

MERGER ANTITRUST LAW

LAWJ/G-1469-05
Georgetown University Law Center
Fall 2021

Tuesdays and Thursdays, 3:00-5:00 pm
Dale Collins
wdc30@georgetown.edu
www.appliedantitrust.com

CLASS 12 WRITTEN ASSIGNMENT—INSTRUCTOR’S ANSWER

Instructions

Submit by email by 3:00 pm on Thursday, October 7
Send to wdc30@georgetown.edu
Subject line: Merger Antitrust Law: Assignment for Class 12

Assignment

Calls for answers to the following problems. Show your work.¹

Part A. There are red cars, blue cars, and green cars. The cars are homogenous except for their color. There are several manufacturers of each color of car. Consumers have preferences for colors, which are captured by the residual demand curve for various product groups. Blue cars are the closest substitute for red cars and green cars are the second closest substitute. Here are the variables for current market conditions:

| | Blue cars | Red cars | Green cars |
|---------------------------|-----------|----------|------------|
| Price per car | 1000 | 1000 | 1000 |
| Current sales | 2500 | 3000 | 1000 |
| Fixed costs | 0 | 0 | 0 |
| Marginal costs (constant) | 700 | 700 | 700 |

The residual demand curves (assuming the price of other cars do not change) are:

$$q_{blue} = 8500 - 6p_{blue}$$

$$q_{red} = 8000 - 5p_{red}$$

$$q_{green} = 4000 - 3p_{green}$$

$$q_{blue+red} = 9500 - 4p_{blue+red}$$

Each hypothetical describes an independent scenario:

¹ Feel free to submit an Excel worksheet if you like.

- A1. Two blue car manufacturers are going to merge. Are blue cars a relevant market under the hypothetical monopolist test using a 5% SSNIP?
- A2. Two red car manufacturers are going to merge. Are red cars a relevant market under the hypothetical monopolist test using a 5% SSNIP?
- A3. Two green car manufacturers are going to merge. Are green cars a relevant market under the hypothetical monopolist test using a 5% SSNIP?
- A4. A blue car manufacturer and a red car manufacturer are going to merge. Are blue cars plus red cars a relevant market under the hypothetical monopolist test using a 5% SSNIP??²

Part B. These problems ask questions about the HHI analysis in various merger scenarios. For Problems B1-B3, please answer the following questions:

- a. What is the combined share of the merging firms?
- b. What is the HHI contribution of each firm in the market?
- c. What is the premerger HHI?
- d. What is the delta?
- e. What is the postmerger HHI?
- f. Where does the merger fall in the 2010 Merger Guidelines?
- g. Where does the merger fall under case law precedent?
- h. Looking only at the HHI analysis, should the merger be challenged? Why?

Problem 1: Firms A and C merge

| | Share |
|--------|-------|
| Firm A | 33% |
| Firm B | 25% |
| Firm C | 23% |
| Firm D | 19% |
| | 100% |

² As you know from the class notes, the hypothetical monopolist test comes in two varieties: (1) whether the hypothetical monopolist *could* profitably raise its price by a SSNIP (profitability), and (2) whether the hypothetical monopolist *would* raise its price by a least a SSNIP (profit maximization). It is possible that a hypothetical monopolist could increase its profits by raising its price by a SSNIP, but that the profit-maximizing price increase would be less than a SSNIP. In this situation, the HMT would be satisfied under the profitability standard, but would fail under the profit-maximizing standard. For reasons explained in the class notes, it will be very rare for a candidate market to satisfy the profitability test but fail the profit maximization test. The 1982 and 1992 Merger Guidelines and most courts use the profitability test; the 2010 Merger Guidelines uses the profit maximization test. For this problem, use the profitability standard.

Problem 2: Firms A and D merge

| | <u>Share</u> |
|------------|--------------|
| Firm A | 53% |
| Firm B | 15% |
| Firm C | 8% |
| Firm D | 4% |
| Others (4) | <u>20%</u> |
| | 100% |

Problem 3: Firms A and B merge, but sell a plant to Firm C accounting for 10 percentage points of market share in a “fix-it-first”

| | <u>Share</u> |
|--------|--------------|
| Firm A | 70% |
| Firm B | 25% |
| Firm C | <u>5%</u> |
| | 100% |

Problem 4: Firms A and B merge, but are willing to sell a plant to Firm C in a “fix-it-first” to solve any antitrust concerns

| | <u>Share</u> |
|------------|--------------|
| Firm A | 35% |
| Firm B | 30% |
| Firm C | 14% |
| Firm D | 5% |
| Others (4) | <u>16%</u> |
| | 100% |

Does it matter whether the divested plants come from Firm A or Firm B?

What do you recommend as the minimal share point divestiture--

- a. Under the 2010 Merger Guidelines (to be in a safe harbor)? Why?
- b. Under the case law? Why?

If you have any questions, send me an e-mail. See you in class.

INSTRUCTOR'S ANSWER

Part A. The hypotheticals call for the application of the profitability version of the hypothetical monopolist test for relevant market identification. This version of the hypothetical asks whether a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future seller of those products (the “hypothetical monopolist”) could profitably impose “at least a small but significant and non-transitory increase in price (“SSNIP”) on at least one product in the candidate market, including at least one product sold by one of the merging firms.”³ A hypothetical monopolist could profitably impose a SSNIP if the profits the monopolist would gain from the increase in price for the sales the monopolist would continue to make (the “inframarginal sales” (q_2)) exceeds the loss of profits on the sales that the monopolist would have made at the lower price but would not be made at the higher price (the “marginal sales” (Δq)), even though in rare circumstances the hypothetical monopolist’s profit-maximizing price increase would be less than the SSNIP.

So if p_1 and q_1 are the current price and aggregate output in the candidate market, $\% \Delta p$ is the SSNIP (as a percentage of the p_1), p_2 and q_2 are the price and aggregate output in the candidate market when price is increased by a SSNIP, Δp and Δq are the resulting changes (in units) in price and output, mc is the (constant) marginal cost of production for all manufacturers of the product, and m_1 is the gross marginal on unit sales at the original prices ($= p_1 - mc$), then:

Gain in profits on inframarginal sales: $\Delta p(q_1 - \Delta q)$ ($= \Delta p q_2$)

Loss in profits on the marginal sales: $\Delta q(p_1 - mc)$ ($= m_1 \Delta q$)

A1. Two blue car manufacturers are going to merge. Are blue cars a relevant market under the hypothetical monopolist test using a 5% SSNIP?

The demand curve for blue cars is $q_{blue} = 8500 - 6p_{blue}$.

The parameters of the candidate market are:

$$p_1 = 1000$$

$$q_1 = 2500$$

$$mc = 700$$

So $\Delta p = 50$ (a 5% increase in the 1000 price)

$$p_2 = 1050 \text{ (} = p_1 + \Delta p = 1000 + 50 \text{)}$$

$$q_2 = 2200 \text{ (from the demand curve using } p_2 = 1050 \text{)}$$

$$\Delta q = -300 \text{ (} = q_2 - q_1 = 2200 - 2500 \text{)} \text{ (negative because there is a decrease in sales going from } q_1 \text{ to } q_2 \text{)}$$

³ See U.S. Dep’t of Justice & Fed. Trade Comm’n, Horizontal Merger Guidelines § 4.1.1 (rev. Aug. 19, 2010). Technically, the 2010 Merger Guidelines ask whether a hypothetical monopolist “likely would” increase price by at least a SSNIP. The “would” formulation describes the profit-maximization version of the hypothetical monopolist test; the “could” formulation describes the profitability version.

$$m_1 = 300 (= p_1 - mc = 1000 - 700)$$

Gain in profits on inframarginal sales: $\Delta p q_2 = (50)(2200) = 110,000$

Loss in profits on the marginal sales: $m_1 \Delta q = (300)(-300) = -90,000$

Net gain = 20,00

Blue cars are a relevant product market under the profitability version of the hypothetical monopolist test using a 5% SSNIP.

A2. Two red car manufacturers are going to merge. Are red cars a relevant market under the hypothetical monopolist test using a 5% SSNIP?

The demand curve for red cars is $q_{red} = 8000 - 5p_{red}$.

The parameters of the candidate market are:

$$p_1 = 1000$$

$$q_1 = 3000$$

$$mc = 700$$

So $\Delta p = 50$ (a 5% increase in the 1000 price)

$$p_2 = 1050 (= 1000 + 50)$$

$$q_2 = 2750 \text{ (from the demand curve using } p_2 = 1050)$$

$$\Delta q = -250 (= q_2 - q_1 = 2750 - 3000)$$

$$m_1 = 300 (= 1000 - 700)$$

Gain in profits on inframarginal sales: $\Delta p q_2 = (50)(2750) = 137,500$

Loss in profits on the marginal sales: $m_1 \Delta q = (300)(-250) = -75,000$

Net gain = 62,500

Red cars are a relevant product market under the profitability version of the hypothetical monopolist test using a 5% SSNIP.

A3. Two green car manufacturers are going to merge. Are green cars a relevant market under the hypothetical monopolist test using a 5% SSNIP?

The demand curve for green cars is $q_{green} = 4000 - 3p_{green}$.

The parameters of the candidate market are:

$$p_1 = 1000$$

$$q_1 = 1000$$

$$mc = 700$$

So $\Delta p = 50$ (a 5% increase in the 1000 price)

$$p_2 = 1050 (= 1000 + 50)$$

$$q_2 = 850 \text{ (from the demand curve using } p_2 = 1050)$$

$$\Delta q = -150 (= q_2 - q_1 = 850 - 1000)$$

$$m_1 = 300 (= 1000 - 700)$$

$$\text{Gain in profits on inframarginal sales: } \Delta p q_2 = (50)(850) = 42,500$$

$$\text{Loss in profits on the marginal sales: } m_1 \Delta q = (300)(-150) = -45,000$$

$$\text{Net gain} = -2,500$$

Green cars are not a relevant product market under the profitability version of the hypothetical monopolist test using a 5% SSNIP.

A4. A blue car manufacturer and a red car manufacturer are going to merge. Are blue cars plus red cars a relevant market under the hypothetical monopolist test using a 5% SSNIP?

$$\text{The demand curve for blue cars and red cars is } q_{\text{blue+red}} = 9500 - 4p_{\text{blue+red}}.$$

The parameters of the candidate market are:

$$p_1 = 1000$$

$$q_1 = 5500 \text{ (= blue car sales (2500) + red car sales (3000))}$$

$$mc = 700$$

$$\text{So } \Delta p = 50 \text{ (a 5\% increase in the 1000 price)}$$

$$p_2 = 1050 (= 1000 + 50)$$

$$q_2 = 5300 \text{ (from the demand curve using } p_2 = 1050)$$

$$\Delta q = 200 (= q_2 - q_1 = 5300 - 5500)$$

$$m_1 = 300 (1000 - 700)$$

$$\text{Gain in profits on inframarginal sales: } \Delta p q_2 = (50)(5300) = 265,000$$

$$\text{Loss in profits on the marginal sales: } m_1 \Delta q = (300)(-200) = -60,000$$

$$\text{Net gain} = 205,000$$

Blue cars and red cars are a relevant product market under the profitability version of the hypothetical monopolist test using a 5% SSNIP.

Part B. HHI Hypotheticals

Problem B1: Firms A and C merge

| | Share | HHI Contribution |
|----------------|-------|------------------|
| Firm A | 33% | 1089 |
| Firm B | 25% | 625 |
| Firm C | 23% | 529 |
| Firm D | 19% | 361 |
| | 100% | 2604 |
| Combined share | 56% | |
| Premerger HHI | | 2604 |
| Delta | | 1518 |
| Postmerger HHI | | 4122 |

Where does the merger fall in the 2010 Merger Guidelines?

Postmerger HHI > 2500 and delta > 200: Presumed to be likely to enhance market power”

Where does the merger fall under case law precedent?

Compared to the litigated cases, the postmerger HHI is low but the delta is high enough to be within the case precedent for triggering the *PNB* presumption

Looking only at the HHI analysis, should the merger be challenged? Why?

Yes. Under the Guidelines and the case precedent, the HHIs make out a well-supported prima facie case of anticompetitive effect.

Problem B2: Firms A and D merge

| | Share | HHI Contribution |
|----------------|-------|------------------|
| Firm A | 53% | 2809 |
| Firm B | 15% | 225 |
| Firm C | 8% | 64 |
| Firm D | 4% | 16 |
| Others (4) | 20% | 100 |
| | 100% | 3214 |
| Combined share | 57% | |
| Premerger HHI | | 3214 |
| Delta | | 424 |
| Postmerger HHI | | 3638 |

The parenthesis indicates that there are four firms in the “other” category. To be conservative (that is, to maximize the premerger HHI), assume that each of the “other” firms has a market share of 5%. That means that there are four other firms. Each 5% firm contributes 20 points to the HHI. Therefore, the four “other” firms collectively contribute 100 points.

Where does the merger fall in the 2010 Merger Guidelines?

Postmerger HHI > 2500 and delta > 200: Presumed to be likely to enhance market power”

Where does the merger fall under case law precedent?

Compared to the litigated cases, both the postmerger HHI and the delta are a little low.

Looking only at the HHI analysis, should the merger be challenged? Why?

Probably not. Unless Firm D is a maverick, the court is likely to say that the addition of four percentage points of market share is unlikely to materially change the market equilibrium postmerger.

Note: In this problem, the number of “other” firms was given as four. In many situations, you will not know the number of “other” firms, although you will know their aggregate market share (since you know the market shares of the listed firms and the sum of the market shares in the market must equal to 1). A safe assumption is that the largest “other” firm is no larger than the smallest listed firm (here, 4%). To be conservative (that is, to maximize the premerger and postmerger HHI), divide the “other” share by the share of the smallest listed firm and, if necessary, round down to the nearest integer to estimate the number of “other” firms. Here, the “other” share is 20%, so if we divide by Firm D’s share of 4%, we get five firms. Each firm is equal in size, so each “other” firm will be given a share of $20\%/5 = 4\%$. Therefore, each “other” firm would contribute 16 points to the HHI. Collectively, they would contribute 80 points.

Problem B3: Firms A and B merge but sell a plant to Firm C accounting for 10 percentage points of market share in a preemptive “fix-it-first” divestiture solution

Since there is a divestiture, we should do a “brute force” calculation of the postmerger HHI and delta:

| | Premerger HHI | | Postmerger HHI | |
|----------------|---------------|--------------|----------------|--------------|
| | Share | Contribution | Share | Contribution |
| Firm A | 70% | 4900 | 85% | 7225 |
| Firm B | 25% | 625 | -- | |
| Firm C | 5% | 25 | 15% | 225 |
| | 100% | 5550 | 100% | 7450 |
| Combined share | | | 85% | |
| Premerger HHI | | | | 5550 |
| Delta | | | | 1900 |
| Postmerger HHI | | | | 7450 |

Where does the merger fall in the 2010 Merger Guidelines?

Postmerger HHI > 2500 and delta > 200: Presumed to be likely to enhance market power”

Where does the merger fall under case law precedent?

Compared to the litigated cases, both the postmerger HHI and delta are well within the ranges that the courts have found to trigger the *PNB* presumption

Looking only at the HHI analysis, should the merger be challenged? Why?

Yes. Under the Guidelines and the case precedent, the HHIs make out a strong prima facie case of anticompetitive effect. The “fix” does not work.

Problem B4: Firms A and B merge but are willing to sell a plant to Firm C in a “fix-it-first” to solve any antitrust concerns

Does it matter whether the divested plants come from Firm A or Firm B?

No. In calculating the postmerger HHI, the combined firm will contribute the square of its market share. Whether the divested market share comes from Firm A or Firm B will not matter.

What do you recommend as the minimal share point divestiture--

a. Under the 2010 Merger Guidelines? Why?

If we want the HHIs to be in a safe harbor under the Merger Guidelines, we need to get either the postmerger HHI under 1500 or the delta under 100. There is no divestiture to Firm C that will yield this result. Even divesting the entirety of Firm B to Firm C creates a Merger Guidelines violation because of the increase in the HHI due to Firm C’s postmerger contribution:

| | No fix | | Postmerger (w/fix) | |
|-------------------------------|--------|------------------|--------------------|------------------|
| | Share | HHI Contribution | Share | HHI Contribution |
| Firm A | 35% | 1225 | 35% | 1225 |
| Firm B | 30% | 900 | -- | |
| Firm C | 14% | 196 | 44% | 1936 |
| Firm D | 5% | 25 | 5% | 25 |
| Others (4) | 16% | 64 | 16% | 64 |
| | 100% | 2410 | 100% | 3250 |
| Recommended divestiture share | | | 30% | |
| Combined share | | 65% | 35% | |
| Premerger HHI | | 2410 | | 2410 |
| Delta | | 2100 | | 840 |
| Postmerger HHI | | 4510 | | 3250 |

b. Under the case law? Why?

Again, for the same reasons as before, even divesting the entirety of Firm B to Firm C creates a problem under the case precedent because of the increase in the HHI due to Firm C's postmerger contribution.