition*: Increasing firm size and market concentration results in more effective oligopolistic interdependence and poorer market performance (i.e., more market power being exercised)
    - In homogeneous markets, the exercise of market power in the market can be measured by the Lerner index λ:

$$\lambda = \frac{p - c}{p}$$

    - Firms face downward-sloping residual demand curves, so that λ will be positive even in the absence of any meaningful exercise of market power. But the difference in the Lerner index pre- and postmerger still can give an indication of whether the merger is likely to raise prices and hence be anticompetitive. That said, there are serious practical difficulties in measuring economic marginal cost (as opposed to accounting incremental costs) that make use of the Lerner index impractical in empirical analysis
    - Instead, courts and enforcement agencies turned instead to looking at changes in market concentration under the structure-conduct-performance hypothesis as an indirect means of assessing the effect of a merger on the likely exercise of market power

Structure-conduct-performance hypothesis

- Three sources of apparent support for the structure-conduct-performance hypothesis
  1. Consistent with intuition
  2. Theoretical models
  3. Empirical studies

Structure-conduct-performance hypothesis

- **Theory: A simple Cournot model**
  - Assume that there are n firms producing a homogeneous product. Each firm i maximizes its profit π_i by choosing an output level q_i:

$$\underset{q_i}{\text{Max}}\ \pi_i = p(Q)q_i - c_i(q_i)$$

where $p = p(Q)$ and $Q = q_1 + q_2 + \ldots + q_n$ (that is, p is a function of the total quantity Q produced in the market by all n firms), and c_i is the cost function for firm i. The profit-maximizing condition for each firm is marginal revenue equals marginal cost (or equivalently, marginal revenue minus marginal cost equals zero):

$$mr - mc = \underbrace{p + q_i \frac{\partial p}{\partial Q}\frac{\partial Q}{\partial q_i}}_{mr} - \underbrace{\frac{\partial c_i}{\partial q_i}}_{mc} = 0$$

Note: this equals 1

Rearranging, dividing by each by p and multiplying by Q/Q yields:

$$\frac{p - c_i'}{p} = q_i \frac{\partial p}{\partial Q} = \left[\frac{Q}{p}\frac{\partial p}{\partial Q}\right]\frac{q_i}{Q} \text{ where } c_i' \equiv \frac{dc_i}{dq} \text{ (marginal cost)}$$

[1] Remember, in Cournot models firms compete in their choice of outputs. In Bertrand models, they compete in their choice of prices. Typically, Cournot models are used when the products are homogeneous; Bertrand models are used when products are differentiated.

Structure-conduct-performance hypothesis

- Theory: A simple Cournot model (con't)

Recall that market elasticity ε is equal to:

$$\varepsilon \equiv \frac{\dfrac{\Delta Q}{Q}}{\dfrac{\Delta p}{p}} = \frac{\Delta Q}{\Delta p}\frac{p}{Q}$$

Just rearranging

So the term in brackets on the previous slide is just $1/\varepsilon$. Moreover, q_i/Q is the market share s_i of firm i. So the equation at the bottom of the previous slide reduces to:

This is the Lerner index λ_i for firm i, a measure of market power in the market

$$\frac{p - c_i'}{p} = \frac{s_i}{\varepsilon}$$

This equation has independent significance. It says that in a Cournot model firm i's Lerner index is its market share divided by the market elasticity

Structure-conduct-performance hypothesis

- Theory: A simple Cournot model (con't)

Multiplying both sides by s_i and summing over all firms i:

$$\sum_{i=1}^{n} \frac{p - c_i'}{p} s_i = \frac{1}{\varepsilon} \sum_{i=1}^{n} s_i^2 = \frac{HHI}{\varepsilon}$$

This is the HHI

or

$$\lambda^M = \frac{HHI}{\varepsilon}$$

where λ^M is the Lerner index for the market, that is, the sum of the individual firm indices weighted by their market share.

> This result implies that the exercise of market power in the market (as measured by the Lerner index for the market as a whole) increases with increases in concentration (as measured by the HHI)[1]

[1] This result also shows that the exercise of market power decreases as aggregate market demand becomes more elastic (i.e., increases in absolute magnitude).

Structure-conduct-performance hypothesis

- **Theory: A simple Cournot model (con't)—Criticisms**
  - This simple mode contains some very restrictive assumptions (e.g., homogeneous products, Cournot behavior with a Nash-Cournot equilibrium, constant marginal costs across firms)
  - This model reflects the realities of few if any industries
  - Other models produce quite different results
    - For example, a two-firm market of homogeneous products with a Bertrand equilibrium would yield a perfectly competitive equilibrium

Bottom line: Very little support in theoretical models for the structure-conduct performance-hypothesis

Structure-conduct-performance hypothesis

- **Empirical studies**
  - Typical study
    - Obtain data across many industries and regress a measure of performance (e.g., prices, profits, margins, ROI) against various measures of industry structure (e.g., concentration, barriers to entry)
      - Typical regression equation:

      $$m_i = c + \alpha HHI_i + \beta_1 x_1 + \beta_2 x_2 + ... + \beta_N x_N + e_i$$

      where for each industry i, m_i is the industry gross margin, HHI_i is the industry concentration, the x_i's are other variables that may effect industry gross margin (such as some proxy for barriers to entry), and the c, a, and βs are parameters to be estimated, the e_is are error terms.
    - The *profit-concentration hypotheses* says that α is a meaningful positive number
  - Assumptions
    - Industry structure is exogenous (i.e., structure affects performance but structure is determined independently of performance)
    - Changes in the structural variables have the same average effect on performance measures in all markets
  - Many studies purported to find a consistent relationship between increasing concentration and higher prices and/or profits

Structure-conduct-performance hypothesis

- **Empirical studies—Some criticisms**
  - Data problems
    - Interindustry econometric comparisons are unable to capture many of the important differences between industries
    - Performance measures (profit, margins, ROI) may be artifacts of accounting techniques and not reflective of true economic measures
    - Good proxies for barriers to entry and other important variables are hard to find
  - Weak results
    - Weiss' 1974 review of the literature prior to 1970s: Most studies found a positive relationship, but the effect is small (10% increase in 4-FCR resulted in 1.21% increase in price-cost margins)[1]
    - Schmalensee's 1989 review of the literature after Weiss: Cast doubt on the sign and whether the effect is statistically significant[2]
  - Demsetz critique[3]
    - Studies assume that market structure (concentration) is exogenous
    - But largest producers are likely to be superior in producing and marketing their products, which enables these firms to earn above-normal profits[1]

[1] Leonard Weiss, *The Concentration-Profits Relationship and Antitrust*, *in* Industrial Concentration: The New Learning (H. Goldschmid, H.M. Mann & J.F. Weston eds. 1974).

[2] Richard Schmalensee, *Inter-Industry Studies of Structure and Performance*, *in* 2 Handbook of Industrial Organization ch. 16 (Richard Schmalensee & Robert D. Willig eds. 1989).

[3] *See* Harold Demsetz, *Industry Structure, Market Rivalry, and Public Policy*, 16 J.L. & Econ. 1 (1974).

Structure-conduct-performance hypothesis

- *Bottom line*:
  - Most antitrust economists do not believe that there is a simple, consistent relationship between the level of concentration in a market and its performance
  - Too many other factors to consider

    > Seriously undermines the *PNB* presumption
    > as an economic proposition

  - *Query*: Are there additional showings that can be added to high combined share and high market concentration that can better tailor the *PNB* presumption to reduce overinclusiveness errors?
    - This is what the 1992 Guidelines attempted to do by requiring both that—
      - The HHI thresholds must be crossed, *and*
      - There must be an explicit theory of anticompetitive harm supported by evidence apart from mere reliance on increased concentration in the market

The 1992 refinements

- **1992 DOJ/FTC Merger Guidelines**

  - Changed surpassing the market share and HHI thresholds to a *necessary* but not *sufficient* condition for concluding that a horizontal merger is anticompetitive (in the Section 7 sense)

  - Required an explanation (supported with evidence) that the relevant market was conducive to the exercise of market power through oligopolistic interdependence

    > Other things being equal, market concentration affects the likelihood that one firm, or a small group of firms, could successfully exercise market power. The smaller the percentage of total supply that a firm controls, the more severely it must restrict its own output in order to produce a given price increase, and the less likely it is that an output restriction will be profitable. If collective action is necessary for the exercise of market power, as the number of firms necessary to control a given percentage of total supply decreases, the difficulties and costs of reaching and enforcing an understanding with respect to the control of that supply might be reduced. However, market share and concentration data provide only the starting point for analyzing the competitive impact of a merger. Before determining whether to challenge a merger, the Agency also will assess the other market factors that pertain to competitive effects, as well as entry, efficiencies and failure.[1]

    - The idea for imposing this requirement is to distinguish between high market share/ high concentration markets that are conducive to coordination interaction and those that are not

[1] U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines § 2.0 (rev. 1992) (superseded by the 2010 Merger Guidelines)

The 1992 refinements

- ## The Stigler conditions[1]

  - The 1992 Guidelines required two showings in addition to surpassing the market share and concentration thresholds in order to make out a case of coordinated interaction:

    1. Market conditions are conducive to reaching terms of coordination
    2. Market conditions are conducive to detecting and punishing deviations

> Successful coordinated interaction entails reaching terms of coordination that are profitable to the firms involved and an ability to detect and punish deviations that would undermine the coordinated interaction. Detection and punishment of deviations ensure that coordinating firms will find it more profitable to adhere to the terms of coordination than to pursue short-term profits from deviating, given the costs of reprisal. In this phase of the analysis, the Agency will examine the extent to which post-merger market conditions are conducive to reaching terms of coordination, detecting deviations from those terms, and punishing such deviations. Depending upon the circumstances, the following market factors, among others, may be relevant: the availability of key information concerning market conditions, transactions and individual competitors; the extent of firm and product heterogeneity; pricing or marketing practices typically employed by firms in the market; the characteristics of buyers and sellers; and the characteristics of typical transactions.[2]

[1] George J. Stigler, *A Theory of Oligopoly*, 72 J. Pol. Econ. 44 (1964).
[2] 1992 Merger Guidelines § 2.1.

The 1992 refinements

- **The Stigler conditions**

  1. Market conditions are conducive to reaching terms of coordination

  > Market conditions may be conducive to or hinder reaching terms of coordination. For example, reaching terms of coordination may be facilitated by product or firm homogeneity and by existing practices among firms, practices not necessarily themselves antitrust violations, such as standardization of pricing or product variables on which firms could compete. Key information about rival firms and the market may also facilitate reaching terms of coordination. Conversely, reaching terms of coordination may be limited or impeded by product heterogeneity or by firms having substantially incomplete information about the conditions and prospects of their rivals' businesses, perhaps because of important differences among their current business operations. In addition, reaching terms of coordination may be limited or impeded by firm heterogeneity, for example, differences in vertical integration or the production of another product that tends to be used together with the relevant product.[1]

[1] 1992 Merger Guidelines at § 2.11.

The 1992 refinements

- **The Stigler conditions**
  2. Market conditions are conducive to detecting and punishing deviations

> Where detection and punishment likely would be rapid, incentives to deviate are diminished and coordination is likely to be successful. The detection and punishment of deviations may be facilitated by existing practices among firms, themselves not necessarily antitrust violations, and by the characteristics of typical transactions. For example, if key information about specific transactions or individual price or output levels is available routinely to competitors, it may be difficult for a firm to deviate secretly. If orders for the relevant product are frequent, regular and small relative to the total output of firm in a market, it may be difficult for the firm to deviate in a substantial way without the knowledge of rivals and without the opportunity for rivals to react. If demand or cost fluctuations are relatively infrequent and small, deviations may be relatively easy to deter.
>
> By contrast, where detection or punishment is likely to be slow, incentives to deviate are enhanced and coordinated interaction is unlikely to be successful. If demand or cost fluctuations are relatively frequent and large, deviations may be relatively difficult to distinguish from these other sources of market price fluctuations, and, in consequence, deviations may be relatively difficult to deter.[1]

[1] 1992 Merger Guidelines at § 2.12.

The 1992 refinements

- **Susceptibility of the market to coordinated interaction**
  - External factors
    - That is, factors external to the collusive group that may undermine the collusive group's stability
    - These factors affect the elasticity of demand for the collusive group
    - 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
      - Low capacity utilization allows outside firms to significantly increase their production levels to service demand diverting from the collusive group

The 1992 refinements

- **Susceptibility of the market to coordinated interaction**
  - Internal factors
    - That is, factors internal to the collusive group that affect their incentives and ability to coordinate their behavior
  - Number of competitors in the collusive group
    - The more competitors, the harder to coordinate
  - The availability of market information
    - Key information may include market conditions, transactions, and competitors
    - Lack of information may make defections from coordination harder to detect and therefore punish
    - That is, factors internal to the collusive group that affect their incentives and ability to coordinate their behavior
  - The degree of firm and product heterogeneity
    - Differences in product attributes, location, costs, or vertical integration
    - Significant heterogeneity may make reaching terms of coordination difficult
  - Capacity utilization inside the collusive group
    - Low capacity utilization allows defectors to significantly increase their production levels

The 1992 refinements

- **Susceptibility of the market to coordinated interaction**
  - Internal factors (con't)
    - Large buyers/long-term contracts
      - Large, "lumpy" sales or long-term contracts can make defection more profitable
    - Lags in detection or punishment
      - Significant lags makes cheating more profitable (can successfully cheat for a longer period of time)
    - Acquisition of a "maverick"
      - The idea of a maverick
        - Have been unusually disruptive historically in the marketplace, or
        - Have attributes that make them particularly likely to deviate from the terms of coordination (e.g., large excess capacity in relation to sales)
      - Acquisition of a maverick can eliminate a disruptive force and make coordination easier
    - Volatility of the market/predictability of demand
      - Volatility/unpredictability makes defections harder to detect
    - Prior actual or attempted collusion or coordination/willingness to coordinate
      - Indicates that firms in the market believe that coordination is possible

The 1992 refinements

- Stigler conditions and their relation to the merger
    - It is not enough that premerger the market is conducive to coordinated interaction—the merger *must reasonably increase the probability* that the market will be materially *more* conducive to coordinated interaction postmerger
        - This means that the merger must make improve the incentives or ability of a sufficient group of firms in the market to satisfy one or more of the Stigler conditions for coordinated interaction
        - A "sufficient group" of firms means a subset of firms that, if coordinating, would create, enhance or facilitate the exercise of market power in the relevant market
            - The set of all firms in the market is a sufficient group (by the hypothetical monopolist test)
            - But a smaller subset may also be sufficient depending on the characteristics of the market
                - Think about a market that can be modeled as a dominant firm with a competitive fringe

The 1992 refinements

- Stigler conditions and their relation to the merger
  - Some factors to consider when thinking about the Stigler conditions:
    - 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
    - The creation of significant efficiencies in the merged firm
      - Could increase its incentives to defect
    - Vertical integration
      - Could increase the merged firm's ability to cheat without detection

The 1992 refinements

- **Practical implications**
    - Making out a prima facie case that the merger made the market *more* susceptible to coordination interaction—that is, increased the probability that the Stigler conditions changed in a way that facilitated coordination—is exceptionally difficult in practice
    - Moreover, defendants would defend on the basis that—
        - premerger the market did not exhibit any indications of oligopolistic coordination, and
        - the structural changes entailed by the merger were not enough to flip a nonoligopolistically performing market into an oligopolistically performing one
    - Finally, since the agencies were challenging only high market share transactions, a unilateral effects theory would almost always be available in any transaction to which a coordinated effects theory might apply

[1] Subsequent theoretical work showed that a simple and sufficient punishment was the "grim reaper" strategy: once one firm deviates, all firms cease attempting to oligopolistically coordinate and begin to price competitively. But some firms will continue to try to coordinate (albeit there explicitly and not oligopolisitically) even in the face of substantial repeated deviations.

The 1992 refinements

- **Bottom line**
  - In agency prosecutorial decision making under the 1992 guidelines coordinated interaction quickly ceased to be a meaningful theory in prosecutorial decision-making
    - Rarely addressed in any detail by staff or parties in merger investigations

- **In agency litigation**
  - Agencies prefer to tell a unilateral effects story in litigation as long as they can also rely on the *PNB* presumption to satisfy their initial burden under *Baker Hughes*
  - Coordinated effects as a formal theory becomes central to the litigation only when—
    - the defense is successful in undermining a unilateral effects theory by expanding the market and increasing the number and/or significance of non-merging parties as close competitors to the merging firms (e.g., *Arch Coal*[1] or *Oracle/PeopleSoft*[2]); or
    - The court rejected the unilateral effects theory on some other grounds but still wants a story told beyond the *PNB* presumption (e.g., *CCC/Mitchell*[3])

[1] FTC v. Arch Coal, Inc., 329 F. Supp. 2d 109 (D.D.C. 2004), appeal voluntarily dismissed, Nos. 04-5291, 04-7120, 2004 WL 2066879 (D.C. Cir. Sept. 15, 2004).
[2] United States v. Oracle Corp., 331 F. Supp. 2d 1098 (N.D. Ca. 2004).
[3] FTC v. CCC Holdings Inc., 605 F. Supp. 2d 26 (D.D.C. 2009).

The 2010 refinements

- ## 2010 changes

    - The 2010 guidelines softened the language to eliminate the Stigler conditions on detection and punishment and focused more on market characteristics:

        A market typically is more vulnerable to coordinated conduct if each competitively important firm's significant competitive initiatives can be promptly and confidently observed by that firm's rivals. This is more likely to be the case if the terms offered to customers are relatively transparent. Price transparency can be greater for relatively homogeneous products. Even if terms of dealing are not transparent, transparency regarding the identities of the firms serving particular customers can give rise to coordination, e.g., through customer or territorial allocation. Regular monitoring by suppliers of one another's prices or customers can indicate that the terms offered to customers are relatively transparent.

        A market typically is more vulnerable to coordinated conduct if a firm's prospective competitive reward from attracting customers away from its rivals will be significantly diminished by likely responses of those rivals. This is more likely to be the case, the stronger and faster are the responses the firm anticipates from its rivals. The firm is more likely to anticipate strong responses if there are few significant competitors, if products in the relevant market are relatively homogeneous, if customers find it relatively easy to switch between suppliers, or if suppliers use meeting-competition clauses.

        (continued on next slide)

The 2010 refinements

- ## 2010 changes

A firm is more likely to be deterred from making competitive initiatives by whatever responses occur if sales are small and frequent rather than via occasional large and long-term contracts or if relatively few customers will switch to it before rivals are able to respond. A firm is less likely to be deterred by whatever responses occur if the firm has little stake in the status quo. For example, a firm with a small market share that can quickly and dramatically expand, constrained neither by limits on production nor by customer reluctance to switch providers or to entrust business to a historically small provider, is unlikely to be deterred. Firms are also less likely to be deterred by whatever responses occur if competition in the relevant market is marked by leapfrogging technological innovation, so that responses by competitors leave the gains from successful innovation largely intact.

A market is more apt to be vulnerable to coordinated conduct if the firm initiating a price increase will lose relatively few customers after rivals respond to the increase. Similarly, a market is more apt to be vulnerable to coordinated conduct if a firm that first offers a lower price or improved product to customers will retain relatively few customers thus attracted away from its rivals after those rivals respond.

The Agencies regard coordinated interaction as more likely, the more the participants stand to gain from successful coordination. Coordination generally is more profitable, the lower is the market elasticity of demand.[1]

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[1] 2010 Merger Guidelines at § 7.2.

The 2010 refinements

- **Practical implications**
  - Notwithstanding the substantial weakening of the Guidelines by removing the Stigler conditions, courts still require that the plaintiffs show that the merger makes the market more susceptible to coordination interaction
    - A common approach is for the plaintiffs to invoke the *PNB* presumption and then make the argument that the reduction in the number of competitors and increase in concentration resulting from the merger in light of the already concentrated nature of the market is sufficient to increase the probability of coordinated interaction
      - This is essentially a return to the structure-conduct-performance argument
    - In some cases, however, the evidence may be more substantial
      - The agencies, for example, at looking more closely at significant reductions in excess capacity, especially in heavy industry where capacity expansions are costly and time-consuming, as making the market more conducive to coordinated interaction
        - NB: Consolidations of plants to reduce excess capacity is usually one of the common efficiencies cited by the parties in support of a deal

Coordinated effects: Example

- **Tronox/Cristal**[1]

  - *Central allegation*:

    - "Tronox's proposed acquisition of Cristal (the "Acquisition") would combine two of the three largest producers of titanium dioxide ("TiO2") manufactured through the chloride process ("chloride TiO2") in the United States and Canada ("North America")."

    - Five major players in the North American market

  - Coordinated effects theory[2]

    1. Market susceptible to coordinated effects:

        a. Commodity-like product

        b. Highly concentrated market with limited competitors (5 majors)

        c. Significant transparency into the competitive and strategic decision of rival firms

        d. Customers with long-term, stable supplier relationships allowing for easy detections of deviations from past practices

        e. Low elasticity of demand

        f. History of strong interdependent behavior (with a history of price-fixing allegations and settlements)

    2. Merger increases likelihood and effectives of coordinated effects

        a. It removes one of only a few remaining competitors;

        b. Consolidates the overwhelming majority of North American chloride TiO2 sales and production capacity (80%) in the hands of two large and disciplined TiO2 companies, Tronox and Chemours; and

        c. Enhances market transparency among the competitors that remain.

[1] Complaint, *In re* Tronox Ltd., No. 9377 (F.T.C. issued Dec. 5, 2017). As of October 20, 2018, the case has not been decided.
[2] The complaint also alleged a unilateral effects theory (discussed below).

Concluding thoughts

- **Practical implications**
  - Even after the 2010 revisions to the Merger Guidelines coordinated effects is essentially dead as a independent theory of competitive harm in horizontal merger investigations.
    - Since the early 1980s, with very rare exceptions the agencies have only challenged high market shares deals (or at least high in the markets the agencies define)
    - Within these highly concentrated markets, a unilateral theory of anticompetitive effect will necessarily apply, so that a coordinated effects theory is superfluous
    - As a result, prosecutorial decision making depends on the unilateral effects theory
      - Although the agencies will plead a coordinated effects theory as a matter of course in any complaint
  - *Bottom line*: In proving the anticompetitive effect element of a Section 7 case, plaintiffs rely primarily on the *PNB* presumption supported by a unilateral effects story and advance—but do not materially rely—on a theory of coordinated interaction
    - But if they are unpersuasive on the unilateral effects theory, they have something else to say that it consistent with the early history of the *PNB* presumption

Concluding thoughts

- **Final thought—Coordinated effects as a negative defense?**
  - In *H&R Block*, the court reframed coordinated effects as a *negative defense*:

    > Since the government has established its prima facie case [using the *PNB* presumption], the burden is on the defendants to produce evidence of "structural market barriers to collusion" specific to this industry that would defeat the "ordinary presumption of collusion" that attaches to a merger in a highly concentrated market.[1]

    - Queries
      - Is this consistent with the *Baker Hughes* burden-shifting paradigm?
      - In H&R Block, do the merging parties bear burden of persuasion, or only the burden of production?

[1] United States v. H&R Block, Inc., 833 F. Supp. 2d 36, 77 (D.D.C. 2011).

Elimination of a "Maverick"

REVIEW 2010 DOJ/FTC HORIZONTAL MERGER GUIDELINES § 2.1.5

Mavericks

- **General idea**
  - A "maverick" is a competitor that disrupts coordinated interaction among the other, more accommodating competitors that would occur in the absence of the maverick
  - When an accommodating competitor acquires a maverick, the maverick's disruptive conduct is suppressed and the market performs less competitively to the harm of consumers:

    > The Agencies consider whether a merger may lessen competition by eliminating a "maverick" firm, i.e., a firm that plays a disruptive role in the market to the benefit of customers. For example, if one of the merging firms has a strong incumbency position and the other merging firm threatens to disrupt market conditions with a new technology or business model, their merger can involve the loss of actual or potential competition. Likewise, one of the merging firms may have the incentive to take the lead in price cutting or other competitive conduct or to resist increases in industry prices. A firm that may discipline prices based on its ability and incentive to expand production rapidly using available capacity also can be a maverick, as can a firm that has often resisted otherwise prevailing industry norms to cooperate on price setting or other terms of competition.[1]

  - As a result, the acquisition of a maverick by an accommodating competitor is a special case of coordination interaction
    - Typically used to challenge deals where the target has a sufficiently small market share that the transaction would not otherwise raise major concern

[1] 2010 Merger Guidelines at § 2.1.5.

Mavericks

- **Example: DOJ challenge to ABI/Grupo Modelo**
  - Background
    - ABInbev (ABI)
      - #1 firm in the U.S. beer market with a 39% share
      - Budweiser, Busch, Michelob, Natural Light, Stella Artois, Goose Island, and Beck's
    - MillerCoors (joint venture between SAB Miller and MolsonCoors)
      - #2 firm with a 26% share
      - Coors, Coors Light, Miller Genuine Draft, Miller High Life, Miller Lite, Extra Gold Lager, Hamm's
    - Grupo Modelo
      - #3 firm with a 7% share
      - Corona Extra, Corona Light, Modelo Especial, Pacifico, Negra Modelo and Victoria
    - Other 28%
      - Heineken, Sam Adams, Yuengling, craft beers, others—all relatively small
  - DOJ allegations
    - ABI and MillerCoors, the mass beer producers, are accommodating firms, with MillerCoors and the other brewers willing to follow ABI's price leadership
    - Grupo Modelo is a maverick
      - Unwilling to follow ABI's price leadership
      - Has caused ABI to price lower that it would have otherwise
    - ABI's acquisition of Grupo Modelo would violate Section 7
      - Settled by consent decree requiring divestiture of Modelo operations in the United States

Mavericks

- **Policy question**
  - Mavericks have that Potter Stewart "I know it when I see it" quality[1]
    - In *H&R Block/TaxACT*, the district court observed:

> The parties have spilled substantial ink debating TaxACT's maverick status. The arguments over whether TaxACT is or is not a "maverick"—or whether perhaps it once was a maverick but has not been a maverick recently—have not been particularly helpful to the Court's analysis. . . . Here, the record is clear that while TaxACT has been an aggressive and innovative competitor in the market, as defendants admit, TaxACT is not unique in this role. Other competitors, including HRB and Intuit, have also been aggressive and innovative in forcing companies in the DDIY market to respond to new product offerings to the benefit of consumers.
>
> The government has not set out a clear standard, based on functional or economic considerations, to distinguish a maverick from any other aggressive competitor. At times, the government has emphasized TaxACT's low pricing as evidence of its maverick status, while, at other times, the government seems to suggest that almost any competitive activity on TaxACT's part is a "disruptive" indicator of a maverick. For example, the government claims that "[m]ost recently, TaxACT continued to disrupt the Digital DIY market by entering the boxed retail software segment of the market, which had belonged solely to HRB and [Intuit]." . . . . [2]

[1] *See* Jacobellis v. Ohio, 378 U.S. 184, 197 (1964) (Stewart, J., concurring) (describe his threshold test for obscenity).
[2] United States v. H & R Block, Inc., 833 F. Supp. 2d 36, 79-80 (D.D.C. 2011).

Mavericks

- **Policy question**
  - Why are "mavericks" mavericks, and should it matter in antitrust law?
    - The most likely reason is idiosyncratic: the particular management of the firm simply believes in being disruptive
      - This may be the case when the management—
        - Refuses to pursue a more industry price-accommodating strategy[1]
        - Pursues a long-run strategy of disruptive new product development or new marketing innovations[2]
      - Should a merger be prohibited simply because the current management—perhaps even just the current CEO—believes in being disruptive?

[1] *See, e.g.*, Complaint, United States v. Anheuser-Busch InBev SA/NV, No. 1:13-cv-00127 (D.D.C. filed Jan. 31, 2013) (settled by consent decree).
[2] *See, e.g.*, Complaint, United States v. AT&T Inc., No. 1:11-cv-1560 (D.D.C. filed Aug. 31, 2011) (challenging AT&T's pending acquisition of T-Mobile; complaint voluntarily dismissed when transaction was terminated).

Mavericks

- **Policy question**
  - Why are "mavericks" mavericks, and should it matter in antitrust law? (con't)
    - Another possible reason is that something inherent in the firm's structure that makes it in the profit-maximizing interest of the firm to be disruptive regardless of the predilections of its management
      - This may be the case if the firm is a small but materially lower-cost producer than the larger, more established firms. In this case, the firm may wish to take advantage of its lower-cost structure to discount prices and gain market share.[1]
      - More generally, smaller firms may have more of an incentive to be a maverick than larger firms, since they have—
        - proportionally less incumbent business at stake in the event that a maverick strategy does not work, and
        - proportionally more to gain in market share in the event that the strategy works

[1] *See, e.g.*, United States v. H&R Block, Inc., 833 F. Supp. 2d 36 (D.D.C. 2011) (noting government argument that TaxACT was a "maverick" because, among other things, it was a low-cost competitor that pursued an aggressive pricing policy).

Mavericks

- **Policy question**
  - Why are "mavericks" mavericks, and should it matter in antitrust law? (con't)
    - *Query*: While it makes sense to pay special attention to the acquisition of a "structural" maverick—that is, a firm that has been and is likely to continue to be disruptive of coordinated interaction in the absent of the acquisition—does it also make sense to give the same attention to an "idiosyncratic" maverick, whose behavior is likely to change with a change in management?
  - In any event—
    - As *H&R Block/TaxACT* suggests, the following requirements should be imposed on a theory of anticompetitive harm based on eliminating a maverick:
      1. The market is conducive to a materially higher degree of coordinated interaction than it exhibits premerger;
      2. The disruptive conduct of the merger target is a material contributor to the inability of the market to achieve this higher degree of coordinated interaction;
      3. The acquisition of the merger target is likely to result in the discontinuance of the disruptive conduct; and
         > *NB*: Sometimes the target management will become the management of the combined company, which raises the question of whether the disruptive activity will be discontinued.
      4. The discontinuance of the merger target's disruptive activity is likely to result in a materially higher degree of coordinated interaction in the market to the harm of consumers
         - This requires that the target be unique or especially effective in its disruptive conduct

Unilateral Effects

REVIEW 2010 DOJ/FTC HORIZONTAL MERGER GUIDELINES § 6

Unilateral effects

- **Definition**

  - Unilateral effects is a theory of anticompetitive harm that goes to the elimination of significant "local" competition between the merging firms, so that the merged firm can raise prices independently of how other incumbent firms react.

    > A merger is likely to have unilateral anticompetitive effect if the acquiring firm will have the incentive to raise prices or reduce quality after the acquisition, independent of competitive responses from other firms.[1]

  - The idea is that can increase prices to an identifiable subset of customers in the market even *without* any accommodating conduct from the nonmerging firms in the market, and that this price increase is a cognizable anticompetitive effect under Section 7[2]

    - The concept of unilateral effects as a theory of merger anticompetitive harm was introduced in the 1992 DOJ/FTC Horizontal Merger Guidelines

    - The theory has been accepted as valid under Section 7 by the courts[2]

[1] United States v. H&R Block, Inc., 833 F. Supp. 2d 36, 81 (D.D.C. 2011).
[2] *See, e.g.*, United States v. Anthem, Inc., 236 F.Supp.3d 171, 215-20 (D.D.C.), *aff'd*, 855 F.3d 345 (D.C. Cir. 2017) ; FTC v. Sysco Corp., 113 F. Supp. 3d 1, 61-65, 67-70 (D.D.C. 2015); *H&R Block*, 833 F. Supp. at 81-88; FTC v. CCC Holdings Inc., 605 F. Supp. 2d 26, 67-72 (D.D.C. 2009) (but finding a failure of proof); FTC v. Foster, No. CIV 07-352 JBACT. 2007 WL 1793441, at *27-*31 (D.N.M. May 29, 2007); United States v. Oracle Corp., 331 F. Supp. 2d 1098,1113-23 , 1166-73 (N.D. Ca. 2004) (but finding a failure of proof).

Unilateral effects

- ■ **The basic idea**
  - ❑ Competitor firms A and B are going to merge
  - ❑ Premerger, firm A sets price so that marginal revenue equals marginal cost.
    - ■ If the firm raises its price, then its quantity will fall and MR will become greater than MC, and the firm loses profits. The firm should lower its price.
    - ■ If the firm lowers its price, then its quantity will increase and MR will become less than MC, and the firm loses profits. The firm should raise its price.
  - ❑ Postmerger, look at the pricing incentives of firm A
    - ■ Assume that the combined firm holds product B's price remains at its premerger level.
    - ■ If the combined firm lowers the price of product A, then A's quantity will increase. Some of this increase in demand will come from lost sales of product B (as B's marginal customers switch to A in light of A's lower relative price). So a cost to the combined firm is the lost marginal profits that product B would have earned if the combined firm had not raised the price of product A. (B's lost profits if irrelevant to A premerger.)
      - ❑ The loss of marginal profits on product B's diverted sales is an *opportunity cost* of selling an additional unit of product A due to the merged firm's ownership of both products
    - ■ When we take into account B's marginal profit loss, A's marginal revenues postmerger are less than A's marginal revenues premerger at any given price. This means that at A's premerger price, its postmerger marginal revenues are less than its marginal costs, so that A should raise its price.

Unilateral effects

- ■ The basic idea
  - ❑ Remember the breakeven condition for firm A:

| Gain on retained sales | $\Delta p_A (q_A + \Delta q_A) = (p_A - c_A) \Delta q_A$ | Loss of margin on lost sales |

  - ❑ Rearranging:

| Marginal revenue | $p_A + \dfrac{\Delta p_A}{\Delta q_A}(q_A + \Delta q_A) = c_A$ | Marginal cost |

  - ❑ 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 reequilibrate marginal revenue and marginal cost

Unilateral effects

- ## The basic idea
  - Look at the merged firm's breakeven condition when we increase A's output by one unit and so decrease A's price (holding B's price constant and allocating all profits and losses to A):

Sign of the term

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

Opportunity cost re Firm B (i.e., B's sales diverted to A times their gross margin)

  - Note that the opportunity cost for Firm B is *negative* (because B is losing sales)
    - 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 A must decrease output and increase price is directly related to:
    - The magnitude of the diversion of products from B to A ($\Delta q_{B \to A}$)
    - The magnitude of Firm B's margin ($p_B - c_B$)

Unilateral effects

- **The basic idea**
    - On the prior slide we looked at the merged firm's breakeven condition when we increased Firm A's output. Now look at the merged firm's breakeven condition when we increase A's price ($\Delta q_A = -1$) and so decrease A's output by one unit (again holding B's price constant and allocating all profits and losses to A):

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

    > Recapture of profits from Firm A's sales that are diverted to Firm B

    - Note that the profit recapture from Firm B in the above equation is positive (because Firm B is gaining sales)
    - Now multiply both sides by -1 (this preserves the breakeven condition):

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

    - 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

Unilateral effects

- **The basic idea**
  - The diagrammatic approach (when thinking about expanding Firm A's output)
    - Premerger: $MR_A = MC_A$
    - Postmerger: MR_A + opportunity cost from B's lost profits $< MC_A$ *at* A's premerger output and price because the opportunity cost is negative
    - *Rule*: When $MR < MC$, contract output to maximize profits

Price

Opportunity cost of B's diverted sales (which is negative because B is losing sales)

$$\Delta q_{B \to A} (p_B - c_B)$$

Demand

p_{post}

p_{pre}

Premerger MR

Postmerger MR

Postmerger but at premerger price and output, $MR_A < MC_A$, so A needs to contract its output

MC

q_{post} q_{pre}
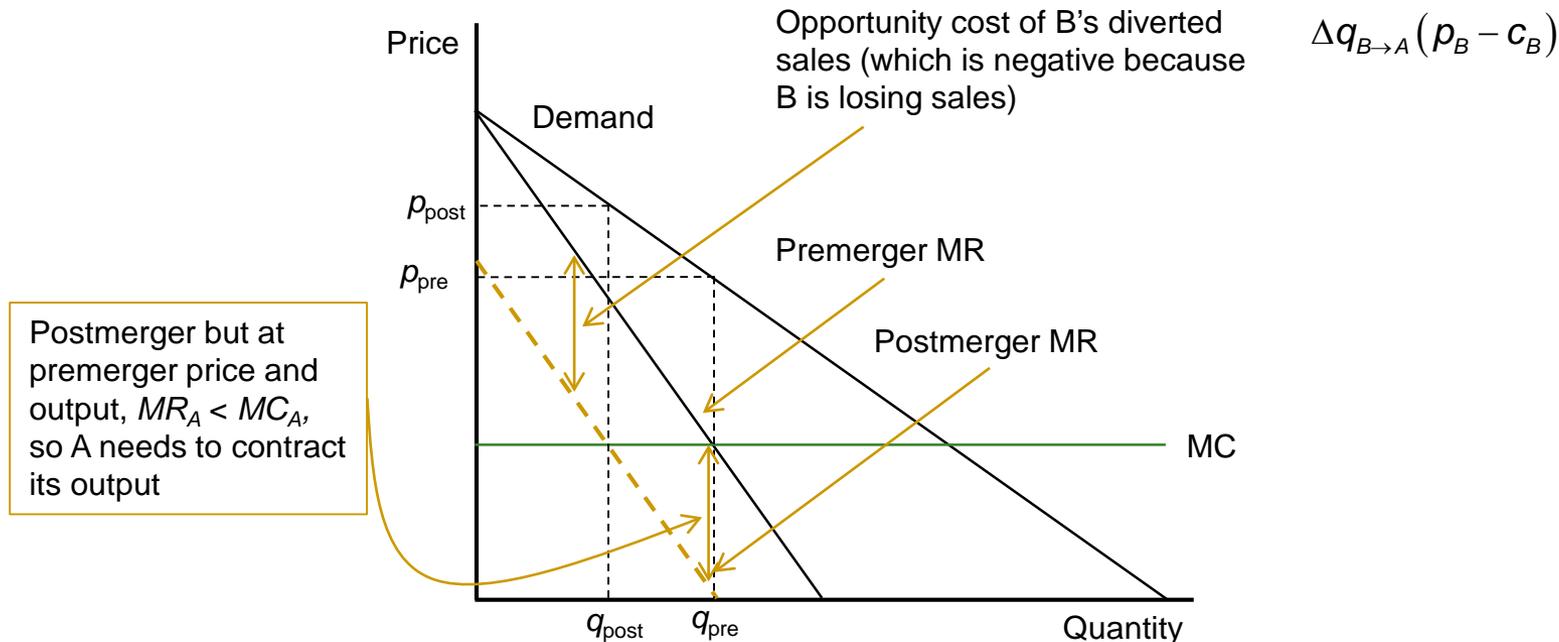
Quantity

An example

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

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

							Margin	Firm 1		Diversion	Profit	Post-merger	
Price	Quantity	Revenue	MR	Cost	MC	Profit	(p - mc)	Lost units	Lost profits	to Firm 2	Recapture	Profit	Difference
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	0	0	0	0	19600	0
170	130	22100	40	2600	20	19500	150	10	100	3	420	19920	320
180	120	21600	60	2400	20	19200	160	20	400	6	840	20040	440
190	110	20900	80	2200	20	18700	170	30	900	9	1260	19960	360
200	100	20000	100	2000	20	18000	180	40	1600	12	1680	19680	80
210	90	18900	120	1800	20	17100	190	50	2500	15	2100	19200	-400
220	80	17600	140	1600	20	16000	200	60	3600	18	2520	18520	-1080
230	70	16100	160	1400	20	14700	210	70	4900	21	2940	17640	-1960
240	60	14400	180	1200	20	13200	220	80	6400	24	3360	16560	-3040
250	50	12500	200	1000	20	11500	230	90	8100	27	3780	15280	-4320
260	40	10400	220	800	20	9600	240	100	10000	30	4200	13800	-5800
270	30	8100	240	600	20	7500	250	110	12100	33	4620	12120	-7480
280	20	5600	260	400	20	5200	260	120	14400	36	5040	10240	-9360
290	10	2900	280	200	20	2700	270	130	16900	39	5460	8160	-11440

An example

Premerger and Postmerger Profits

X-axis: Price of Product 1 (0 to 280)
Y-axis: Profits of Firm 1 (-10000 to 25000)

Legend: ——— Premerger   – – – Postmerger

An example

Profit Maximization with Postmerger Recapture

Premerger MR

Additional profit from higher price on Product 1

Postmerger MR

Lost profit from lost sales resulting from higher price p_1. Normally, this would result in a decrease in profits, but in the combined firm there is an offsetting marginal revenue increase from the profits earned on diverted sales to Product 2.

MR-1 — MC — MR1-P — Price

Unilateral effects

- Example: Nestlé-Dreyer's[1]
  - Nestlé to acquire Dreyer's for $2.8 billion
  - Both companies make regular and super-premium ice cream
    - Nestlé makes Häagen Dazs
    - Dreyer's makes Dreamery, Godiva and Starbucks
    - Unilever distributes Ben & Jerry's

[1] *In re* Nestlé Holdings, Inc., 136 F.T.C. 791 (2003) (settled by consent decree).

Unilateral effects

- ## Example: Nestlé-Dreyer's[1]

  - ### Two approaches

    - *Unilateral effects as originally conceived*: Allege an all-ice cream market and apply unilateral effects theory to Nestlé and Dreyer's in their super-premium products
      - PNB presumption not triggered in this market
    - *PNB approach*: Narrow relevant to a three-firm super-premium ice cream relevant market in order to invoke *PNB* presumption

      > The consistent agency approach has been to narrow the markets for increase the market shares of the merging firms in order to take advantage of the *PNB* presumption

    - The agency approach is consistent with the Merger Guidelines as long as the combined firm maximizes its prices by raising the price of at least one of the products by at least a SSNIP. If so, then the products of the two firms constitute a relevant market.
      - This market approach often can be expanded to include all of the firms making close substitutes.
      - The only situation where the plaintiff needs to use the unilateral effects theory as originally conceived is when the profit-maximizing price increase of the merged firm for any or all of its products is less than a SSNIP—and those situations are unlikely to attract the investigating agency's interest in the first instance

[1] *In re* Nestlé Holdings, Inc., 136 F.T.C. 791 (2003) (settled by consent decree).

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

Note: If premium ice cream is a relevant product market, then the Nestlé-Dreyer's merger violates Merger Guidelines. But if premium ice cream is not a relevant market, then in the absence of a unilateral effects theory the transaction does not violate the market share thresholds of the Merger Guidelines.

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.

Requirements

- **General requirements**
  - The products of the merging parties are close substitutes for one another
    - That is, they have high cross-elasticities of demand/diversion ratios 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 firms 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
    - This is closely related to barriers to entry and expansion that arise in the ease of entry defense (see below)—and pose similar high hurdles for defendants in showing that repositioning is easy

- **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

Evidence

- **Shared unique product attributes**
  - Much be such as to create a high cross-elasticity of demand between the products of the merging firms and significantly lower cross-elasticity of demand with other products in the broader market
    - *Example*: Super-premium ice cream[1]
  - "Product attributes" should be broadly defined to include ancillary services
    - *Example*: Sales of office supplies to very large volume customers (including customized IT services and special commitments for rapid delivery)[2]

- **Uniquely observed head-to-head competition**
  - Merging firms disproportionally compete head-to-head for customers compared to other firms in the broader market, with little prospect for replacement competition postmerger
    - *Example*: Staples and Office Depot consistently competed with each other—but few other office supply firms—in the sale of office supplies to large B2B customers, and customers testified (with supporting reasons) that no other supplier could replace this competition after the merger[3]

[1] *In re* Nestlé Holdings, Inc., 136 F.T.C. 791 (2003).
[2] FTC v. Staples, Inc., No. CV 15-2115 (EGS), 2016 WL 2899222 (D.D.C. May 17, 2016)
[3] *Id.*

More theory

- **The simple calculus (in a Cournot setting)**
  - Consider the profit-maximization problem for each of the two merging firms premerger:

  $$\max_{q_i} \pi_i = p_i q_i - c q_i$$

  - So at a profit-maximizing level of output q_i, the first-order condition is:

  $$\frac{\partial \pi_i}{\partial q_i} = p_i + q_i \frac{\partial p_i}{\partial q_i} - c = 0$$

  | Marginal revenue |

  | Marginal cost |

  - This simply requires marginal revenue to be equal to marginal cost
    - The standard requirement for any profit-maximizing firm in a neoclassical model
  - The *second-order condition* for a profit-maximum is:

  $$\frac{\partial^2 \pi_i}{\partial q_i^2} = \frac{\partial}{\partial x}\left[p_i + q_i \frac{\partial p_i}{\partial q_i} - c \right] < 0$$

  This means that the profit curve is bending increasingly downward as quantity increase and so assures that we are at the "top of hill" of the profit function rather than the bottom (that is, profits decrease if we either increase quantity or decrease quantity). Remember, the bottom of the hill also has a slope of zero.

More theory

- The simple calculus (in a Cournot setting)
    - Now consider the profit maximization problem for the combined firm:

$$\max \pi = \left(p_1 q_1 - c q_1 \right) + \left(p_2 q_2 - c q_2 \right)$$

    where the combined firm is choosing both q_1 and q_2.

    - As before, there are two first order conditions for this problem. Consider the FOC with respect to q_1:

$$0 = \frac{\partial \pi}{\partial q_1} = p_1 + q_1 \frac{\partial p_1}{\partial q_1} - c + p_2 \frac{\partial q_2}{\partial q_1} - c \frac{\partial q_2}{\partial q_1}$$

or

$$\left[p_1 + q_1 \frac{\partial p_1}{\partial q_1} + \frac{\partial q_2}{\partial q_1} \left(p_2 - c \right) \right] = c$$

Marginal revenue

Marginal cost

    which is postmerger marginal revenue (including lost margin on diverted sales) is equal to postmerger marginal cost

More theory

- ■ The simple calculus (in a Cournot setting)
    - ❑ Let's look at the marginal cost term (in brackets) more closely:

$$\left[p_1 + q_1 \frac{\partial p_1}{\partial q_1} + \frac{\partial q_2}{\partial q_1} (p_2 - c) \right] = c$$

Negative number (since demand curve is downward-sloping)

Intuitively, this means that Firm 1's postmerger marginal revenue is equal to:

$p_1 =$ The revenue received from the sale of an additional unit of Product 1 adjusted for:

$+q_1 \dfrac{\partial p_1}{\partial q_1} =$ The loss in revenue resulting from the decrease in p_1 necessary to clear the market with an added unit of output (a negative number)

$+\dfrac{\partial q_2}{\partial q_1}(p_2 - c) =$ The loss in revenue of Firm 2 entailed by a diversion in sales from Product 2 to Product 1 resulting from the decrease in p_1 (a negative number)

Negative number (since products are substitutes)

But when evaluated at premerger prices and quantities, marginal revenue is *less* than marginal cost (because of the recognition of Firm 2's lost margin on reduced sales). When marginal revenue is less than marginal cost, the profit-maximizing solution is to reduce output in order to re-equilibrate marginal revenue and marginal cost (which in turn anticompetitively increases prices).

More theory

- Another way to look at this (still in a Cournot setting)
    - We just derived the first-order condition for the combined firm to price Product 1 by differentiating profits with respect to an *increase* in output $\left(\partial \pi / \partial q\right)$. Given a downward-sloping demand curve, the increase in output requires price to *decrease*, which in turn diverts sales from Product 2 to Product 1.
    - Now consider the first-order condition for the combined firm to price Product 1 by differentiating profits with respect to a *decrease* in output, which causes p_1 to increase, which in turn diverts sales from Product 1 to Product 2. We can do this by multipying both sides of the first order condition by -1:

$$\left[-p_1 - q_1 \frac{\partial p_1}{\partial q_1} - \frac{\partial q_2}{\partial q_1}\left(p_2 - c\right)\right] = -c$$

Here,

$-p_1 =$ The revenue lost by reducing output by one unit (a negative number)

$-q_1 \dfrac{\partial p_1}{\partial q_1} =$ The gain in revenue resulting from the increase in p_1 necessary to clear the market with one less unit of output (a positive number)

$-\dfrac{\partial q_2}{\partial q_1}\left(p_2 - c\right) =$ The gain in revenue of Firm 2 entailed by a diversion in sales from Product 1 to Product 2 resulting from the increase in price (a positive number number). This is the *recapture of profits* in the standard unilateral effects story.

More theory

- One final look (this time in a Bertrand setting)[1]

  - Consider the profit maximization problem for each of the two merging firms premerger:

  $$\max_{p_i} \pi_i = p_i q_i - c_i q_i$$

  $$\frac{\partial \pi_i}{\partial p_i} = q_i + p_i \frac{\partial q_i}{\partial p_i} - c_i \frac{\partial q_i}{\partial p_i} = q_i + \left(p_i - c_i \right) \frac{\partial q_i}{\partial p_i} = 0$$

  - Divide both sides of the first order condition by $p_i \left(\dfrac{\partial q_i}{\partial p_i} \right)$ and recall that $\varepsilon_i = - \left(\dfrac{p_i}{q_i} \right) \left(\dfrac{\partial q_i}{\partial p_i} \right)$ is the own elasticity of product i's demand:

  $$L_i \equiv \frac{p_i - c_i}{p_i} = \frac{1}{\varepsilon_i}$$

  which is the equation we already have seen for the Lerner index L_i.

[1] Remember, in Bertrand competition the firm's control variable is price, not quantity. A good way to think about this is that firms compete mainly by posting a price and then supplying the quantities that customers demand at that price.

More theory

OPTIONAL

- **One final look (this time in a Bertrand setting) (con't)**
  - Now consider the profit maximization problem for the combined firm:

$$\max_{p_1,p_2} \pi_c = p_1 q_1 - c_1 q_1 + p_2 q_2 - c_2 q_2$$

$$\frac{\partial \pi_c}{\partial p_1} = q_1 + (p_1 - c_1)\frac{\partial q_1}{\partial p_1} + (p_2 - c_2)\frac{\partial q_2}{\partial p_1} = 0$$

There is an analogous FOC with respect to product 2

  - Dividing both sides by $p_1\left(\dfrac{\partial q_1}{\partial p_1}\right)$ as we did before yields:

Extra term introduced by merger

$$L_1 \equiv \frac{p_1 - c_1}{p_1} = \frac{1}{\varepsilon_i} - \frac{p_2 - c_2}{p_1}\left(\frac{\partial q_2}{\partial p_1}\right)\left(\frac{\partial p_1}{\partial q_1}\right) = \frac{1}{\varepsilon_i} + \frac{p_2 - c_2}{p_1}\left(-\frac{\partial q_2}{\partial q_1}\right)$$

Gross margin

Diversion ratio

  - The right-hand side of this equation has an extra term at the end compared to the premerger case. Note that this term is the margin times the diversion ratio
    - If the merging firms produce *substitutes*, then the diversion ratio is positive, so that p_1 and the Lerner index must *increase* postmerger
    - If the merging firms produce *complements*, then the diversion ratio is negative, so that p_1 and the Lerner index must *decrease* postmerger

Note: Since the equation for L_2 is symmetrical with the equation for L_1, the same results hold for product 2

Diversion ratios

- **Diversion ratios**
    - Diversion and recapture
        - The loss of units $\Delta q_{B \to A}$ from Firm B to Firm A when Firm A increasing its output (and lowers its price) is a critical component of the merged firm's opportunity cost
        - Likewise, the recapture of units $\Delta q_{A \to B}$ (and profits) by Firm B when Firm A increases its price (and contracts its output) is a critical component of the merged firm's recapture of profits
    - Problem
        - These measure are in absolute amounts and hence change with different measures of quantities (say units v. tons) and price (say dollars versus pounds)
        - We can create a metric that is independent of the measures by using percentages (just as we did with elasticities)
    - Definition (when firm A raises in price):

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

> This is the *diversion ratio* from A to B. It is the percentage of the total units that Firm A's loses when it raises price that go to Firm B.

where firm A loses total units of Δq_A, of which Δq_B go to Firm B

Diversion ratios

- A bit more formally (in calculus terms):

$$D_{A \to B} \equiv D_{AB} \equiv \frac{\dfrac{\partial q_B}{\partial p_A}}{\dfrac{\partial q_A}{\partial p_A}} = \frac{\partial q_B}{\partial q_A}.$$

- Caution:
  - The primary story we told to motivate unilateral effects had A's price decreasing
  - The definition of diversion ratios is motivated by A's price increasing

Diversion ratios

- **Illustration**
  - Firm A raises its price by 5% and loses 100 units
    - 40 units divert to Firm B
    - 25 units divert to Firm C
    - 35 units divert to other products
  - Then:

$$D_{A \to B} = \frac{40}{100} = 0.40 \text{ or } 40\%$$

$$D_{A \to C} = \frac{25}{100} = 0.25 \text{ or } 25\%$$

Since $D_{A \to B} > D_{A \to C}$, B is a closer substitute to A than C

Diversion of
25 units to Firm C

C

A

Diversion of
35 units to other products

Loses 100 units with
a 5% price increase

Diversion of
40 units to Firm B

Other products

B

Diversion ratios

- **Relation of diversion ratios to elasticities**
  - Recall
    - Cross-elasticity of B with respect to A:

$$\varepsilon_{BA} = \frac{\dfrac{\Delta q_B}{q_B}}{\dfrac{\Delta p_A}{p_A}} = \frac{\Delta q_B}{\Delta p_A} \frac{p_A}{q_B}.$$

    - Own-elasticity of A:

$$\varepsilon_A = \frac{\dfrac{\Delta q_A}{q_A}}{\dfrac{\Delta p_A}{p_A}} = \frac{\Delta q_A}{\Delta p_A} \frac{p_A}{q_A}.$$

  - So:

$$D_{A \rightarrow B} = \frac{\Delta q_B}{\Delta q_A} = \frac{\dfrac{\Delta q_B}{\Delta p_A}}{\dfrac{\Delta q_A}{\Delta p_A}} = \left[\frac{\dfrac{\Delta q_B}{\Delta p_A} \dfrac{p_A}{q_B}}{\dfrac{\Delta q_A}{\Delta p_A} \dfrac{p_A}{q_A}} \right] \frac{\dfrac{q_B}{p_A}}{\dfrac{q_A}{p_A}} = \frac{\varepsilon_{BA}}{\varepsilon_A} \frac{q_B}{q_A}$$

Equals to 1

    - Therefore, the diversion ratio contains no information that cannot be derived from the corss-elasticity and own-elasticity

Diversion ratios

- **Relation of diversion ratios to elasticities**
  - Example
    - Say that the own-elasticity of Product A is -2 and that the cross-elasticity of B with A is 1.2 and that the unit sales of A and B are 1000 and 500, respectively.
    - So

$$D_{A \to B} = \frac{\varepsilon_{BA}}{\varepsilon_A} \frac{q_B}{q_A} = \frac{1.2}{2.0} \frac{500}{1000} = 30\%$$

- We can check this by looking at the total loss of sales by A and the amount of sales diverted to B:

$$\frac{\Delta q_A}{q_A} \cong \varepsilon_A \frac{\Delta p_A}{p_A} \Rightarrow \Delta q_A \cong \varepsilon_A \frac{\Delta p_A}{p_A} q_A = 2 \times 0.05 \times 1000 = 100$$

$$\frac{\Delta q_B}{q_B} \cong \varepsilon_A \frac{\Delta p_A}{p_A} \Rightarrow \Delta q_B \cong \varepsilon_{BA} \frac{\Delta p_A}{p_A} q_B = 1.2 \times 0.05 \times 500 = 30$$

  - Now calculate the diversion ratio:

$$D_{A \to B} = \frac{\Delta q_B}{\Delta q_A} = \frac{30}{100} = 30\% \quad \checkmark$$

Diversion ratios

- **Diversion ratios**
  - How are diversion ratios estimated?
    - Data collected during the regular course of business (including win-loss data)
    - Indications in the company documents
    - Consumer surveys
      - But very sensitive to survey design and customer ability to accurately predict product choice in the presence of a price increase
    - Switching shares as proxies
      - Where switching behavior is not limited to reactions to changes in relative price
      - *Example*: H&R Block/TaxACT (where the court accepted a diversion the analysis based on IRS switching data only as corroborating other evidence)
    - Demand system estimation/econometrics
      - Econometric estimation of all own- and cross-elasticities of all interacting firms
      - Usually possible only in retail deals where point-of-purchase scanner data is available
    - Market shares as proxies
      - Assumes that customers divert in proportion to the market shares of the competitor firms (after adjusting for any out-or-market diversion):

$$D_{A \to B} = \left(1 - \frac{\Delta q_{outside}}{\Delta q_A} \right) \frac{s_B}{1 - s_A},$$

where s_A and s_B are the market shares of firms A and B, respectively, in the market and $\frac{\Delta q_{outside}}{\Delta q_A}$ is the percentage of Frim A's lost sales that are diverted to firms outside of the market
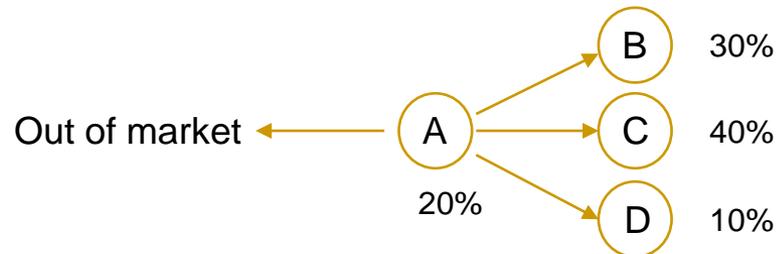
Diversion ratios

- **Diversion ratios**
    - How are diversion ratios estimated?
        - Market shares as proxies--Example
            - *Example*: The market consists of four firms collectively producing 1200 units with market shares of 20%, 30%, 40%, and 10%. Firm A raises its prices by 5% and loses 100 units.

Out of market ← A → B 30%
A → C 40%
20% A → D 10%

        - When Firm A raises its price, assume all of the diverted products stay within the market. Then estimating diversion ratio to Firm B based on market shares yields:

$$D_{A \to B} = \left(1 - \frac{\Delta q_{outside}}{\Delta q_A}\right)\frac{s_b}{1 - s_A} = \frac{0.3}{1 - 0.2} = 37.5\%$$

        - Alternatively, assume that Firm A still losses 100 units but 10% diverts out of the market. Then:

$$D_{A \to B} = \left(1 - \frac{\Delta q_{outside}}{\Delta q_A}\right)\frac{s_b}{1 - s_A} = \left(1 - 0.10\right) \times \frac{0.3}{1 - 0.2} = 33.75\%$$

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, if all diverted products stayed in the market, the diversion ratios would be:

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

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

  - Interestingly, the court reported these diversion ratios as 14% and 12%, respectively
    - The fact that they are lowered than the estimates above suggests that Warren-Boulton took into account diversion of some of the products to outside the market
    - Also, it appears that Warren-Boulton estimated different diversion ratios to products outside the market for HRB and TaxACT
      - Use of the diversion ratios in the market definition section of the opinion do not give the court's numbers, which I have yet been able to replicate

"Merger simulation"

- **The basic idea**
  - *Merger simulation* attempts to directly predict price changes as a result of a merger
  - The usual structure of merger simulation models
    1. A theoretical model that derives market equilibrium from demand and cost characteristics
    2. The estimation of the demand characteristics (own- and cross elasticities, diversion ratios)
       - Ideally, estimated econometrically using a rich set of data (e.g., Nielsen scanner data in retail deals)
    3. The estimation of the premerger cost characteristics (marginal costs, margins)
       - For example, one approach is to assume a model of pricing (often Bertrand) and to use it jointly with the estimated demand parameters to recover implied marginal costs
       - Marginal cost can be approximated from accounting data, but these estimates tend to be unreliable
    4. The estimated demand parameters and costs are used jointly to simulate the new equilibria that would result from a merger
  - Models and data requirements
    - More structure (restrictions) on the model can significantly reduce the data requirements
      - *Examples of model restrictions*: Linear demand curves, identical firms, identical diversion ratios, identical margins
      - Of course, the more structure on the model, the less the model is likely to accurately predict actual market responses

"Merger simulation"

- **The basic idea**
  - Use by courts
    - Courts have accepted merger simulation models advanced by economic experts as potentially probative (although not dispositive) of the price implications of mergers
      - FTC v. Advocate Health Care, No. 15 C 11473, 2017 WL 1022015, at *11 (N.D. Ill. Mar. 16, 2017)
      - United States v. Aetna Inc., 240 F. Supp. 3d 1, 46-47 (D.D.C. 2017)
      - United States v. Anthem, Inc., 236 F. Supp. 3d 171, 212 (D.D.C. 2017)
      - FTC v. Sysco Corp., 113 F. Supp. 3d 1, 66 (D.D.C. 2015)
      - United States v. H & R Block, Inc., 833 F. Supp. 2d 36, 64 (D.D.C. 2011)
      - FTC v. Foster, No. CIV 07-352 JBACT, 2007 WL 1793441, at *42 (D.N.M. May 29, 2007)
      - United States v. Oracle Corp., 331 F. Supp. 2d 1098, 1122 (N.D. Cal. 2004)
    - Because these models go directly to the potential anticompetitive effect of a merger, they are usually highly contested in court
      - Also typically subject to *Daubert* challenges for faulty application (and not unreliability of the method generally)

GUPPIs

- **Definition**
  - Antitrust economists define a measure called the gross upward pricing pressure index (GUPPI) to assess the merged firm's incentive to raise prices under a unilateral effects theory in the absence of entry, repositioning, and efficiencies:

  $$GUPPI_1 = \frac{\text{value of profits from sales diverted to product 2}}{\text{value of all sales lost by product 1}} = \frac{\Delta q_2 (p_2 - c_2)}{\Delta q_1 p_1}$$

  - where the merging firms produce products 1 and 2, respectively, and $GUPPI_1$ is the measure for product 1
    - Section 6.1 of the 2010 DOJ/FTC Horizontal Merger Guidelines implicitly creates of measure of this type
    - GUPPIs can be used in a simple, highly structure model to predict price increases resulting from a merger (usually used for screening to find stores of interest in retail deals)
  - Let $m_2 = \dfrac{p_2 - c_2}{p_2}$, the percentage gross margin of product 2 and DR_{12} be the unit diversion ration between product 1 and product 2. Then multiplying by p_2/p_2 yields:

  $$GUPPI_1 = \frac{\Delta q_2}{\Delta q_1} \frac{(p_2 - c_2)}{(p_2)} \frac{(p_2)}{p_1} = D_{12} m_2 \frac{p_2}{p_1}$$

  > NB: $D_{12} m_2$ is the measure of *upward pricing pressure* we saw in Unit 3

  which is the usual form of the expression for a GUPPI

GUPPIs

- GUPPIs and various measures of diversion
  - Recall the formula: $GUPPI_1 = D_{12} m_2 \dfrac{p_2}{p_1}$,
  - where D12 is the diversion ratio from firm 1 to firm 2 in units
  - We can also define a diversion ratio is sales:

$$D_{12}^{sales} = \frac{\text{Change in the value of firm 2's sales}}{\text{Change in the value of firm 1's sales}} = \frac{p_2 \Delta q_2}{p_1 \Delta q_1} = D_{12} \frac{p_2}{p_1}.$$

  - Using the sales diversion ratio, we have:

$$GUPPI_1 = D_{12}^{sales} m_2,$$

  - It is important to understand the measure of diversion in order to use the proper GUPPI formula
  - One more useful formula:

$$GUPPI_1 = \frac{p_2 \Delta q_2}{p_2 q_2} \times \frac{p_2 q_2}{p_1 q_1} \times m_2 = \frac{\Delta sales_2}{sales_2} \times \frac{sales_2}{sales_1} \times m_2,$$

  - which is the percentage change in the sales (not units) of firm 2 times the ratio of firm 2's sales to firm 1's sales times the margin of firm 2. This formula can be useful when the firms sells multiple products and sales data is more readily available.

GUPPIs

- **"Merger simulation" with GUPPIs**
  - The unilateral profit-maximizing price increase
    - In the very special case of linear residual demand curves and equal diversion ratios ($D_{12} = D_{21} = D$), equal marginal costs, equal prices, and equal market shares, Bertrand competition, no changes in the prices of any nonmerging firm, and no entry/expansion/repositioning or efficiencies. The GUPPI gives the profit-maximizing price increase postmerger under the unilateral effects theory
    - The profit-maximizing price increase for product 1 leaving the price of product 2 at its premerger level:

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

      since $p_1 = p_2$ and so $p_1/p_2 = 1$

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

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

    - In other words, the profit-maximizing price increase when the merged firm raises the price of both products is half of the profit-maximizing price increase when the merged firm raises the price of only one of the two products
      - This makes sense given the linearity of demand and the symmetry assumptions in the model

For proofs and an expanded treatment, see Carl Shapiro, Unilateral Effects Calculations (Oct. 2010), available at http://faculty.haas.berkeley.edu/shapiro/unilateral.pdf.

GUPPIs

- **"Merger simulation" with GUPPIs**
    - 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

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

        $$D = 1/3 \qquad m = \frac{p-c}{p} = 0.4$$

        - The market exhibits linear demand and complete symmetry, so

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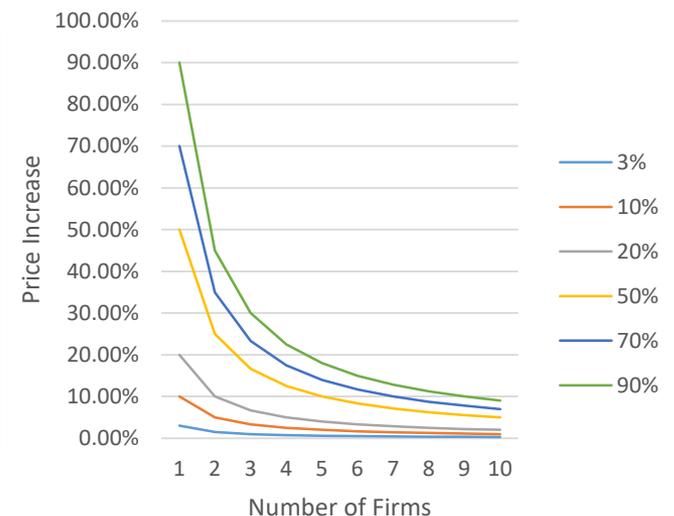
GUPPIs

- **"Merger simulation" with GUPPIs**
  - Illustration: The unilateral profit-maximizing price increase for only one merging firm
    - Assume linear residual demand curves and equal diversion ratios, equal marginal costs, equal prices, equal market shares, Bertrand competition, all other firms continue to price at premerger levels, and no entry/expansion/repositioning or efficiencies. Then:

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

Predicted Percentage Price Increases
(Only One Merging Firm Increases Prices)

Firms	Share	Margin: DR	3%	10%	30%	50%	70%	90%
			Predicted Percentage Price Increase for Only One Merging Firm					
3	33.33%	50.00%	3.00%	10.00%	30.00%	50.00%	70.00%	90.00%
4	25.00%	33.33%	1.50%	5.00%	15.00%	25.00%	35.00%	45.00%
5	20.00%	25.00%	1.00%	3.33%	10.00%	16.67%	23.33%	30.00%
6	16.67%	20.00%	0.75%	2.50%	7.50%	12.50%	17.50%	22.50%
7	14.29%	16.67%	0.60%	2.00%	6.00%	10.00%	14.00%	18.00%
8	12.50%	14.29%	0.50%	1.67%	5.00%	8.33%	11.67%	15.00%
9	11.11%	12.50%	0.43%	1.43%	4.29%	7.14%	10.00%	12.86%
10	10.00%	11.11%	0.38%	1.25%	3.75%	6.25%	8.75%	11.25%
11	9.09%	10.00%	0.33%	1.11%	3.33%	5.56%	7.78%	10.00%
12	8.33%	9.09%	0.30%	1.00%	3.00%	5.00%	7.00%	9.00%

NB: Given the highly restrictive conditions on the model, these estimates are likely to be wildly inaccurate but the agencies have used them for screening. *See, e.g.*, Statement of the Federal Trade Commission , In the Matter of Dollar Tree, Inc. and Family Dollar Stores, Inc. FTC File No. 141-0207 (July 13, 2015)..

GUPPIs

- **Merger screening with GUPPIs**
  - The idea
    - The GUPPI models that predict price increases have very restrictive conditions and usually will not provide a good estimate of any actual price increase that would occur as a result of a merger.
    - However, the agencies have used GUPPIs to as a "screen" in some merger investigations (that is, as a method of eliminating some facilities from the investigation without the need for a detailed individualized analysis)
  - Example: Dollar General/Dollar Tree/Family Dollar
    - The situation
      - Contested takeover of Family Dollar between Dollar Tree and Dollar General in 1994-1995
        - Family Dollar: 8,200 stores (multi-price point stores generally < $10)
        - Dollar Tree: 5,000 stores (fixed-price point stores, selling everything for $1 or less)
        - Dollar General: 11,300-store (multi-price point stores)
      - The outcome
        - Dollar Tree won (at $9.2 billion)
        - Had to divest 330 Family Dollar stores
  - FTC problem: How to perform a merger antitrust analysis on so many stores in two separate investigations?
    - Number of stores made an individual analysis impossible as a practical matter

GUPPIs

- **Merger screening with GUPPIs**
  - Example: Dollar General/Dollar Tree/Family Dollar (con't)
    - The solution
      1. Determine a GUPPI threshold that presumptively should indicate that a given store would not have an incentive under a unilateral effects theory to raise its prices significantly after the merger
      2. Estimate the GUPPI for each store in the investigation
      3. Compare the estimated GUPPI against the screening threshold
    1. Determine a GUPPI screening threshold
       - Suppose that the agency decided that a 5→4 merger in a market with equally sized firms charging the same price presumptively would not give rise to a competitive concern
       - If we know the margin of the stores, then we can determine the GUPPI for each store (which will be the same for all stores in this hypothetical market)
         - Estimate the diversion ratio according to the proportional share method: D = 25%
         - Say the agency determined that the proper margin to use is 30%
         - Then GUPPI = Dm = 25% × 30% = 7.5%
         - Use 7.5% as the screening threshold (that is, if a 5→4 merger in a market of equally sized firms was acceptable to the agency and the GUPPI for each store in the merger was 7.5%, then any store in the transaction with a GUPPI less than or equal to 7.5% should be presumptively acceptable)
       - In the Family Dollar investigation, the FTC used different GUPPI thresholds:
         - 7.5% for Family Dollar (→ 6 equivalent firms premerger with a 30% margin)
         - 10.0% for Dollar Tree (→ 5 equivalent firms premerger with a 30% margin)
           - The explanation for the higher GUPPI threshold for Dollar Tree is that DT's format is not to sell items for more than a dollar, so given the disincentives associated with a fundamental change to the store's format the merged firm will be more likely to resist changing DT prices even if there is pricing pressure to do so.

GUPPIs

- **Merger screening with GUPPIs**
  - Example: Dollar General/Dollar Tree/Family Dollar (con't)
    2. Estimate the GUPPI for each store in the investigation
       - Retail stores that use electronic registers and bar code scanners collect data on each item sold and its price. This point-of-sale (POS) data is collected by services such as Nielsen and IRI and made available for purchase
       - Retail sales data was available for Dollar General, Dollar Tree, and Family Dollar
       - Using econometrics, the FTC estimated the diversion ratio for each store in both a Dollar General/Family Dollar and a Dollar Tree/Family Dollar transaction
         - To illustrate, say an area had only one Dollar Tree and one Family Dollar store. Then from the data the agency could observe weekly changes in sales from both stores. If, as sales volume in one store change, some customers were diverting to the other store, this can be detected econometrically. Moreover, econometrics can estimate the diversion ratio for each store compared to the other store.
         - NB: Using this method, diversion ratios will be estimated using the changes in dollar sales, not unit sales, but this is still consistent with the GUPPI formula:

$$GUPPI_1 = D_{12} m_2 \frac{p_2}{p_1} = \left(\frac{p_2}{p_1} \frac{\Delta q_2}{\Delta q_2} \right) m_2 = D_{12}^{sales} m_2,$$

           where D_{12}^{sales} is the diversion ratio measured in sales (i.e., the term in the parenthesis)
         - In principle, a GUPPI can be calculated for each pair Dollar Tree and Family Dollar stores (of course, stores very distant from one another should have zero diversion ratios). When, say, several Dollar Tree stores have positive diversion ratios with a single Family Dollar store, the total GUPPI for that Family Dollar store is the sum of the pairwise GUPPIs with each DT store

GUPPIs

- **Merger screening with GUPPIs**
  - Example: Dollar General/Dollar Tree/Family Dollar (con't)
    3. Compare the estimated GUPPI against the screening threshold
       - Dollar Tree determined to divest only Family Dollar stores
       - Stores with GUPPIs above the screening GUPPIs thresholds (7.5% for Family Dollar Stores and 10.0% for Dollar Tree Stores), required further individualized investigation
       - However, the FTC and the states also reviewed some of the stores with GUPPIs below the screening thresholds based on other information the agencies developed (e.g., through casual inspection of maps)
       - Ultimately, the FTC and the states settled with a consent decree that required 330 Family Dollar stores to be divested
         - Including 100 stores that were below the threshold

GUPPIs

- **"Merger simulation" with GUPPIs**
  - The model so far is very restrictive with all of its symmetry conditions
  - Loosening these conditions makes things complicated very quickly
    - For example, when residual demand for both firms is linear but diversion ratios and margins differ, the optimal price increase formula becomes:

$$\frac{\Delta p_A {}^*}{p_A} = \frac{\left(D_{B\to A}\left(D_{B\to A} + D_{A\to B}\right)\right)m_A + 2D_{A\to B}m_B}{4 - \left(D_{B\to A} + D_{A\to B}\right)^2}$$
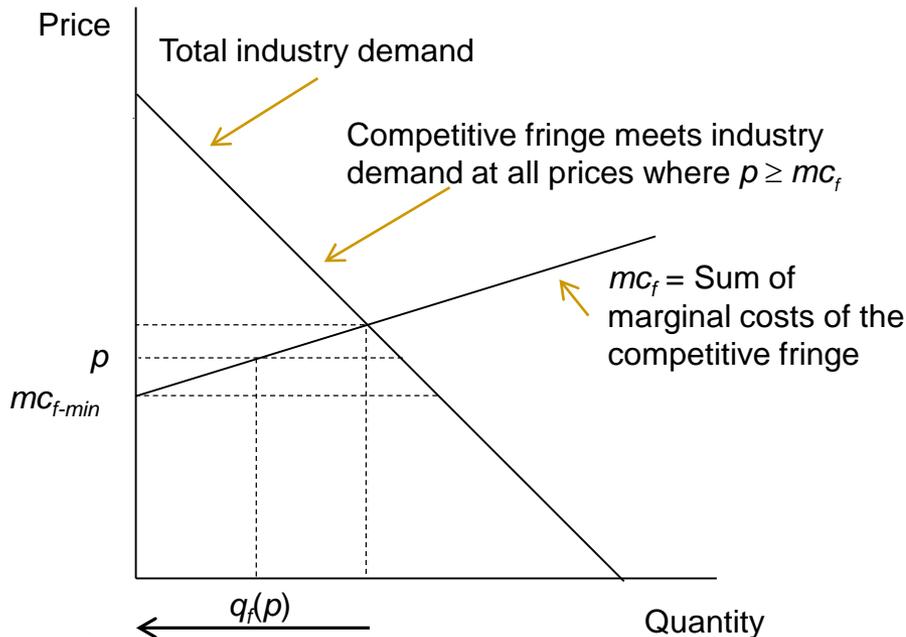
> You should just see this to understand how quickly the formula becomes with a relaxation of the restrictions. You will not be required to know or use the formula.

Unilateral effects with a competitive fringe

- **Recall the setup**

  - Consider a homogeneous product market with

    - a dominant firm, which sees its output decisions as affecting price and so sets output so that $mr = mc$, and

    - a fringe of firms that are small and act as price takers, that is, they do not see their individual choices of output levels as affecting price and therefore price as competitive firms (i.e., $p = mc$)

  - Choice question for the dominant firm: Pick the profit-maximizing level for its output given the competitive fringe

- **The model**

  - At market price p, let $q(p)$ be the industry demand function and $q_f(p)$ be the output of the competitive fringe. Then the residual demand $q_d(p)$ for the dominant firm is $q(p) - q_f(p)$.
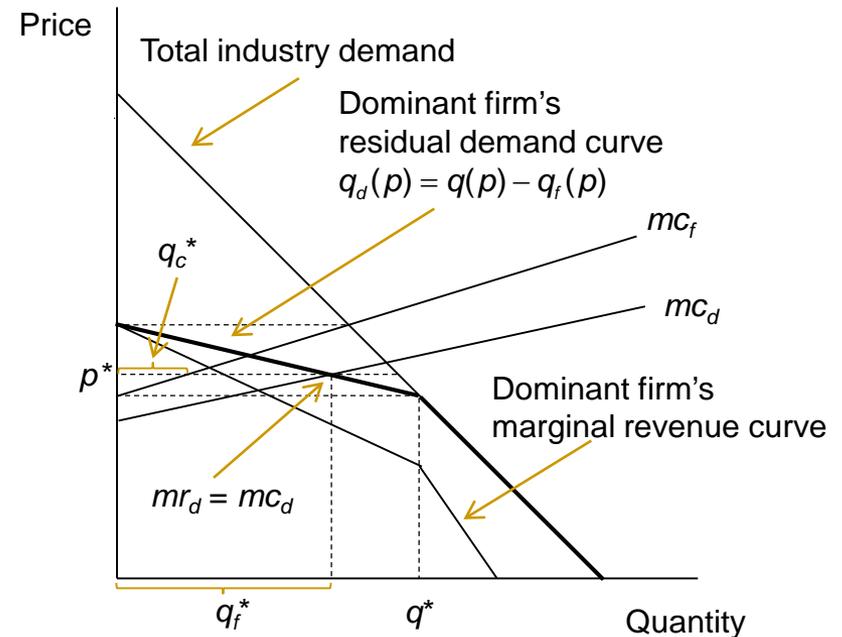
Unilateral effects with a competitive fringe

Output of the Competitive Fringe

Price

Total industry demand

Competitive fringe meets industry demand at all prices where $p \geq mc_f$

mc_f = Sum of marginal costs of the competitive fringe

p

$mc_{f\text{-}min}$

$q_f(p)$

As p approaches $mc_{f\text{-}min}$

Quantity

Competitive fringe reduces output until price equals mc_f-min, its minimum marginal cost. Below this price the competitive fringe does not produce.

Output of the Dominant Firm

Price

Total industry demand

Dominant firm's residual demand curve $q_d(p) = q(p) - q_f(p)$

mc_f

q_c^*

mc_d

p^*

Dominant firm's marginal revenue curve

$mr_d = mc_d$

q_f^* q^* Quantity

Dominant firm maximizes profit at q_f^*, where $mr_f = mc_f$. Total industry output $q^* = q_f^* + q_c^*$ at price p^*.

Defenses

REVIEW 2010 DOJ/FTC HORIZONTAL MERGER GUIDELINES §§ 8, 10, 11

Defenses generally

- Common defenses
  - Entry/expansion/repositioning—Addressed earlier in this deck
  - Efficiencies
  - Failing firm

- Defenses are negative defenses, not affirmative defenses
  - A negative defense says that the merger is not anticompetitive in the first instance
  - An affirmative defense says that even if the merger is anticompetitive, it is nonetheless not unlawful

- *Baker Hughes* burden shifting
  - Formally, the plaintiff can make out its prima facie case on the *PNB* presumption without addressing any defense
  - The defendant has the burden of going forward with evidence predicating the defense (including challenging the *PNB* presumption)
  - If the defendant adduces sufficient evidence to permit the trier of fact to accept the defense, the burden of persuasion shifts to the defendant on the ultimate question of whether the merger, with all evidence taken as a whole, is anticompetitive

Efficiencies

- **Basic idea**
  - "Efficiencies" are loosely defined to be benefits that result from the deal
    - These are also called "synergies" or "strategic benefits"

Efficiencies

- **Types of efficiencies**
  - Cost efficiencies
    - These are reductions in the fixed or variable costs of operation and production that result from the deal
    - Types of cost efficiencies
      - Reductions in fixed costs
        - *Fixed costs* are costs that do not change with the level of production—that is, they are expenses that have to be paid by a company, independent of any business activity
        - Some fixed costs may be incurred only once, such as the building cost for a new facility
        - Other fixed costs may be recurring, such as the compensation for the CEO, the annual maintenance costs for the headquarters building, the annual interest on the company's debt, insurance costs, and property taxes
        - Fixed cost efficiencies usually result from the elimination of duplicative costs: the combined company does not need two CEOs , two headquarters buildings, or two back office accounting systems
      - Reductions in variable costs
        - *Variable costs* are costs that depend on the level of output
        - Variable costs include the cost of components that

        - Economies of scale or scope (one factory or one sales force may be able to handle the production and sales of both companies)
        - The combination of complementary technical assets and skills (the combined company may be able to produce products with lower costs or better products faster).
      - Reductions in marginal cost

Others (e.g., R&D)

Efficiencies

- **Types**
  - Cost efficiencies (fixed and marginal cost)
  - Others (e.g., R&D)

- **Cost efficiencies**
  - Most common in merger defenses
  - Consider the firm's profit maximization problem:

  $$\pi = pq(p) - (F + cq)$$

  where F is fixed cost and c is constant marginal cost.

 The first order conditions for a profit maximum is:

  $$\frac{\partial \pi}{\partial q} = p + q\frac{\partial p}{\partial q} - c = 0$$

  that is, marginal revenue equals marginal cost
  - Note that in this model changes in fixed costs F have no effect on the first order condition and therefore no effect on postmerger prices
    - As a result, changes in fixed costs are usually disregarded by the agencies in the HSR review. *Query*: Are they also disregarded by courts?
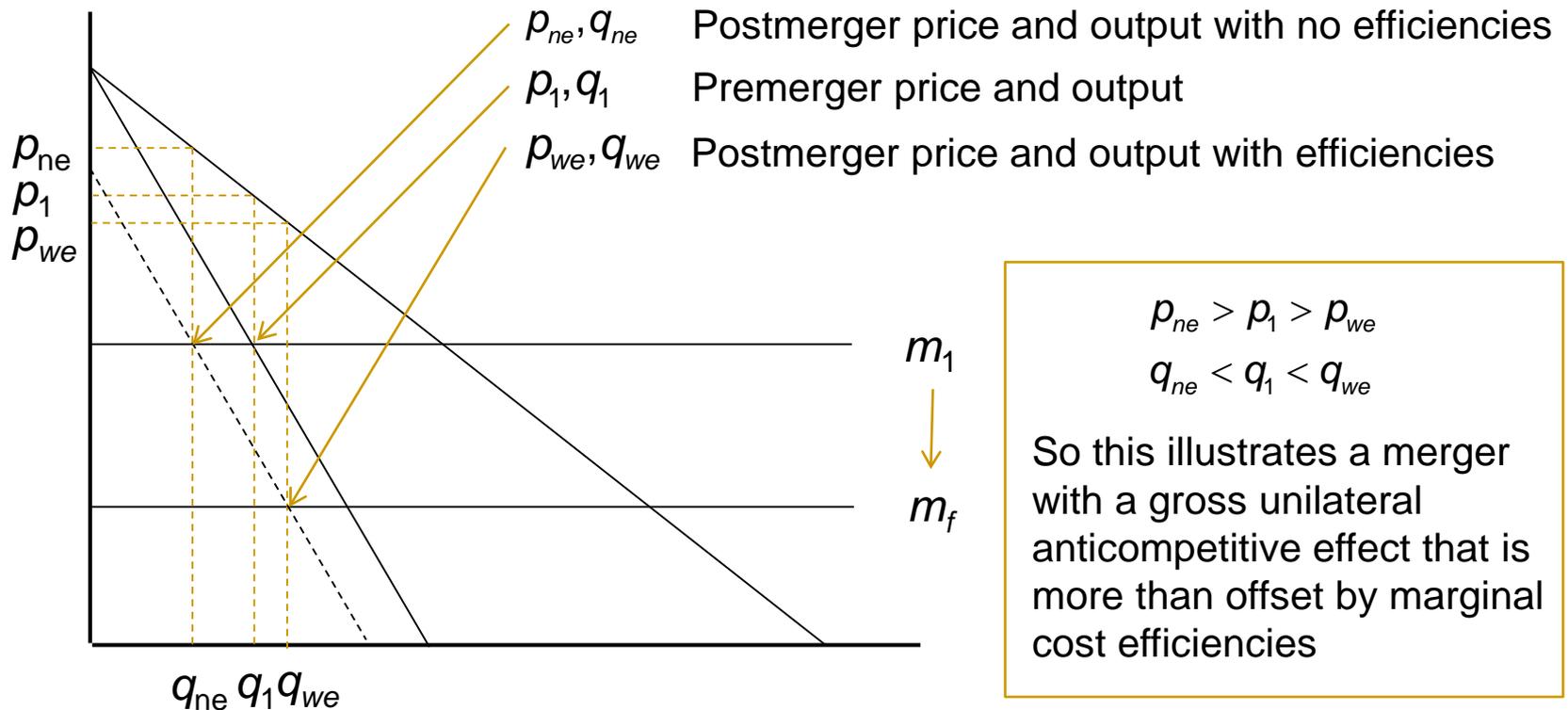
Efficiencies

❑ But a change in *c* can affect prices. A reduction in marginal cost will even cause a profit-maximizing monopolist to lower price.

With a decrease in *c*
p decreases and
q increases
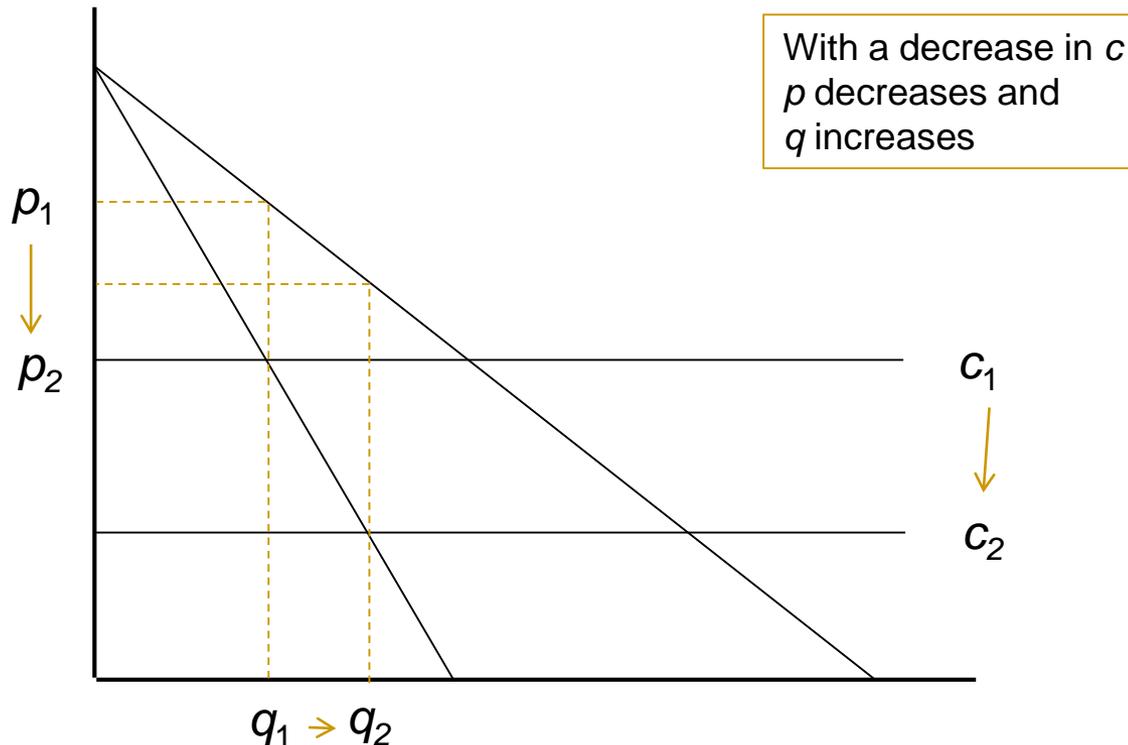
Efficiencies

- **Unilateral effects with offsetting efficiencies**
  - Unilateral effects shifts Firm 1's marginal revenue curve to the left
  - Marginal cost efficiencies shifts supply curve down from m_1 to m_f

p_{ne}, q_{ne} Postmerger price and output with no efficiencies

p_1, q_1 Premerger price and output

p_{we}, q_{we} Postmerger price and output with efficiencies

$$p_{ne} > p_1 > p_{we}$$
$$q_{ne} < q_1 < q_{we}$$

So this illustrates a merger with a gross unilateral anticompetitive effect that is more than offset by marginal cost efficiencies

Efficiencies

- **Cost efficiencies as a merger defense under the Merger Guidelines**
  - Basic idea

    [A] primary benefit of mergers to the economy is their potential to generate significant efficiencies and thus enhance the merged firm's ability and incentive to compete, which may result in lower prices, improved quality, enhanced service, or new products. For example, merger-generated efficiencies may enhance competition by permitting two ineffective competitors to form a more effective competitor, e.g., by combining complementary assets. In a unilateral effects context, incremental cost reductions may reduce or reverse any increases in the merged firm's incentive to elevate price. Efficiencies also may lead to new or improved products, even if they do not immediately and directly affect price. In a coordinated effects context, incremental cost reductions may make coordination less likely or effective by enhancing the incentive of a maverick to lower price or by creating a new maverick firm. Even when efficiencies generated through a merger enhance a firm's ability to compete, however, a merger may have other effects that may lessen competition and make the merger anticompetitive.[1]

  - Examples of how efficiencies can offset the anticompetitive effects a merger would otherwise have:
    - Create a more effective competitor by combining complementary assets (e.g., IP rights)
    - Offset the unilateral anticompetitive effect by sufficiently reducing marginal costs
    - Diminish incentives for coordinated interaction by creating a firm with the cost structure to engage in disruptive conduct

[1] 2010 DOJ/FTC Horizontal Merger Guidelines § 10.

Efficiencies

- **Cost efficiencies as a merger defense under the Merger Guidelines**
  - Four requirements
    - Merger specificity
    - Verifiability
    - Sufficiency
    - Not anticompetitive
  - Are the alleged efficiencies *merger specific*?

    > The Agencies credit only those efficiencies likely to be accomplished with the proposed merger and unlikely to be accomplished in the absence of either the proposed merger or another means having comparable anticompetitive effects. These are termed merger-specific efficiencies.[13] Only alternatives that are practical in the business situation faced by the merging firms are considered in making this determination. The Agencies do not insist upon a less restrictive alternative that is merely theoretical.
    >
    > _____
    > [13] The Agencies will not deem efficiencies to be merger-specific if they could be attained by practical alternatives that mitigate competitive concerns, such as divestiture or licensing. If a merger affects not whether but only when an efficiency would be achieved, only the timing advantage is a merger-specific efficiency.

    - *Could* the efficiencies be achieved in the absence of the transaction? Or is the right question "*Would* they be achieved in the absence of the transaction"?
    - Although the Merger Guidelines ask the second question, in practice the agencies strongly (and to an extent the courts) ask only the first question

Efficiencies

- Cost efficiencies as a merger defense under the Merger Guidelines
  - Are the alleged efficiencies *verifiable*?

    > [I]t is incumbent upon the merging firms to substantiate efficiency claims so that the Agencies can verify by reasonable means the likelihood and magnitude of each asserted efficiency, how and when each would be achieved (and any costs of doing so), how each would enhance the merged firm's ability and incentive to compete, and why each would be merger-specific.

    - Have the efficiencies been rigorously derived the parties?
    - Can they be objectively ascertained by a third party?
      - The agencies usually regard this "third party" as an accountant or an economist, that is, someone without expertise in the industry in question—causes them to reject efficiencies that depend on expert industry judgment
      - Courts are trending this way as well
  - Are the alleged efficiencies *timely and sufficient*?

    > [I]t is incumbent upon the merging firms to substantiate efficiency claims so that the Agencies can verify by reasonable means the likelihood and magnitude of each asserted efficiency, how and when each would be achieved (and any costs of doing so), how each would enhance the merged firm's ability and incentive to compete, and why each would be merger-specific.

    - Will they occur in time and with sufficient magnitude to offset the anticompetitive effects of the merger that would be likely to occur in the absence of the efficiencies?

Efficiencies

- **Efficiencies in court**
  - Judicial skepticism
    - The Supreme Court has cast doubt on an efficiencies defense in three cases
      1. In *Brown Shoe*, the Supreme Court, though acknowledging that mergers may sometimes produce benefits that flow to consumers, stated:

      > "Congress appreciated that occasional higher costs and prices might result from the maintenance of fragmented industries and markets. It resolved these competing considerations in favor of decentralization."[1]

      2. In *Philadelphia National Bank*, the Court observed:

      > a merger the effect of which "may be substantially to lessen competition" is not saved because, on some ultimate reckoning of social or economic debits and credits, it may be deemed beneficial.... Congress determined to preserve our traditionally competitive economy. It therefore proscribed anticompetitive mergers, the benign and the malignant alike, fully aware, we must assume, that some price might have to be paid.[2]

[1] Brown Shoe Co. v. United States, 370 U.S. 294, 344 (1962).
[2] United States v. Philadelphia Nat'l Bank, 374 U.S. 321, 371 (1963).

Efficiencies

- **Efficiencies in court (con't)**
  - Judicial skepticism (con't)
    - The Supreme Court has cast doubt on an efficiencies defense in three cases
      3. In *Procter & Gamble*, the Supreme Court enjoined a merger without any consideration of evidence that the combined company could purchase advertising at a lower rate:

      > "Possible economies cannot be used as a defense to illegality. Congress was aware that some mergers which lessen competition may also result in economies but it struck the balance in favor of protecting competition."[1]

    - Significantly, in these older cases an accepted goal of antitrust law was the protection of small business
    - In light of these Supreme Court statements, lower courts have expressed skepticism that an efficiencies defense exists[2]

[1] FTC v. Procter & Gamble Co., 386 U.S. 568, 580 (1967) (citing Brown Shoe Co. v. United States, 370 U.S. 294, 344 (1962).
[2] *See* United States v. Anthem, Inc., 855 F.3d 345, 353-54 (D.C. Cir. 2017) (expressing doubts about an efficiency defense in light of *Procter & Gamble*, which has never been overruled); FTC v. Penn State Hershey Med. Ctr., 838 F.3d 327, 348-49 (3d Cir. 2016).

Efficiencies

- **Efficiencies in court (con't)**
  - That said, some modern lower courts recognize that efficiencies resulting from the merger may be considered in rebutting the government's prima facie case
    - Here are two typical statements:
      - *Advocate Health Care*:

      > Although the defense has never been sanctioned by the Supreme Court, the Horizontal Merger Guidelines and some lower courts recognize that defendants in a horizontal merger case may rebut the government's *prima facie* case by presenting evidence of efficiencies offsetting the anticompetitive effects.[1]

      - *Penn State Hershey Medical Center*:

      > Remaining cognizant that the "language of the Clayton Act must be the linchpin of any efficiencies defense," and that the Clayton Act speaks in terms of "competition," we must emphasize that "a successful efficiencies defense requires proof that a merger is not, despite the existence of a prima facie case, anticompetitive."[2]

      > The efficiencies defense, on the other hand, is a means to show that any anticompetitive effects of the merger will be offset by efficiencies that will ultimately benefit consumers.[3]

[1] FTC v. Advocate Health Care, No. 15 C 11473, 2017 WL 1022015, at *12 (N.D. Ill. Mar. 16, 2017) (entering preliminary injunction on remand).
[2] FTC v. Penn State Hershey Med. Ctr., 838 F.3d 327, 349 (3d Cir. 2016).
[3] *Id.*

Efficiencies

- **Efficiencies in court (con't)**
    - That said, some modern lower courts recognize that efficiencies resulting from the merger may be considered in rebutting the government's prima facie case
        - Interpretation
            - The most sensible way to read this statement is that efficiencies can be used as a *negative* defense to disprove the anticompetitive effect element of the prima facie case[1]
            - But they cannot be used to as an *affirmative* defense to permit a merger that has the requisite anticompetitive effect in the relevant market[2]
                - This distinction essentially reflects a consumer welfare standard over a total welfare standard

[1] *See, e.g.*, FTC v. Univ. Health, Inc., 938 F.2d 1206, 1222 (11th Cir. 1991) ("It is clear that whether an acquisition would yield significant efficiencies in the relevant market is an important consideration in predicting whether the acquisition would substantially lessen competition.").
[2] *See, e.g.*, Univ. Health, 938 F.3d at 1222 n.29 ("Of course, once it is determined that a merger would substantially lessen competition, expected economies, however great, will not insulate the merger from a section 7 challenge.").

Efficiencies

- **Efficiencies in court (con't)**
  - That said, some modern lower courts recognize that efficiencies resulting from the merger may be considered in rebutting the government's prima facie case
    - Difficulty in application
      - Plaintiffs establish their prima facie case through the *PNB* presumption and additional supporting evidence of unilateral and/or coordinated effects, which collectively gives a qualitative result that the merger is presumptively likely to substantially lessen competition and harm consumers
      - But how is the qualitative result to be negated by a showing of efficiencies, even if the efficiencies are in some way quantified?
      - Example: *Penn State Hershey Medical Center*:

        > Irrespective of whatever benefits the merger may bestow upon the Hospitals in increasing their ability to engage in risk-based contracting, the Hospitals must demonstrate that such a benefit would ultimately be passed on to consumers. It is not clear from the record how this would be so beyond the mere assertion that it would save the Hospitals money and such savings would be passed on to consumers.[1]

      - Practical solution
        - Defendants must adduce testimony of customer-witnesses that would be harmed if the transaction was in fact anticompetitive that they believe that the balance of the merger's harmful and beneficial effects will be procompetitive (i.e., beneficial to customers), or, more technically, not anticompetitive
        - Since the defendants must at least make a prima facie case that the efficiencies will offset any of the merger's anticompetitive tendencies, the defendants' failure to adduce such evidence is likely to result in a rejection of their efficiencies defense

[1] FTC v. Penn State Hershey Med. Ctr., 838 F.3d 327, 349 (3d Cir. 2016).

Efficiencies

- **Efficiencies in court (con't)**
  - Judicial practice
    - Essentially have adopted the requirements of the Merger Guidelines[1]
      - "Projections of efficiencies may be viewed with skepticism, particularly if they are generated outside of the usual business planning process."[2]
      - "The difficulty in substantiating efficiency claims in a verifiable way is one reason why courts generally have found inadequate proof of efficiencies to sustain a rebuttal of the government's case."[3]
    - No court has yet found that the merging parties have successfully defended a merger through a showing of efficiencies

[1] *See, e.g.*, FTC v. Penn State Hershey Med. Ctr., 838 F.3d 327 (3d Cir. 2016) (reversing question of whether an efficiencies defense exists, but assuming it does applying the Merger Guidelines standard and finding that claimed efficiencies cannot offset the merger's likely anticompetitive effects).
[2] FTC v. ProMedica Health Sys., Inc., No. 3:11 CV 47, 2011 WL 1219281, at *40 (N.D. Ohio Mar. 29, 2011) .
[3] United States v. H & R Block, Inc., 833 F. Supp. 2d 36, 91 (D.D.C. 2011) .

Efficiencies

- **Efficiencies in court (con't)**
  - "Pass on"
    - In any event, claimed efficiencies can offset an anticompetitive effect on consumers only to the extent that the efficiencies are "passed on" by the merged company to the consumers that otherwise would be competitively harmed.
    - *Anthem* court:

      > [T]he claimed medical cost savings only improve consumer welfare to the extent that they are actually passed through to consumers, rather than simply bolstering Anthem's profit margin. After all, the merger potentially harms consumers by creating upward pricing pressure due to the loss of a competitor, and so only efficiencies that create an equivalent downward pricing pressure can be viewed as "sufficient to reverse the merger's potential to harm consumers . . . , e.g., by preventing price increases."[1]

    - In *Anthem*, the court appears to have rejected the idea that an aggregate dollar savings greater than the aggregate dollar value of an anticompetitive price increase would make out an efficiencies defense
      - That is, it is not sufficient that the gross consumer surplus from efficiencies outweigh the gross wealth transfer resulting from an anticompetitive price increase
    - Rather, the court appeared to require that the downward pressure on prices from efficiencies at least offset the upward pressure on prices from the anticompetitive effect, so that there would be no net price increase to customers

[1] United States v. Anthem, Inc., 855 F.3d 345, 362 (D.C. Cir. 2017) (internal citations omitted); *see* FTC v. Penn State Hershey Med. Ctr., 838 F.3d 327, 348 (3d Cir. 2016) ("In order to be cognizable, the efficiencies must, first, offset the anticompetitive concerns in highly concentrated markets.").

Efficiencies

- **Efficiencies in court (con't)**
  - Rent shifting
    - *Query*: Is a lowering of input prices due to greater bargaining power gained by the merger a cognizable efficiency when the lower prices do not reflect any production efficiency?
    - *Anthem* court:

      > The district court also expressed doubt as to whether the type of efficiencies claimed by Anthem, which merely redistribute wealth from providers to Anthem and its customers rather than creating new value, are even cognizable under Section 7.[1]

    - The court of appeals also expressed skepticism, but found it was unnecessary to answer the question given the facts in the case

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[1] United States v. Anthem, Inc., 855 F.3d 345, 352 (D.C. Cir. 2017) (internal citations omitted).

Efficiencies

- **Unilateral effects and marginal cost efficiencies**
  - The model: Recall—
    - Recall that at profit-maximizing premerger output and price, Firm 1 sets marginal revenue equal to marginal cost: $mr_1 = mc_1$
    - When unilateral effects are present, post merger Firm 1 must take into account the opportunity cost of the lost profits of Firm 2 that are diverted to Firm 1, so that Firm 1's marginal revenue now becomes $mr_1 + \Delta q_{B \to A}(p_2 - c_2)$.
    - Since opportunity costs are negative, when evaluated at Firm 1's premerger output and price:
    $$mr_1 + \Delta q_{B \to A}\left(p_2 - c_2\right) < mc_1,$$
    which requires Firm 1 to contract output and raise price in order to reequilibrate marginal revenue and marginal cost postmerger. (This is the source of the *upward pricing pressure*)
    - Now say that the merger also reduced the marginal cost of Firm 1 by a percentage e (but did not change the marginal cost of Firm 2). Firm 1's postmerger marginal cost is then $(1-e)mr_1$. The efficiency will offset the upward pricing pressure at firm 1's premerger output and price if:
    $$mr_1 + \Delta q_{B \to A}\left(p_2 - c_2\right) \geq \left(1 - e\right)mc_1,$$
    or
    $$\Delta q_{B \to A}\left(p_2 - c_2\right) \geq -e \times mc_1 \Rightarrow e \times mc_1 \geq -\Delta q_{B \to A}\left(p_2 - c_2\right).$$
    - This says that for efficiencies to offset the opportunity cost of Firm 2's lost profits, the savings in the marginal costs of production have to be at least as large as Firm 2's lost profits

Failing firm defense

- **Theory**
  - A "failing firm" is a firm that will exit the market *with its assets* in the absence of an acquisition
  - The original idea behind a failing firm defense is that it is better to permit an "anticompetitive" acquisition than to allow the failing firms assets—and therefore productive capacity—to exist the market
    - While this may sound like an affirmative defense, it is actually a negative defense.
    - If the firm's productive capacity would exit the market in the acquisition, then it has no competitive significance going forward and its acquisition by a competitor cannot reduce competition
    - The key here is whether the firm's productive assets would in fact exit the market in the absence of the challenged acquisition—if, in the "but for" world, the failing firm's assets would be acquired by another firm in a transaction that would make consumers better off than with the challenged acquisition, then the challenged acquisition is anticompetitive

Failing firm defense

- **Requirements: The allegedly failing firm—**
  - would be unable to meet its financial obligations in the near future,
  - would not be able to reorganize successfully under Chapter 11 of the Bankruptcy Act, and
  - has made unsuccessful good-faith efforts to elicit reasonable alternative offers that would keep its tangible and intangible assets in the relevant market and pose a less severe danger to competition than does the proposed merger[1]

- **Observations**
  - The failing firm defense works in principle for a failing division or subsidiary
  - The failing firm defense has had essentially no success since the Supreme Court recognized it in 1930 by the Supreme Court in *International Shoe*[2]

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[1] 2010 DOJ/FTC Horizontal Merger Guidelines § 11.
[2] International Shoe Co. v. FTC, 280 U.S. 291, 302 (1930).