Unit 9: H&R Block/TaxACT

Part 2. Anticompetitive Effect in Horizontal Mergers

a. *PNB* presumption
b. Coordinated effects
c. The elimination of a "maverick"
d. Unilateral effects

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H&R
BLOCK®


TaxAct®

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
    - *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 it 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"

- The 2023 Merger Guidelines
  - The Neo-Brandeisians who currently head the FTC and the Antitrust Division believe that the antitrust laws should protect the *competitive process,* rather than solely focusing on preventing consumer (or supplier) harm from the exercise of market power
    - Neo-Brandeisians focus on long-term effects of market concentration, including threats to democracy and wealth inequality, not just short-term consumer impacts
    - As a result, they believe that high-concentration mergers should be unlawful under Section 7, even if they offer short-term efficiencies or consumer benefits
  - However, the 2023 Merger Guidelines do not adopt a Neo-Brandeisian approach but rather largely preserve the consumer welfare standard as the primary framework for interpreting and enforcing antitrust laws, although with some adjustments:
    1. Expands the consumer welfare standard to include effects on suppliers, especially labor
    2. Emphasizes the anticompetitive potential of mergers on nonprice factors—including reduced product quality, reduced product variety, reduced service, or diminished innovation—and not just price
    3. Broadens concerns to include potential long-run effects, rather than focusing on short-run effects as previous guidelines did
    4. Establishes new presumptions and tests that expand the reach of antitrust law—at least presumptively—to find mergers anticompetitive that the previous guidelines would not
       - Including lower HHI thresholds for triggering a presumption of anticompetitive harm in horizontal mergers

The Prima Facie Case: The *PNB* Presumption

Introduction

- Likely competitive effect
  - Having established the dimensions of the relevant market in which to assess the merger, the next step in the proof of the prima facie case is to assess the merger's likely competitive effect in this market
- *Baker Hughes*
  - Recognizes that a prima facie showing of the requisite anticompetitive effect may made be made through the *Philadelphia National Bank* presumption
- The *PNB* presumption

> Specifically, we think that a merger which **produces a firm controlling an undue percentage share 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 must be enjoined in the absence of evidence clearly showing that the merger is not likely to have such anticompetitive effects.[1]

[1] United States v. Philadelphia National Bank, 374 U.S. 321, 363 (1963).

The *PNB* presumption

- The *H&R Block* court uses the Merger Guidelines thresholds as triggers for the *PNB* presumption

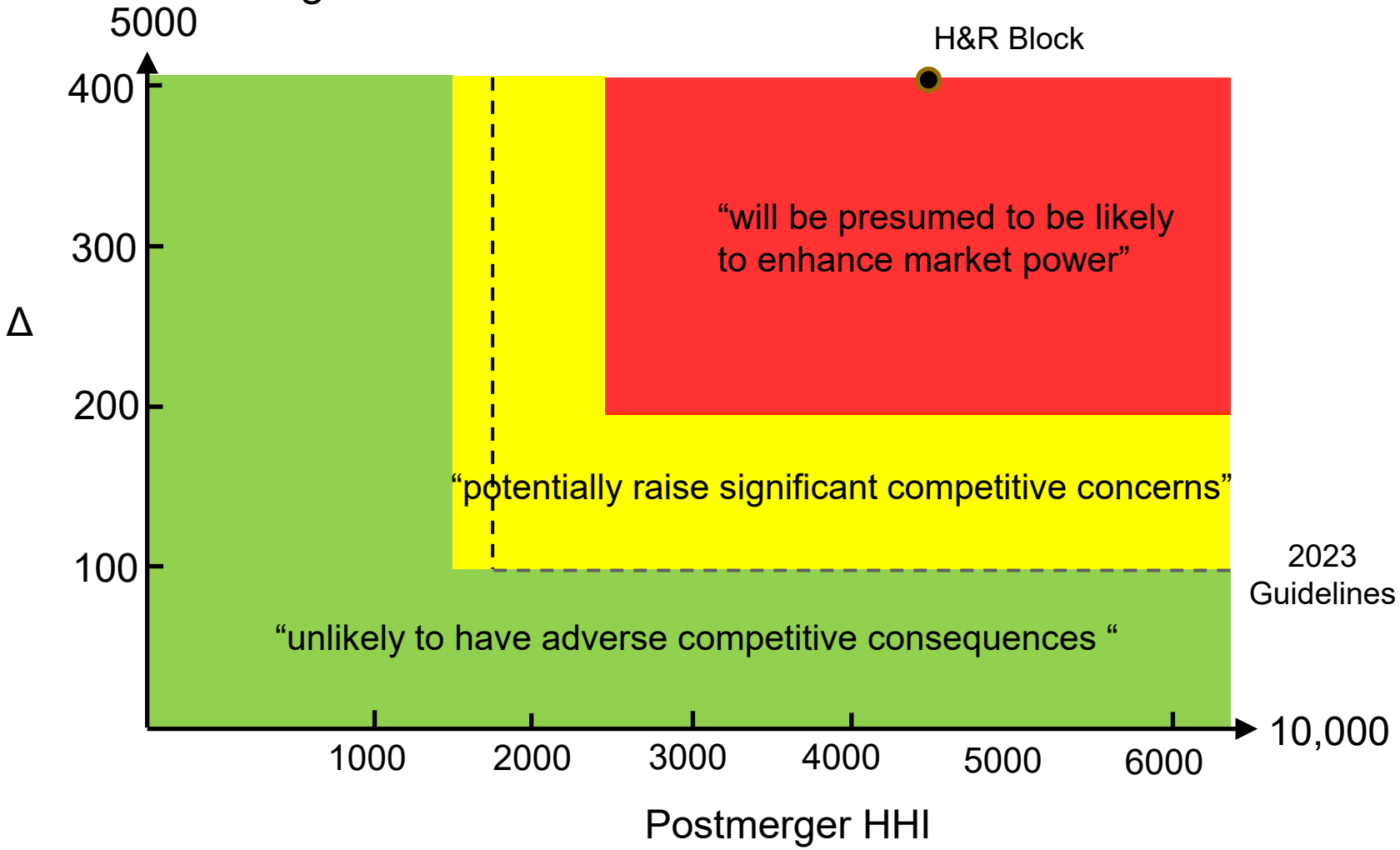
	Premerger Shares	HHI Contribution	
Intuit	62.2%	3869	The square of the firm's market share
HRB	15.6%	243	
TaxACT	12.8%	164	
Others (6)	9.4%	15	Residual share (9.4%) divided by 6 firms and added six times
	100.0%	4291	The sum of the squared shares of all of the firms in the market
Combined share	28.4%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

"Violates" the 2010 Guidelines:
Postmerger HHI exceeds 2500 and delta exceeds 200
2023 Guidelines: 1800 100

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

The *PNB* presumption

- The 2010 Merger Guidelines thresholds



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	2021	Bertelsmann	49	2220	3111	891	Preclosing
FTC	2020	Hackensack	≈50	1994	2835	841	Preclosing
FTC	2020	Peabody Energy	68	2707	4965	2258	Preclosing
FTC	2018	Wilhelmsen	84.7	3651	7214	3563	Preclosing
FTC	2017	Sanford Health	98.6[2]	5333	9726	4393	Preclosing
DOJ	2017	Energy Solutions	100	6040	10000	3960	Preclosing
DOJ	2016	Anthem	47	2463	3000	537	Preclosing
DOJ	2016	Aetna			>5000[3]		Preclosing
FTC	2016	Penn State Hershey	64	3402	5984	2582	Preclosing
FTC	2015	Advocate Heath	55	2094	3517	1423	Preclosing
FTC	2015	Staples	75[4]	3036	5836	2800	Preclosing
FTC	2015	Sysco	71[5]	3153	5519	1966	Preclosing

[1] When the complaint alleged multiple markets, the market with the most problematic highest HHIs is reported.
[2] Pediatricians market. The FTC alleged three other physician markets. The lowest problematic delta was in OB/GYN with a premerger HHI of 6211, a postmerger HHI of 7363, and a delta of 1152.
[3] 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.
[4] 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.

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	2015	Electrolux		3350[2]	5100	1750	Preclosing
DOJ	2013	Bazaarvoice	68	2674	3915	1241	Consummated
FTC	2013	Saint Alphonsus	57	4612	6129	1607	Consummated
DOJ	2013	US Airways	100[3]	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[4]		10000		Preclosing
FTC	2004	Evanston	35	2355	2739	384	Consummated
DOJ	2003	UPM-Kemmene	20	2800	2990	190	Preclosing

[1] When the complaint alleged multiple markets, the market with the most problematic highest HHIs is reported.
[2] The complaint alleged three markets. The numbers given are for ranges. Cooktops and wall ovens were similar
[3] The complaint alleged 1043 markets.
[4] In some local geographic markets, this was a merger to monopoly in the FTC's alleged product market of premium, natural, and organic supermarkets.

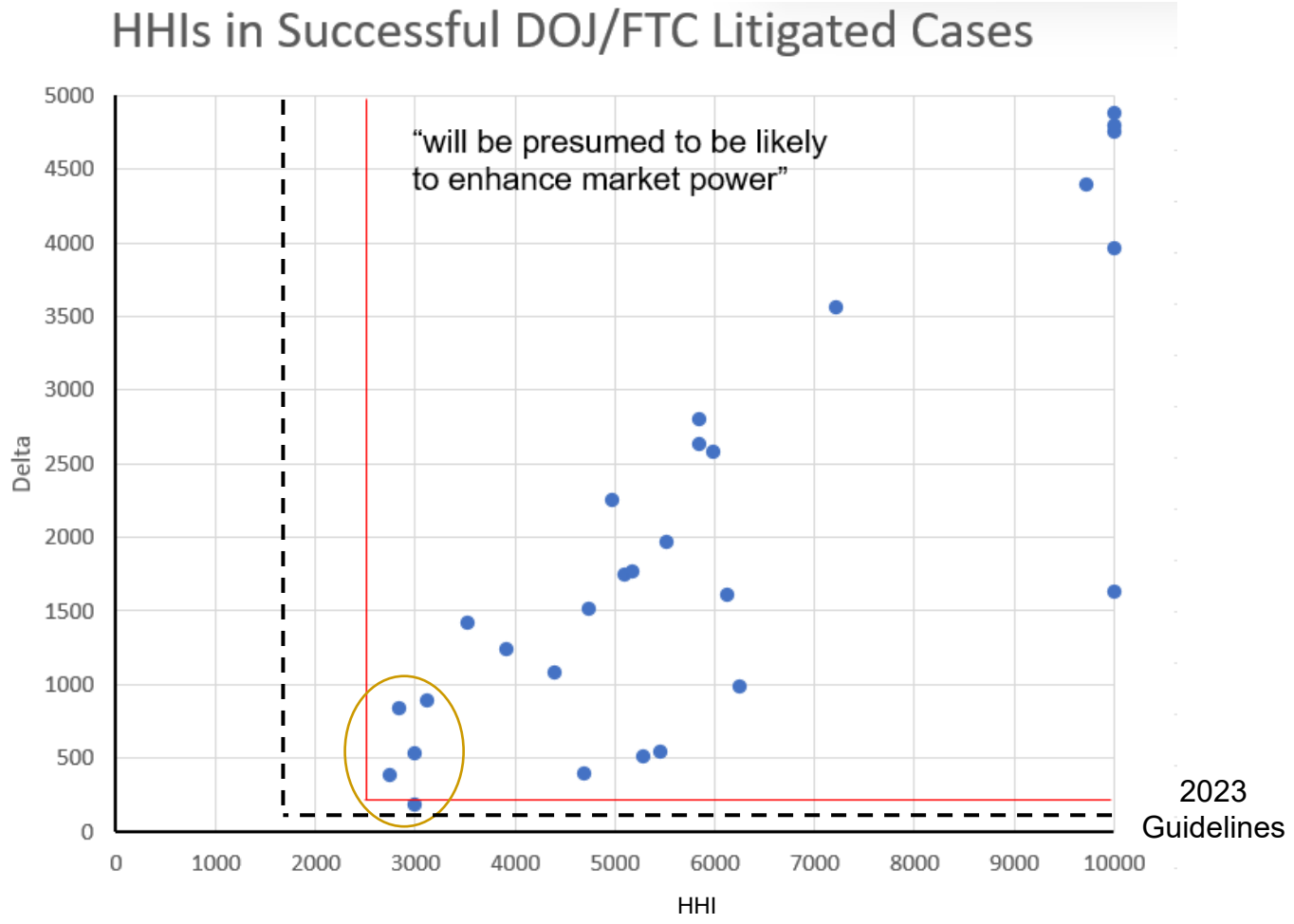
HHIs in Successful DOJ/FTC Challenges

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

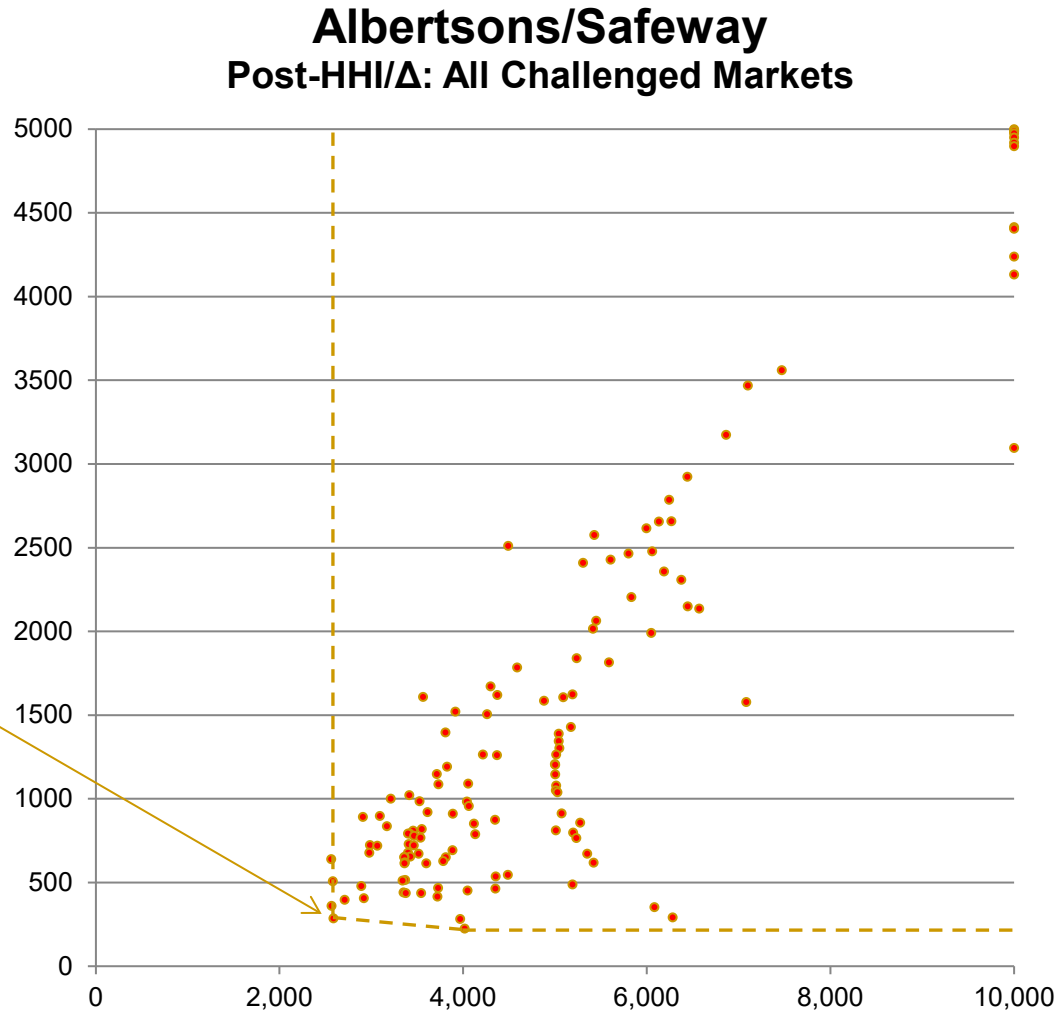
Agency	Complaint	Defendant	Combined Share[1]	PreHHI	PostHHI	Delta	Deal Status
FTC	2002	Libbey	79	5251	6241	990	Preclosing
FTC	2001	Chicago Bridge	73	3210	5845	2635	Consummated
FTC	2000	Heinz	33	4775	5285	510	Preclosing
FTC	2000	Swedish Match	60	3219	4733	1514	Preclosing
DOJ	2000	Franklin Electric	100	5200	10000	4800	Preclosing

[1] When the complaint alleged multiple markets, the market with the most problematic highest HHIs is reported.

HHIs in Successful DOJ/FTC Challenges



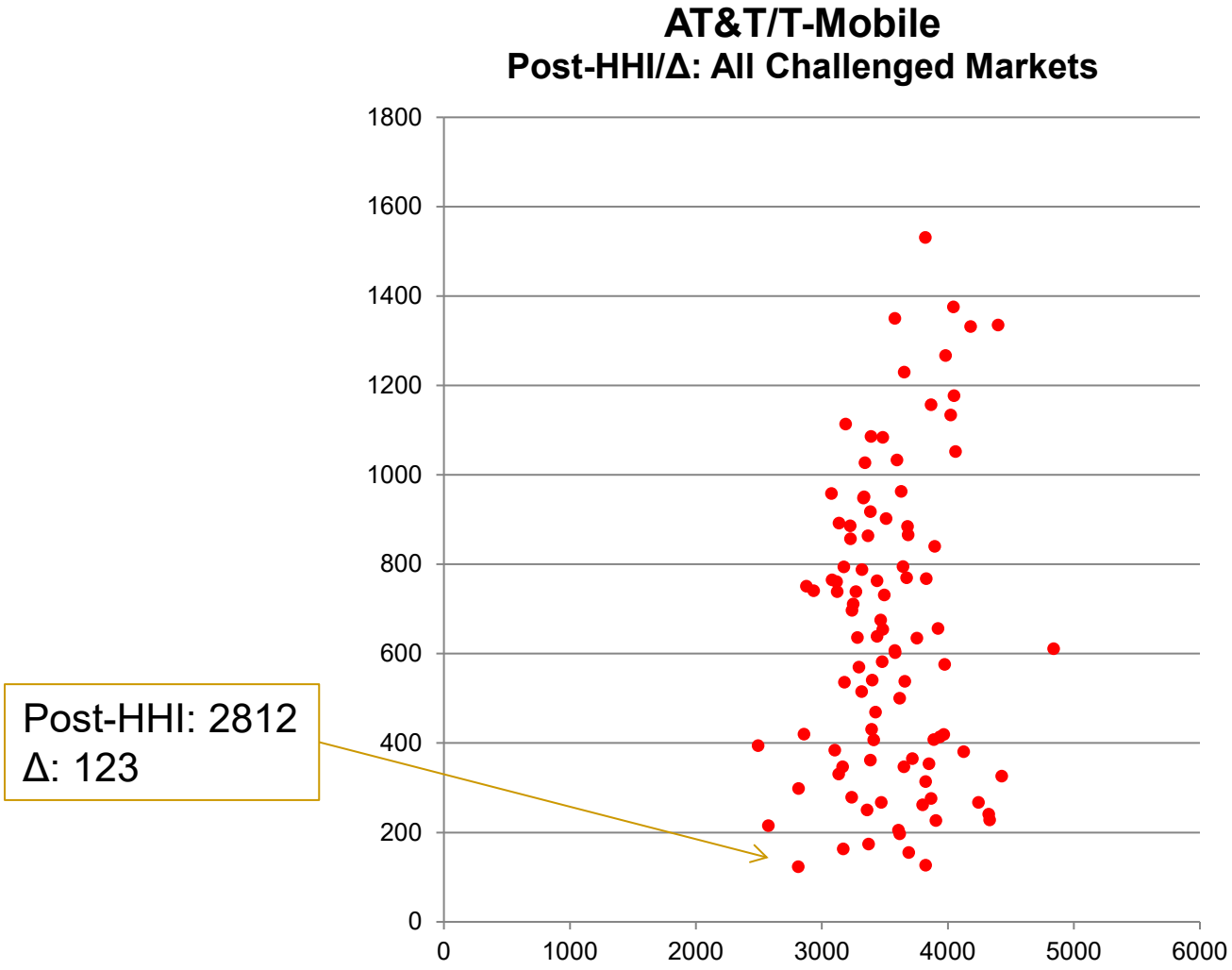
Example: Albertsons/Safeway



Post-HHI: 2586
Δ: 285

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

Example: AT&T/T-Mobile



The 2023 Merger Guidelines

- Two significant changes in the HHI thresholds
  - Significantly lowers the HHI thresholds
  - Creates a new 30% threshold for the merging firm with the ΔHHI > 100

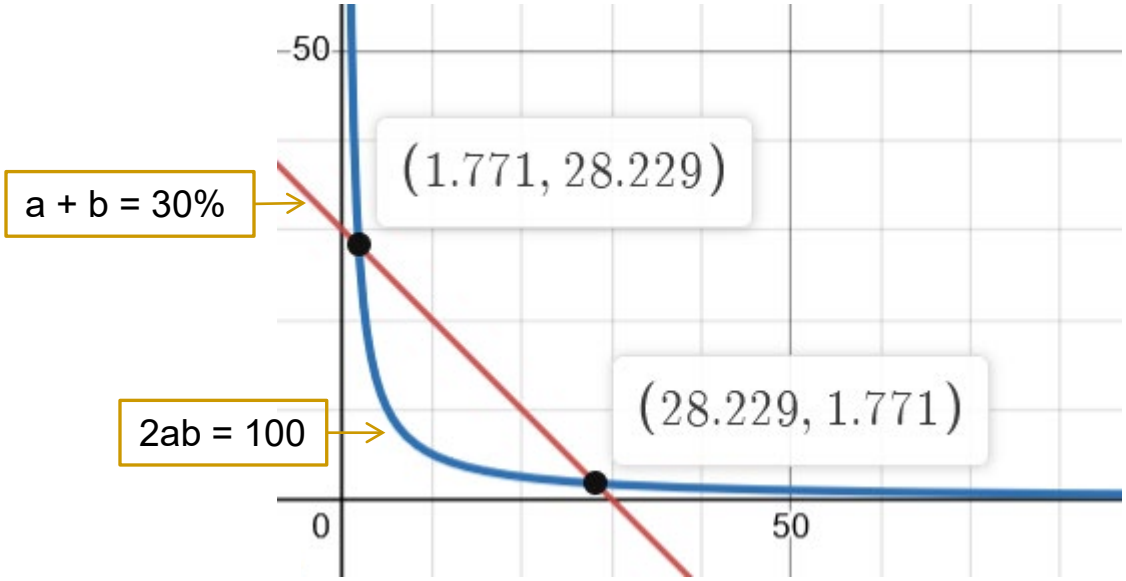
	2010 Horizontal Merger Guidelines	Proposed Guidelines
Post-merger HHI and ΔHHI levels to trigger structural presumption	2,500 and change in HHI greater than 200	Greater than 1,800 and change in HHI greater than 100[1]
Merged company's market share trigger	No stated market share presumption. Market share is "useful to the extent it illuminates the merger's likely competitive effects."	Share greater than 30%, and change in HHI greater than 100[2]

[1] U.S. Dep't of Justice & Fed. Trade Comm'n, Merger Guidelines § 2.1 (Dec. 18, 2023). In the 2010 guidelines, this is the threshold for finding the merger may "potentially raise significant competitive concerns." 2010 Horizontal Merger Guidelines § 5.3.

[2] *Id.* 4 n.16 (citing United States v. Philadelphia National Bank, 374 U.S. 321, 364-65 (1963)).

The 2023 Merger Guidelines

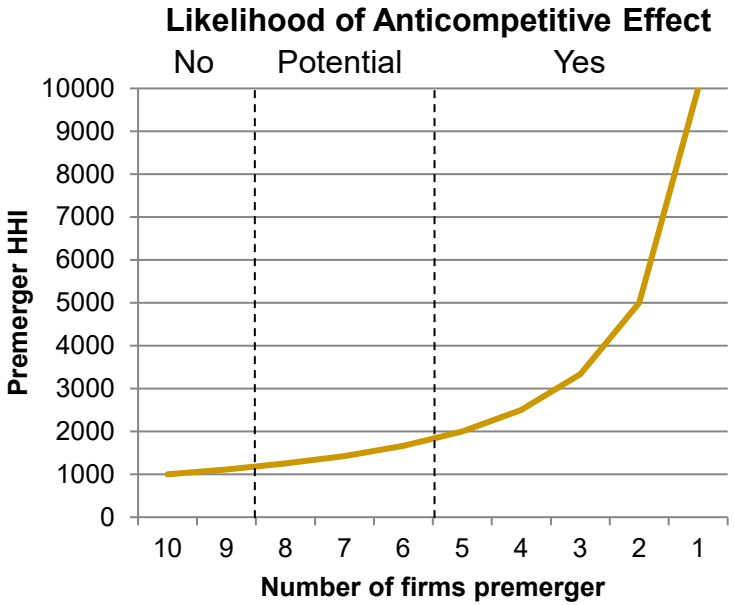
- The 30% trigger essentially triggers the *PNB* presumption whenever the two firms have a combined market share of 30%
  - That is, the ΔHHI > 100 requirement is irrelevant unless one of the merging firms has a market share of less than 2%



Comparing the Merger Guidelines

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

n	Premerger 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			



Presumptive anticompetitive effect under 2023 Guidelines
2010 Guidelines reach a 5-to-4 merger
2023 Guidelines reach a 7-to-6 merger

2023 Merger Guidelines

- *Query*: Will the 2023 Merger Guidelines thresholds have much traction with the courts?

Probably not

1. The merger guidelines are not binding on the courts
2. The judicial precedent has repeatedly referenced the higher thresholds of the 2010 Horizontal Merger Guidelines as the trigger for the *PNB* presumption
3. No modern litigated case has tested the 2010 guidelines thresholds, much less the lower thresholds of the Draft Merger Guidelines
4. The DOJ and FTC do not cite any economic studies to support the lower thresholds
   - But, then again, they did not have any studies to support the 2010 thresholds either
5. *WDC*: I am unaware of an any academic economic studies that support the lower thresholds

Market participants[1]

- The idea
  - Under the Merger Guidelines, only demand-side substitutability counts in market definition
  - BUT who participates in the market—and their associated market shares—does take supply-side substitutability into account

Note: Historical precedent allows courts to take supply-side substitutability into account when defining markets

[1] *See* 2010 Merger Guidelines § 5.1.

Identifying market participants

- Two types of market participants under the Merger Guidelines
  1. *Current sellers*: All firms that currently earn revenues in the relevant market
  2. *Nonsellers* ("rapid entrants"):
     a. *Vertically integrated firms* to the extent that they would direct production from captive use to merchant sales or employ excess capacity in response to a SSNIP
     b. *Near-term entrants* not currently earning revenues in the relevant market but will enter the market with near certainty in the very near future
     c. *Rapid responders* that are not current producers in a relevant market but would very likely provide a rapid supply response to a SSNIP

Identifying market participants

- Nonseller "rapid entrants"
  - The 2010 and 2023 Merger Guidelines limit "rapid entrants" to those firms whose entry do not require significant sunk costs
    - The 1992 Guidelines called these firms "uncommitted entrants"[1]
  - *Example*:

> Farm A grows tomatoes halfway between Cities X and Y. Currently, it ships its tomatoes to City X because prices there are two percent higher. Previously it has varied the destination of its shipments in response to small price variations. Farm A would likely be a rapid entrant participant in a market for tomatoes in City Y.[2]

  - NB: Entry that would take place more slowly in response to adverse competitive effects, or that requires firms to incur significant sunk costs, is considered in the entry defense analysis, not as market participation

[1] *See* 1992 Merger Guidelines § 1.32.

[2] 2010 Merger Guidelines § 5.1 (example 16).

Market share attribution[1]

1. Current sellers
   - Normally based on recent historical level of sales
     - Homogeneous products are usually measured in units
       - Reflects Cournot competition, where production levels are the firm's control variable
     - Differentiated products are usually measured in revenues
       - Reflects Bertrand competition, where price is the firm's control variable
   - Adjustments
     - The Merger Guidelines envision adjustments to historical measures based on changing conditions when these adjustments can be reliably made
       - *Example*:
         - Firm A, which operates close to full capacity, has just developed a new technology, which will enable it to increase production by 20%.
         - For HHI analysis, increase Firm A's production by 20% and recalculate the market shares of all firms in the relevant market
       - *Example*:
         - One of Firm B's plants was recently destroyed by a fire, which will reduce the firm's production levels in the future
         - For the HHI analysis, reduce Firm B's production by the amount produced by the destroyed plant (and not shifted to another of B's plants with excess capacity) and recalculate the market shares of all firms in the relevant market

[1] *See* 2010 Merger Guidelines § 5.2.

Market share attribution[1]

2. Nonsellers
   - The competitive significance of nonsellers depends on the extent to which they would rapidly enter the relevant market in response to a SSNIP
   - Consequently, their market share attribution is the quantity they would likely sell in the relevant market in response to a SSNIP
     - The 1992 Merger Guidelines are explicit on this[1]
     - The 2010 and 2023 Merger Guidelines are silent on the mechanism to attribute market shares
       - In the absence of a method in the current Guidelines, courts are likely to use the 1992 Guidelines approach
   - Example
     - If Firm X currently produces 1 million units of an input and consumes 100% of this production internally but would divert 20% of its production to merchant sales in the event of a 5% SSNIP, then the integrated firm is a participant in the relevant market and would be credited with 200,000 units in the relevant market (even though the firm in fact makes no sales in the relevant market).

Current Producers	Units	Share
Firm A	600	37.5%
Firm B	450	28.1%
Firm C	400	25.0%
Firm D	150	9.4%
	1600	100.0%

MG Participants	Units	Share
Firm A	600	33.3%
Firm B	450	25.0%
Firm C	400	22.2%
Firm D	150	8.3%
Firm X	200	11.1%
	1800	100.0%

[1] 1992 Merger Guidelines § 1.41.

Defendants' Rebuttal Arguments

Defendants' rebuttal arguments

- *Baker Hughes*

> The basic outline of a section 7 horizontal acquisition case is familiar. [1] By showing that a transaction will lead to undue concentration in the market for a particular product in a particular geographic area, the government establishes a presumption that the transaction will substantially lessen competition. **[2] The burden of producing evidence to rebut this presumption then shifts to the defendant.** [3] If the defendant successfully rebuts the presumption, the burden of producing additional evidence of anticompetitive effect shifts to the government, and merges with the ultimate burden of persuasion, which remains with the government at all times.[1]

  - In Step 2 of *Baker Hughes* three-step burden shifting, the defendant bears the *burden of production* to rebut the plaintiff's prima facie case
    - The burden of production requires the defendant to adduce sufficient evidence to put an element of the prima facie case in issue and create a question of fact for the trier of fact
    - *Sliding scale*: The quantum of evidence required depends on the strength of the plaintiff's prima facie case: "The more compelling the prima facie case, the more evidence the defendant must present to rebut it successfully."[2]

[1] United States v. Baker Hughes Inc., 908 F.2d 981, 982-83 (D.C. Cir. 1990) (footnote and internal citations omitted).
[2] *Id.* at 991.

Typical structure of a formal merger analysis

- Step 1: The prima facie case
  - A. Relevant market
    - *Brown Shoe* "outer boundaries" and "practical indicia" tests for product markets
    - "Commercial realities" test for geographic market
    - Hypothetical monopolist test [and other 2023 Guidelines tests to the extent adopted]
  - B. *PNB* presumption
    - Market participants and market shares
    - Application of the *PNB* presumption ← Judicial precedent; Guidelines thresholds [t the extent adopted]
  - C. Other evidence of anticompetitive effect
    - Unilateral effects
    - Coordinated effects
    - Elimination of a maverick

    → *H&R Block*
- Step 2: Defendants' rebuttal
  - A. Challenges to the prima facie case (failure of proof on upward pressing pressure)[1]
  - B. Traditional defenses (offsetting downward pricing pressure)
    - Entry/expansion/repositioning
    - Efficiencies
    - Countervailing buyer power ("power buyers")
    - Failing company/division
- Step 3: Court resolves factual issues and determines net effect on competition

[1] Often addressed in Step 1.

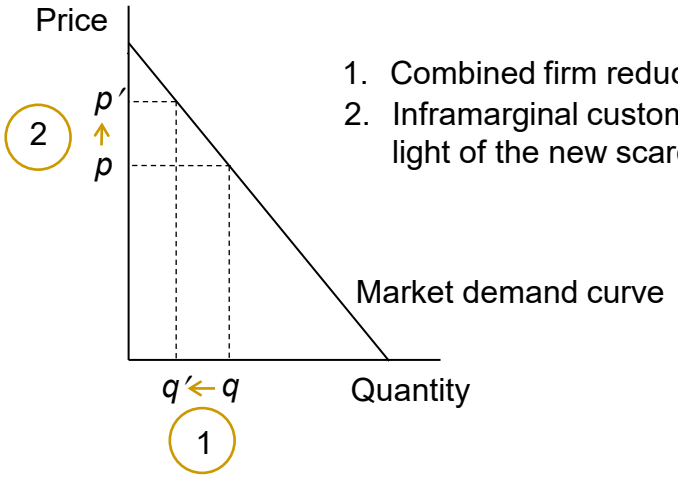
Defendants' rebuttal arguments

- Four arguments
  1. The likelihood of expansion by existing DDIY firms besides Intuit, HRB, and TaxACT will offset any anticompetitive effects
  2. The relevant market is not susceptible to coordination and the merger will not increase the probability of effective coordinated interaction
  3. The merger will not result in anticompetitive unilateral effects
  4. The efficiencies resulting from the merger will offset any anticompetitive effects

Defendants' Rebuttal Arguments
Part 1. Entry/Expansion/Repositioning

Entry/Expansion/Repositioning

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



1. Combined firm reduces production and creates a "hole" in output
2. Inframarginal customers bid up the price to clear the market in light of the new scarcity at premerger prices

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

A problem for the merging parties with this defense is that the evidence of the likelihood of entry/expansion/repositioning is in the hands of third parties

Entry/Expansion/Repositioning

- A twist on the "story"
  - The mere *threat* of entry/expansion/repositioning may be enough to deter the combined firm from reducing output (or otherwise acting less competitively) for fear of inducing new competition
    - The "story"
      - Say that there are four firms in the market of equal size (each selling 100 units = 25% shares)
      - Two firms merge: Proforma market share = 50%
      - Combined firm decreases output by 40 units to raise prices (anticompetitive effect)
      - Suppose a new firm quickly enters selling 40 units (fills the "hole")
      - Market returns to premerger prices
        - New entrant remains in the market with some positive market share of, say, 30%
        - Combined firm only recovers to a 20% share
      - → Merged firm has lost 5% points of share with no gain in price
  - The advantage to this theory is that the proof is in the hands of the merging parties
    - What is important is that the merged firm is deterred from reducing output in the first instance, so there is no "hole" in quantity to be filled
    - Moreover, the entry anticipated by the merged firm does not have to be simultaneous with the merger—the story works so long as the merged firm is deterred from reducing output even in the short run
  - *WDC*: While this defense has worked in investigations in close cases, I am not aware of a court addressing it

Entry/Expansion/Repositioning

- The Merger Guidelines: The formalities
  - 1982 and 1992: Depended largely on actual entry offsetting the merger's anticompetitive effect within two years of the merger
    - This allowed for a short-run anticompetitive effect
  - 2010 and 2023: Requires entry to "deter or counteract" any anticompetitive effects "so the merger will not substantially harm customers"
    - Does not allow any grace period

Entry/Expansion/Reposition

- 2010 Guidelines requirements—Entry must be:[1]
  - Timely

    [E]ntry must be rapid enough to make unprofitable overall the actions causing those effects and thus leading to entry, even though those actions would be profitable until entry takes effect.

  - 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.

  - Sufficient

    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.

    As we have seen, this is too strong a condition

- Courts have adopted these requirements

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

Entry/Expansion/Repositioning

- Defendants' argument
  - 18 companies offering DDIY products
  - Argued that the two largest—TaxHawk and TaxSlayer—were poised to replicate the scale and strength of TaxACT

Entry/Expansion/Repositioning

- TaxHawk—
  - Had infrastructure to expand by 5-7 times current size
  - BUT had been in business for 10 years and never grew beyond 3.2%
  - Functionally more limited than the Big Three
    - Does not service all federal tax forms
    - Excludes two states' forms in their entirety
    - Does not service major cities with income taxes (e.g., NYC)
  - Co-founder testified that it would take another decade for the TaxHawk to support all forms
    - Reason: "Lifestyle" company—don't like to work too hard
    - Runs TaxACT to "deliver a sufficient income stream to sustain its owners' comfortable lifestyle, without requiring maximal effort on their part."
  - Court: Compare with TaxACT—very entrepreneurial and impressive rate of growth

Illustrates the problem that the most compelling evidence is not under the control of the merging firms. Testimony by the alleged new entrant that it will not enter/expand/reposition sufficient to offset the anticompetitive effect is the kiss of death for the defense

Entry/Expansion/Repositioning

- TaxSlayer—
  - Established in 2003
  - Family business
  - Relies heavily on sponsorship of sporting events (e.g., the Gator Bowl and NASCAR races)
  - 2.7 market share
  - No meaningful growth in market share (had 2.5 share in 2006)

Entry/Expansion/Repositioning

- DOJ evidence: Significant barriers to entry and expansion
  1. Successful entry/expansion beyond a few percentage points of markets share requires a brand name reputation
     - Customers need trust in their tax service provider
     - Costly to build needed reputation
       - HRB testimony: takes millions of dollars and lots of time to develop a brand
       - Big Three (really Big Two) spend over $100 million/year in advertising to build and maintain their brands
       - Dwarf expenditures by smaller companies
     - TaxACT CIM identifies reputation as a barrier to entry
     - TaxHawk and TaxSlayer lack the reputation and the incentive and funds to build one
  2. High new customer acquisition costs
     - Market has matured considerably and there is not the “low hanging fruit” of manual customers who are natural customers of DDIY products
     - Instead, TaxHawk or TaxSlayer would have to acquire customers from Intuit or HRB
     - Very high customer acquisition costs → entrenched market shares → low growth for other firms
  3. High switching costs
     - Data cannot be imported across products of different companies
- Court: Defense rejected

Entry/Expansion/Repositioning

- Concluding comments
  - Almost impossible to make out the defense in an agency investigation
    - The agency starts by insisting that the potential entrants be identified by name
    - It then calls each of the identified firms and asks: “Would you enter this market if prices increased by 5% to 10%?”
    - The company almost always answers “no”
      - Can be a kneejerk reaction
      - Can be a “go away staff” reaction
      - Can be an informed “no”
    - The 2023 Merger Guidelines are explicit that in the face of a prima facie entry defense, the agencies will “analyze why the merger would induce entry that was not planned in pre-merger competitive conditions”[1]
      - The idea here is that if entry as did not occur premerger, why would the putative entrant enter postmerger (especially if the prevailing price would only increase by a SSNIP)?
  - Some business realities
    - As a general rule of business behavior, 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
    - The problem is that entry can too easily precipitate a price war and destroy the pre-entry margin that made entry attractive in the first instance

[1] 2023 Merger Guidelines § 3.2.

Defendants' Rebuttal Arguments
Part 2A. Coordinated Effects

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]

Think price fixing without an agreement

  - *Terminology*: May use "accommodate" rather than "coordinate" or "cooperate"
  - *Scope*: Firms can coordinate across any or all dimensions of competition, including price, product features, customers, geography of operation, innovation, wages, or benefits[2]

[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).
[2] *See* 2023 Merger Guidelines § 2.3.

Introduction

- Relation to Sherman Act § 1
  - Section 1 provides explicit coordination by agreement on competitive variables that that be manipulated to harm consumers and increase producer profits
  - Section 7 addresses tacit coordination, that is, coordination that occurs in the absence of agreement (and hence cannot violate Section 1)

Rule*: Since Section 7 prohibits mergers with a reasonable probability of lessening competition, a merger is anticompetitive if it* increases the likelihood, effectiveness, or stability *of coordinated interaction.*

A Section 7 violation does not *require proof that firms in the market would engage in such coordination as a result of the merger.*

Introduction

- What can firms do if the merged firm seeks to increase price?
  1. "Do nothing"—Just continue doing what they were doing
  2. Compete more aggressively/expand production/maybe even lower price to gain market share
  3. "Accommodate" the price increase
     - Need not match it
  - Key question:

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

  - Key requirements:
    - Must find a causal relationship between the merger and the increased probability, effectiveness, or stability of coordination

Merger Guidelines history

1. 1982 Guidelines
   - Accepted an unspecified theory of oligopoly as the underpinning of the *PNB* presumption
   - Did not require more for a prima facie case

Merger Guidelines history

2. 1992 Guidelines
   - *Problem*: There exist highly competitive markets with only a few firms
     - E.g., Coke and Pepsi
   - *Solution*: Require proof that the "Stigler conditions" for (tacit) coordination were satisfied in the relevant market:

Stigler conditions

1. *Tacit agreement*: Market conditions must be conducive to firms (tacitly) reaching terms of coordination that are individually profitable to the firms involved
2. *Detection*: Market conditions must be conducive to firms detecting deviations from the tacit terms of coordination
3. *Punishment*: Market conditions must be conducive to firms punishing deviations from the tacit terms of coordination

   - *In practice*:
     - The courts—and, indeed, many within the agencies—did not understand the punishment requirement
     - Many thought that it require participating firms to tacitly reach an agreement on a particular punishment and then tacitly coordinate to implement it
     - Prosecutors had a difficult time convincing courts to accept proof that market conditions were conducive to punishing deviations and the theory grew out of favor

Merger Guidelines history

3. 2010 Merger Guidelines
   - The 2010 Merger Guidelines sought to revitalize the coordinated effects theory
   - *Solution*: Eliminate the language of the Stigler conditions and focus more generally and less prescriptively on—

2010 MG requirements

1. The premerger *susceptibility* of coordinated interaction, and
2. The *effectiveness* of the merger in increasing the likelihood, effectiveness, or stability of coordinated interaction among some or all the firms in the market
   - Requires a causal relationship between the merger and the increased probability of effectiveness of coordination

   - Relation to the Stigler conditions
     - The 2010 susceptibility requirement subsumed the structural market, information, and incentive compatibility considerations inherent in the first two Stigler conditions
     - The Stigler punishment element disappeared altogether as a factor in the analysis and was replaced by the effectiveness condition
     - Effectiveness only requires a showing of an increased likelihood of successful coordination interaction, not proof that coordination interaction would in fact occur postmerger

Merger Guidelines history

3. 2010 Merger Guidelines (con't)
   - Adoption of the 2010 Merger Guidelines test by the courts has been mixed
     - Some courts have adopted the 2010 Merger Guidelines two-element test[1]
     - Other courts continue to use the *H&R Block* approach of:
       - Presuming coordinating effects when postmerger concentration is sufficient high to trigger the *PNB* presumption, *and*
       - Shifting the burden (presumably of production) to the merging parties to rebut the presumption[2]
         - If the burden is one of persuasion, the shift violates *Baker Hughes*

[1] *See* New York v. Deutsche Telekom AG, 439 F. Supp. 3d 179, 234 (S.D.N.Y. 2020); New York v. Deutsche Telekom AG, 439 F. Supp. 3d 179, 234 (S.D.N.Y. 2020); FTC v. RAG-Stiftung, 436 F. Supp. 3d 278, 317 (D.D.C. 2020).
[2] *See* United States v. Bertelsmann SE & Co. KGaA, 646 F. Supp. 3d 1, 44-45 (D.D.C. 2022) ("[W]hen the government has shown that a merger will substantially increase concentration in an already concentrated market, . . . '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.'") (quoting *H&R Block*, 833 F. Supp. 2d at 77); FTC v. OSF Healthcare Sys., 852 F. Supp. 2d 1069, 1087 (N.D. Ill. 2012).

Merger Guidelines history

4. The 2023 Guidelines refinements
    1. *Consistent terminology*: While the 2010 Merger Guidelines used "coordinated interaction," "coordinated conduct," and "coordinated effects" interchangeably, the 2023 Merger Guidelines uses the term "coordinated interaction" consistently.
    2. *Extension to nonprice dimensions*: Adopted the approach of the 2023 Guidelines but explicitly recognized that coordinated interaction can occur across multiple dimensions of competition in addition to price, including product features, customer segmentation, output, innovation, and (on the input side) labor market conditions such as wages and benefits[1]
        - WDC: Expect the major focus in cases to be on price unless the evidence in a particular case is materially probative of likely coordination on other dimensions
        - In this connection, a history of past attempts of coordination on a specific dimension is likely to be regarded by the agencies as highly probative
    3. *Simplify the proof*
        - The 2023 Guidelines collapse the two-element 2010 test into one requirement: does the merger increase the “the likelihood, stability, or effectiveness of coordination” in the relevant market?
        - Simplifies the proof by listing three “primary factors” presumptive and six “secondary factors” probative in showing a merger

See the class notes for more detail on each of these stages

[1] 2023 Merger Guidelines §§ 2.3.

Some economics

- Introduction
  - Although the 2023 Guidelines collapse the test for coordinated interaction into a single element, it can be readily decomposed into the two-element test of the 2010 Guidelines"
    1. Is the market susceptible to coordinated interaction premerger?
    2. Is there a reasonable probability that the likelihood, effectiveness, or stability of coordinated interaction will increase as a result of the merger?
  - This is a clearer way to analyze the issue, especially on the underlying economics

We will analyze the economics of each question separately.

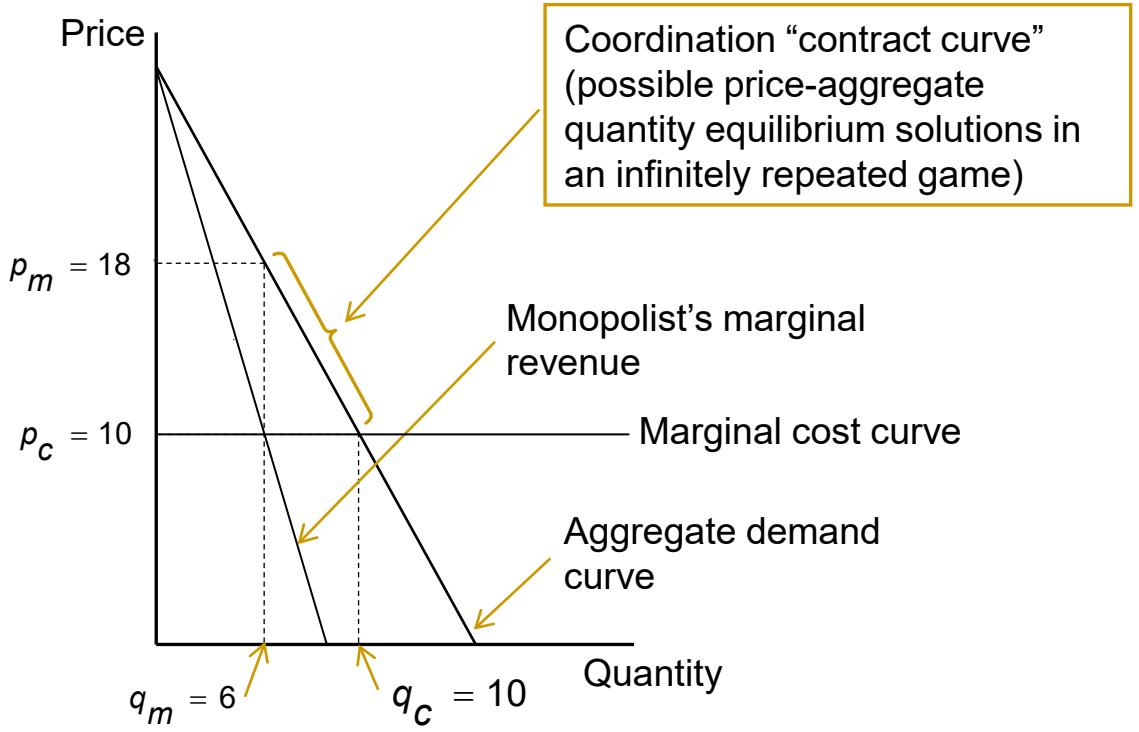
You will be able to see how the various factors identified in the 2010 and 2023 Merger Guidelines fit into the economic analysis.

1. Susceptibility

- Oligopolistic coordination is impeded by three problems:
  1. Selection problem
     - Will the firms be able to "agree' to the price or other terms on which they will tacitly coordinate?
  2. Internal stability problem
     - Will the (short-run) incentive to pursue a more competitively aggressive strategy, which all profit-maximizing firms have, undermine any tacit coordination within the collusive group?
  3. External interference problem
     - Apart from the firms in the collusive group, will other entities disrupt any tacit coordination?
       - Will firms in the market but outside of the collusive group expand or threaten to expand production?
       - Will firms outside the market enter or threaten to enter the market?
       - Will buyers with sufficient negotiating power (if any) induce defections and disrupt the terms of coordination

1A. Susceptibility: Selection problem

- The idea
  - There are an infinite number of possible price-quantity points on the demand curve on which the firms could tacitly "select" to achieve
  - Ineffectiveness or instability occurs if they cannot coordinate on the same point

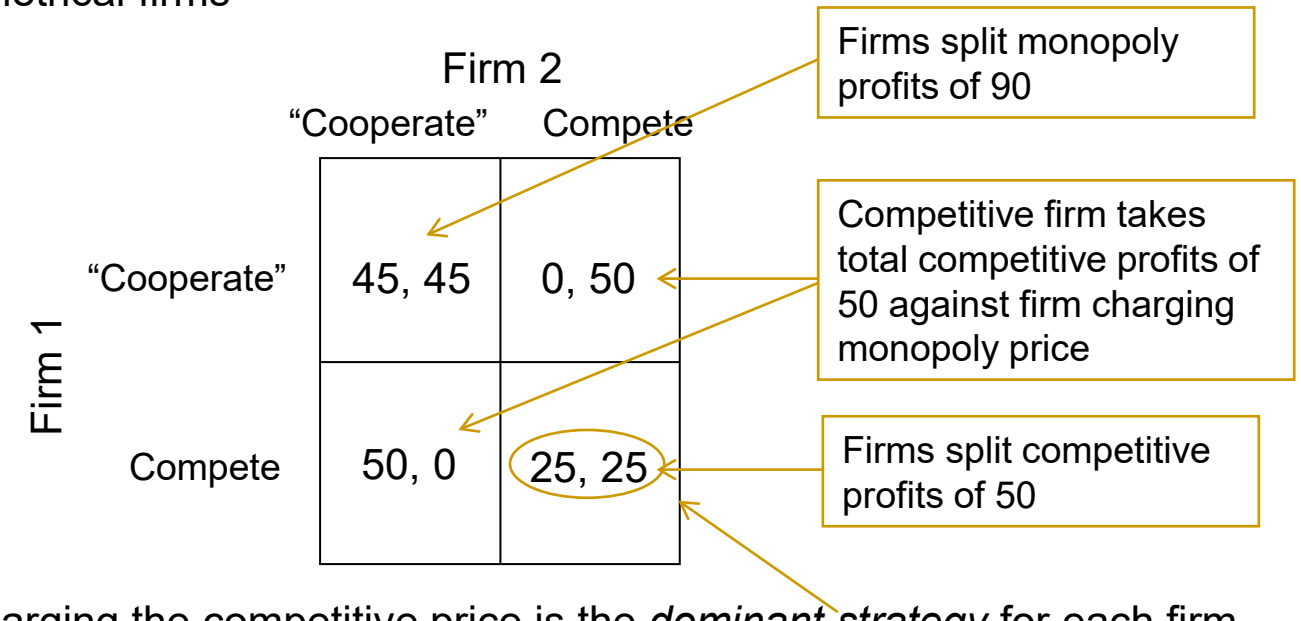


1A. Susceptibility: Selection problem

- Factors to consider (not exhaustive)
  a. The ability of the firms to signal one another about their individually preferred outcomes
     - The more information about the competitive variables on which coordination may take place (e.g., prices and/or production levels of individual firms), the better firms will be able signal one another about preferred outcomes
     - Goes to the transparency of the market on the terms of coordination
  b. The degree of firm homogeneity
     - The more similar the firms, the more likely they will have similar objectives and so be aligned in their incentives to coordinate
  c. The degree of product homogeneity
     - The more similar the products, the easier it is to coordinate
     - That is, the terms of coordination are likely to be less complicated than with highly differentiated products

1B. Susceptibility: Internal stability

- Incentive compatibility problem
  - Inherent in oligopolistic coordination since each profit-maximizing firm has a incentive to compete more aggressively and steal market share rather than to cooperate
- *Illustration*: Duopoly "prisoner's dilemma" in single period game
  - Two symmetrical firms



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

1B. Susceptibility: Internal stability

- Two questions
  a. What is the probability that at least one firm in the market will defect?
  b. For any given firm, what factors influence its individual probability of defection?

1B. Susceptibility: Internal stability

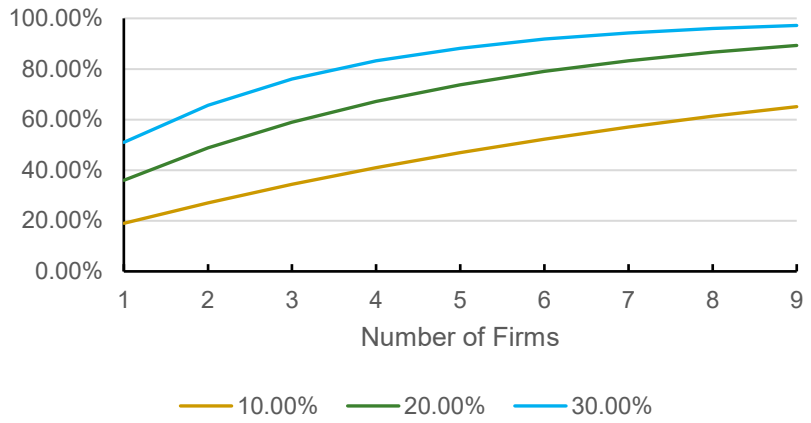
a. Probability of at least one defection

- *Key factor*: The number of competitors
  - The more competitors, the more likely one or more firms will defect given any individual firm's probability of defection
  - This factor underpins the emphasis on the number of realistic suppliers remaining in the market postmerger

Probability of at Least One Defection

Individual defection probability *p*

Number of firms *n*	10.0%	20.0%	30.0%
2	19.0%	36.0%	51.0%
3	27.1%	48.8%	65.7%
4	34.4%	59.0%	76.0%
5	41.0%	67.2%	83.2%
6	46.9%	73.8%	88.2%
7	52.2%	79.0%	91.8%
8	57.0%	83.2%	94.2%
9	61.3%	86.6%	96.0%
10	65.1%	89.3%	97.2%



1B. Susceptibility: Internal stability

b. Factors affecting an individual firm's incentive (probability) to defect (not exhaustive)

1. The size of the reward relative to the market
   - The larger the size of the reward relative to the size of the market, the larger the incentive to defect
   - Differences among firms in the market may affect the size of their expected reward
     - *Example*: Firms with large excess capacity can increase their production to service more demand at more competitive (defection) prices
     - *Example*: Firms operating at capacity have no incentive to defect
2. The probability of detection (for a given size of reward)
   - The greater the probability of detection, the lower the incentive to defect
     - That is, the defecting firm will not be able to make as many sales before other companies respond
3. Lags in detection make
   - Significant lags make cheating more profitable (can successfully cheat for a longer period of time) and increase the incentive to defect
4. Prior actual or attempted collusion or coordination/willingness to coordinate
   - Indicates that firms in the market believe that coordination is possible
   - Premerger industry efforts to coordinate is highly probative of an incentive to coordinate
     - Whether or not successful
     - Whether or not lawful (*Query*: Should historical lawful coordination be considered probative?)

1C. Susceptibility: External interference

c. Threat of "external" interference that may undermine coordinated interaction within a relevant market

1. Mechanisms of external interference
   - i. Producers outside of the market that enter the market
   - ii. Customers that switch to products outside of the collusive group
   - iii. Customers with sufficient bargaining power disrupt coordinated interaction
2. External factors to consider (not exhaustive)
   - 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
   - i. Ability and willingness of customers to switch to suppliers outside of the collusive group
   - ii. Ease with which new competitors may enter
   - iii. Ease with which incumbent competitors outside the collusive group may efficiently expand production
   - iv. Capacity utilization outside the collusive group
     - Significant excess capacity allows outside firms to substantially increase their production levels to service demand diverting from the collusive group
   - v. Existence of disruptive "power buyers"

2. Merger effectiveness

- Rule
  - 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
- Implications
  - This means that the merger must materially improve the incentives or ability of a group of firms sufficient to affect market price (the "collusive group") to—
    1. Solve the section problem
    2. Solve the incentive incompatibility problem, *or*
    3. Resist external interference
  - *Definition*: A "collusive group" of firms is 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
      - But where the "dominant firm" is the tacitly coordinating sufficient group
    - Recognizes the potential for coordinated effects even if all firms in the market are not tacitly coordinating

2. Merger effectiveness

- Some factors to consider when thinking about merger effectiveness
  1. Mitigating the selection problem
     - \+ The merger reduces firm or product heterogeneity in the market and better aligns the incentives of the various firms tacitly to achieve coordinated interaction
  2. Mitigating the incentive incompatibility problem
     - +++ The merger reduces the number of independent competitors in a way that materially reduces the probability of defection
     - – The merger decreases excess capacity inside the collusive group
     - – The merger results in significant efficiencies in the combined firm that increase the rewards of defection
     - – The merger results in vertical integration that could improve the merged firm's ability to cheat without detection
  3. Mitigating the external interference problem
     - +++ The acquisition of a disruptive "maverick" (considered as a separate theory below)
     - \+ The merger eliminates a likely potential entrant
     - \+ The merger increases the barriers to entry/expansion/repositioning

Key:
\+ The merger increases the probability of effective coordinated interaction postmerger
– The merger decreases the probability of effective coordinated interaction postmerger

Coordinated effects in *H&R Block*

- Coordinated effects in *H&R Block*
  - Court:

> Since the government has established its prima facie case, 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]

    - This is consistent with a strict reading of *Baker Hughes* only if the plaintiffs have established a prima facie case of coordinated effects
      - BUT *H&R Block* in effect rebuttably presumes a price facie case of coordinated effects when the *PNB* presumption is triggered
      - Courts taking the *H&R Block* approach typically cite to *Heinz*, a D.C. Circuit case decided in 2001[2]
        - This illustrates that precedent can trump the Merger Guidelines
      - The *H&R Block* approach is contrary to the approach of the 2010 Horizontal Merger Guidelines
    - Other courts follow the 2010 Merger Guidelines and require the plaintiff to prove a prima facie case of coordinated effects through a showing that—
      - The relevant market is susceptible to coordinated effects, *and*
      - The merger will increase the likelihood or effectiveness of coordinated effects

[1] United States v. H & R Block, Inc., 833 F. Supp. 2d 36, 77 (D.D.C. 2011) (quoting FTC v. H.J. Heinz Co., 246 F.3d 708, 725 (D.C. Cir. 2001)).
[2] *Id*.

Coordinated effects in *H&R Block*

- Merging parties' arguments
  1. Intuit has no incentive to compete any less vigorously postmerger
  2. In particular, Intuit has no incentive to reduce competitiveness of its free product, since free products are a principal driver of paid new customers to Intuit
  3. Therefore, HRB must compete vigorously postmerger or else lose customers to Intuit

Coordinated effects in *H&R Block*

- Evidence: Premerger susceptibility
  1. Three firms could form the "collusive group"
     - Fringe firms too insignificant to be able to disrupt coordination among the "Big Three"
  2. Historical coordination
     - After TaxACT introduced its free offering, Intuit proposed that firms lobby the IRS to impose limits on their free offerings (HRB and others joined, but not TaxACT)
     - *Court*: "Highly persuasive historical act of cooperation"
     - *WDC*: Shows that evidence does not have to be of historical illegal coordination
  3. Other factors
     - Market is transparent (consumer offerings—prices and features available on the Internet)
     - Product differentiation not that relevant
     - Companies can observe and coordinate on attributes of "free" products
     - Transactions are small, numerous, and spread among a mass of consumers
     - Consumers have low bargaining power
     - Significant barriers to switching due to "stickiness" of DDIY products (learning curve)

Coordinated effects in *H&R Block*

- Evidence: Increase in postmerger effectiveness
  1. *Contra*: Intuit engaged in "war games" designed to anticipate and defuse new competitive threats that might emerge from HRB postmerger
  2. BUT the merger reduces the "collusive group" from 3 to 2
  3. AND Intuit's documents also indicated that it anticipated that the combined firm would likely "pull some of its punches" if Intuit is willing to go along and not compete aggressively against it
     - Anticipates that combined firm will "not escalate fee war"
     - *WDC*: This could have been just a random observation by an Intuit employee and not Intuit's considered strategy
  4. AND past cooperation as to lobbying the IRS for eligibility restrictions for free tax products probative of postmerger merger cooperation to further restrict eligibility
  5. AND merger would result in the elimination of a "particularly aggressive competitor" (TaxACT) in a highly concentrated market

Coordinated effects in *H&R Block*

- Court
  - Acknowledges that Intuit and the merged company will have strong incentives to compete for customers
  - BUT coordination does not have to be on all dimensions of competition
    - One aspect is enough
      - For example, lower the quality of "free" products, causing marginal customers to switch to paid software → making them worse off
    - Here, DOJ alleges "coordination would likely take the form of mutual recognition that neither firm has an interest in an overall "race to free" in which high-quality tax preparation software is provided for free or very low prices." (p. 77)
    - That is, not eliminate free products (useful as marketing devices)
    - Rather, reduce their quality in order to drive more customers into paid products
  - Conclusion:
    - Defendants failed to rebut presumption that anticompetitive coordinated effects would result from the merger
    - To the contrary, the preponderance of the evidence indicated that coordinated effects likely would result

The practice today

- Last choice as a theory
  - Even after the 2010 revisions to the Merger Guidelines, coordinated effects is the last choice as an independent theory of competitive harm in horizontal merger investigations
    - *Exception*: Where the merger eliminates a "maverick"
  - Given the narrow market definitions usually found under the hypothetical monopolist test:
    - In problematic mergers, the merging firms tend to have high market shares and be close competitors with one another
    - Typically yields an easily understood unilateral effects theory
  - *Result*: Coordinated effects is rarely used in investigations or litigations as the primary theory of anticompetitive harm
    - Usually more of an add-on theory in the complaint
    - Or when the agency is forced into it (*CCC/Mitchell*)

The practice today

- When coordinated effects is used in litigation
  - A common approach is for the plaintiffs to invoke the *PNB* presumption and then make the argument that—
    1. The high concentration and other characteristics of the relevant market make it susceptible to coordinated interaction, *and*
    2. the reduction in the number of competitors and increase in concentration resulting from the merger 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 and the courts find past efforts at arguably illegal coordination in the market especially probative of both susceptibility and effectiveness
    - They also find the elimination of a maverick almost conclusive in supporting a theory of anticompetitive coordinated interaction
  - Coordination on nonprice dimensions
    - The agencies, for example, are looking more closely at significant reductions in excess capacity, especially in heavy industries 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

A final note

- A largely unrecognized asymmetry—The "price ratchet"
  - It is relatively hard for firms to tacitly coordinate to *increase* prices
    - *Problem*: Some firm has to lead the price increase, and if other firms do not follow, the putative price leader will suffer a profit loss → A risky gamble for the putative price leader
    - Some exceptions
      - An established price leader already exists
      - Where price increases can be announced in advance and retracted if insufficient firms follow
  - It is much easier for firms to tacitly coordinate *not to decrease* prices
    - Say there is a common cost increase to suppliers in the market (e.g., fuel prices increase)
    - All firms increase their prices to cover this increased cost
    - Then there is a common cost decrease (e.g., fuel prices decrease)
    - WHAT DO THE FIRMS DO?
      - If one decreases price, other firms will decrease their prices → Market shares stay the same, but profits decline given the price decrease
      - So the usual strategy is for each firm to maintain price and wait for another firm to trigger a price decrease
      - But if all firms follow this strategy, market prices will not decrease in the wake of a cost decrease

WDC: The antitrust risk of coordinated interaction comes primarily from firms tacitly coordinating not to decrease prices rather than coordinating to increase them

Anticompetitive Effects
Part 2B. Mavericks

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
  - 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 concerns
- *Example*: Grupo Modelo in ABI/Grupo Modelo
  - Unwilling to follow ABI’s price leadership
  - Has caused ABI to price lower that it would have otherwise

Why are "mavericks" mavericks?

1. The most likely reason is idiosyncratic:
   - The particular management of the firm simply believes that the firm will maximize its profits by 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]
   - *Query*: 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).

Why are "mavericks" mavericks?

2. Another possible reason is that something inherent in the firm's structure that makes it objectively 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 in *H&R Block*

- Plaintiff's argument:
  - TaxACT is a "maverick" that has disrupted tacit coordination that otherwise would have occurred in the DDIY market
    - Freemium business model
    - Bucked prevailing pricing norms by introducing free-for-all offer, which others matched
    - Remains the only competitor with significant market share that relies on free and low-cost high-quality products
    - TaxACT CEO appears dedicated to freemium strategy
      - NB: Note role of idiosyncratic management preferences
    - Had the effect in pushing industry toward lower pricing, even when the two major players were not anxious to follow
  - The merger will eliminate TaxACT as a disruptive force, which high result in a higher level of coordinated interaction in the relevant market postmerger

Mavericks in *H&R Block*

- Court:
  - DOJ failed to provide clear standards for identifying a maverick
  - But key question remains:

    "Does TaxACT consistently play a role within the competitive structure of this market that constrains prices?"

  - *Conclusion 1*: TaxACT play a special role in keeping the market competitive

> The Court finds that TaxACT's competition does play a special role in this market that constrains prices. Not only did TaxACT buck prevailing pricing norms by introducing the free-for-all offer, which others later matched, it has remained the only competitor with significant market share to embrace a business strategy that relies primarily on offering high-quality, full-featured products for free with associated products at low prices.[1]

[1] United States v. H & R Block, Inc., 833 F. Supp. 2d 36, 80 (D.D.C. 2011).

Mavericks in *H&R Block*

- Court
  - *Conclusion 2*: The incentives of the merged firm to be disruptive will differ from those of TaxACT premerger

> [T]he pricing incentives of the merged firm will differ from those of TaxACT pre-merger because the merged firm's opportunity cost for offering free or very low-priced products will increase as compared to TaxACT now. In other words, the merged firm will have a greater incentive to migrate customers into its higher-priced offerings—for example, by limiting the breadth of features available in the free or low-priced offerings or only offering innovative new features in the higher-priced products.[1]

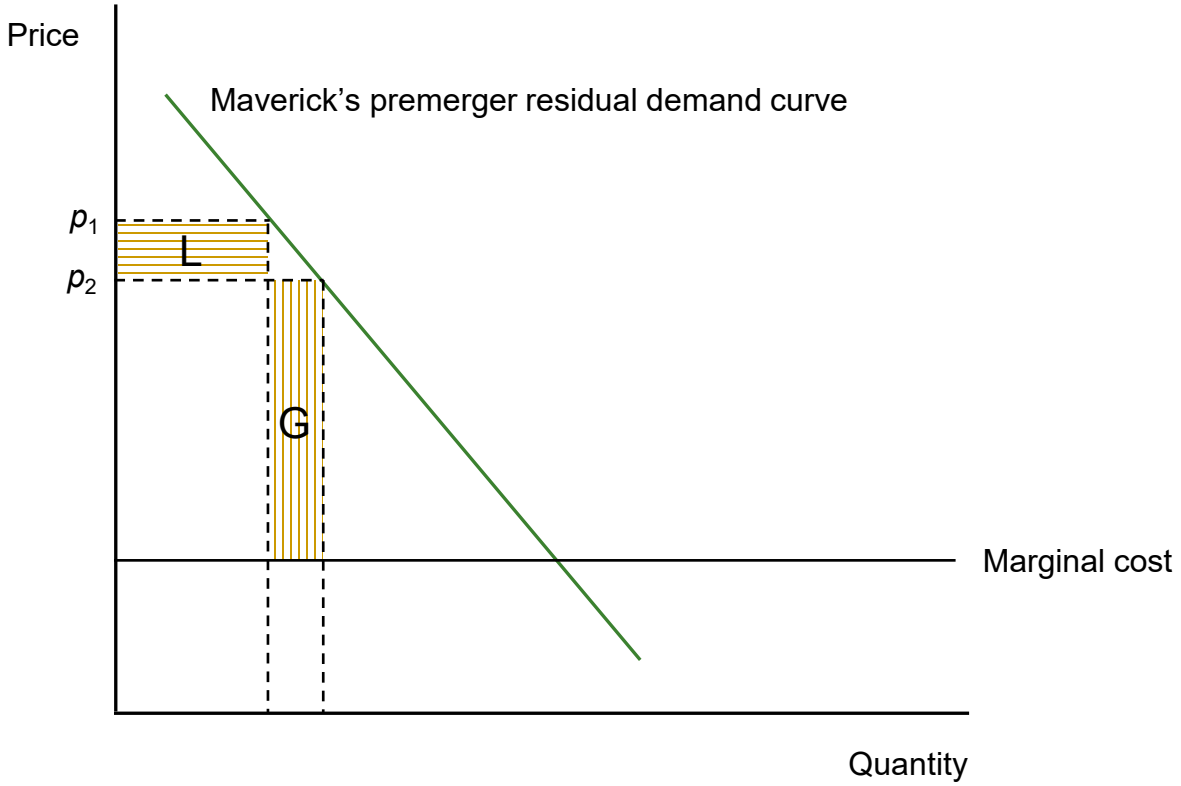
- Generally, a firm is less likely to be aggressive in pricing to increase its market share when as inframarginal sales become larger relative to marginal sales
  - In a single-price market, a price cut to increase sales requires the firm to reduce prices on all inframarginal sales
- So a merger between an established firm with a large share and a smaller "maverick" with a low market share is likely to decrease the incentive for the combined firm to be a maverick, even if the maverick's management runs the combined firm

This change in incentives is illustrated on the next two slides

[1] United States v. H & R Block, Inc., 833 F. Supp. 2d 36, 80 (D.D.C. 2011) (record citation omitted).

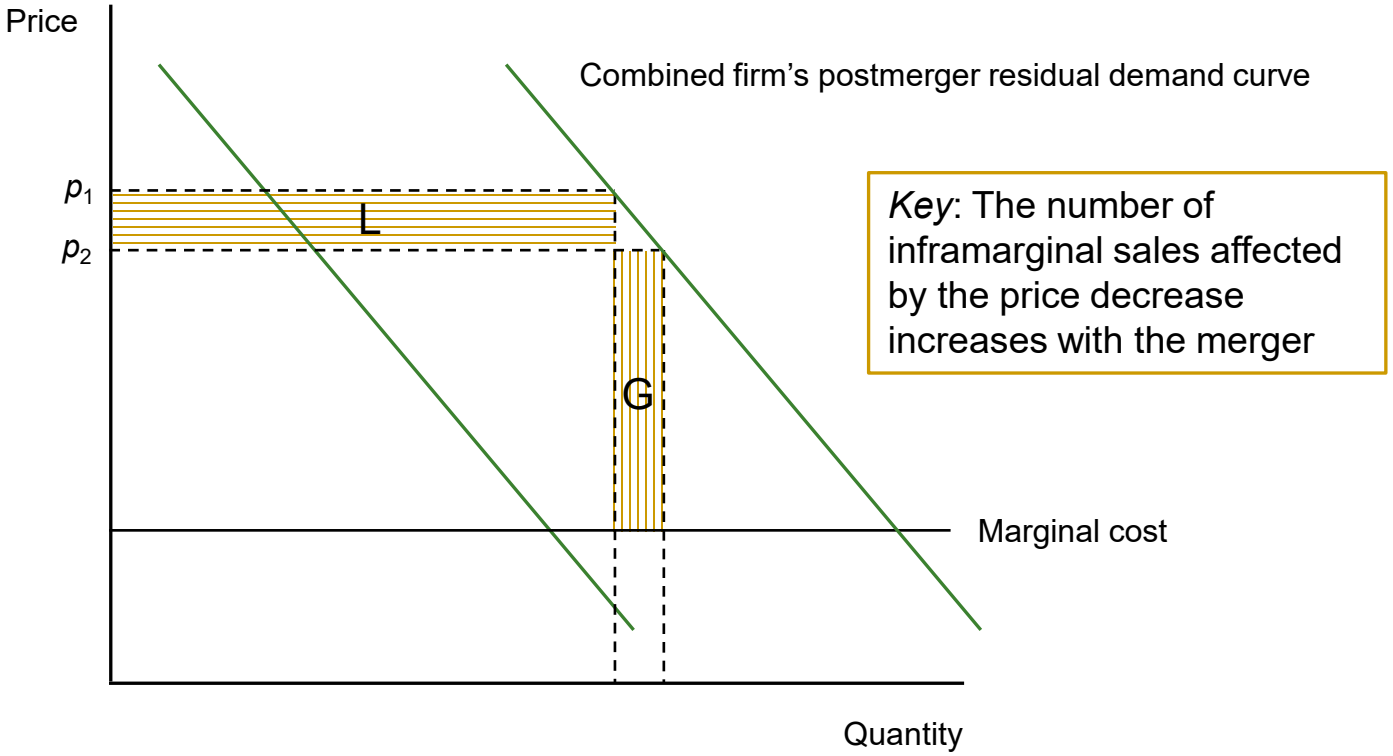
Mavericks–Postmerger incentives

- Premerger incentives to act aggressively
  - As illustrated in the diagram below, the “maverick” standing alone has an increase to lower price because the profit gains outweigh the losses



Mavericks–Postmerger incentives

- Postmerger disincentives to act aggressively
  - Postmerger, the combined firm has a greater sales volume and hence incurs greater losses than the maverick for a given price decrease
  - In the case illustrated in the diagram below, the combined firm does not have an incentive to lower price



Mavericks—Essential elements

- Bottom line: Requirements of a "maverick" theory
  - 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*
    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

Mavericks

- One final note: The acquiring firm as the maverick
  - Although in most applications of the theory the target is the maverick, in some cases the acquiring firm may be the maverick
    - Conversely, even when the buyer is a maverick, sometimes the target management will become the management of the combined company, which raises the question of whether the disruptive activity will be discontinued
  - The incentives argument is harder for the plaintiff in these situations since the disruptive management will run the combined company
  - But the combined firm still faces an incentive to be less of a maverick because of the effect on a larger number of inframarginal sales

Anticompetitive Effects
Part 3. Unilateral Effects

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
    - A cognizable anticompetitive effect results if the merging firm increases the price of one of its products as a result of the merger even if no other firm in the market increases its price—assumes there is no accommodation by other firms in the market
    - 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

The underlying economics is similar to that of the one-SSNIP recapture test: Is a price increase for merging product A profitable postmerger because of the recapture of some lost sales by merging product B?

[1] United States v. H&R Block, Inc., 833 F. Supp. 2d 36, 81 (D.D.C. 2011).

Unilateral effects

- Example 1: Firm A increases prices (and decreases production)

Initial conditions

	p	*c*	*$m*	*q*	Profits
Firm A	300	100	200	100	20000
Firm B	350	90	260	120	31200

Post-Price Increase

Firm A increases prices by:	30
Firm A marginal (lost) sales:	-15
Diversion: A to B	60%
Unit sales Firm A loses to Firm B:	9

	p	*c*	*$m*	*q*	Profits	Profit change
Firm A	330	100	230	85	19550	-450
Firm B	350	90	260	129	33540	2340

When A is independent, the price increase is unprofitable

When A and B merge, the price increase is jointly profitable

Unilateral effects

- Example 2: Firm A *increases* production (and *decreases* price)
  - Say for firm A:
    - Inverse demand: $p = 300 - q$
    - Fixed costs: $f = 0$
    - Marginal costs: $mc = 20$
    - Marginal revenue: $mr = 300 - 2q$

FOC: $mr = mc$
$300 - 2q = 20$
So: $q^* = 140$
$p^* = 160$
$\$m_A = 140$

  - Say when firm A increases its production by 1 unit (and lowers its price by \$1), 0.3 units that firm B would have sold now divert to Firm A ($D_{AB} = |-0.3/+1| = 0.3$)
  - If firm B's margin is also 140 at its initial price level, then firm A's one-unit increase in production causes firm B to lose \$42 ($\Delta\pi_B = D_{AB} \times \$m_B = = (0.3)(140) = \$42$).
    - That is, Firm A's conduct creates a *negative externality* for Firm B
  - When A and B are independent firms, firm A does not care about firm B's loss
  - But when firm A acquires firm B, firm A must take into account firm B's losses in firm A's marginal revenue:

$$mr_A^{postmerger} = mr_A^{premerger} - D_{AB}\$m_B$$
$$= 300 - 2q - 42$$

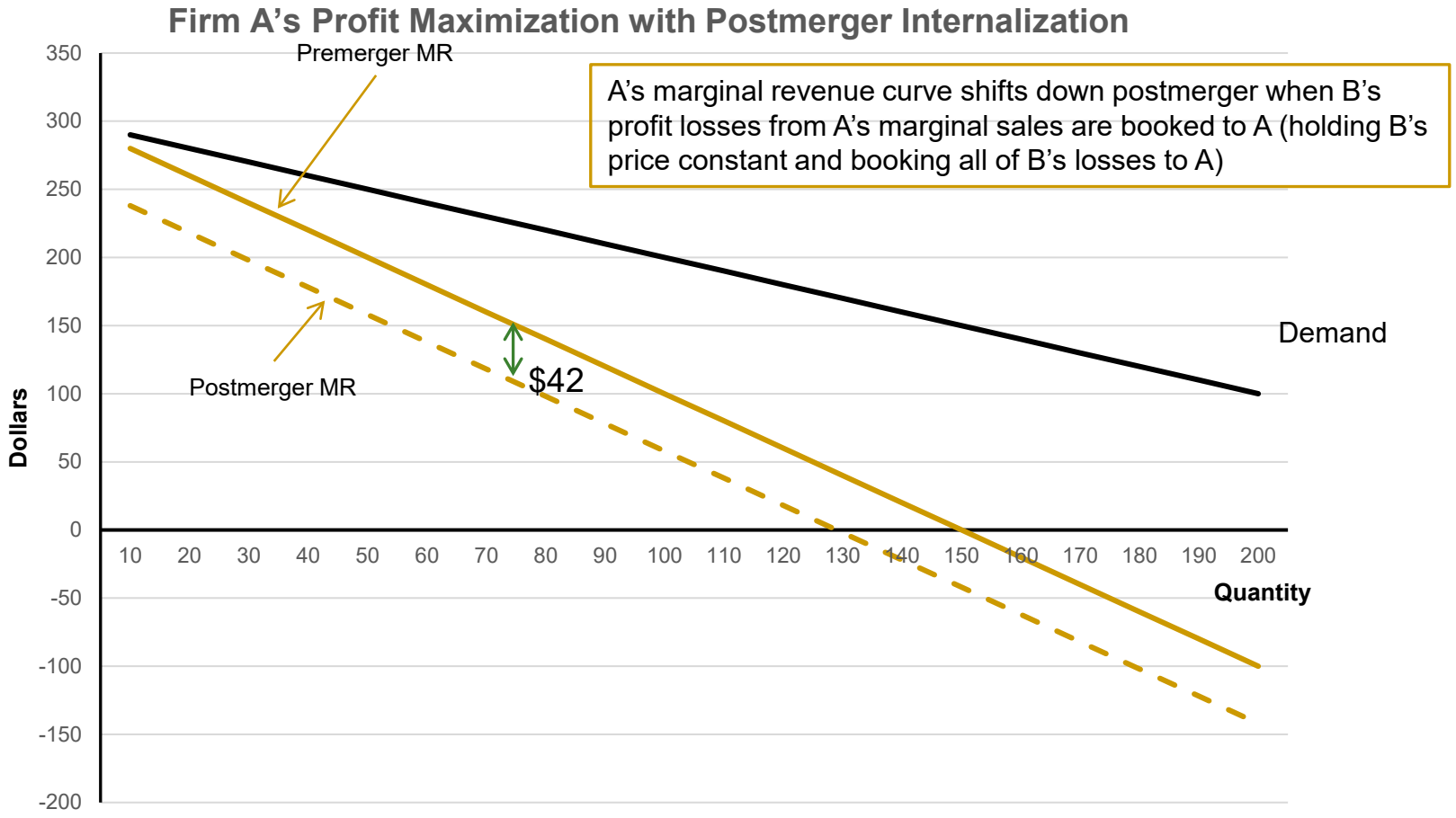
A's marginal negative externality imposed on B

This shifts firm A's marginal revenue curve down and makes firm A's marginal revenue less than its marginal cost at premerger prices. *Firm A must decrease output and increase price to reequilibrate marginal revenue and marginal cost:* $q_{postmerger} = 119$; $p_{postmerger} = 181$

Unilateral effects

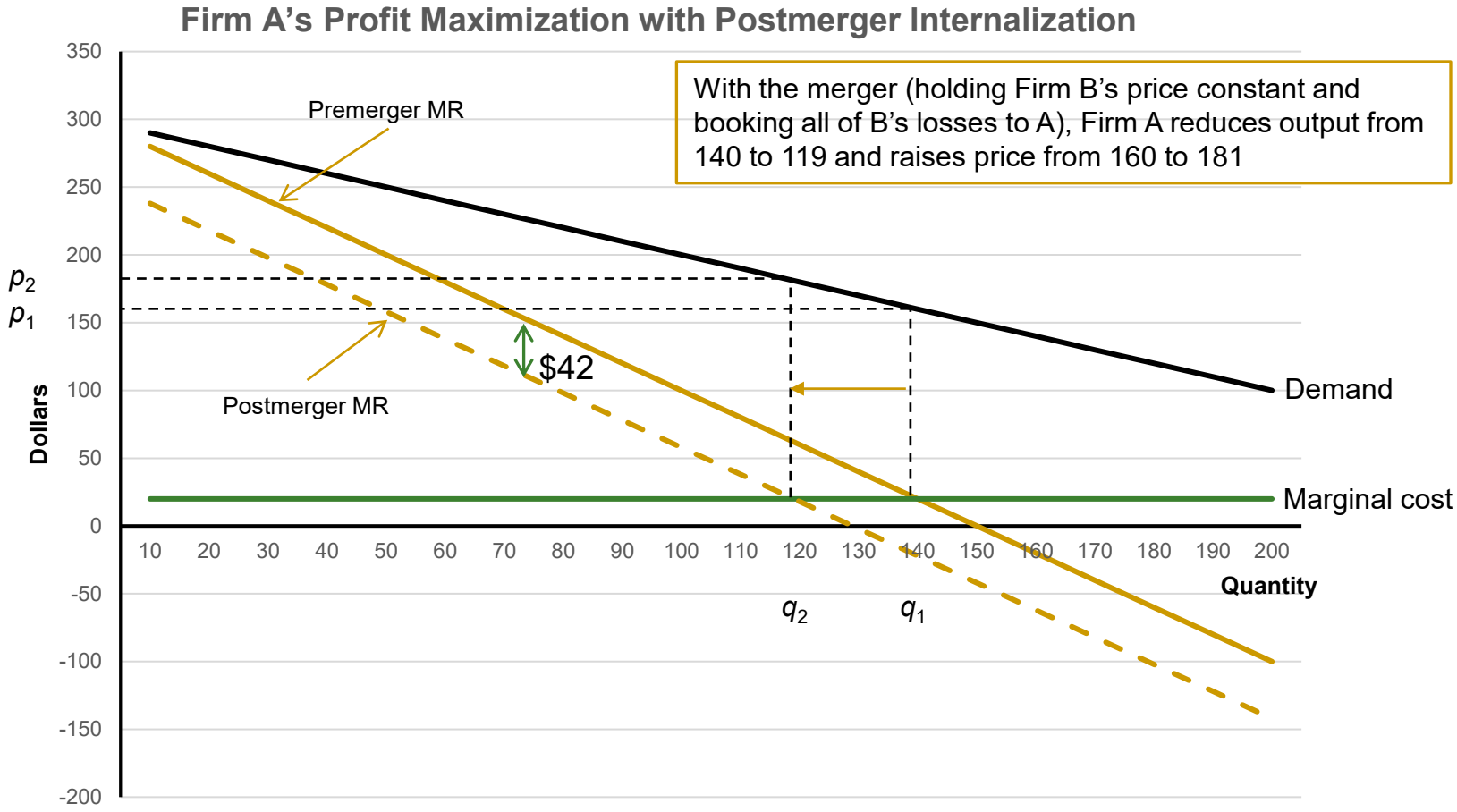
An easy way to visualize unilateral effects is to hold firm B's profits constant postmerger and book all of B's gains and losses from A's price changes to A.

- Example 2 (con't)



Unilateral effects

- Example 2 (con't)



Unilateral effects

- Why unilateral effects can be important (example)
  - Nestlé-Dreyer's in the super-premium segment of an all-ice cream market

All Ice Cream[1]
(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
Nestlé	$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

HHIs fall within a Merger Guidelines' "safe harbor"

But unilateral effects indicates that the merger may be a problem if the cross-elasticities/ diversion ratios between Dreyer's and Nestlé's are:

1. High between the merging parties
2. Low with everyone else

Key: Unilateral effects create upward pricing pressure regardless of the market definition or the HHIs

[1] Sherri Day, *Nestlé and Dreyer's to Merge in $2.4 Billion Deal, Creating Top U.S. Ice Cream Seller*, N.Y. Times, June 18, 2002.

Unilateral effects

- But the DOJ avoided the use of unilateral effects in an all-ice cream market by narrowly defining the market as super-premium ice cream

All Ice Cream (1)
(supermarket sales in 2002)

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Post-merger			938

Super-Premium Ice Cream (2)
(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

Violates Guidelines

Another important principle: *If the one-product unilateral effects profit-maximizing price increase is greater than 5%, the merging firms satisfy the HMT*

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

Unilateral effects: Requirements

- General requirements of the theory
  1. There must be two products differentiated in prices (premerger or postmerger)
  2. The products of the merging parties must be close substitutes for one another
  3. The products of (most) other firms must be sufficiently more distant substitutes to permit the merged firm to profitably increase price for at least one of its products
  4. Entry, expansion or repositioning into the products of the merging firms must be sufficiently difficult so as not to defeat the profitability of the merging firm increasing its prices postmerger

- Specific Guidelines requirements
  - 1992: Merging companies—
    1. had to be each other's closest competitors, *and*
    2. 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
    - Mostly accepted by the courts
    - Where courts have used the 1992 requirements the merging firms satisfied both requirements
      - So post-2010, the 1992 requirements have not been used to reject a unilateral effects theory

Unilateral effects

- The profit-maximizing economics
  - Suppose the merged firm increases its production of product A by one unit:
    - Premerger, firm A was maximizing its profits, so its first-order condition must be satisfied:

$$mr_A^{\text{Premerger}} = mc_A$$

    - Postmerger, the merged firm has to take into account the profits on any diverted sales from firm B (the other merging party) when the A's price is decreased to clear the market
    - Firm B's lost profits (holding its price constant) is the diverted quantity times firm B's margin:

$$D_{A\to B} = \left|\frac{\Delta q_B(-)}{\Delta q_A(+)}\right| \qquad \Delta\pi_B = -D_{A\to B}\$m_B$$

We need a negative sign on lost profits because when firm A increased its production, A recaptured sales from B

    - Accounting for firm B's lost profits on firm A's books gives firm A marginal revenue for a price increase as:

$$mr_A^{Postmerger} = mr_A - D_{A\to B}\$m_B$$

    - But since $D_{A\to B}\$m_B > 0$, then:

$$mr_A^{\text{Postmerger}} < mr_A^{\text{Premerger}} = mc_A.$$

    - That is, A's postmerger marginal revenue evaluated at A's premerger level of production is less than A's marginal cost. So A needs to reduce production and increase price postmerger to satisfy its FOC postmerger

Offsetting marginal cost efficiencies

- *Query*: What marginal cost reduction would be necessary to offset a one-product unilateral effect when firms A and B merge?
  - Start with the first-order condition for firm A with no marginal cost efficiencies:

Where quantity is the control variable

$$mr_A^{postmerger} = mr_A^{premerger} - D_{AB}\$m_B = mc_A$$

Remember, here D_{AB} = | B's unit loss/ A's unit increase |

  - Say the marginal cost efficiencies reduce marginal costs by *e* percent. Then:

$$mr_A^{postmerger} = mr_A^{premerger} - D_{AB}\$m_B = (1-e)mc_A$$

    - Rearranging and cancelling equal terms:

$$mr_A^{premerger} - D_{AB}\$m_B = mc_A - e \times mc_A$$

Remember: $mr_A^{premerger} = mc_A$

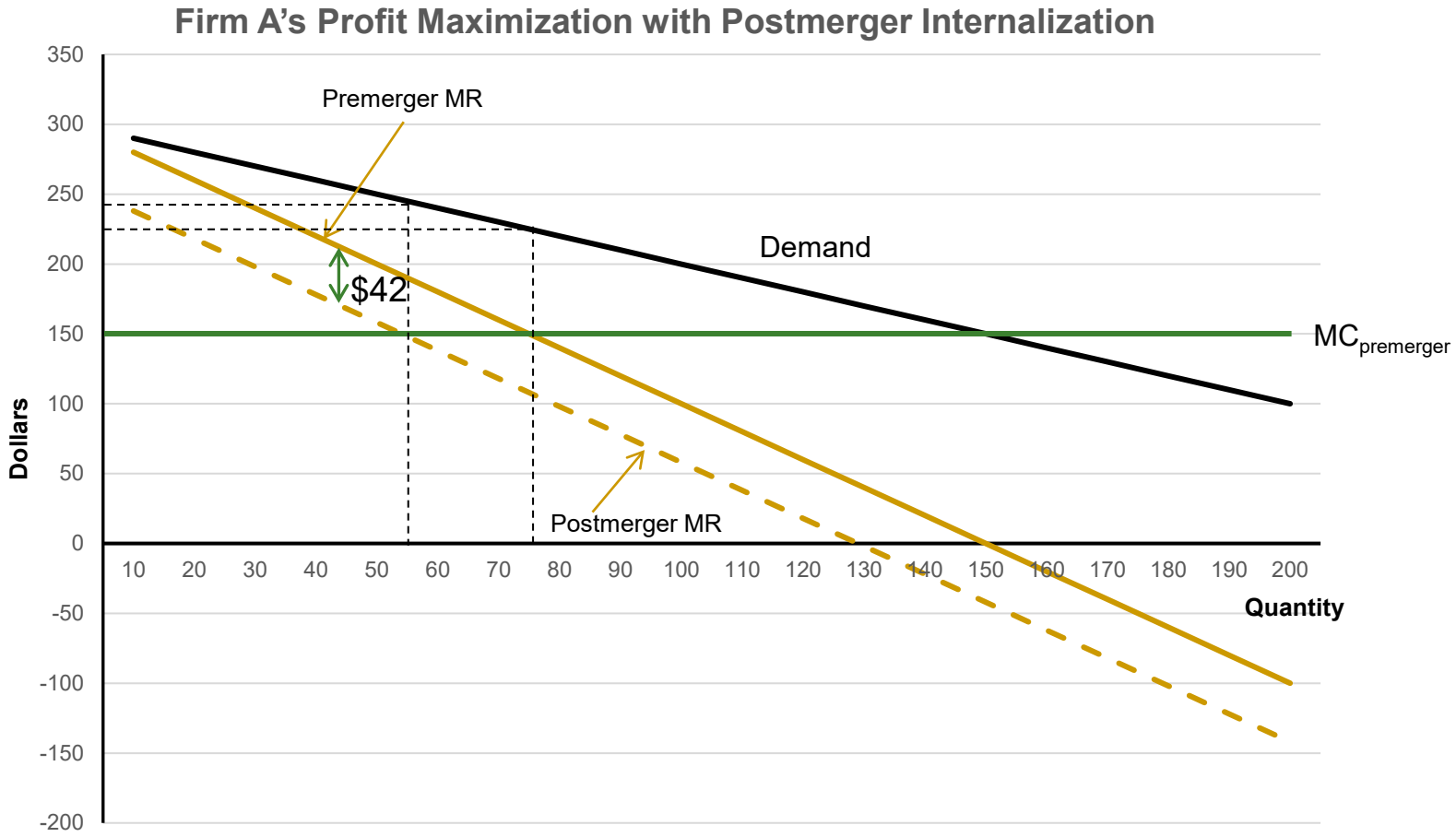
  - So the following equation must be satisfied to restore the first order condition at original prices and output:

$$D_{AB}\$m_B = e \times mc_A$$

that is, the downward pricing pressure from the marginal cost reduction must offset the upward pricing pressure from diversion

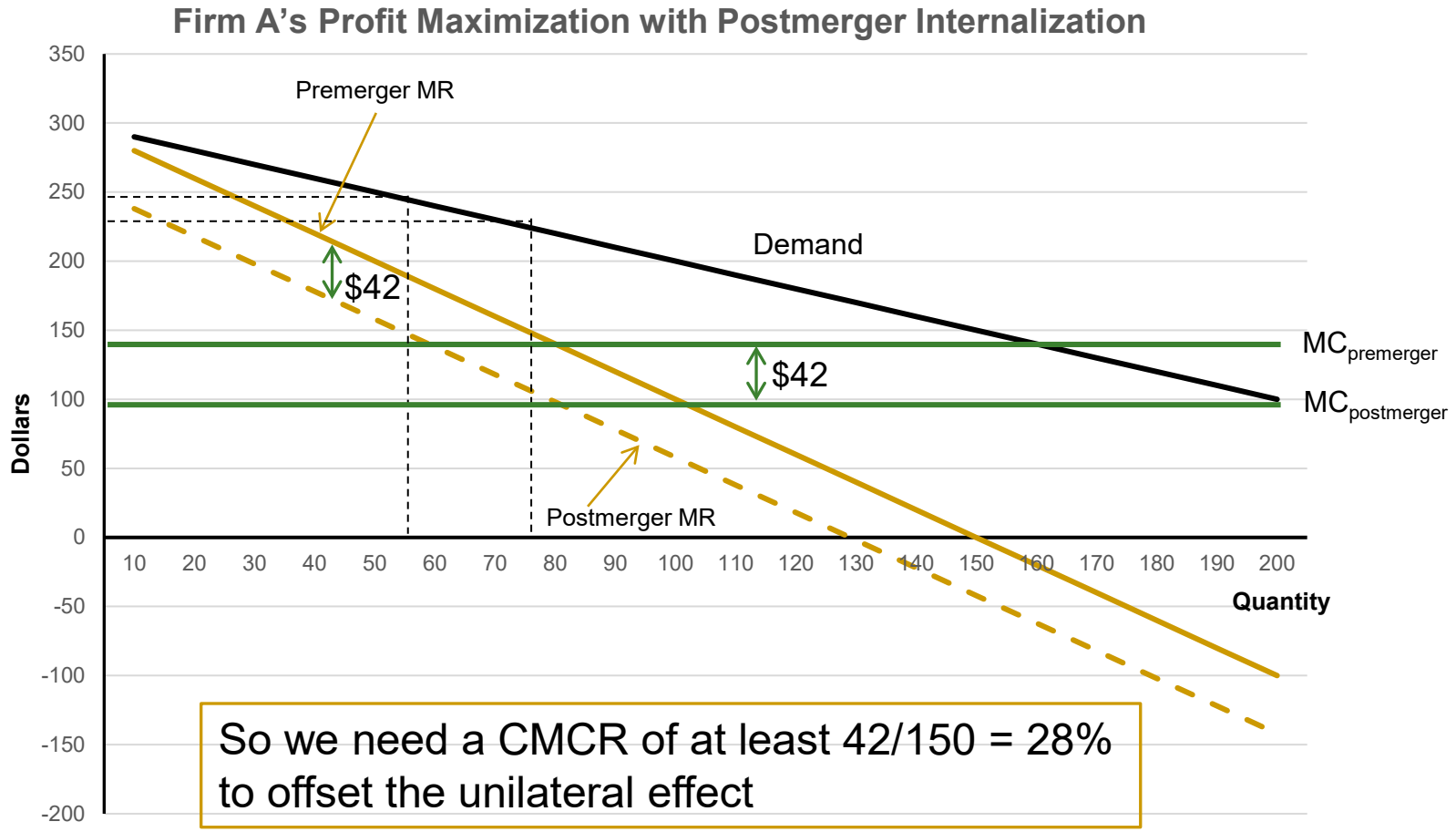
Offsetting marginal cost efficiencies

- Graphically: Postmerger without compensating marginal cost reduction



Offsetting marginal cost efficiencies

- Graphically: Postmerger with compensating marginal cost reduction



Offsetting marginal cost efficiencies

- Interpretation
  - *Rule*:
    - If marginal cost efficiencies are the only source of downward pricing pressure in a merger, the merged firm can increase profitably increase the price of product A unless:

$$D_{AB}\$m_B \leq e \times mc_A$$

where $D_{AB}\$m_B$ is the dollar subsidy per unit of A's total lost units paid to B and $e \times mc_A$ is the dollar marginal cost saving per unit of A produced

- Multiplying both sides by Δq_A:

$$\Delta q_A D_{AB}\$m_B = \Delta q_B \$m_B \leq \Delta q_A \left(e \times mc_A\right)$$

In order words, the total efficiency cost savings must be large enough to pay for the total subsidy to B

Offsetting marginal cost efficiencies

- Use in Kroger/Albertsons (2024)
  - Dr. Nicholas Hill, the FTC's economics expert at trial, used this relationship at trial to determine that, given the diversion ratios, dollar margins, and marginal costs, marginal costs must decrease by at least 5% to offset the upward pricing pressure from the unilateral effect in each of 1,472 local markets
    - Hill called this the "compensating marginal cost reduction" ("CMCR")

> CMCR analysis calculates a value that represents the reduction in marginal costs that would be necessary to offset the merged firm's incentives to raise prices. If the CMCR value is greater than the marginal cost reductions predicted to result from the acquisition, then the merged firm is likely to increase prices due to the acquisition.[1]

  - Hill observed that the total reductions in marginal costs that the merging parties estimate—regardless of whether such estimates are verified or merger-specific—are less than 1% of defendants' combined total operating cost
    - WDC: Operating costs are fixed costs plus variable costs. If measured against only variable costs, the marginal cost savings would be a somewhat greater percentage.
  - Hill concluded that the CMCR analysis "confirms that substantial competition will be eliminated and is conservative in using a 5% threshold to reach that conclusion."[2]

[1] Plaintiffs' Memorandum of Law in Support of Plaintiffs' Preliminary Injunction Motion 16 (filed July 26, 2024; redacted version July 30, 2024) ("CMCR analysis calculates a value that represents the reduction in marginal costs that would be necessary to offset the merged firm's incentives to raise prices.") (footnote omitted).

[2] *Id.* at 17 (footnote omitted).

Unilateral effects in *H&R Block*

- Court:
  - Reframed unilateral effects in terms of a negative defense in rebuttal to the *PNB* presumption, so that the merging parties had the burden of production of showing that unilateral effects were unlikely
  - Findings with respect to market definition make out a prima facie showing of unilateral effects:
    1. H&R Block and TaxACT products were differentiated in price
    2. H&R Block and TaxACT products were close substitutes to each other
       - Although not each other's closest substitutes
    3. (Most) other products were distant substitutes
       - But Intuit was a close—indeed, the closet—substitute to both H&R Block and TaxACT
    4. High barriers to entry, expansion, and repositioning was difficult

Unilateral effects in *H&R Block*

- Defendants' rebuttal
  1. Pledge to maintain TaxACT's current prices (more of a fix)
     - *Defendants*: Would maintain current prices for three years
       - Argument: no price changes → no diversion → no anticompetitive unilateral effect
     - *Court*: Not a defense even assuming truthfulness
       - Can create diversion in other ways
         - Could manipulate other variables (e.g., reduce functionality of free products) to make paid, more functional products more attractive)
         - Could market free products less aggressively and more selectively
  2. Two-brand strategy
     - *Defendants*: Will maintain both brands—HRB (high end) and TaxACT (low-end)
     - *Court*: Subject to anticompetitive manipulation in the attributes of products
  3. Combined firm's market share too low
     - *Defendants*: Combined share is only 28.4%
       - Below the 35% required in some cases and the 1992 Guidelines
     - *Court*: There is no market share threshold for unilateral effects
       - Consistent with the 2010 Guidelines
  4. Merging parties not each other closest substitutes
     - *Defendants*: Intuit is the closest DDIY substitute to both HRB and TaxACT
       - As required by some courts and the 1992 Merger Guidelines
     - *Court*: Not required to be each other's closest substitute (consistent with the 2010 MG)

Merger simulation in *H&R Block*

- *Court*: Merger simulation also shows likely unilateral price increase
  - Merger simulations supposedly predict quantitatively the level of the combined firm's profit-maximizing price increase postmerger
  - Warren-Boulton did a merger simulation showing a likely substantial unilateral price increases in all three DDIY products following the merger
  - Predicted price increases postmerger—
    - TaxACT 83%
    - HRB 37%
    - TurboTax 11% ← This results from an accommodating price increase within the Bertrand model

The quantification of a price effect resulting from a merger is called a merger simulation

Merger simulation

- Problems with merger simulation
  - Only as good as the model, the data, and the parameter estimates that go into the simulation
  - Often predict “hard to believe” price increases
  - Small changes in the model specification or the parameter estimation methods can result in big changes to the predicted postmerger price increases
  - Very few studies testing the accuracy of postmerger simulation with the use of actual postmerger data
    - That is, few studies examine how close or how far the simulated results are from what actually happened

Overall, courts have been very reluctant to give much weight to merger simulations

Merger simulation in *H&R Block*

- Warren-Boulton model: Used a very simple model—
  - Diversion ratios between HRB and TaxACT
  - Price-cost margins of the two products
  - A Bertrand pricing model
- The opinion did not give the details of the Bertrand pricing model
- But we will look at a "gross upward pricing pressure index" (GUPPI) simulation model

GUPPIs

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

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

  - Let $m_B = \frac{p_B - c_B}{p_B}$ the percentage gross margin of product B and D_{AB} be the diversion ratio between product A and product B.

    Then multiplying by p_B/p_B yields:

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

Remember, m is the percentage margin, so $m_B p_B$ is the $\$m_B$

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

GUPPIs

- GUPPIs and various measures of diversion
  - Recall the formula: $GUPPI_1 = D_{12} m_2 \frac{p_2}{p_1}$,

    where D_{12} is the diversion ratio from firm 1 to firm 2
  - We can also define a diversion ratio in 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 sell multiple products and sales data is more readily available.

GUPPIs

- Relationship of GUPPIs to one-SSNIP recapture tests
  - Recall the formula: $GUPPI_1 = D_{12} m_2 \frac{p_2}{p_1}$,

    where D_{12} is the diversion ratio from firm 1 to firm 2
  - Recall the one-SSNIP recapture test:

$$R_1 > R^1_{Critical} = \frac{\delta p_1}{\$m_{RAve}} \quad \left(= \frac{\$SSNIP_1}{\$m_{RAve}} \right).$$

    where the critical recapture rate $R^1_{Critical}$ is the recapture rate at which the hypothetical monopolist breaks even on profits.
  - Consider a candidate market of the two products of the merging firms. Let's reinterpret the relationship by replacing $R^1_{Critical}$ with the actual diversion rate $D_{1\rightarrow 2}$ and solving for δ:

$$\delta^1_{Breakeven} = \frac{D_{12}\$m_2}{p_1} = D_{12} m_2 \frac{p_2}{p_1} \qquad = GUPPI_1$$

    where $\delta^1_{Breakeven}$ is the breakeven percentage price increase for product 1 given an actual diversion rate D_{12}

    So the GUPPI for product one is the breakeven percentage price increase for product 1 of the merged firm when it holds the price of product 2 constant

GUPPIs

- "Merger simulation" with GUPPIs
  - *Model 1*: Assumes the *merged firm* faces a residual demand curve that is linear in product 1
    - Recall that when the residual demand curve is linear, then the breakeven percentage price increase is twice the profit-maximizing price[1]
    - Hence:

$$\delta^1_{\text{Profitmax}} = \frac{\delta^1_{Breakeven}}{2} = \frac{D_{12}m_2}{2}\frac{p_2}{p_1} = \frac{GUPPI_1}{2}.$$

    - Observations
      - The conditions under which the merged firm will have a residual demand curve are restrictive
      - Even so, the above equation can be use to estimate the profit-maximizing percentage price increase for product 1 knowing that there will be errors

[1] See the class notes on the profit-maximization variation of the hypothetical monopolist test.

GUPPIs

NB: When each merging firm faces a linear residual demand curve, the residual demand curve of the merged firm generally will not be linear (as it was in Model 1)

- "Merger simulation" with GUPPIs
  - *Model 2*: Assumes *each merging firm* faces a linear residual demand curve
    - In the very special case of linear residual demand curves and equal diversion ratios ($D_{AB} = D_{BA} = D$), equal marginal costs, equal prices, equal margins, 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 A leaving the price of product B at its premerger level:

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

since $p_A = p_B$ and so $p_A/p_B = 1$

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

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

    - 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 3-7 (Oct. 2010), *available at* http://faculty.haas.berkeley.edu/shapiro/unilateral.pdf.

GUPPIs

Why look at so special a case?
Because the 2010 Horizontal Merger Guidelines uses Model 2 in Example 5!

GUPPIs

- Merger simulation with GUPPIs in the Merger Guidelines
  - 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

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

$$D = \frac{10}{10+20} = 1/3 \qquad m = \frac{p-c}{p} = \frac{100-60}{100} = 0.4$$

  - The market exhibits linear demand and complete symmetry, so we can use the simple GUPPI model:

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

So price will increase from $100 to $110

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.