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Merger Antitrust Law
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Analyzing Raising Rivals' Costs

A manufacturer that supplies a retailer wants that retailer to sell as much as possible, because the manufacturer earns its wholesale margin on every unit the retailer sells. So why would a manufacturer ever raise its price to a retailer it already supplies at what it considers the best price? On its own, it would not. But suppose the manufacturer acquires one of that retailer's competitors. Now some of the customers the first retailer loses when its costs rise will buy at the manufacturer's own store, where the merged firm earns a retail margin on top of its wholesale margin. That added profit can make a modest increase in the rival's input price worthwhile, even though cutting the rival off entirely would lose money.

This is the problem of raising rivals' costs (RRC), the principal competitive concern in vertical mergers.[1] This note explains the mechanism, works through a numerical example, shows how a vertical pricing pressure index (vGUPPI) scores it, connects the model to the evidence a lawyer would need, and ends with a step-by-step summary of the method. It complements the note on eliminating double marginalization (EDM) and uses the same tools: linear demand, constant costs, and 50% pass-through. To keep the focus on RRC, this note sets EDM aside. Class 24 puts the two together.

1. The idea

This section explains what RRC is, why a vertical merger can create an incentive to raise a rival's costs, how that incentive parallels the recapture logic of horizontal mergers, and the three questions an RRC theory raises.

What RRC is. After a vertical merger, the merged firm controls something its rivals need (an input or a route to customers), and it may make that thing costlier or worse for them. This note focuses on input foreclosure, in which the merged firm raises the price of an input it sells to a downstream rival. Customer foreclosure is the mirror image: a downstream firm shifts its purchases away from an upstream rival, and the same recapture logic applies with the roles reversed. Refusing to supply a rival altogether is complete foreclosure, or a cutoff; raising its price or worsening its terms is *partial foreclosure*.

Nonprice tactics. Degrading quality, delaying supply, and limiting interoperability are related mechanisms. They can weaken a rival by lowering the value of its product or the demand for it, not just by raising its costs. So the calculations below do not automatically apply to them.

Why the merger changes the incentive. Figure 1 traces the chain of effects. A supplier sells an input to two downstream firms: the partner, which the supplier acquires, and the rival, which competes with the partner. (The class slides call them S, D1, and D2.) Suppose the supplier raises its price to the rival (A). The rival passes on part of its higher cost to its own customers (B). Some of those customers buy from other sellers or stop buying, and the supplier loses its

[1] The idea that a firm can gain by raising its rivals' costs, rather than by lowering its own prices or costs, was developed in Steven C. Salop & David T. Scheffman, *Raising Rivals' Costs*, 73 AM. ECON. REV. 267 (1983), developed formally in Steven C. Salop & David T. Scheffman, *Cost-Raising Strategies*, 36 J. INDUS. ECON. 19 (1987) (showing that cost-raising strategies, unlike predatory pricing, are credible and need not drive the rival from the market), and applied to exclusionary conduct in Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power over Price*, 96 YALE L.J. 209 (1986).

margin on those sales. Those who stay pay more, so the supplier earns more on each unit the rival still buys (C). Other customers switch to the partner (D).

The supplier already earned its margin on the customers who switch, because the partner bought from it too (E). What the merger adds is the partner's own margin on them (F). That added recapture is the entire source of the new incentive.[2]

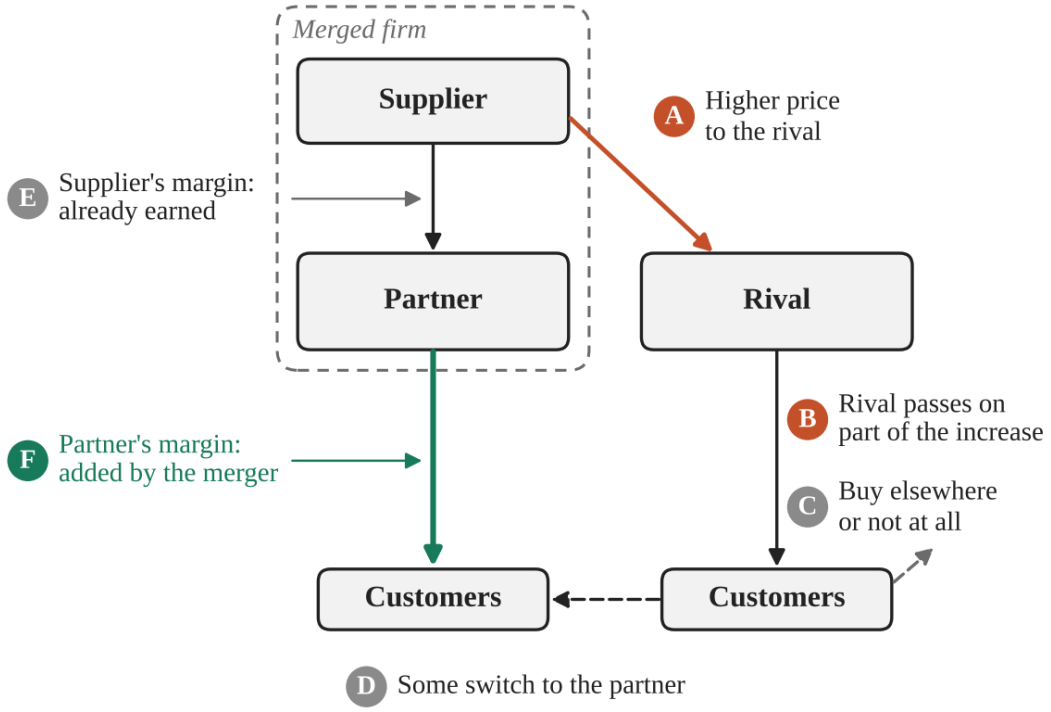


Figure 1. How the merger creates an incentive to raise the rival's costs. Gray marks effects the supplier counted before the merger, teal marks the effect the merger adds, and coral marks the price changes.

You have seen this logic before. In a horizontal merger, a firm considering a price increase weighs the extra margin on customers who stay against the margin lost on customers who leave. Before the merger, customers who switch to the merger partner are simply lost. After it, the merged firm recaptures them and earns the partner's margin. The resulting upward pricing pressure is the diversion ratio times the partner's margin, and dividing it by the firm's price gives the gross upward pricing pressure index (GUPPI). As we will see, RRC applies the same recapture logic to a price the merged firm charges a rival.

Three questions. An RRC theory raises three distinct questions.

1. *Ability*: Does the rival depend on the input, or can it turn elsewhere?
2. *Incentive*: Would the added retail profit make the price increase profitable after accounting for all changes in wholesale profit?

[2] Courts have recognized the point. *See* Illumina, Inc. v. FTC, 88 F.4th 1036, 1052 (5th Cir. 2023) (finding that "diversion is necessary for a vertical merger to give rise to foreclosure incentives," because foreclosure "is only economically rational if" the downstream affiliate "can pick up enough of its competitors' lost" sales to offset the upstream losses).

3. *Competitive effect*: Would the result lessen competition in a relevant market?

A profitable strategy, a predicted price increase, and harm to competition are different propositions, and an analysis should keep them apart.

2. The example

Manufacturer M makes a product at a cost of $20 a unit and sells it to two competing retailers, R1 and R2, at $40 a unit. Each retail sale uses one unit from M, and M sells to no other retailer. R1 sells the product for $54 and spends $4 a unit to sell it, so its retail margin is $54 − $40 − $4 = $10. R2 sells for $50, also spends $4 a unit, and earns a $6 margin on each of its 420 sales a month. The two retailers are differentiated by location, service, and convenience. That is why some customers buy from R1 at $54 even though R2 charges $50, and why a change in one retailer's price shifts some, but not all, of its customers to the other. M acquires R1. In the terms of Figure 1, M is the supplier, R1 the partner, and R2 the rival. Figure 2 puts the example's numbers in the same layout.

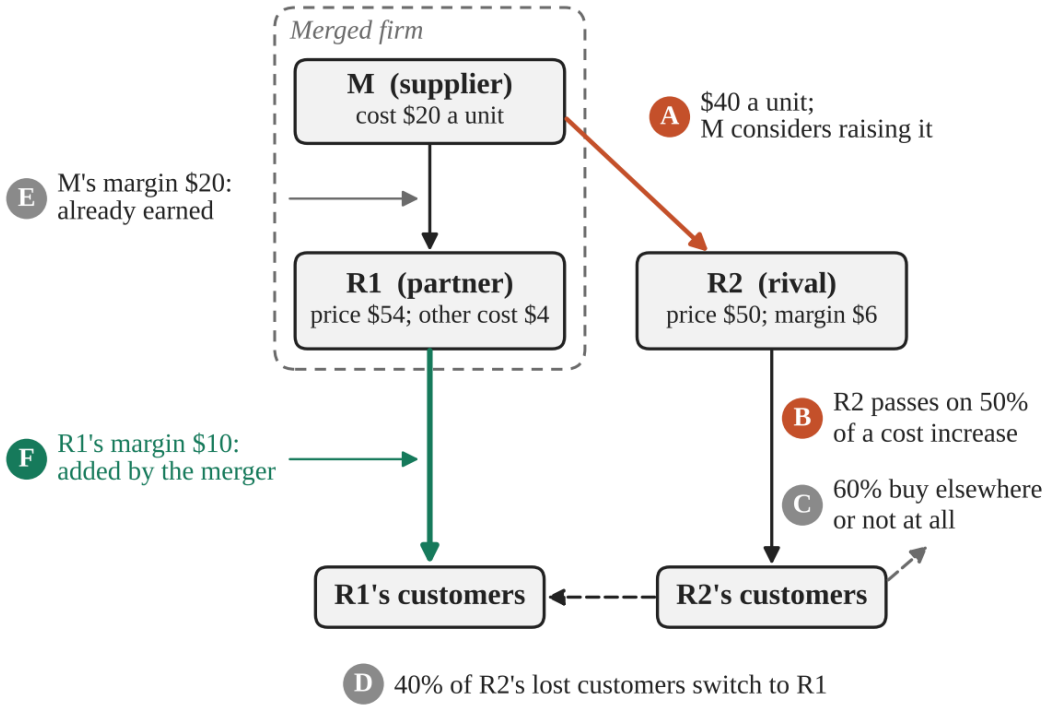


Figure 2. The example. The letters match Figure 1. Margins are measured at the prices before the merger; after the merger, any price M charges R1 is an internal transfer.

R2 estimates that each $1 increase in its retail price would cost it 70 sales a month. When R2's cost per unit changes, it changes its retail price by half as much, a 50% pass-through rate.[3] So each $1 increase in M's price to R2 raises R2's retail price by $0.50 and cuts R2's sales and M's sales to R2 by 35. The order of decisions matters here: M sets its price to R2 first, anticipating R2's response, and R2 then sets the retail price that maximizes its own profit given its cost. That is why M can count on losing 35 sales to R2 for each $1 increase in its price to R2.

[3] The Appendix shows that this rate follows from R2's linear demand and constant costs.

Of the customers R2 loses, 40% switch to R1; the rest buy products M does not supply or buy nothing, so M makes no sales to them. The table below collects the numbers.

Fact	Value
M's cost per unit	$20
M's price to R1 and to R2 before the merger	$40
R1: retail price / other selling cost / margin	$54 / $4 / $10
R2: retail price / other selling cost / margin	$50 / $4 / $6
R2's sales per month	420
R2's lost sales for each $1 rise in its retail price	70
R2's pass-through of a change in its cost	50%
M's lost sales to R2 for each $1 rise in its price to R2	35
Share of R2's lost customers who switch to R1	40%
R1's retail price after the merger (assumed)	$54 (unchanged)

Assumptions that isolate RRC. Two assumptions keep the example focused.

1. R1's retail price stays at $54 after the merger. That sets aside two effects: the merged firm's incentive to cut R1's price by eliminating double marginalization, which is the subject of the EDM note, and R1's incentive to raise its own price once R2's price goes up. Both return in Class 24.
2. R2 has no other supplier; Section 6 relaxes this.

Starting prices. The example is built so that R2's $50 price and M's $40 price to R2 are the most profitable prices before the merger. R1's $54 price and M's $40 price to R1 are simply taken as given. The $40 price to R1 still matters: it defines R1's $10 margin and the $20 M already earns on each unit sold through R1. After the merger, any price M charges R1 is a payment between two parts of the same firm. The example also assumes that M sells at simple per-unit prices. If M charged fixed fees or used other terms, its incentives could differ, so how the input is actually sold is part of the evidence. The Appendix lists the example's other technical assumptions.

3. The worksheet: Recapture M already earns and recapture the merger adds

Would M, after acquiring R1, gain by raising its price to R2 from the original price of $40 to a postmerger price of $42?[4] The "At $40" and "At $42" columns refer to M's price to R2. Lines 10 and 12 compare results before and after the merger. Amounts are per unit or per month. The last column shows how each entry in the "At $42" column is calculated or, for lines with no entry there, how the entry in the "Change" column is calculated. Letters in parentheses below refer to the callouts in Figures 1 and 2.[5]

Line	Item	At $40	At $42	Change	How calculated
R2					
1	M's price to R2	$40	$42	+$2	Given (increase tested)
2	R2's cost per unit	$44	$46	+$2	Line 1 + $4 selling cost
3	R2's retail price	$50	$51	+$1	$50 + 50% × change in line 2
4	R2's sales	420	350	−70	420 − 70 × change in line 3
Diversion					
5	R2's lost customers who switch to R1			40%	Given
6	Sales diverted to R1			28	40% × 70 lost sales
Profit change counted before and after the merger					
7	Higher margin on R2's remaining sales			+$700	350 remaining sales × $2
8	Lost margin on R2's lost sales			−$1,400	70 lost sales × $20
9	M's margin on sales diverted to R1			+$560	28 diverted sales × $20
10	Total before the merger			−$140	Lines 7 + 8 + 9
Profit change counted only after the merger					
11	R1's margin on sales diverted to R1			+$280	28 diverted sales × $10
12	Total after the merger			+$140	Line 10 + line 11
R2 and its customers					
13	R2's profit	$2,520	$1,750	−$770	$6 × 420; $5 × 350
14	Extra paid by R2's remaining customers			−$350	350 customers × $1
15	Loss to the 70 customers who leave R2			−$35	70 × $1 ÷ 2
16	Total consumer-surplus loss			−$385	Line 14 + line 15

The paragraphs below explain the worksheet one group of lines at a time and then draw three lessons from it: the difference between recapture M already earns and recapture the merger adds, the three comparisons the totals make, and why internal accounting does not change the incentive.

Lines 1-4: R2's response (A and B). M raises its price to R2 by $2, so R2's cost per unit rises from $44 to $46. R2 passes on half of the increase, raising its price from $50 to $51. At 70 sales per $1, R2 loses 70 sales and keeps 350.

[4] Section 4 shows that $2 is the best increase.

[5] The worksheet follows the vertical arithmetic on slide 57 of the Unit 12 class notes, which writes q_1 for the sales R2 keeps.

Lines 5-6: where R2's lost customers go (C and D). Forty percent of the 70 customers R2 loses, or 28 customers, buy from R1 instead. The other 42 buy products M does not supply, or buy nothing.

Lines 7-10: M's profit, counted the same way before and after the merger (C, D, and E). M earns $2 more on each of the 350 units R2 still buys (+$700); line 7 uses the 350 remaining sales, not the original 420. M loses its $20 margin on the 70 units R2 no longer buys (−$1,400). But 28 of those customers buy at R1, which also buys from M, so M still earns $20 on them (+$560). Before the merger, the increase would cost M $140 a month. That is as it should be: $40 was M's best price to R2 before the merger (Section 4).

Lines 11-12: what the merger adds (F). After the merger, M also owns R1, so it earns R1's $10 retail margin on each of the 28 customers who switch (+$280). The same $2 increase that would have cost M $140 now adds $140 to combined profit.

Lines 13-16: R2 and its customers. R2's profit falls from $2,520 (420 × $6) to $1,750 (350 × $5). R2's remaining customers pay $350 more a month, and the customers who leave R2 lose $35. Section 4 explains both figures.

The central lesson: existing recapture and added recapture. M recaptures its $20 wholesale margin on R2's customers who switch to R1 (line 9; E in the figures) whether or not it owns R1. That recapture is already reflected in M's $40 price, so it creates no new incentive—the merger adds only R1's $10 margin (line 11; F). In a horizontal merger, nothing is recaptured until the merger. Here, part of the value of the switching customers was already recaptured, which is why the relevant margin is R1's $10 rather than the $30 the merged firm earns on a sale through R1. Using $30 would count M's $20 twice.

Three different comparisons. The worksheet's totals answer different questions.

1. The −$140 (line 10) is the effect of the $2 increase on M's profit before the merger. It is negative because $40 was M's best price to R2 before the merger, so moving the price in either direction would have lowered M's profit.
2. The +$140 (line 12) is the effect of the same increase on the merged firm's combined profit after the merger. It is positive because the merged firm now also earns R1's $10 margin on the 28 customers who switch to R1.
3. The $280 (line 11) is the difference between the two: how much the merger changes the profitability of the $2 increase. All of it is added recapture, R1's $10 margin on the 28 customers who switch.

So the $140 is what the merged firm gains by moving its price to R2 from $40 to $42 rather than leaving it at $40; it is not a measure of the merger's total profitability.

Internal accounting does not change the incentive. After the merger, the price M's division charges R1's division is an internal transfer. Changing it moves profit between the two divisions but does not change the combined gain of $140. It matters only if managers act on divisional results rather than combined profit (see Section 6).

4. The best increase and the vGUPPI/2 rule

Section 3 tested a $2 increase. This section shows that $2 is the best increase, scores it with the vertical pricing pressure index, and traces it to R2's customers.

Pricing pressure. For each sale R2 loses, the merger adds 40% × $10 = $4 of profit at R1, resulting in upward pricing pressure on M's price to R2 and, through R2's pass-through, on R2's retail price. Put another way, every unit M sells to R2 now carries a $4 opportunity cost: a customer who stops buying at R2 buys at R1 40% of the time, and the merged firm now earns R1's $10 on that sale. The merger affects M's pricing to R2 as if M's cost of supplying R2 had risen by $4.

The best increase. With linear demand and constant costs, a firm passes on half of a cost increase, so M raises its price to R2 by half of the $4 upward pricing pressure, or $2. The table checks the prediction by applying the worksheet's method to several increases.

Increase in M's price to R2	Profit change before the merger	Profit change after the merger
$1	−$35	+$105
$2	−$140	**+$140**
$3	−$315	+$105
$4	−$560	$0
$5	−$875	−$175

Before the merger, every increase loses money. After the merger, any increase smaller than $4 makes money, a $4 increase just breaks even, and $2 makes the most.

The algebra. The same result follows without a table. Let δ (delta) be the increase in M's price to R2. Each $1 increase costs M 35 sales to R2, so R2 loses 35δ sales and keeps 420 − 35δ, and 40% of the customers it loses (14δ) buy at R1. Before the merger, M's profit changes by the extra δ it earns on the units R2 still buys, less its $20 margin on the units R2 no longer buys, plus its $20 margin on the units R1 sells instead (lines 7-9 of the worksheet):

$$\text{Change in M's profit before the merger:}$$
$$= \delta(420 - 35\delta) - (20 \times 35\delta) + (20 \times 14\delta)$$
$$= -35\delta^2.$$

The result is negative for any increase or decrease, which confirms that $40 was M's profit-maximizing price to R2 before the merger. After the merger, the combined firm also earns R1's $10 on each of the 14δ customers who switch (line 11):

$$\text{Change in combined profit after the merger:}$$
$$= -35\delta^2 + (10 \times 14\delta)$$
$$= \$140\delta - 35\delta^2$$
$$= \$140 - 35(\delta - \$2)^2.$$

The last line rewrites the same expression to show where it is largest. The squared term can never be negative, and it is zero only when δ = $2. So combined profit rises most, by $140 a month, with a $2 increase to $42, and it rises with any increase between $0 and $4. Setting δ = $2 reproduces line 12 of the worksheet. No calculus is needed.

The rule. Under these assumptions, the best increase is half the pricing pressure, and any increase smaller than the full pressure pays. The rule depends on the starting price. Because

$40 was M's best price before the merger, M's loss before the merger is simply $35\delta^2$, and the merger's added profit, $\$140\delta$, is what makes an increase pay.

Scoring the pressure: vGUPPI. Moresi and Salop's upstream vertical gross upward pricing pressure index, vGUPPI, expresses the pressure as a share of the price the merged firm would raise, here M's price to R2:[6]

$$\text{vGUPPI} = (\text{diversion to R1} \times \text{R1's margin}) \div \text{M's price to R2}$$

$$= D_{\text{R2}\to\text{R1}} \times \$m_{\text{R1}}/w_{\text{R2}}$$

$$= (40\% \times \$10) \div \$40 = 10\%.$$

Here $D_{\text{R2}\to\text{R1}}$ is the share of R2's lost customers who switch to R1 (40%), $\$m_{\text{R1}}$ is R1's margin in dollars ($10), and w_{R2} is M's price to R2 ($40). The index has the same form as the horizontal GUPPI: the pricing pressure divided by the price under pressure.

The vGUPPI/2 rule. As with a GUPPI, the index is a score, not a price prediction. Under the same assumptions, though, it converts directly into one: the predicted percentage increase in M's price to R2 is half the vGUPPI. Half of 10% is 5%, which is the $2 increase on $40. This is the vertical counterpart of the GUPPI/2 rule for horizontal mergers. In this model, the rule is exact, because demand is linear, costs are constant, $40 was M's best price before the merger, and every other price, including R1's, is held fixed. Outside these conditions, it is an approximation, and letting R1's price move can change the price prediction substantially (Section 6).

A score, not a verdict. No accepted vGUPPI threshold marks a merger as harmful or safe.[7] Whether a 5% increase in an input price matters is a question for the evidence (Section 6).

What R2's customers pay. M's $2 increase raises R2's cost by $2, and R2 passes on half, so R2's price rises by $1, from $50 to $51, or 2%. The pressure passes through twice, once at M and again at R2, so R2's price rises by a quarter of the $4 pressure. R2's profit falls by $770 (line 13).

R2's customers lose $385 a month. The 350 who keep buying at R2 pay $1 more each, or $350 (line 14). The 70 who leave also lose something. Each preferred buying at R2 for $50 to its next-best choice, but not by enough to stay at $51, so each loses between nothing and $1: on average $0.50, or $35 in total (line 15). That is true whether a customer switches to R1 or buys elsewhere or not at all, so the customers who switch to R1 should not be counted a second time.

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[6] Serge Moresi & Steven C. Salop, *vGUPPI: Scoring Unilateral Pricing Incentives in Vertical Mergers*, 79 ANTITRUST L.J. 185, 193 (2013) (equation 1). Moresi and Salop call this index vGUPPIu; the "u" indicates that it concerns the upstream product's price. They write $\text{vGUPPIu} = \text{DR}_{\text{UD}} \times \text{M}_{\text{D}} \times \text{P}_{\text{D}} \div \text{W}_{\text{R}}$, where DR_{UD} is the share of the input sales M loses that R1 recaptures, M_{D} is R1's percentage margin, and P_{D} is R1's price. Because $\text{M}_{\text{D}} \times \text{P}_{\text{D}}$ is R1's dollar margin, their formula is the one in the text. They measure diversion, margins, and prices before the merger. They also define indices for the rival's retail price (vGUPPIr) and for the merged firm's own retail price (vGUPPId), which this note does not use. *Id.* at 196-98.

[7] Moresi and Salop consider it premature to set a vGUPPI safe harbor. Moresi & Salop, supra note 6, at 207. *See also* Jonathan B. Baker, Nancy L. Rose, Steven C. Salop & Fiona Scott Morton, *Five Principles for Vertical Merger Enforcement Policy*, ANTITRUST, Summer 2019, at 12, 16 (arguing that the agencies should adopt no safe harbor for vertical mergers, except perhaps when both markets are unconcentrated, because when the input market is concentrated, input foreclosure can be profitable even if the downstream market is not). On the absence of a numerical threshold for how large an increase must be, see slide 16 of the Unit 12 class notes.

The $385 (line 16) is a loss of consumer surplus. It is separate from R2's lost profit, and it is not a measure of total welfare, because other sellers gain some of the customers R2 loses.

5. Why a price increase can pay when a complete foreclosure does not

Section 4 found that M gains from raising its price to R2 but stops at $2. Would it do better by refusing to supply R2 at all? Answering that requires an assumption beyond the facts, because the estimates describe how R2's customers respond to small price changes, not where they would go if R2 could not sell the product at all. *For this comparison, assume that a complete cutoff also sends 40% of R2's customers to R1.*

On that assumption, cutting R2 off completely would cost M its $20 margin on all 420 of R2's sales, or $8,400 a month. It would recover $30 (M's $20 plus R1's $10) from the 168 customers (40% of 420) who switch to R1, or $5,040. The net loss would be $3,360 a month. In general, a complete foreclosure pays only if the share of R2's customers who switch to R1 is larger than M's margin divided by the combined margin:

$$\$20 \div (\$20 + \$10) = 2/3.$$

Why a small increase can pay when a cutoff cannot. Section 4's algebra shows why. Because $40 was M's profit-maximizing price before the merger, a small increase costs M very little on its own: $35\delta^2$, which grows with the square of the increase. The profit the merger adds, $140δ, grows only in proportion to the increase. For a small enough increase, the added profit wins, so some increase pays whenever the merger adds any recapture at all. Complete foreclosure, by contrast, gives up M's whole margin on every unit R2 buys, so it pays only if diversion to R1 is high. Diversion of 40% falls well short of two-thirds, yet it supports a profitable increase. A client's assurance that "we would never cut them off" can therefore be true and still beside the point.

Courts have drawn the same distinction. In *AT&T/Time Warner*, the government did not claim that the merged firm would black out rival distributors: its own economist conceded that withholding Turner's content would be unprofitable, and the theory was instead that the merger would let Turner extract higher fees.[8] The Ninth Circuit made the same point in *Microsoft/Activision Blizzard*: Microsoft's lack of financial incentive to withhold Call of Duty from PlayStation entirely did not, without more, show that it lacked an incentive to disfavor PlayStation in lesser ways, such as by releasing inferior or later versions there. The court nonetheless upheld the district court's finding that the FTC's evidence of partial foreclosure was insufficient, noting the absence of expert testimony on its competitive impact.[9]

6. From model to evidence

This section connects the model to the legal analysis. It begins with the legal question, the agencies' framework under Guideline 5, and how the Guideline treats rebuttal evidence. It then lists what must be investigated to apply the model to an actual transaction and takes up four issues that often decide vertical cases: the rival's alternatives, testing the calculation against the

[8] United States v. AT&T Inc., 310 F. Supp. 3d 161, 201 (D.D.C. 2018) (quoting the government's economist: "This is not a foreclosure-withholding story."), *aff'd*, 916 F.3d 1029 (D.C. Cir. 2019).

[9] FTC v. Microsoft Corp., 136 F.4th 954, 970 (9th Cir. 2025) (agreeing that "the mere fact that a company does not have a financial incentive to engage in full foreclosure does not, without more, establish that it similarly lacks an incentive to engage in partial foreclosure").

evidence, statements of intent, and remedies and commitments. It ends with the comparison to the world without the merger and what this note leaves for Class 24.

The legal question. Section 7 of the Clayton Act asks whether the merger may substantially lessen competition in a relevant market, here the retail market in which R1 and R2 compete and in which the effects of foreclosing R2 would be felt. Harm to R2 is evidence on that question, not the test. Because a vertical merger produces no immediate change in market shares, the government cannot rely on the horizontal presumption based on increased concentration. Rather, it must make a fact-specific showing that the merger is likely to be anticompetitive. Market structure still matters as evidence. Courts evaluate vertical mergers under both the older *Brown Shoe* factors, which include the extent of the foreclosure, and the ability-and-incentive test, and in *Illumina* the court found the FTC's prima facie case established under either.[10]

The agency framework: Guideline 5. Guideline 5 of the 2023 Merger Guidelines addresses mergers that create a firm that may limit rivals' access to a product they use to compete.[11] It asks whether the merged firm would have the ability and incentive to do so, considering the availability of substitutes for that product, its competitive significance to the rivals that depend on it, those rivals' importance to competition, and competition between the merged firm and them. The Guideline also offers a structural route: if the merged firm has or is approaching monopoly power over a competitively significant input, which the agencies will generally infer from a share above 50% of a market defined around the input, that alone provides a rebuttable presumption that the merged firm can weaken or exclude the rivals that depend on it.[12] The presumption, however, does not address the merged firm's incentive.

Rebuttal under Guideline 5. The Guideline's treatment of rebuttal evidence tracks three points in this note. When the parties argue that limiting access would cost the merged firm too much, the agencies ask whether the lost profits would prevent the full range of reasonably probable strategies to limit access, which include worsening the terms on which rivals buy, not only cutting them off. The agencies proceed on the principle that a firm maximizes its overall profits and value rather than the profits of any particular business unit, which is the assumption behind line 12 of the worksheet. They are also unlikely to credit claims or commitments not to weaken

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[10] *AT&T*, 916 F.3d at 1032 (the government "cannot use a short cut to establish a presumption of anticompetitive effect through statistics about the change in market concentration, because vertical mergers produce no immediate change in the relevant market share"); *Illumina*, 88 F.4th at 1051 (describing "two different but overlapping standards" and finding the prima facie case established "under either standard"). The "fact-specific" formulation in *AT&T* comes from the parties' joint statement on the burden of proof, which the court quoted.

[11] U.S. Dep't of Justice & Fed. Trade Comm'n, *Merger Guidelines* § 2.5, at 13-18 (2023) (Guideline 5). Both agencies confirmed in February 2025 that they continue to apply the 2023 Guidelines. *See* Memorandum from Andrew N. Ferguson, Chairman, Fed. Trade Comm'n, to FTC Staff, Re: Merger Guidelines 1 (Feb. 18, 2025); Memorandum from Omeed Assefi, Acting Assistant Att'y Gen., Antitrust Div., U.S. Dep't of Justice, to Antitrust Division Staff, Re: Use of the 2023 Merger Guidelines 1 (Feb. 18, 2025). For an academic proposal of rebuttable presumptions of harm in vertical mergers when certain factual conditions are met, see Baker et al., supra note 7, at 16-17.

[12] *Merger Guidelines, supra note 11, § 2.5.A.2*, at 15-16 & n.30. The agencies call the market defined around the input the "related market" and the share of it to which the merged firm could limit access the "foreclosure share." The Guideline adds that a merger involving a related product with a share below 50% may still substantially lessen competition, particularly when the product is important to its trading partners. *Id.* at 16 n.30.

rivals that do not align with the merged firm's incentives, a point that bears on the commitments discussed below.[13]

What must be investigated. The model organizes the analysis of incentives and price effects; evidence determines whether its assumptions and estimates fit a particular transaction. No universal numerical threshold for the price increase establishes a substantial lessening of competition. Instead, evidence must connect the predicted price change to competition in the relevant market. The table below pairs each element of the analysis with the question it raises and the evidence that usually bears on it. The first group concerns ability and incentive; the second concerns the effect on competition.

[13] *Id.* § 2.5, at 16. The Guideline lists the ways of limiting access, which include worsening the terms on which rivals can obtain the related product as well as denying access altogether. *Id.* § 2.5.A, at 13-14.

Model element	What must be investigated	Typical evidence
Ability and incentive		
R2's alternatives (ability)	How close R2's alternative supplies are, at what effective cost, and in what quantity; alternatives can limit an increase without eliminating it	Supply contracts, rivals' testimony, switching history, other suppliers' capacity
Diversion to R1 (40%)	Where R2's lost customers go	Switching data, customer surveys, win/loss records, ordinary-course documents
Margins (M's $20, R1's $10)	Incremental margins on the sales at issue	Accounting data adjusted to incremental costs
M's freedom to change its price to R2	Whether contracts, most-favored-nation clauses, or commitments block or delay an increase; whether the input is sold at per-unit prices or under other terms	Supply agreements, their terms and durations
Pass-through and sales responses	How R2's price and sales respond to its costs	Pricing data, econometric estimates, pricing documents
Other prices (held fixed in the model)	How R1 and other sellers would respond; the model holds them fixed only to isolate one mechanism	Pricing data and documents; R1's response and EDM come in Class 24
The firm's overall profits	Whether the calculation captures all the profits the strategy would affect, including sales to other customers, objectively supported longer-term effects, and practical constraints on carrying it out	Internal valuation models, business plans, customer contracts, ordinary-course documents; reporting and compensation structure
Effect on competition		
R2's competitive significance	How important R2 is to competition in the retail market: a close rival of R1, a maverick, or a fringe seller	Market shares, win/loss and switching data, pricing history, customer testimony
Scope and duration	How much of the market's sales the affected input supports, and how long the higher price would last	Sales data, supply contracts and their terms, evidence on how long switching or entry would take
Responses by others	Whether other suppliers or retailers would expand, reposition, or enter and offset R2's weaker position	Capacity data, entry history, rivals' plans and testimony
Nonprice effects	Whether weaker access would reduce R2's investment, quality, service, or innovation	R2's business plans and investment records, industry testimony
The world without the merger	What access, contracts, products, and entry would look like absent the merger; the model's starting point may not be the right comparison	Ordinary-course plans and forecasts, contract renewals, evidence of planned entry or new products

Alternatives limit the increase. R2's alternatives matter by degree, not all or nothing. Suppose R2 could buy a comparable product elsewhere, in sufficient quantity, at an effective $41. Then M could raise its price by only $1. Assuming R2 keeps buying from M when M matches the alternative, M would gain $105 a month instead of $140 ($35 \times \$1 \times (\$4 - \$1)$), and R2's price would rise by $0.50 (1%) instead of $1. Imperfect substitutes weaken the pressure without capping it so sharply.[14]

Test the calculation against the evidence. A coherent economic mechanism is not proof that it will operate in a particular transaction. In *AT&T*, the government argued that after the merger, a blackout of a rival distributor would cost Turner less because some of the rival's subscribers would switch to AT&T's DirecTV, so Turner could bargain for higher fees. The district court accepted the theory as a general matter but found that the evidence did not show that the merger would materially increase Turner's leverage. It credited evidence of earlier vertical integrations in the industry over the government's model, which it found unreliable, and gave weight to Turner's offers to arbitrate fee disputes without blacking out its networks. The D.C. Circuit affirmed.[15]

Two later cases make the same point. In *UnitedHealth/Change Healthcare*, the government's expert calculated that withholding future integrated platforms from rival insurers would pay; the court found that the platforms were still concepts rather than products, and it credited executives' unrebutted testimony that cutting off rival insurers would put a large share of the firm's outside business at risk.[16] In *Microsoft*, the FTC's expert modeled whether making Call of Duty exclusive to Xbox would pay, and the answer turned on the share of PlayStation players who would buy an Xbox to keep playing. The district court found the assumed 20% rate unsupported and speculative; at a slightly lower rate, the expert's own model showed a loss, and the FTC forfeited its challenge to that finding on appeal. The court also credited evidence that pulling the game would cost Microsoft heavily in revenue and reputation, including Microsoft's own valuation model, which assumed continued PlayStation sales.[17] Evidence of this kind does not contradict the principle that firms maximize overall profits. It shows that a calculation omitted effects, rested on unreliable estimates, or depended on assumptions that did not hold, and a case can turn on a single estimate even when the mechanism is sound.

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[14] Moresi and Salop adjust vGUPPIu for the rival's ability to substitute other inputs. Moresi & Salop, supra note 6, at 202 (equation 5).

[15] *See AT&T*, 916 F.3d at 1031-32, 1035-37. The defendants' expert analyzed earlier vertical integrations in the industry and found no statistically significant effect on content prices; the government offered no comparable analysis. The district court also found that the government's model relied on unreliable inputs and did not account for existing long-term contracts. A week after the government sued, Turner irrevocably offered about 1,000 distributors baseball-style arbitration for seven years, with no blackout while an arbitration was pending. *Id.* The D.C. Circuit held that the district court's findings were not clearly erroneous, *id.* at 1032; said that the arbitration offers made the government's challenges to the district court's treatment of its economic theories "largely irrelevant," at least during the seven-year period, *id.* at 1041; and noted that it was not holding that Section 7 requires quantitative evidence of a price increase, *id.* at 1045-46.

[16] United States v. UnitedHealth Grp. Inc., 630 F. Supp. 3d 118, 152-55 (D.D.C. 2022) (finding that the integrated platforms were "concepts," not actual products, *id.* at 153, and that the executives' testimony was "far more probative of post-merger behavior" than the expert's calculation, *id.* at 154-55), *appeal dismissed*, No. 22-5301, 2023 WL 2717667 (D.C. Cir. Mar. 27, 2023).

[17] *Microsoft*, 136 F.4th at 968-69 & n.3 (describing the district court's findings on the conversion rate and noting that the FTC forfeited any challenge to the district court's discounting of its expert's report).

Statements of intent. A statement that management does not intend to exploit a profitable opportunity is different. If the calculation, done completely and on sound estimates, shows that raising the rival's price would pay, an unenforceable assurance that the firm will not do so carries little weight. (Binding commitments, however, raise the separate questions discussed below.) Claims of reputational harm fall in between. The Guideline discounts them when they are speculative, but the courts in *UnitedHealth* and *Microsoft* credited harms tied to concrete evidence about customers and revenue.[18] Internal reporting and compensation can still matter, because managers rewarded on divisional results may not act on a combined-profit calculation.

Remedies and commitments. For much of modern antitrust history, vertical concerns were resolved with behavioral remedies, such as nondiscriminatory access or arbitration with continued access. This changed in 2017, when the Antitrust Division announced a strong preference for structural relief,[19] although the Trump 2.0 administration may be returning to the historical practice.[20]

Commitments that the merging parties offer on their own can also matter as rebuttal evidence. In *Illumina*, the Fifth Circuit vacated the FTC's order because the Commission had required the parties to show that their open offer to customers would eliminate the merger's harm, when the question was whether the offer sufficiently mitigated that harm, so that the merger was no longer likely to substantially lessen competition.[21] In *Microsoft*, Microsoft entered into binding ten-year agreements to bring Call of Duty to Nintendo's consoles and Activision content to five cloud-gaming services, and it offered Sony a ten-year commitment for PlayStation. The Ninth Circuit, however, did not decide whether such postmerger arrangements are proposed remedies that should not be considered in assessing the FTC's likelihood of success: the district court had said that the Sony offer was not necessary to its ruling, and the FTC's showing fell short on each of its theories without the offer or the cloud-streaming contracts.[22]

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[18] *Merger Guidelines, supra note 11, § 2.5, at 16 (giving* little weight to rebuttal claims not supported by an objective analysis, "including, for example, speculative claims about reputational harms"); *see Microsoft*, 136 F.4th at 968; *UnitedHealth*, 630 F. Supp. 3d at 154-55.

[19] Makan Delrahim, Assistant Att'y Gen., Antitrust Div., U.S. Dep't of Justice, Antitrust and Deregulation, Remarks as Prepared for Delivery at the American Bar Association Antitrust Section Fall Forum 2, 8 (Nov. 16, 2017) (announcing a "return to the preferred focus on structural relief," *id.* at 2, while acknowledging, for a vertical merger with significant efficiencies that could not be achieved otherwise, "a place for considering a behavioral remedy if it will completely cure the anticompetitive harms," *id.* at 8); *see* Steven C. Salop, *Invigorating Vertical Merger Enforcement*, 127 YALE L.J. 1962, 1992-93 & n.121 (2018) (describing the earlier reliance on behavioral remedies and criticizing them, including arbitration remedies).

[20] *See* The Boeing Co. & Spirit AeroSystems Holdings, Inc.; Analysis of Proposed Agreement Containing Consent Orders To Aid Public Comment, 90 Fed. Reg. 57,196, 57,197-99 (Dec. 10, 2025) (describing an order, made final in February 2026, that resolves the alleged foreclosure of rival military aircraft manufacturers from Spirit's aerostructures by requiring Boeing, for ten years, to supply them on a nondiscriminatory basis at commercially fair and reasonable prices, maintain firewalls, and submit to a compliance officer, while resolving the parallel concern for Airbus with divestitures). *But see* Statement of Chairman Andrew N. Ferguson Joined by Commissioner Melissa Holyoak and Commissioner Mark R. Meador at 7, *In re Synopsys, Inc. & Ansys, Inc.*, FTC Matter No. 2410059 (May 28, 2025) (stating that "behavioral remedies should be treated with substantial caution" and "are therefore disfavored").

[21] *Illumina*, 88 F.4th at 1057 n.15, 1059 (holding that the parties needed to show only that the offer "sufficiently mitigated the merger's effect such that it was no longer likely to substantially lessen competition," not that it would negate the effect entirely). The court expressly took no view on the standard that applies at the remedy stage. *Id.* at 1058 n.16.

[22] *Microsoft*, 136 F.4th at 963, 969-70, 974 n.5.

The world without the merger. The model treats its starting prices as the prices that would prevail without the merger. In practice, evidence must establish that comparison, because contracts, products, entry, and access arrangements might change even without the merger. If the theory is that the merger takes away access rivals would otherwise have had, the comparison can be decisive. In *Microsoft*, the FTC failed to show that Activision's games would have been available to Microsoft's rivals in multigame subscription and cloud-streaming services absent the merger; Activision had long declined to offer its content through such services. Without that showing, Microsoft's control of the content could not foreclose rivals from something "otherwise open to competitors."[23]

What this note leaves for Class 24. Holding R1's price fixed sets aside both EDM and R1's own response to R2's higher price. Class 24 lets R1's price move. The two effects interact. Cutting R1's price lowers what the merged firm earns on each customer who switches to R1, and it pulls customers away from R2, which changes how many units M sells to R2. Once EDM is taken into account, the two effects cannot be analyzed separately, and under some common assumptions the merged firm may even want to lower R2's input price, so a prediction based on the vGUPPI alone can get even the direction wrong.[24] Coordinated effects and the misuse of rivals' competitively sensitive information are also outside this note.

7. RRC: Step by Step

The steps below restate the analysis as a method that applies to any set of facts. They use the roles in Figure 1: the supplier sells the input (M in the example), the partner is the downstream firm the supplier acquires (R1), and the rival is the downstream firm that buys the input (R2). Letters refer to the callouts in Figure 1; section references point to the worked numbers.

Set up the problem

1. *Identify the roles and the price at issue.* Find the supplier, the partner, and the rival, and the price the supplier charges the rival for the input (A). The theory is about that price. (Section 2)

2. *Find the two margins.* The supplier's margin is what it earns on each unit it sells to the rival or to the partner (E). The partner's margin is what the partner earned on each sale before the merger, after paying the supplier and its own costs (F). (Section 2)

3. *Check the starting point.* The method assumes that, before the merger, the supplier's price to the rival and the rival's price were already the most profitable. If they were not, part of any predicted change would have happened without the merger. (Section 4 and the Appendix show how to check.)

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[23] *Microsoft*, 136 F.4th at 971-74 (quoting Brown Shoe Co. v. United States, 370 U.S. 294, 328 (1962)). The court reviewed the denial of a preliminary injunction for abuse of discretion, so the decision shows what evidence a court found insufficient at that stage, not a final judgment on the merits. *Id.* at 964-65.

[24] Gopal Das Varma & Martino De Stefano, *Equilibrium Analysis of Vertical Mergers*, 65 ANTITRUST BULL. 445, 445 (2020); *see* Margaret E. Slade, *Vertical Mergers: A Survey of Ex Post Evidence and Ex Ante Evaluation Methods*, 58 REV. INDUS. ORG. 493, 506 (2021) (reporting that Das Varma and De Stefano, and Domnenko and Sibley, caution against using vGUPPIs to screen mergers because the rival's input price can fall after a vertical merger, so that predictions based on vGUPPIu have the wrong sign).

Find the incentive

4. *Ask where the rival's lost customers go.* When the rival's cost rises, it raises its price and loses some customers (B and C). What matters is the share that switches to the partner (D). (Section 3)

5. *Count only what the merger adds.* The supplier already earned its margin on customers who left the rival for the partner, because the partner bought from it too (E). The merger adds only the partner's margin (F). So the pricing pressure is the share that switches to the partner times the partner's margin. Using the combined margin would count the supplier's margin twice. (Section 3)

6. *Predict the input price.* The supplier raises its price to the rival by half the pressure. Any increase smaller than the full pressure pays, and half pays the most. The vGUPPI states the pressure as a share of the input price, and half of it is the predicted percentage increase. (Section 4)

7. *Test any specific increase the same way.* Before the merger, an increase earns more on the units the rival still buys. It loses the supplier's margin on units the rival no longer buys, except where those customers switch to the partner (C, D, and E). After the merger, add the partner's margin on the customers who switch (F). The difference between the two totals is the merger's effect on whether that increase pays. (Section 3)

Trace the effects

8. *Follow the increase to the rival's customers.* The rival passes on half of its cost increase, so its price rises by a quarter of the pressure (B). Customers who stay pay the higher price on each purchase, and customers who leave lose, on average, half of the increase. The rival's lost profit is separate. (Section 4)

9. *Compare a cutoff separately.* A cutoff pays only if the share of the rival's customers who switch to the partner, times the combined margin, exceeds the supplier's margin. That is a much higher bar than the one for a small price increase, which pays whenever the merger adds any recapture at all, so an unprofitable cutoff does not rule out a profitable increase. The comparison requires an assumption about where customers go if the rival loses the input entirely. (Section 5)

10. *Allow for the rival's alternatives.* A close alternative caps the supplier's price at what the rival would pay, all things considered, to buy elsewhere. A weaker one only reduces the increase. Alternatives limit the increase by degree; they need not eliminate it. (Section 6)

Test the conclusion

11. *Test the inputs against the evidence.* The diversion share, the margins, pass-through, the supplier's freedom to change its price, and the rival's alternatives are all estimates. The prediction is only as good as they are. (Section 6)

12. *Ask whether competition would suffer.* A predicted price increase is not yet a substantial lessening of competition. Ask how important the rival is to competition, how much of the market is affected and for how long, whether other firms would offset the effect, whether the rival would also invest or innovate less, and what would happen without the merger. (Section 6)

These steps hold the partner's price fixed and set aside EDM, which Class 24 adds. The results are only as reliable as the estimates and assumptions behind them, and they do not by themselves make a merger unlawful.

Appendix: Technical assumptions and starting prices

This appendix states the example's technical assumptions and shows that R2's $50 price and M's $40 price to R2 are the most profitable prices before the merger. It then gives a general check of the starting price that applies to any example, explains why R1's price and M's price to R1 can be taken as given, and ends with a note for students with an economics background.

Technical assumptions. Each cost is the same for every unit, so the per-unit cost is also the cost of one more unit. The firms deal only through per-unit prices, with no fees and no contracts limiting price changes. Before the merger, R2 sets its retail price, and M sets its price to R2, to maximize its own profit; R1's retail price and M's price to R1 are taken as given. There are no capacity limits, so R1 can serve added customers at the same cost. Each customer buys at most one unit a month. The sales response, pass-through rate, and diversion ratio are assumed to hold over the range of prices considered in Sections 3 and 4. They do not describe a complete foreclosure, for which Section 5 makes a separate assumption.

R2's retail price and the 50% pass-through. Within the range of the estimates, R2's sales at retail price P_R are $420 - 70(P_R - \$50)$, which can be written $70(\$56 - P_R)$. With a cost per unit of C_R, R2's profit is $70(P_R - C_R)(\$56 - P_R)$. Completing the square gives:

$$\text{R2's profit} = 70[(\$28 - C_R/2)^2 - (P_R - \$28 - C_R/2)^2].$$

The squared quantity being subtracted is nonnegative and is zero when $P_R = \$28 + C_R/2$, so that is R2's best price. Because $C_R = W_R + \$4$, where W_R is M's price to R2, R2's best price in terms of M's price is:

$$P_R = \$30 + W_R/2.$$

At $W_R = \$40$, R2's best price is $50. Each $1 increase in M's price raises it by $0.50: the 50% pass-through rate follows from the linear demand and constant cost. (The appendix to the EDM note explains the same result graphically.) Substituting R2's best price into its sales gives M's sales to R2:

$$q(W_R) = 420 - 35(W_R - \$40),$$

so each $1 increase in M's price costs M 35 sales to R2. As a check, R2 earns $\$6 \times 420 = \$2{,}520$ a month at $50; at $49 it would sell 490 units at a $5 margin, and at $51 it would sell 350 units at a $7 margin, earning $2,450 either way.

M's price to R2 before the merger. M must count its $20 margin on R2's customers who switch to R1. At $41, M gains $1 on the 385 units R2 still buys (+$385) and loses $20 on 35 lost sales (−$700), but recovers $20 on the 14 of those customers who buy at R1 (+$280): profit falls by $35. At $39, M earns $19 instead of $20 on 455 units (+$245 in total on sales to R2), but 14 of R2's added customers come from R1, which then buys 14 fewer units from M (−$280): profit again falls by $35. So $40 is M's best price to R2; the algebra in Section 4 proves the point, because M's profit change before the merger, $-35\delta^2$, is negative for any increase or decrease.

A general check. The supplier's starting price is its best price when the rival's sales equal the sales the supplier loses for each $1 increase, times the share of the rival's lost customers who do not switch to the partner, times the supplier's margin. Here, $420 = 35 \times 60\% \times \$20$. If the rival's sales were larger, the supplier would gain by raising its price even without the merger; if they were smaller, it would gain by cutting it. Either way, part of any predicted change would have nothing to do with the merger.

Prices taken as given. R1's $54 retail price is held fixed, and M's $40 price to R1 is a historical price used for the before-the-merger comparison, so the analysis does not need either to be optimal (Section 2).

For students with an economics background. R2's elasticity of demand at $50 is 70 × 50/420 = 8.33, and its margin is $6/$50 = 12% = 1/8.33. M's effective margin on sales to R2, counting the $20 it recaptures on 40% of R2's lost customers, is ($40 − $20 − 40% × $20)/$40 = 30%, and the elasticity of its demand from R2 is 35 × 40/420 = 3.33 = 1/0.30.