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WARNING:

Improper Use of the New *Horizontal Merger Guidelines* Can Result in Overly Narrow Markets, Mistaken Inferences of Market Power, and Wrong-Headed Analyses

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WARNING:**Improper Use of the New *Horizontal Merger Guidelines* Can Result in Overly Narrow Markets, Mistaken Inferences of Market Power, and Wrong-Headed Analyses****Michael Doane, Luke Froeb, & Steven Tschantz¹****I. INTRODUCTION**

Every first-year law student has heard the story of the man who was mowing his lawn when he realized that his hedge also needed trimming. Since he didn't own a hedge trimmer, he lifted the lawnmower up, turned it on its side, and then accidentally cut off his fingers. He sued the manufacturer, claiming that the label should have warned him not to trim his hedge with a lawnmower.

With all of the tools in the new *Guidelines*—natural experiments, merger simulation, market delineation, and “Upward Pricing Pressure” (“UPP”) to name a few—it is easy for an antitrust practitioner to feel a little like the protagonist of this urban legend. We are given a lot of tools, but no warning label on how or when to employ them.

Predictably, economists have jumped into this void by coming up with cases or examples of when the tools would give the wrong answer.² Most of the criticism is directed against UPP, but the criticism could just as easily be directed against any of the tools mentioned in the guidelines. Some of this criticism is over-stated as there is little in the *Guidelines* to suggest that the agencies are going to misuse the tools in the way that the critics suppose.

But since the new *Guidelines* are a little short on guidance, and since they did not come with a warning label, we are going to try to clear up some confusion by providing one.

WARNING: Improper use of the New *Horizontal Merger Guidelines* can result in overly narrow markets, mistaken inferences of market power, and wrong-headed analyses.

But they can just as easily do the opposite. It depends on how you use them. Incidentally, the same was true of the old *Merger Guidelines*.

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² See the “Roundtable Discussion: Merger Guidelines Revisited” in Antitrust (Fall 2009) vol. 24(1) pp. 7-21 available at <http://www.abanet.org/antitrust/at-mag/toc/09/Fall09-TOCC.pdf> and *Panel on the Proposed Revision of the Horizontal Merger Guidelines, Third Annual Research Symposium on Antitrust Economics and Competition Policy (September 24-25, 2010) Searle Center at Northwestern Law, available at* http://www.law.northwestern.edu/searlecenter/uploads/Searle_3rd_Annual_Antitrust_Competition_Policy_Agenda.pdf

II. TOOLS ARE USEFUL FOR SOME TASKS, BUT NOT FOR OTHERS

The first thing to understand about the tools in the *Guidelines* is that they are based on economic models. And just as you should not trim your hedge with a lawnmower, so too should you not analyze a merger with a model that misses significant features of competition within the industry. We have said this before,³ but it is worth repeating.

Any model used to predict the effects of a merger must fit the facts of the industry in the sense that the model explains past market outcomes reasonably well.

A useful merger model will allow an economist to isolate the factors that determine the extent of competition between the merging firms and to determine how much competition would be lost by merger. Models tell us what matters, why it matters, and how much it matters.

III. THERE ARE NO SHORTCUTS

Most of the criticism directed towards UPP comes from the belief that the agencies want to use the tool as a shortcut to make it easier to bring merger cases in industries where there are high margins and big diversion ratios. Indeed, when they introduced the tool, Joe Farrell and Carl Shapiro, now chief economists at the FTC and DOJ, almost seemed to suggest as much.⁴ But the *Guidelines* step back from this linkage. They mention UPP as only one of many tools that the agencies will use, and caution that whichever analysis is used, it should fit the evidence. In a more recent article, Professors Farrell and Shapiro would say only that “mergers generating positive net upward pricing pressure warrant, at least, further scrutiny.”⁵

If you want to know when and how the agencies are going to use UPP, you first have to recognize that the tool is built on a model of static price competition between the merging parties. While there is some debate about how well the UPP tool generalizes beyond the Bertrand model,⁶ it is clear that before the agencies would apply a tool or a model to help them analyze a merger, they would make sure that it captures the significant features of competition in an industry. If it didn't, then it could give misleading predictions.

With all the attention paid to the UPP tool, it is important to understand that the agencies will not view all mergers through the lens of differentiated products price competition. The *Guidelines* also mention bidding models, bargaining models, and capacity constraints, but the more general point is that their analysis will take account of the significant facts and evidence.

So how do you know which facts and evidence are significant? To help answer the question, we put together a simple checklist to document significant departures from standard models of price or quantity competition. In each of the following settings, economists have

³ Gregory J. Werden, Gregory J., Luke M. Froeb, and David T. Scheffman, *A Daubert Discipline for Merger Simulation*, 18(3) ANTITRUST, 18:389-95 (Summer, 2004) pp. 89-95.

⁴ Joseph Farrell and Carl Shapiro (2010) “, *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*,” 10(1) THE B.E. Journal of Theoretical Economics: Vol. 10: Iss. 1. (Policies perspectives), Article 9. (2010). Available at: <http://www.bepress.com/bejte/vol10/iss1/art9>

⁵ Joseph Farrell & Carl Shapiro, *Upward Pricing Pressure and Critical Loss Analysis: Response*, CPI ANTITRUST CHRONICLE, available at <http://faculty.haas.berkeley.edu/shapiro/uppcritical.pdf> (February, 2010).

⁶ Professor Farrell and Shapiro claim that the insights of UPP are broader than the insights that come from a Bertrand model, Joseph Farrell & Carl Shapiro (2010), *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*,” 10(1) THE B.E. Journal of Theoretical Economics: Vol. 10: Iss. 1. (Policies perspectives), Article 41. (2010). Available at: <http://www.bepress.com/bejte/vol10/iss1/art41>

recognized that simple models (and the tools associated with them) can give misleading merger predictions.

- a) **REPOSITIONING:** If firms can change their “locations” in product space, in addition to price, the merging products will move apart to avoid cannibalizing each other’s sales. Since this reduces the incentive to raise price, ignoring such repositioning overstates the effects of a merger.⁷
- b) **CAPACITY CONSTRAINTS:** Capacity constraints on the merging firms attenuate merger effects (because a capacity-constrained merged firm has less incentive to raise price) while capacity constraints on the non-merging firms amplify them (because they limit expansion). Since the former effect is typically bigger than the latter, ignoring the effects of capacity constraints likely overstates the effects of a merger.⁸
- c) **VERTICAL RELATIONSHIPS:** Downstream price effects of upstream manufacturing mergers are determined, in part, by the nature of the vertical relationship between manufacturers and retailers.⁹ Upstream merger effects can be amplified, attenuated, or completely absorbed by the downstream retail sector.
- d) **PROMOTIONAL COMPETITION:** Ignoring promotional competition can lead Bertrand models to understate the price effects of merger.¹⁰ Most of the bias can be attributed to estimation bias (estimated demand is too elastic because price reductions are correlated with increases in promotional activity), with the remainder due to extrapolation bias from assuming post-merger promotional activity stays constant (instead it declines).
- e) **SWITCHING COSTS:** The presence of switching costs can complicate the analysis of mergers. For price-setting competition, switching costs can lead to an installed base of “captive” consumers which makes big firms less aggressive competitors than smaller ones.¹¹ But for auctions, the situation is reversed.¹² Consequently in industries where firms compete on price, mergers that eliminate small competitors can have bigger effects than mergers which eliminate large competitors. And for auctions, the situation is reversed.
- f) **BARGAINING, BIDDING, OR QUANTITY COMPETITION:** If firms bargain, bid, set quantity, or choose capacity, merger effects can be significantly different from those in

⁷ Amit Gandhi, Amit, Luke Froeb, Luke, Steven Tschantz, Steven, & Gregory Werden, Gregory, 2008. *Post-merger product repositioning*. Journal of Industrial Economics, 56 (1), J. INDUS. ECON., 49–67. (2008).

⁸ Luke Froeb, Steven Tschantz, & Philip Crooke, *Bertrand competition with capacity constraints: mergers among parking lots*, 113(1) J. ECONOMETRICS, 49–67 (2003).

⁹ Daniel P. O'Brien & Greg Shaffer, *Bargaining, bundling, and clout: the portfolio effects of horizontal mergers*, 36(3) RAND J. ECON., 573–595 (2005); and Luke Froeb, Steven Tschantz, & Gregory Werden, *Vertical restraints and the effects of upstream horizontal mergers*, THE POLITICAL ECONOMY OF ANTITRUST, (Vivek Ghosal & Johann Stennek, Eds.) (2007).

¹⁰ Steven Tenn, Luke Froeb, & Steven Tschantz, *Mergers when firms compete by choosing both price and promotion*, 28(6) INT'L J. INDUS. ORG., 695-707 (November 2010).

¹¹ J. Farrell, J. and P. Klemperer, P. 2007. *Coordination and lock-in: Competition with switching costs and network effects*, in M. Armstrong and R. Porter (eds), HANDBOOK OF INDUSTRIAL ORGANIZATION, Vol. 3, Elsevier, chapter Chapter 31, pp. 1967–2072.. (M. Armstrong & R. Porter, Eds.) (2007).

¹² Luke M. Froeb, Mikhael Shor, & Steven T. Tschantz, *Mergers in Auctions with an Incumbent Advantage*, Vanderbilt Law and Economics Research Paper No. 08–24 (2008), available at SSRN: <http://ssrn.com/abstract=1262519>.

price-setting models.¹³ Different kinds of evidence will inform the analysis in each of these cases.

To an extent, each new merger presents a unique set of facts. So the list above is necessarily incomplete. However, it is also important to realize that it would be too high a burden for a model to capture all the features of an industry. The art of model building is figuring out which features are significant--and should be included in a model--and which should be left out. You can bypass the ugly art of model building only by rejecting economics. Indeed, models provide the basis for all economic reasoning.

IV. CAN WE DO BETTER THAN UPP?

Once we have determined which model is appropriate, most of the heavy lifting is done. At this point, the model will tell us what kinds of evidence to gather, and then how to interpret it. For example, if the static Bertrand model captures the significant forces of competition within an industry, then prices, shares, and elasticities will tell you most of what you want to know. You can get the same information from margins and diversion ratios.

But if the Bertrand model captures the significant forces of competition within an industry, a more direct method of determining whether a merger is anticompetitive is available. One can benchmark the parties' efficiency claims against what economists call the "compensating marginal cost reductions."

COMPENSATING MC REDUCTIONS (CMCR's) are the reduction in marginal costs necessary to offset the incentive of the merged firm to raise price.

The advantage of this tool over UPP is that it gives us a way to balance the "costs" of a merger against its "benefits," i.e., the merger synergies. If the reductions in marginal costs are bigger than the compensating MC reductions, then the merged firm has no incentive to unilaterally raise price.

Because they are both related to the same Bertrand model, the compensating MC reductions are closely related to UPP. To see this, imagine two merging products (1 and 2), and let $\delta_1 = mc_1^0 - mc_1$ and $\delta_2 = mc_2^0 - mc_2$ be the reductions in marginal cost on each of the merging products that offset the incentive of the merged firm (1+2) to raise price. It can be shown that the UPP "taxes," are related to the compensating marginal cost reductions¹⁴ as follows:

$$\begin{aligned}\delta_1 - D_{12}^0 \delta_2 &= t_1^0 \\ -D_{21}^0 \delta_1 + \delta_2 &= t_2^0\end{aligned}$$

¹³ Gregory Werden & Luke Froeb, *Unilateral Competitive Effects of Horizontal Mergers II: Auctions and Bargaining*, ISSUES IN COMPETITION LAW AND POLICY, ABA SECTION OF ANTITRUST LAW, Vol. 2, 1343, (W. Dale Collins (Ed.) (2008), available at SSRN: <http://ssrn.com/abstract=956400>; Gregory J. Werden & Luke M. Froeb, *Unilateral Competitive Effects of Horizontal Mergers*, HANDBOOK OF ANTITRUST ECONOMICS, 43-104 (Paolo Buccirossi, Ed.), (2007), available at SSRN: <http://ssrn.com/abstract=927913>; Weyl, Glen (2010a), "Pass-Through and Merger Analysis," Harvard University, available from the author upon request, quoted in Joseph Farrell & Carl Shapiro (2010), *Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition*, 10(1) THE B.E. Journal of Theoretical Economics: Vol. 10: Iss. 1. (Policies perspectives), Article 41. (2010). Available at: <http://www.bepress.com/bejte/vol10/iss1/art41>

¹⁴ Froeb, Luke, Steven Tschantz, and Gregory Werden, *Compensating Marginal Cost Reductions vs. UPP*. Manuscript (2010).

where $t_1 = D_{12}(p_2 - mc_2)$ is the UPP on product 1 and where $D_{12} = -\frac{\partial q_2 / \partial p_1}{\partial q_1 / \partial p_1} = -\frac{\dot{Q}_2 q_2}{\dot{Q}_1 q_1}$ is the diversion ratio from product 1 to product 2; and similarly for the UPP on product 2.

So both UPP and compensating MC reductions can be constructed from the same data, and both share the advantage that neither requires information about the curvature of demand.¹⁵ The advantage of UPP over the compensating MC reductions is that the UPP taxes can be computed separately for each product, while the compensating MC reductions have to be computed jointly. But as the formulas above show, once you have both UPP's (t_1, t_2) , you can easily compute both compensating MC reductions (δ_1, δ_2) .

We prefer the compensating MC reductions because, as mentioned above, they give the agencies an explicit way to balance the “costs” of a merger against its “benefits,” i.e., the merger synergies. The methodology can also be used for different models of competition, though the formulas differ, according to the underlying model. Compensating marginal costs reductions were introduced for Bertrand models by Werden,¹⁶ and have since been applied to models of quantity competition,¹⁷ to auctions,¹⁸ and to models of price and promotional competition.¹⁹ In each of these situations there is a version of UPP²⁰ that can be derived, but again, it is hard to interpret.

V. CONCLUSION: THERE IS NOTHING NEW UNDER THE SUN

We had expected the new Merger Guidelines to speed the natural evolution of merger practice away from inference based on shares in a delineated market towards direct measurement of competitive effects. But they didn't do that. The new *Guidelines* did not put competitive effects first. They did not bypass market delineation, although they mention the possibility. And they did not say that high margins and big diversion ratios would lead a presumption against the merger. Taken as a whole, they exhibit much of the same tension between an approach based on shares and concentration and one based on competitive effects as did the old *Merger Guidelines*.

So while the words of the Guidelines have changed, we are led to conclude that the substance remains the same. The agencies will continue using economic models, either formally

¹⁵ Crooke, Philip, Luke Froeb, Steven Tschantz, and Gregory Werden The Effects of Assumed Demand Form on Simulated Post-Merger Equilibria, *Review of Industrial Organization*, 15(3), (November, 1999) pp. 205-217.

¹⁶ G. J. Werden, *A robust test for consumer welfare enhancing mergers among sellers of differentiated products*, 44 J. INDUS. ECON. 409-413 (1996).

¹⁷ Luke M. Froeb & Gregory J. Werden, *A Robust Test for Consumer Welfare Enhancing Mergers Among Sellers of a Homogeneous Product*, 58 ECON. LETTERS, 267-269 (1998); and Maarten Pieter Schinkel, Marie Goppelsroeder, & Jan Tuinstra, *Quantifying the Scope for Efficiency Defense in Merger Control: The Werden-Froeb-Index*, LVI (4) J. INDUS. ECON. VOL. 778-808 (2008); Amsterdam Center for Law & Economics Working Paper No. 2006-10, available at SSRN: <http://ssrn.com/abstract=916556>.

¹⁸ Lance Brannman & Luke Froeb, *Mergers, Cartels, Set-Asides and Bidding Preferences in Asymmetric Second-price Auctions*, 82(2) REV. ECON. & STATISTICS, 283-290 (2000); and Steven Tschantz, Philip Crooke, & Luke Froeb, *Mergers in Sealed vs. Oral Auctions*, 7(2) INT'L. J. ECON. OF BUSINESS, 201-213 (July, 2000).

¹⁹ Steven Tenn, Luke Froeb, & Steven Tschantz, *Mergers when firms compete by choosing both price and promotion*, 28(6) INT'L. J. INDUS. ORG. 695-707 (November 2010).

²⁰ Moresi, Serge, *Bidding Competition and the UPP Test*, HMG Review Project – Comment, Project No. P092900, available at <http://www.ftc.gov/os/comments/horizontalmergerguides/545095-00040.pdf>.

or informally, to first determine how firms compete, and then to predict how merger is likely to change competition. And they will keep delineating markets and computing shares. If you want a better idea of what that looks like in a practice, consult the enforcement statistics²¹ and re-read the under-appreciated *Commentary on the Merger Guidelines*.²²

And don't forget the warning that is in the title of the paper. That hasn't changed either.

²¹ FTC Enforcement Database, available at <http://www.ftc.gov/bc/caselist/index.shtml>.

²² Commentary on the Horizontal Merger Guidelines, (March, 2006) available at <http://www.justice.gov/atr/public/guidelines/215247.htm>.