

## MERGER ANTITRUST LAW

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Tuesdays and Thursdays, 11:10 am – 1:10 pm  
Dale Collins

[wdc30@georgetown.edu](mailto:wdc30@georgetown.edu)  
[www.appliedantitrust.com](http://www.appliedantitrust.com)

### **Class 13 (October 12): H&R Block/TaxACT (Unit 9)<sup>1</sup>**

In this class, we will continue our examination of market definition. We introduced the hypothetical monopolist test in Class 11 and followed with its critical loss implementation in Class 12. We will finish market definition in *H&R Block* with its diversion ratio implementation of the hypothetical monopolist test.

The critical loss implementation we examined in the last class applies primarily to homogeneous product markets where quantity is the control variable and there is no price discrimination. Empirically, this occurs relatively infrequently in the real world. Instead, competing products tend to be differentiated from a consumer perspective, giving each firm some ability to set its own price to maximize profits against the firm's (downward-sloping) residual demand curve.

In addition, although the original hypothetical monopolist test in the 1982 Merger Guidelines required the hypothetical monopolist to increase the prices of all of the products in the candidate market by a uniform percentage SSNIP, the 2010 Merger Guidelines allow the hypothetical monopolist to raise the prices of one or more products in a differentiated market selectively while leaving the prices of the other products constant, provided that at least one of the products subject to the SSNIP is a product of one of the merging firms. Under this change, the hypothetical monopolist test requires only that the hypothetical monopolist be able to profitably *raise the price of a single product* of the merging firms in the product group for the product grouping to be a relevant market.

When a hypothetical monopolist raises price on only one product (say product 1), three things happen:

1. The monopolist gains the  $\$SSNIP$  on each of the inframarginal sales of product 1
2. The monopolist loses the profit margin on the lost marginal sales of product 1
3. The monopolist gains the profit margin on any lost marginal sales "recaptured" by other products in the candidate market (which the hypothetical monopolist controls).

The first two factors characterize the critical loss tests of Class 12 since there is no recapture of lost marginal sales by other products in the candidate market. Instead, all lost sales divert to products outside the candidate market. In a differentiated products market, however, some of product 1's lost marginal sales may divert to other products in the candidate market, and the hypothetical monopolist will earn incremental profits on those recaptured sales.

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<sup>1</sup> A reasonably complete set of the most important filings in the litigation (including the trial transcript) may be found [here](http://www.appliedantitrust.com) on AppliedAntitrust.com.

An example may be helpful to compare a uniform SSNIP test with a one-product SSNIP test. Consider a candidate market consisting of four different types of gourmet yogurt with the following characteristics:

	Price	\$Margin	Unit Sales
Siggi's	\$2.50	\$1.00	1000
Noosa	\$2.50	\$1.25	800
La Fermiete	\$3.50	\$1.75	600
Oikos Triple Zero	\$4.00	\$2.00	500
			2900

When the prices of all products are increased by five percent, each product loses ten percent of its sales. None of these sales divert to another product in the group. Does the product group satisfy the HMT under a uniform SSNIP of five percent?

We can set up the following worksheet for a brute force accounting:

	Price	\$Margin	Unit Sales	Marginal Sales	%Δq	Inframarginal Gain	Marginal Loss	Net
Siggi's	\$2.50	\$1.00	1000	100	10.00%	112.50	100.00	12.50
Noosa	\$2.50	\$1.25	800	80	10.00%	90.00	100.00	-10.00
La Fermiete	\$3.50	\$1.75	600	60	10.00%	94.50	105.00	-10.50
Oikos Triple	\$4.00	\$2.00	500	50	10.00%	90.00	100.00	-10.00
						387.00	405.00	-18.00

Inframarginal gain for each product is 5% of the product's price times the inframarginal unit sales. Marginal loss is the dollar margin of the product times the marginal unit sales. The sum of the net incremental profits is -\$18.00, so a uniform 5% SSNIP is unprofitable.

Now, let's perform a one-product SSNIP test. Say Siggi's is a product of one of the merging firms and subject it alone to a five percent SSNIP. Suppose Siggi's loses 120 sales (12%) due to the price increase. Siggi's loses one half of these unit sales to products outside the candidate market while the other half diverts to the other products in the candidate market at the levels shown in Recaptured Sales column:

	Price	\$Margin	Unit Sales	Marginal Sales	Recaptured Sales	Inframarginal Gain	Marginal Loss	Recapture Gain	Net
Siggi's	\$2.50	\$1.00	1000	120		\$110.00	-\$120.00		-\$10.00
Noosa	\$2.50	\$1.25	800		30			\$37.50	\$37.50
La Fermiete	\$3.50	\$1.75	600		20			\$35.00	\$35.00
Oikos Triple	\$4.00	\$2.00	500		10			\$20.00	\$20.00
			2900		60	\$110.00	-\$120.00	\$92.50	\$82.50

Two things of note here. First, Siggi's loses more sales when only its price increases than when the (percentage) price increase is applied to all four products because the other products in the group are more attractive to Siggi's marginal customers at the lower prices. Second, notwithstanding the greater unit and dollar losses on Siggi's when only its price is subject to the

SSNIP, the hypothetical monopolist makes a positive profit of \$82.50 because of the profits earned on Siggie's lost marginal sales that are diverted (recaptured) by the other three products in the candidate market. Hence, although the candidate market fails the uniform SSNIP test, it satisfies the one-product SSNIP test.

As this example suggests, one-product SSNIP tests typically yield relevant markets that are smaller (have fewer products) than uniform SSNIP tests, which in turn often results in market shares and market concentration levels that are higher than in relevant markets that must satisfy a uniform SSNIP test. This often makes one-product SSNIP tests appealing to plaintiffs.

With this introduction, read the class notes on one-product SSNIPs and "aggregate diversion analysis." After an introductory slide (slide 128), the class notes review diversion ratios, discuss how experts estimate them, and develop the DOJ's estimation in H&R Block/TaxACT (slides 129-34). Diversion ratios refer to the percentage of unit marginal sales lost by a single product subject to a SSNIP that are diverted or recaptured by other products in the candidate market. You can see by the above example that this notion of diversion or recapture is central to one-product SSNIP implementations of the hypothetical monopolist test.

Brute force accounting will always work, but there are formulas that simplify the mechanics of the test. These formulas turn on the notion of a terribly named aggregate diversion ratio, which is much better descriptively as the *recapture ratio*, *recapture rate*, or *group recapture rate* (slide 135). These synonymous terms all mean the total percentage of lost marginal sales due to a SSNIP recaptured by all other products in the market not subject to the SSNIP. In the example on the previous page, 60 units of the 120 lost marginal sales are recaptured by other products in the candidate market, so the recapture ratio is 50%.

Intuitively, the larger the recapture ratio of lost marginal sales by other firms in the candidate, the more likely a one-product SSNIP will be profitable to the hypothetical monopolist. The smallest recapture ratio that allows the hypothetical monopolist to just break even on profits with or without the one-product SSNIP is called the *critical recapture ratio*. One-product SSNIP tests compare the *actual recapture ratio* to the critical recapture ratio. *If the actual recapture ratio is greater than the critical recapture ratio, the one-product SSNIP is profitable. If the actual recapture ratio is less than the critical recapture ratio, the one-product SSNIP is unprofitable.* The Merger Guidelines reflects this principle (slide 136), and the class notes provide some intuitions that do not rely on math (slides 137-38). Two "brute force" applications should also help you understand the underlying principle (slides 139-40).

[YOU MIGHT WANT TO SKIP THESE SLIDES UNTIL YOU HAVE FINISHED THE REST OF THE READING—The class notes derive various formulas for the one-product SSNIP test using recapture ratios under different assumptions about prices and margins of the products in the candidate market (slides 141-53). The class notes also give two applications of two single-product SSNIP formulas in the case of a candidate market with symmetric products (slide 154) and a candidate single-price market with products with different margins (slides 155-56). These slides are unquestionably complex, and I have marked most of the slides as optional. Nonetheless, I encourage you to try to plow through them if you have time after you have finished everything else. Two problems plague this area of antitrust economics. First, the propositions in the literature unfortunately tend not to be stated rigorously as theorems and often contain hidden assumptions. Too often, the formulas are applied in practice when the hidden assumptions are not satisfied. As a result, even expert economic witnesses can get things wrong.

You should find this out earlier than later in your prosecution or defense of a transaction and certainly before the other side brings a mistake to light in a deposition or, even worse, on the witness stand. Second, most propositions in the literature are not formally derived, and some “derivations” contain mistakes that render them incorrect (see slide 157 for a classic case). Nonetheless, incorrect formulas can still be found in expert reports and in court opinions.]

Exam tip: *While the formulas may help you answer an exam question more quickly, if you know how to do the critical loss and recapture tests through brute force accounting, you will be able to answer the question without penalty.*

The final implementation of the HMT we will explain is the so-called “aggregate diversion ratio test” applied to a uniform SSNIP in a differentiated candidate market (slides 158-67). Why, you might (sensibly) ask, would anyone want to apply a uniform SSNIP to a differentiated products market? Why not use a one-product SSNIP test instead? The only reason I can imagine has to do with the nature of the actual diversion ratios (recapture rates) that can be observed in the market. Technically, diversion ratios are the percentage of lost marginal sales from one product subject to a SSNIP to the other products in the candidate market *holding the prices of the other product constant*. It is this type of diversion ratio that one-product SSNIP tests require. However, what if all you have is diversion data (such as switching data) where the prices of all the products in the candidate market are increasing proportionally (say, because of cost increases of a common factor)? You cannot use this data in a one-product SSNIP test.<sup>2</sup> I suspect that the aggregate diversion ratio test—which the DOJ expert applied in *H&R Block* using switching data—was developed to deal with the latter type of diversion ratio.

The class notes introduce the aggregate diversion ratio test (slides 159-60). Try to plow through the (admittedly complex) notation (slide 161) and Proposition 1 and its corollary for symmetric products (slide 162). You do not have to fully understand Proposition 1 (and you will not be required to use it on the exam), but study the corollary since the DOJ’s expert used it in *H&R Block*. Then look at Proposition 2, which provides a set of sufficient conditions for satisfying the aggregate diversion ratio test (slide 163) and the hypothetical on the following slide (slide 164).

Now you are ready to follow what the DOJ expert did in *H&R Block* (pp. 110-12, p. 115 for the diversion ratios, and slides 165-66). *Query*: Is the DOJ expert’s analysis correct? Did he apply the right formula given the facts of the case?

The DOJ’s expert also used merger simulation to support his market definition conclusion. Like the Court, we will defer discussion of merger simulation until we examine competitive effects (pp. 112-13 and slide 174).

The merging parties attempted to refute the DOJ’s expert and offer an alternative market definition through their own expert (pp. 113-24). As you will see, this did not go well. This is a good place to quickly review the note on expert evidence (pp. 182-89). Then read more carefully Judge Howell’s Memorandum Opinion and Order denying the DOJ’s motion in limine to exclude the email survey commissioned by the defendants and the portions of the defendants’ expert opinion that rely upon the survey (pp. 167-81).

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<sup>2</sup> The diversion ratios in the two situations are likely to differ materially: for any product in the candidate market subject to a SSNIP, the other products in the candidate market are more attractive substitutes (have a higher diversion ratio) when the prices of the other products remain constant than when their prices increase.

Enjoy the reading! As always, email me if you have any questions.