

## MERGER ANTITRUST LAW

LAWJ/G-1469-05  
Georgetown University Law Center  
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Tuesdays and Thursdays, 3:30-5:30 pm  
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### CLASS 15 WRITTEN ASSIGNMENT—INSTRUCTOR’S ANSWER

#### Instructions

Submit by email by 3:30 pm on Thursday, October 24  
Send to [dale.collins@shearman.com](mailto:dale.collins@shearman.com)  
Subject line: Merger Antitrust Law: Assignment for Class 15

#### Assignment

##### Part 1. Calls for a memorandum to a partner (which may be sent to a client)

John Clark, a partner in Able & Baker LLP with whom you work, has read your memorandum on the role of the *Brown Shoe* factors in product market definition. He now would like for you to write a separate memorandum on the hypothetical monopolist test in product market definition under the 2010 DOJ/FTC Horizontal Merger Guidelines. Once again, he is planning on sending the memorandum to the client, so it needs to be concise and clear to an intelligent lawyer but one unskilled in merger antitrust law. You may assume that that the client has read your *Brown Shoe* memorandum, so there is no need for you to cover the Section 7 basics on market definition again. However, Clark has asked that the memorandum cover what is the hypothetical monopolist test, the theory behind the test and to provide a simple example of how the test might be used in practice.<sup>1</sup>

##### Part 2. Calls for answers to the following questions<sup>2</sup>

1. Products A and B are being tested as a candidate market. The market price for each unit of either product is \$300, each type of product has a constant incremental cost of \$160 per unit and aggregate sales of 1000 units. When the price for both products is increased by \$15, each firm loses 100 units to products other than A and B. What is the critical loss for the candidate market of products A and B? Do A and B constitute a relevant market under the hypothetical monopolist test using critical loss analysis and SSNIP of 5%?

2. In *FTC v. Occidental Petroleum Corp.*, No. 86-900, 1986 WL 952 (D.D.C. Apr. 29, 1986), the FTC challenged the pending acquisition by Occidental Petroleum, a major producer of

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<sup>1</sup> You do not have to make up your own example, but you may do so if you like. Feel free to use an example in the notes, in the Horizontal Merger Guidelines or one you find on the internet. The point of the assignment is not to test your creativity in creating examples, but rather your ability in explaining one.

<sup>2</sup> Use the probability version of the hypothetical monopolist test.

polyvinyl chloride (“PVC”), of Tenneco’s PVC business. Both companies produced PVC in plants in the United States. The parties agreed that the relevant product markets were suspension homopolymer PVC and dispersion PVC, and the PI proceeding focused largely on the relevant geographic market. The FTC alleged that the relevant geographic market was the United States for both types of products; the merging parties argued that the relevant geographic market was worldwide. In the Section 13(b) proceeding for a preliminary injunction, the evidence showed that if the price of all suspension homopolymer PVC produced in the United States was increased by 5%, U.S. customers would divert about 17% of their purchases to imports from foreign suppliers (who were ready to serve these customers). The evidence also showed that if the price of all dispersion PVC produced in the United States was increased by 5%, U.S. customers would divert about 12% of their purchases to imports from foreign suppliers (again, who were ready to serve these customers).<sup>3</sup> The evidence in the hearing also showed that the percentage gross margins for homopolymer PVC and dispersion PVC were 28% and 45%, respectively. Was the FTC correct that the relevant geographic market was the United States using the hypothetical monopolist test and a SSNIP of 5%?

3. Premium ice cream sells at \$4.00/pint and has a constant marginal cost of \$2.25/pint. The own-elasticity of aggregate demand for premium ice cream is -1.9, with almost all diversion going to regular ice cream. Two premium ice cream manufacturers proposed to merge. Is premium ice cream a relevant product market under the hypothetical monopolist test under a 5% SSNIP, or should the market be expanded to include regular ice cream?

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

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<sup>3</sup> I have made up some of the facts here, but the hypothetical is consistent with the results in the case.

## Part A. Legal memorandum

ABLE & BAKER LLP

To: John Clark

FROM: Dale Collins

### Hypothetical Monopolist Test under the Merger Guidelines

You have asked me to prepare a short memorandum explaining the hypothetical monopolist test for product market definition under the 2010 DOJ/FTC Horizontal Merger Guidelines.

As I noted in my earlier memorandum, there are two complementary judicial “tests” for whether a product grouping—a “candidate” or “provisional” market—is a relevant product market for the purpose of merger antitrust analysis under Section 7: the “outer boundaries” and “practical indicia” criteria set forth by the Supreme Court in *Brown Shoe Co. v. United States*,<sup>1</sup> and the hypothetical monopolist test under the Merger Guidelines.<sup>2</sup> Modern courts typically apply both tests in analyzing market definition. The DOJ and FTC, not surprisingly, look primarily to the hypothetical monopolist test when making prosecutorial decisions, but if they have to prove their case in court, they will also invoke the *Brown Shoe* criteria.

Under the 2010 Merger Guidelines, the hypothetical monopolist test “requires that a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future seller of those products (‘hypothetical monopolist’) likely would impose at least a small but significant and non-transitory increase in price (‘SSNIP’) on at least one product in the market, including at least one product sold by one of the merging firms.”<sup>3</sup> The idea is that if a hypothetical monopolist—effectively a merger of all firms in the candidate market—would not be able to raise price, then a fortiori a merger of only two firms in the market would not be able to adversely affect prices.

The hypothetical monopolist test was introduced in the 1982 DOJ Merger Guidelines. That version of the test, which was continued in the 1992 DOJ/FTC Horizontal Merger Guidelines, required only that the hypothetical monopolist be able to increase prices profitably by a SSNIP, not that the profit-maximizing increase in price be at least a SSNIP. Say, for example, that the SSNIP is 5%, then the hypothetical monopolist would be to make more profits by raising prices by 5% than it would at current prices, but that the profit-maximizing price increase would only by 4.3%. In this case, the candidate market would be a relevant market under the 1982 and 1992 guidelines, but would be rejected as a relevant market under the 2010 guidelines. The number of cases in which this could occur is probably small, since it requires that the current price be very close to the profit-maximizing price, indicating that the market was nearly monopolized even before the merger.

While the agencies may use the profit-maximizing version of the hypothetical monopolist test, courts still use the profitability version. In the almost-28 years before the 2010 guidelines were

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<sup>1</sup> 370 U.S. 294, 325 (1962).

<sup>2</sup> U.S. Dep’t of Justice & Fed. Trade Comm’n, Horizontal Merger Guidelines § 4 (rev. Aug. 19, 2010).

<sup>3</sup> *Id.* § 4.1.1.

released, the agencies had urged the courts to use the profitability version—there was no other version at the time—and it is the profitability version that has entered into the judicial precedent. The current 2010 Merger Guidelines modified the hypothetical monopolist test in two other significant ways.

First, the hypothetical monopolist test originally only deemed the *smallest* product grouping that satisfied the test to be a relevant market (the “smallest market principle”). Under the 2010 Merger Guidelines, while the smallest market principle remains the preferred approach, where appropriate to reflect the economic realities a larger market can be used.<sup>4</sup>

Second, the hypothetical monopolist test originally required the hypothetical monopolist to increase the prices of all of the products in the candidate market by the same SSNIP. Under the 2010 Merger Guidelines, the hypothetical monopolist can raise the prices of one or more products selectively while leaving the prices of the other products unchanged. The hypothetical monopolist test under the 2010 Merger Guidelines requires only that the hypothetical monopolist be able to profitably raise the price of a *single* product in the product group by a SSNIP for the product grouping to be a relevant market.

These modifications are increasingly being adopted by the courts. In particular, modern courts are using the one-product SSNIP test to define markets.<sup>5</sup>

If you need more on this or would like to discuss it further, please let me know.

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<sup>4</sup> **Note to students:** As we will discuss in class, prior to 2010 the agencies on occasion had alleged relevant markets that satisfied the smallest market principle but did not look like any market or product grouping the industry or its customers had ever recognized. Courts tended to hold this departure from the “business realities” against the agency in rejecting the agency’s market definition. The 2010 Merger Guidelines rectified this problem by recognizing broader markets to reflect the business realities. The FTC did this, for example, in alleging its market for DDIY tax preparation software in *H&R Block*. The FTC defined the market to include all DDIY tax products, although any two of the three major products satisfied the hypothetical monopolist test and hence the all-DDIY tax products market did not satisfy the smallest market principle.

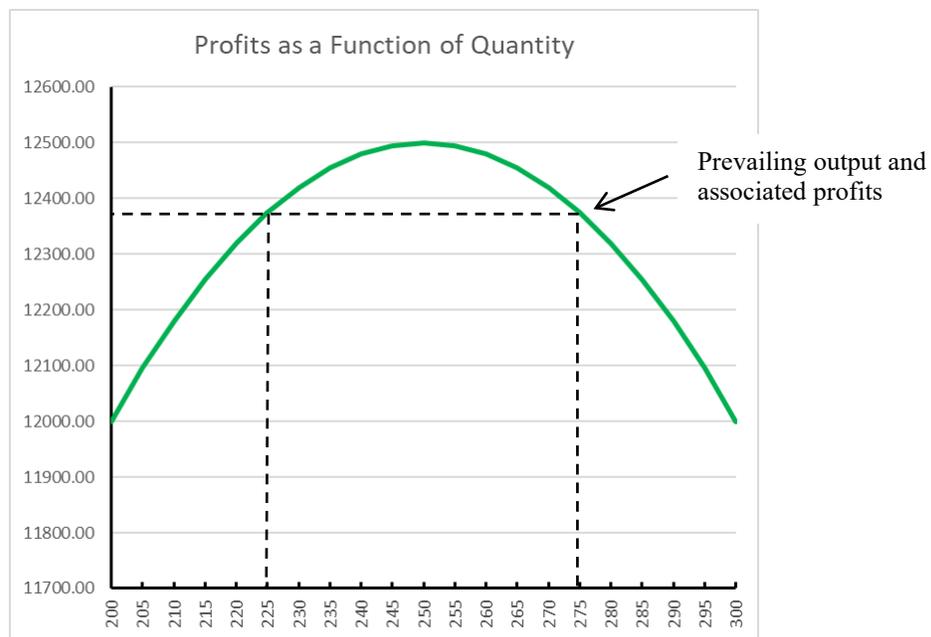
<sup>5</sup> See, e.g., *FTC v. Wilh. Wilhelmsen Holding ASA*, 341 F. Supp. 3d 27, 47 (D.D.C. 2018); *United States v. Anthem, Inc.*, 236 F. Supp. 3d 171, 198 (D.D.C. 2017); *United States v. Aetna Inc.*, 240 F. Supp. 3d 1, 20 (D.D.C. 2017); *FTC v. Staples, Inc.*, 190 F. Supp. 3d 100, 121 (D.D.C. 2016); *FTC v. Sysco Corp.*, 113 F. Supp. 3d 1, 33 (D.D.C. 2015); *United States v. H & R Block, Inc.*, 833 F. Supp. 2d 36, 51-52 (D.D.C. 2011).

## Part B. Hypotheticals

1. Products A and B are being tested as a candidate market. The market price for each unit of either product is \$300, each type of product as a constant incremental cost of \$160 per unit and aggregate sales of 1000 units. When the price for both products is increased by \$15, each firm loses 100 units to products other than A and B. What is the critical loss for the candidate market of products A and B? Do A and B constitute a relevant market under the hypothetical monopolist test using critical loss analysis and SSNIP of 5%?

Critical loss is the maximum loss  $\Delta q$  a hypothetical monopolist can sustain without reducing profits at current prices and output. Assuming that the market is not already monopolized (so that current prices are below the monopoly price), a small decrease in output by a hypothetical monopolist from current levels will increase its profits. At some point as further reductions are made, the hypothetical monopolist will reach a level of reduction that maximize its profits. After that point, a continued reduction in output will decrease profits below the profit-maximizing level but still maintain them above the profits earned at current prices and output. Again, as reductions continue, at some point the reduction will be sufficient large that profits will equal current profits and a further reduction will reduce profits below current profits. This reduction in output beyond the profit-maximizing level that just breaks even with current profits is called the “critical loss.”

A diagram may be helpful. Say the current price ( $p_1$ ) is 145, the current output is 275, fixed costs are zero, and marginal costs are constant at 100. Accordingly, current profits at 12,375, as shown in the chart below:



As the chart illustrates, the same profits could be made by reducing the output to 225. Any further reduction would reduce profits below the prevailing level. The difference in output between the prevailing level and the lower breakeven output—here, 50 ( $=275-225$ )—is the *critical loss*. If the output reduction associated with a given price increase exceeds the critical

loss, the price increase is unprofitable. If the output reduction associated with the price increase is less than the critical loss, the price increase is profitable.

Applied to the hypothetical monopolist test, if the actual output loss from a SSNIP is less than the critical loss, then the profits resulting from a SSNIP will be greater than current profits, Consequently, under the profitability version of the hypothetical monopolist test, the candidate market would be a relevant market. If the actual loss from a SSNIP is greater than the critical loss, then the profits resulting from a SSNIP will be less than current profits,

Here,  $p_1 = \$300$ ,  $q_1 = 2000$  units (1000 units of product A plus 1000 units of product B), and the marginal cost of production is \$160 per unit. The gross margin on each sale is \$140 per unit. A price increase of \$15 is 5% of the current price, so a price increase of \$15 is a 5% SSNIP. At a 5% SSNIP, the actual loss would be 200 units (100 units of product A plus 100 units of product B).

The breakeven condition for the critical loss  $\Delta q_{cl}$  is that profits at current prices and output is equal to profits with a SSSNIP and the associated critical loss:

$$p_1 q_1 - c q_1 = (p_1 + \Delta p_1)(q_1 - \Delta q_{cl}) - c q_1$$

Collecting terms:

$$(p_1 - c) q_1 = (p_1 + \Delta p_1 - c)(q_1 - \Delta q_{cl})$$

Applying the parameters in the hypothetical:

$$(300 - 160) 2000 = (300 + 15 - 160)(2000 - \Delta q_{cl})$$

Solving, critical loss  $\Delta q_{cl} = 193.548$  units

In fact, we know from the statement of the problem that the actual loss for a 5% SSNIP is 200 units.

Since the actual loss is greater than the critical loss, A and B technically do not constitute a relevant market under the hypothetical monopolist test using critical loss analysis and SSNIP of 5%.

NOTE: 1: Neither precision nor accuracy is a hallmark of market definition. Although actual loss is greater critical than critical loss, the difference is so small that it is unlikely a court would reject A and B as a relevant market if the qualitative evidence had convinced the judge that A and B are a proper relevant market.

NOTE 2: If you do not like doing the arithmetic, take a look at Mathpapa (<https://www.mathpapa.com/algebra-calculator.html>). You might find it very helpful (and for many things much better than Excel).

2. In *FTC v. Occidental Petroleum Corp.*, No. 86-900, 1986 WL 952 (D.D.C. Apr. 29, 1986), the FTC challenged the pending acquisition by Occidental Petroleum, a major producer of polyvinyl chloride (“PVC”), of Tenneco’s PVC business. Both companies produced PVC in plants in the United States. The parties agreed that the relevant product markets were suspension homopolymer PVC and dispersion PVC, and the PI proceeding focused largely on the relevant geographic market. The FTC alleged that the relevant geographic market was the United States

for both types of products; the merging parties argued that the relevant geographic market was worldwide. In the Section 13(b) proceeding for a preliminary injunction, the evidence showed that if the price of all suspension homopolymer PVC produced in the United States was increased by 5%, U.S. customers would divert about 17% of their purchases to imports from foreign suppliers (who were ready to serve these customers). The evidence also showed that that if the price of all dispersion PVC produced in the United States was increased by 5%, U.S. customers would divert about 12% of their purchases to imports from foreign suppliers (again, who were ready to serve these customers).<sup>6</sup> The evidence in the hearing also showed that the percentage gross margins for homopolymer PVC and dispersion PVC were 28% and 45%, respectively. Was the FTC correct that the relevant geographic market was the United States using the hypothetical monopolist test and a SSNIP of 5%?

This problem gives the actual loss in percentages, so we can use the percentage critical loss formula to calculate the percentage critical loss  $\% \Delta q_{cl}$ :

$$\% \Delta q_{cl} = \frac{\delta}{\delta + m},$$

where  $\delta$  is the percentage SSNIP and  $m$  is the percentage gross margin. Substituting the parameters from the statement of the problem:

$$\% \Delta q_{cl-suspension\ PVC} = \frac{5\%}{5\% + 28\%} = 15.15\%$$

$$\% \Delta q_{cl-dispersion\ PVC} = \frac{5\%}{5\% + 45\%} = 10.00\%$$

The actual loss was 17% for suspension PVC and 12% for dispersion PVC. Consequently, under the hypothetical monopolist test (profitability version), technically neither was a relevant product market under a 5% SSNIP.

NOTE: Same caution as in Note 1 to Answer 1

3. Premium ice cream sells at \$4.00/pint and has a constant marginal cost of \$2.25/pint. The own-elasticity of aggregate demand for premium ice cream is -1.9, with almost all diversion going to regular ice cream. Two premium ice cream manufacturers proposed to merge. Is premium ice cream a relevant product market under the hypothetical monopolist test under a 5% SSNIP, or should the market be expanded to include regular ice cream?

This problem gives actual own-elasticities, so we can use the percentage critical elasticity formula to calculate the critical elasticity  $\varepsilon_{cl}$ :

$$|\varepsilon_{cl}| = \frac{1}{\delta + m}.$$

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<sup>6</sup> I have made up some of the facts here, but the hypothetical is consistent with the results in the case.

The margin  $m$  is equal to 43.75% ( $= (4.00 - 2.25)/4.00$ )

Substituting the parameters from the statement of the problem:

$$|\varepsilon_{cl}| = \frac{1}{5\% + 43.75\%} = 2.05.$$

The problem gives the actual own-elasticity as -1.9, or, in absolute value, 1.9. Since the absolute value of the actual own-elasticity is less than the absolute value of the critical elasticity, then technically premium ice cream is a relevant product market under the hypothetical monopolist test (profitability version) with a 5% SSNIP.

NOTE: Same caution as in Note 1 to Answer 1 (except the other way around).